THE EFFECT OF UNDERGRADUATE BUSINESS PROGRAMS ON EARLY CAREER SUCCESS

BY

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Abstract of the Dissertation

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This research addresses a significant issue in the field of undergraduate business and management education: the relationship between preparation in college and the success students experience in the first few years of their careers. The primary impetus for the study was recurring criticism of management education in popular and academic literature. Some critics emphasize the need for communication and relational competencies, others the need for technical preparation. This study sought to empirically identify the educational outcomes that are rewarded with early career success.

A literature review was conducted to identify the criticisms that are most prevalent and the relationships between educational outcomes and success that have been found in earlier studies. This information was used in the design of the survey instrument that was the primary source of data for this study.

The study surveyed 372 graduates of 19 institutions that are members of the Coalition of Christian Colleges and Universities. Each graduated two to three years prior to the survey. In addition, 20 of the participants in the survey were interviewed to illuminate the survey's results.

Multivariate statistical techniques were used to assess the information obtained. Relationships were sought between independent variables (educational program characteristics and the characteristics and experiences of graduates), the intervening variables of educational outcomes, and the dependent variables of career success. Additionally, statistical factor analyses were done to identify the interrelationships within each set of variables.

The educational outcomes that were found to be most closely associated with early career success were interpersonal, analytical and communication competencies. Factors that were not directly related to the college classroom, however, were found to have more impact on success outcomes: Socioeconomic background, extracurricular activities, work experience and career counseling all played significant roles.

Overall, this research offers insights into which factors have the most influence on early career success and suggests actions that might be taken by colleges and students to improve the likelihood of such success. Recommendations are also offered for future research.

Dedication

This dissertation, the effort that has gone into it, and the degree that it has helped me to earn are all dedicated to my wife, Sandi. Without her patient encouragement and enduring love this work would have remained incomplete – as would my life.

Acknowledgements

Many people have contributed to the completion of this dissertation and the study upon which it is based. Not least of these are the participants in the surveys and interviews that are the foundation of the research reported here, and the administrative staff of the participants' colleges and universities who made their involvement possible. The student support staff in the Peter F. Drucker and Masatoshi Ito Graduate School of Management have been consistently generous in their assistance as well.

Two individuals must be specifically acknowledged, for without their support, direction and inspiration this work simply could not have been done. Don Griesinger has been extraordinarily faithful in mentoring an entire generation of Ph.D. management students at CGU. His patient assistance and advice during my nearly ten years in the program have been indispensable. David Drew, the chairman of my dissertation committee, has been an invaluable source of guidance in preparing the analysis reported here and has provided key insights into its proper presentation. He has also been a welcome, often essential, source of encouragement when the way was difficult and unclear. Words are inadequate to express the gratitude that I feel for the friendship of both of these gentlemen.

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Chapter 1 – Introduction

"Employers say college students are poorly prepared for the new and changing workplace. Educators and career counselors agree there is a problem. However, these three groups fail to agree on the level of skills, competencies, knowledge, and behaviors college students need to achieve success in today's constantly changing technological and demanding workplace."

(Gardner and Liu 1997, p. 32)

The Purpose of the Study

The purpose of the research described herein was to determine which outcomes of undergraduate business programs have the most influence on the early career success of graduates. A four-way classification of knowledge, skills, competencies and values (or attitudes) was used to define relevant educational outcomes, while "success" was conceptualized as several objective and subjective indicators of professional progress in the first two to three years of employment.

The research was grounded in three assumptions: (1) That different college programs will intend and realize different outcomes in some or all of the four outcome areas; (2) that outcomes will also vary significantly among students regardless of program intent; and (3) that differences in these outcomes will have significant and important effects on the early career success of graduates. The establishment of a correspondence between educational outcomes and level of success would allow college administrators, faculty, and students to use that information to improve the potential for students' career success. Employers might also find the information valuable, particularly to the extent that determinants of success differ from common perceptions.

The Problem and the Approach

Management education has been the subject of criticism for nearly as long as it has existed as a discipline. A brief sampling of the published work is sufficient to make the point here.

Over seventy years ago, Bossard criticized large class sizes and the lecture method of teaching (and predicted the lecture's early demise!) (Bossard and Dewhurst 1931). Two seminal studies published in 1959 (Gordon and Howell 1959; Pierson 1959) set the tone for the subsequent forty-four years by disparaging the over-specialization of business graduates, and their lack of grounding in the liberal arts. The Harvard Business Review published a number of articles in the 1970s and 1980s that continued in this vein (Livingston 1971; Katz 1974; Hayes and Abernathy 1980; Cheit 1985; Boyatzis and Renio 1989). The most well-known of these was Hayes' "Managing Our Way to Economic Decline" which laid much of the blame for the U.S. decline in international competitiveness at the feet of business schools which had neglected a "rounded education," and thus inadequately prepared students to become corporate managers. Porter and McKibbin's "Management Education and Development" (Porter and McKibbin 1988) summed up much of this criticism, and additionally charged that higher education administrators were content with existing education for business and were not pursuing change despite decades of complaint. Astin (Astin 1993; Astin 1999) has expanded the scope of the critique somewhat, suggesting that not only are graduates deficient in the liberal arts, their attitudes and beliefs have not been appropriately shaped by their undergraduate experiences. A report from the American Council on Education describes the problem this way:

A chasm separates the academic and corporate worlds. Corporate leaders are convinced that university employees –including administrators and faculty members - do not understand the requirements of the private sector and the need for students to be better prepared for the demands of a changing global economy. Academic leaders are equally sure that corporations have little respect for the campus and that U.S. universities are, in fact, world class. Recently employed alumni value their college experiences but report that they had too little direction and guidance in choosing and preparing for a career. (Education 1997)

What is perhaps most striking about this situation has been the consistency of the complaints (at least since the 1950s). This suggests that despite nearly half a century of negative feedback from social critics, employers, and even academicians, higher education in business has remained essentially unchanged. One must wonder why this is so.

One possible explanation is that colleges and universities are so strongly focused inwardly that they simply do not "hear" the criticisms. It has been suggested that "debates in higher education focus far too much on *means* and far too little on *ends*." (Astin 1993, p. 436, emphasis in original). It may be that higher education administrators simply do not choose to design their programs to achieve specific outcomes, and hence do not respond to criticism of actual outcomes.

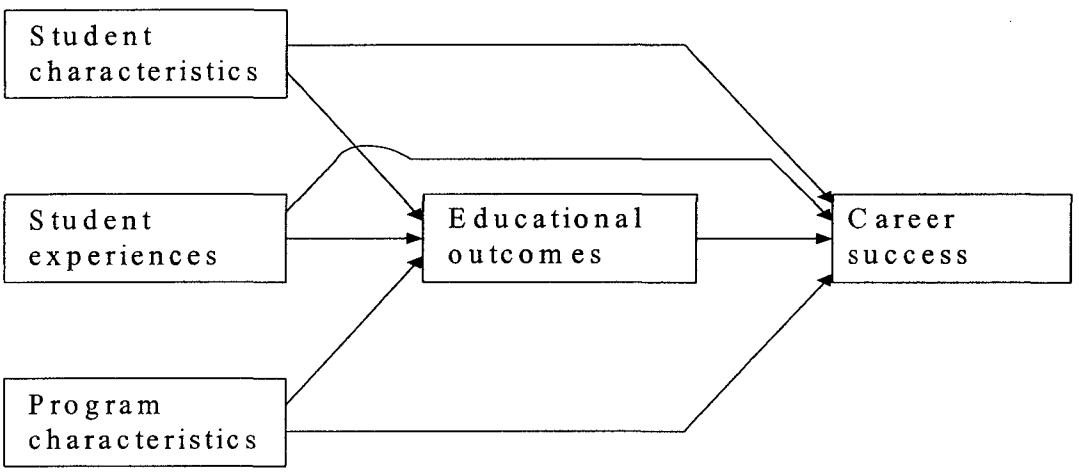
Another possible explanation for the apparent lack of change is that colleges and universities are attentive to feedback, but that they are receiving other feedback that is more credible than the published critiques – feedback in the form of the success of their graduates. It is possible that the reward practices of firms are not congruent with their stated wishes regarding the education of those they employ. While calling for broader education, employers may in fact be hiring and rewarding the very specialists they claim they do not want. "While much of industry bemoans the lack of generalist skills among its new employees, it continues to select entry-level job applicants largely on the basis of

their technical specializations. This emphasis has not gone unnoticed by either university students or university administrators." (Hugstad 1983, p. 95)

This study was intended to shed some light on this situation by investigating the characteristics of business graduates that are actually rewarded in their early years of employment. In a modest way this may help to inform the design of college business programs.

Such a study must be based on appropriate and useful understandings of both the "success" of graduates, and the pre-employment characteristics and experiences that may influence that success. The model used in this study was based on those developed by Smart (Smart 1986; Smart and Pascarella 1986; Smart 1988) and Terenzini (Terenzini, Springer et al. 1995):

Figure 1.1 Model of Influences on Career Success



The model includes three clusters of independent variables: Personal characteristics of the student, characteristics of the college program, and student experiences while in college. It includes one set of intervening variables, educational outcomes. Based on prior research in the field and the author's own interests, these

educational outcomes are grouped into knowledge, skills, liberal competencies and values (or attitudes). The dependent variable, "success," is somewhat problematic as there is no single measure of success in a business career. This study attempted to address this by employing multiple measures of professional progress to develop a broadly based indication of success.

Two approaches were used to gather information on the relationships of interest. First, a survey was done of 372 recent graduates of undergraduate business programs in 19 private Christian colleges. The survey was developed by the author based on research reported in the literature, and was designed to gather information specifically about the five clusters of variables that make up the model above. Statistical analyses – primarily path analyses of the relationships between the independent, intervening, and dependent variables in the model – were done to determine the identities and strengths of influence of the independent and intervening variables on career success.

Second, interviews were done with 20 of the participants in the survey to aid in the understanding of the survey results. Information was sought to illuminate, confirm and/or contradict the findings of the survey.

This study was to some extent exploratory – it sought to advance our understanding of the overall relationships between education and the early stages of a graduate's career. But there were several specific research questions that it was hoped the study would answer:

1. Which types of educational outcomes (acquisition of knowledge, development of analytical skills, development of liberal competencies, or inculcation of attitudes/values) have the greatest effect on early career success?

2. Are different types of educational outcomes associated with different types of career success?

3. Does the four-way model of educational outcomes used in this study help to illuminate the general understanding of the field?

4. In addition to the effects of educational outcomes, what personal characteristics, personal experiences, and educational program characteristics have the greatest effects on early career success?

Inasmuch as the author of the study is himself professor of business in an undergraduate program, there is also an overarching question of practical import that this study is intended to address: How might undergraduate educational institutions design their business programs to have the most beneficial impact on the early careers of their graduates?

Limitations of the Study

This study was limited in three ways that may have important implications for its generalizability. First, the recent graduates who were surveyed and interviewed were all business majors who graduated from small Christian colleges. This group was chosen both because the author had access to them, and because they represented the population of most interest to the author. However, it is obvious that neither their college nor career experiences are necessarily similar to the experiences of the more typical graduates of large, public, or private secular colleges. And their histories are even more fundamentally different from graduates with majors other than business or graduates of nontraditional undergraduate programs.

Second, the survey and to some extent the interviews in which information was gathered for this study were grounded in the model identified above. There are two important areas of limitation here. There may be influences on early career success that are not captured in this model – the study was unlikely to find what it didn't look for. And the four-way classification of program emphases and educational outcomes (knowledge, skills, liberal competencies, and values/attitudes) may not be a useful approximation of reality. (The usefulness of the model was in fact evaluated as a part of this study. As might have been expected, it was found to be a fairly accurate representation of some aspects of the situation, but wanting in others.)

Finally, the study is obviously limited by the selection of the dependent variables. This study focused only on early career success as a product of education. Obviously, higher education is intended to provide graduates with much more than a kick-start for their professional lives. This study did not attempt to assess colleges' impact on the growth, satisfactions, and contributions of graduates in areas other than work, or for a time period greater than three years. Even if very strong and clear relationships between educational and early career success were found, that would by no means suggest that educational programs should be redesigned to incorporate only those results. At best this study sheds some light on one type – albeit an important type – of educational result.

Organization of the Dissertation

This report is in six chapters:

Chapter 1 – This introduction.

Chapter 2 – A review of the literature in the field, with specific attention to

historical and current criticism of undergraduate business programs and to prior studies seeking to explain the relationship between education and career success.

Chapter 3 – Methodology, describing the survey and interviews used.

Chapter 4 – The results of the survey, including descriptive statistics, path analyses of the variable relationships, and factor analyses to test the usefulness of the model employed here.

Chapter 5 – The results of the interviews, considered primarily in light of their relationship to what was learned in the surveys.

Chapter 6 – Conclusions and recommendations.

Chapter 2 – Literature Review

Criticism of Business Programs in the Literature

There are two types of literature on business education that inform this study. First, there are general criticisms of the education that business students receive. These are the expression of someone's opinion – an author's, or a group the author has surveyed such as employers or business faculty. These criticisms are summarized here to demonstrate the need for the study, and to provide evidence that the criticisms are both widely voiced and widely varied.

Second, there have been numerous studies published that have attempted to associate some facet of student preparation with career success. These also are widely varied, with a noticeable lack of consistency in their findings.

The literature survey begins with general criticisms of business education.

Criticism of Characteristics of College Programs

This study's classification of the precursors of career success forms a convenient framework for summarizing the criticisms of business education. Since there are no significant criticisms in the literature of the (pre-college) personal characteristics of graduates, only the characteristics of college programs, the personal experience of the student, and educational outcomes can be addressed in this summary. The review begins here with college programs.

Content of Business Programs

The claim that business education is too "specialized" is one of the recurrent themes in the literature. The two seminal studies of 1959 (Gordon and Howell 1959; Pierson 1959) agreed that the knowledge content of business programs was too narrowly defined, proposing that general education should comprise at least half of the business student's program, and that there should be no specialization within the major other than "business." More recent authors have agreed that more transferable knowledge is needed (Leckey and McGuigan 1997; Porter 1997), and that business programs should incorporate more "liberal arts" components into their curriculum (Mandt 1982; Hugstad 1983; Dudley, Dudley et al. 1995; Chew, McInnis-Bowers et al. 1996). It has probably been inevitable that opposing viewpoints have also been expressed. There have been suggestions from practitioners that more specific business knowledge is needed by graduates (John and Needel 1989; Mowday 1997), and even faculty members of the Academy of Management have concluded that college content is not sufficiently linked to current business practice (Pearce 1999). There have been many calls for inclusion of specific content areas that are presumably being neglected in current curriculum: Small business (Dudley, Dudley et al. 1995); entrepreneurism (Porter and McKibbin 1988); globalization (Porter and McKibbin 1988; Pearce 1999); and multidisciplinary integration (Porter and McKibbin 1988; Mason 1992; Dudley, Dudley et al. 1995) serve as examples.

Skills Training

As will be explained more completely below, this study seeks to maintain a distinction between narrowly defined "skills" that have relatively limited application to

specific areas of business, and more broadly defined "liberal competencies" (the author's term) which may be applied in a variety of situations. With regard to skills development, early criticism of business education programs faulted them for being overly descriptive, with too little emphasis on the development of analytical skills (Gordon and Howell 1959). A proliferation of case studies and increasing quantitative content followed from this critique. Thirty-five years later the most prevalent criticism in this area was that the pendulum had swung too far in the other direction, with an overemphasis on quantitative analysis (Behrman and Levin 1984; Porter and McKibbin 1988). The lack of development of other relevant skills is a more minor theme in the literature, such as the suggestion that graduates need more specific negotiating skills (Behrman and Levin 1984; Buckley, Peach et al. 1989)

Development of Liberal Competencies

Neglect of the development of widely applicable competencies has also been one of the most common sources of criticism. Such competencies are presumed to be essential in dealing with the fluid and challenging circumstances of business. Specific shortcomings have included failure to develop communication competencies (Gordon and Howell 1959; Pierson 1959; Porter and McKibbin 1988; Dudley, Dudley et al. 1995; Scott and Frontczak 1996; Astin 1999); problem-solving competencies (Aiken, Martin et al. 1994); interpersonal competencies, including emotional intelligence (Dudley, Dudley et al. 1995; Tucker, Sojka et al. 2000); leadership (Porter and McKibbin 1988; Astin 1999; Leavitt 2000); and lifetime learning competencies (Mandt 1982; Buckley, Peach et al. 1989). At the extreme, one author suggests that an education in the classics of

literature would be a better preparation for business than the typical business curriculum, because it would teach students to think in diverse situations (Roueche 2000).

Development of Values

Failure to develop appropriate values (or attitudes) is not widely criticized in the literature, quite possibly because our current educational atmosphere does not encourage the call for imposition of personal values on others. There have been, however, some calls for the development of positive attitudes toward honesty and ethical behavior during the educational process (Porter and McKibbin 1988; Buckley, Peach et al. 1989; Astin 1999). There have also been occasional calls for the development of attitudes such as inclination to risk, long-term orientation, and loyalty to employers (Cheit 1985).

Faculty Research

One of the criticisms voiced in both of the seminal 1959 books (Gordon and Howell 1959; Pierson 1959) was that undergraduate business programs were insufficiently rigorous in their content, a shortcoming that should be overcome by meaningful research on the part of business faculty to develop the foundations and canon of their field. It has taken a relatively short time for others to come believe that the pendulum has swung too far in the other direction – that undergraduate faculty are now too distracted by their research to do an adequate job of educating students (Dulek and Fielden 1992; Pearce 1999).

Criticism of Student Experience in College

The criticisms cited here apply to students in undergraduate programs. Obviously, student experiences (and potential criticisms of those experiences) would be different for graduate students, most of whom are working in professional positions while earning their degree. The concerns noted here apply instead to full-time undergraduate students, the subject of this study.

The experiential shortcoming most frequently cited is the lack of internship experience while a student. Some employers perceive a need for students to obtain very specific experience in a particular business field, such as marketing research (John and Needel 1989). Other employers feel that students need general experience in the "real world" of business prior to graduation to more adequately inform students of employers' expectations and prepare students to meet them (Raymond, McNabb et al. 1993; Scott and Frontczak 1996). Seniors in undergraduate programs have also echoed this belief (Raymond, McNabb et al. 1993), as have members of academe (Mason 1992). The second theme in the area of student experience is the need for heightened "involvement" in the educational process on the part of students. The underlying belief seems reasonable – students learn more, and more completely, when they invest physical and psychological energy in the learning process. Students have been faulted for not bringing sufficient energy to bear. Some see this as primarily a student-based problem (Gardiner 1994), while others see it as a shared shortcoming of program design, instructor effectiveness, and student predilection (Astin 1984).

Criticisms of Educational Outcomes

There are naturally some difficulties in differentiating between commentary on the design of educational programs and commentary on the learning outcomes of those programs; authors do not always make careful distinctions between the two. The literature cited here, however, is generally that concerned with the products of education with or without reference to the specific circumstances that created those outcomes.

Knowledge of Graduates

On the one hand, there is a feeling that the knowledge of business graduates is too tightly focused on their trade. Gordon (1959) suggested early that graduates' knowledge was too technical, too focused on what was needed for their first jobs, while inadequate in areas that would help graduates address the long term challenges of management. Similar comments can be found throughout the literature, suggesting that graduates need less "vocational" knowledge (Bisconti and Solmon 1976), and that their knowledge is too restricted to quantitative areas (Cheit 1985). Some of the criticisms have suggested that the formal knowledge of graduates is not a predictor of their success (Hammond, Hartman et al. 1996), pointing the way to the specific relationships that are the focus of the proposed study here.

On the other hand, inevitably, there are those who believe that graduates need more, not less, specific knowledge about business. Porter (1988) suggests that graduates understand business theory better than they do its practice. Others identify specific areas of presumably valuable knowledge in which graduates are deficient, such as TQM and re-engineering (Mowday 1997) or the specific characteristics of small businesses (Dudley,

Dudley et al. 1995). And some (probably unintentionally) highlight the tension between liberal and practical arts, such as the author who suggests that graduates are deficient both in "classical" knowledge and in knowledge of the workings and use of computers (Hammond, Hartman et al. 1996).

It is gratifying if surprising to find that there is some support for the idea that graduates are appropriately knowledgeable when they enter the world of business (Gardner and Liu 1997). As is happens, though, even that position is used as a prelude to criticizing the competencies of graduates.

Skills of Graduates

As with knowledge, the literature presents opposing views regarding the skills of graduates. Some critics think that graduates' skills are excessively specialized (Cheit 1985; Chew, McInnis-Bowers et al. 1996). Others feel that certain specialized skills are underdeveloped in graduates, to their detriment. Examples include quantitative skills (John and Needel 1989), and field-specific skills such as accounting (Martell and Carroll 1994; Johnson and Johnson 1995).

Liberal Competencies of Graduates

It is for shortcomings in competencies that graduates are most frequently criticized. Different critics focus on different failures:

Communication competencies. Students are seen to lack general communication skills (Behrman and Levin 1984; Porter and McKibbin 1988; Buckley and Peach 1989; Mason 1992; Theeke and Sprague 1993; Bigelow 1995; Dudley, Dudley et al. 1995;

Bikson 1996), writing skills (Gilsdorf 1986), oral communication skills (Maes, Weld et al. 1997), and even the ability to follow orders (Ulinski and O'Callaghan 2002).

Learning competencies. It seems ironic that graduates who have completed at least 16 years of schooling would be faulted for being unable to learn. Yet many critics make exactly that point – that graduates are unable to learn on their own, and need excessive guidance to pick up new knowledge and abilities (Klemp 1988; Candy and Crebert 1991; Bikson 1996). This would seem to be a particularly harsh indictment of the education system which has produced these graduates.

Problem solving competencies. Despite much criticism of curriculum that excessively emphasizes analytical abilities, many critics suggest that graduates are not sufficiently capable of solving the problems they encounter in employment (Livingston 1971; Candy and Crebert 1991; Bikson 1996; Gardner and Liu 1997), or of making decisions regarding those problems (Hugstad 1983). A distinction can be made, of course, between the ability to analyze a neatly-packaged case or test, and the ability to define a problem, seek out relevant information, and choose from a wide variety of approaches to problem solution. It is this latter set of competencies that is apparently missing in many graduates.

Interpersonal and leadership competencies. There are a variety of interpersonal competencies lacking in business graduates, at least according to some of their critics. Generic "interpersonal skills" lead the list (Behrman and Levin 1984; Klemp 1988; Theeke and Sprague 1993; Dudley, Dudley et al. 1995; Bikson 1996; Gardner and Liu 1997). Other critics are more pointed in their assessments, citing a lack of leadership ability (Porter and McKibbin 1988; Mason 1992; Bigelow 1995), team-building ability

(Candy and Crebert 1991; Mason 1992; Bigelow 1995), and, following more recent developments in the field, emotional intelligence (Tucker, Sojka et al. 2000).

Values of Graduates

Higher education in general, and business education in particular, is conflicted about the desirability of inculcating values and attitudes in graduates. On the one hand, it is unfashionable to try to impose institutionally selected values on students. On the other hand, there are some values and attitudes that seem to be both desirable and lacking in many graduates. According to critics, business graduates need attitudinal adjustments in a number of areas: Loyalty to employers (Cheit 1985; Porter and McKibbin 1988); initiative (Buckley, Peach et al. 1989); willingness to take risks (Cheit 1985); and "managerial" attitudes such as the need for power and empathy (Livingston 1971).

Assessment of Criticism

What is one to make of these various views? Are they accurate? Relevant? Is it possible or desirable to respond to them all?

One is reminded of the seemingly endless calls for adoption of "healthy" modifications to our diet. All of the recommendations seem to make sense individually, but taken as a whole they are overwhelming, often contradictory, and might well lead to starvation. In the case of the criticisms cited above there are clearly contradictions, and it by no means certain that all of the suggestions for improvement would be beneficial. But the breadth and frequency of critical assessments suggests that something is amiss in business education, without conclusively demonstrating exactly what the shortcomings

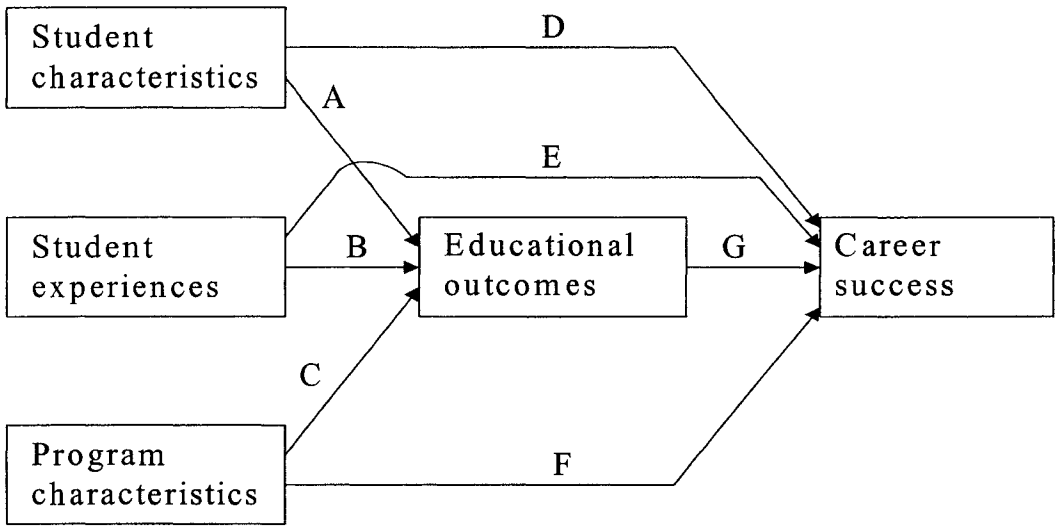
really are. The natural response would be to try to develop factual support for (or refutation of) the various opinions. And there have been a substantial number of attempts to do exactly that, in studies that have tried to identify relationships between student characteristics, student experiences, program design, educational outcomes, and career success. These studies will be considered next.

Studies of Business Programs in the Literature

(Note: This section summarizes the results of 30 studies found in the literature that looked for statistically significant relationships among the five areas in the study model. All of the literature references for particular topics are found in Tables A.1 through A.15 in Appendix A. To avoid clutter, references are not cited in the text of this section. Specific references should be discernable from the tables.)

The issue being discussed is a complex one; no single study (including this one) can address all of the influences on graduate capabilities, or the value of the various capabilities in the field of business. But a large number of studies have attempted to illuminate selected portions of the issue. Specifically, the studies relevant to this proposal have focused on one or more of the seven relationships in the model introduced earlier. The model is reproduced below in Figure 2.1.

Figure 2.1 Model of Influences on Career Success



In this model, relationships A, B and C link the personal characteristics of the student, the student's experiences prior to graduation, and the intended and/or realized characteristics of the educational program to the student's educational outcome. Here the personality, intelligence, and background of the student influences the knowledge gained and the skills learned. Program characteristics such as academic content and emphases also influence outcomes. The three independent variables are also linked to the career success of the graduate in relationships D, E and F. The potential links between personal characteristics and career success are obvious; the links between pre-graduation experience and success are also reasonably apparent. The links between institutional characteristics and success are probably weaker, but are also potentially important.

The final link G, between educational outcomes – the knowledge, skills, liberal competencies and values of graduates – and their early career success, is the relationship of primary interest in this study.

Prior Study Variables

There are no universally recognized taxonomies or measures of personal characteristics, experiential characteristics, program characteristics, educational outcomes, or career success. Hence each researcher has had to define (or adopt) constructs that seemed important in the context of the specific study, or that at least had the virtue of being easy to measure. The result has been a proliferation of variables in all of the categories that were used in this study. Tables A.1 through A.5 in Appendix A list the variables used in 30 studies over the past twenty-five years, illustrating the variety of choices various researchers have made.

Obviously, it will not be possible or desirable to duplicate this variety in the proposed study. Where there have been consistent associations between the variables, those associations helped in the selection for this study. But as will be seen below, neither positive nor negative relationships have been often or consistently found. So those variables that appear most frequently do have some claim on our attention. If nothing else, they are indicative of the collective judgment of earlier researchers. In Table A.1, for instance, the personal characteristics most frequently included in earlier studies (out of a total of 13) are gender, family background, ethnicity, age, and ACT/SAT scores.

Table A.2 shows a more modest list of student experiences that have been included in earlier studies – only seven. However, they are not strongly differentiated by the frequency of their appearance, with six of the seven each appearing in three or four earlier studies: Residence (on-campus vs. off-campus), extracurricular activities, interaction with faculty, interaction with peers, participation in internships, and work

experience.

One might think that there are only a few dimensions on which to make distinctions between colleges. But there are a surprisingly large number of different characteristics of colleges that have been evaluated earlier – 11 in total in Table A.3. But only four – public vs. private institution, selectivity, quality, and size – have been used in more than two studies.

Earlier researchers have been most prolific and least consistent in defining educational outcomes. Table A.4 identifies 19 outcomes from prior studies. If we let frequency again be our guide we would focus on six of these: College GPA, student self-reports of learning, satisfaction with the college experience, CBASE scores, communication skills, and critical thinking skills. It is remarkable that in only one study was an attempt made to assess the "domain knowledge" that students had gained in the field of business (Mirchandani, Lynch et al. 2001). None of the other investigators attempted to assess graduates' understanding of the field that they had, presumably, studied for at least four years. One can only assume that acquisition of business-specific knowledge has been taken for granted, or that other measures (GPA, for instance) have been assumed to be proxies for this.

Finally, previous studies have used 14 different indicators of career success, as shown in Table A.5. But of these, only four have appeared in more than two studies: Current salary, starting salary, status of current position, and satisfaction with career.

Of the 64 variables listed, the 25 appearing with the highest frequency served as preliminary guides to selection of variables for the proposed study. Of course, variables for which significant relationships have actually been found were also excellent

candidates (below).

Prior Study Populations

Two general types of populations have been surveyed in the studies reviewed here: Students and graduates. Table A.6 in Appendix A shows (for the sake of completeness, if nothing else) the populations sampled in each of the studies referenced in Tables A.1 through A.5.

Prior Study Relationships

The State of Current Knowledge

Obviously, the belief of earlier researchers that one particular variable might be related to another is not as important as actually finding such a relationship. Tables A.7 through A.15 in Appendix A show the significant relationships that have been found in the 30 studies reviewed.

There are a total of 78 significant relationships identified in these studies, giving hope that there is in fact some established understanding of the relationships between personal characteristics, personal experience, educational program characteristics, educational outcomes, and career success. But as quickly as the hope is raised it is dashed. Only 11 of these relationships have been found in more than one of the studies, and only one relationship (men enjoy higher starting salaries than women) has been found in more than two studies. This fragmentation of results, the failure to converge on consistent relationships, could result from at least five circumstances.

First, there may be no relationships among these variables that are actually

consistent – educational and career success may depend on something other than personal characteristics, institutional characteristics, personal experiences, and educational outcomes.

Second, there may be relationships among these variables that are too subtle, or too tangled and interdependent, to be discerned by the typical study reviewed here – quantitative analysis of self-reported information, for the most part.

Third, investigators may themselves have been inconsistent in specifying the variables they chose to consider, making it impossible for their results to converge. There is certainly some of this effect at work here. There are a total of 64 variables specified in the five categories, suggesting that investigators do not have a clear picture of the situation.

Fourth, even if investigators used similar labels for the variables they specified the actual understanding of those labels may have varied across the studies because of the context in which they were presented. Different study populations may not have had consistent mental constructs in mind, even though the words used in different surveys were the same.

Finally, there is always the potential that irreproducible luck – in employer selection, friendships, opportunities matching personal abilities, etc. – will overwhelm the rationally defined relationships considered here.

Although a well-established set of clear relationships would be of great use to educators and employers, it would also have rendered this study moot. The incomplete level of knowledge provided a legitimate opportunity for the development of clarification through this study, and the relationships that were found did yield some useful

suggestions as to which types of variables should be considered.

Personal Characteristics Related to Educational Outcomes (See Table A.7)

Somewhat surprisingly, the most frequently noted influence on educational outcomes is gender. Five different studies found evidence that being male is associated with higher GPA, higher self-report of learning, higher test scores, better critical thinking skills, and even with higher satisfaction with the educational experience. It is not as surprising – but probably comforting to testing agencies – that three of the four studies that considered SAT and ACT scores found them to be associated with educational outcomes. Specific relationships of these scores with college GPA, self-reports of learning, post-graduation testing and satisfaction with the educational experience have been found. Several investigators have found that student effort is related to educational outcomes: self-reported educational gains, GPA, and critical thinking competence specifically. One study suggests that high school GPA and a student's pre-college prediction of success are both associated with actual college educational outcomes (GPA and self-report of gains).

Two types of personal characteristics were considered in several studies without any relationship being found with educational outcomes: age, and family background. While there seems to be some logic in expecting older or more affluent students to do better in college, this effect was not identified in the studies considered here.

Personal Characteristics Related to Career Success (See Table A.8)

If you want to be a success in your career, it helps to be an older male. That is the

most consistent finding in the literature. Older graduates have been found to more likely to be employed, have higher starting and current salaries, and have better perceived job stability than younger ones. And males have all of these advantages over females, and have higher typical occupational status than females. Two investigators found that a higher socioeconomic family background is related to higher current salaries, while one found that higher personal goals were related to higher occupational status. Finally, one study in 1988 found that minority race graduates are likely to have higher current salaries than those of the majority race, all else being equal – a counterintuitive finding, to say the least.

These results highlight one of the problems of trying to rely on the study base for conclusive outcomes. While it is true, for instance, that some studies found older males to be more successful, other investigators did not. Failure to find an expected relationship is an indicator that the relationship does not in fact exist, but only a weak indicator. Lack of evidence of a relationship is weaker than evidence that a relationship exists – typical negative statistical outcomes indicate only that a relationship was not pronounced enough to be significant, not that a relationship does not exist. A Type II statistical error – failing to reject a null hypothesis when the alternative hypothesis is in fact true – can result from a sample size that is too small to detect the effect. So lack of evidence of a relationship cannot lead to a final conclusion that the relationship is not there.

Personal Experience Related to Educational Outcomes (See Table A.9)

A key finding in the literature – though supported by only a handful of studies – is

that out-of-class social interaction is related to higher learning outcomes. One study found that a higher degree of interaction with other students leads to better interpersonal competence, cognitive complexity, critical thinking competence, communication competence, and humanitarian attitudes. (In the only specific example of a negative relationship in the studies surveyed, another study found that higher interaction with peers led to weaker critical thinking skills. It would be interesting to know the different types of interactions with peers that led to those outcomes.)

Leadership experience while in college was also found to be associated with higher order outcomes – interpersonal competence, "practical" competence, and humanitarian attitudes. Work experience while in college was only found to be associated with the "practical" form of competence. A close relationship with faculty was found (in a different study) to be related to more mundane types of educational outcomes – higher GPA and self-report of learning.

Personal Experience Related to Career Success (See Table A.10)

This is the set of relationships in which results were most specific and consistent. Two types of personal experience were found to be associated with career success – internships and prior work experience. Internship experience was found to be associated with five indicators of career success – starting and current salary, time to first position, "appropriate" employment, and job satisfaction. Work experience was associated with four success indicators – being employed, starting and current salary, and perceived job stability.

These results indicate a fairly clear distinction between the experiences associated

with educational attainment and those associated with career success. Interactions on-campus (with peers and faculty) have been found to be related to higher educational outcomes, while activities off campus (internships and work) seem to promote career success.

Program Characteristics Related to Educational Outcomes (See Table A.11)

Educators, certainly, would hope that characteristics of educational programs would have some influence on educational outcomes of students. Some relationships have been found in the studies reviewed here, but they are neither numerous or nor widely supported. One study found that the quality of lower-division courses influences some competencies (critical thinking and communication) as well as satisfaction with the educational experience. (This led the author of that study to suggest that higher order thinking skills are typically developed in lower-division general education classes.) The same study found that quality of teaching is associated with communication competence. Private colleges were found to yield higher student satisfaction in one study, and a high relationship environment on campus was associated with self-reported educational gains in yet another.

The absence of some relationships seems particularly noticeable here. In particular, although several studies sought links between the quality, selectivity and size of institutions and educational outcomes, none were found. As noted above, this does not prove the absence of these relationships, but one can legitimately infer that if they do exist they are not very strong.

Program Characteristics Related to Career Success (See Table A.12)

This set of relationships is the most weakly supported of those considered in the proposed study. Two investigators found evidence of three relationships – private colleges, higher quality colleges, and larger colleges are associated with higher current salary.

Educational Outcomes Related to Other Educational Outcomes (See Table A.13)

Some of the studies reviewed here were looking for and found relationships within the categories of variables proposed for this study, rather than between them. One study, for instance, found that critical thinking and communication competencies are related to satisfaction with the educational experience, while another found that GPA and satisfaction are related. Other studies found that self-reports of learning are associated with GPA, GRE test results, and CBASE test results. This last finding is particularly interesting. Apparently, graduates are fairly accurate and reliable in assessing their own level of learning in college programs.

Educational Outcomes Related to Career Success (See Table A.14)

This set of relationships is the central focus of the proposed study. What educational outcomes are the antecedents of success in careers? The results found in the studies reviewed here are few, and not strongly supported. In four studies, GPA was found to be associated with some measure of career success – students with higher GPAs are more likely to be employed, and can expect to enjoy higher starting and current salaries. This actually flies in the face of some of the conventional wisdom in the field,

where GPA is often considered to be a weak predictor of success.

In one study each, communication competency was found to be related to a self-report of career success, and satisfaction with education was found to be related to satisfaction with the current job.

Career Success Related to Other Career Success (See Table A.15)

This is the second area in which some relationships were found within a single category. Job satisfaction was found by one researcher to be associated with appropriate employment, current salary, and perceived employment stability. The occupational status of a current job was found in another study to be related to the occupational status of the first job. And in an older study, salary at ten years of employment was found to be associated with salary at five years of employment. (An interesting negative outcome of this last study: The investigator looked for a relationship between starting salary and salary after five and ten years of employment and found none.)

Chapter 3 - Methodology

This study looked for relationships among the five sets of variables in the model identified earlier, with particular emphasis on the relationship between educational outcomes and early career success. The intent was to clarify these relationships to the benefit of both academic planners, who can if they choose tailor their programs to the achieve the most desirable outcomes, and students, who can likewise focus on the most valuable outcomes as they pursue their undergraduate degrees. It was also hoped and expected that the results of the study would address some of the criticisms leveled at undergraduate business programs by helping to determine which outcomes are in fact more associated with the success of graduates and (presumably) the de facto desires of employers.

Program Characteristics and Educational Outcomes

This study differed most noticeably from those referenced earlier in the area of educational outcomes. Indeed, the greatest potential for developing a unique understanding of the processes leading to early career success were to be found in this part of the study.

The impetus for creating a new set of characteristics of educational outcomes originated in the criticisms cited earlier in this proposal. These criticisms have typically been couched in the categories of knowledge, skills, competencies, and values – too much emphasis on knowledge and specific skills, too little emphasis on development of broader competencies and values. Despite this, very few studies have tried to operationalize these distinctions in either program characteristics or educational

outcomes. Only one study was found in the literature with noteworthy support for this categorization of educational outcomes. Terenzini (Terenzini 1989) provides a framework for assessment of educational outcomes in three dimensions, with the relevant categorization in the third dimension below:

1. The purpose of the assessment: Accountability or learning/teaching. The purpose of this study is to inform the teaching content and process in business programs.

2. The level of the assessment: Individual or group. This study is an assessment of group outcomes.

3. The object of the assessment: Knowledge, skills, attitudes and values, and behaviors. This study segments Terenzini's "skills" into skills and liberal competencies to investigate the distinction made in the critical literature. In this application, the term "skill" is used to specify a proficiency in a learned behavior with a fairly limited range of application. The skills of preparing an income statement, developing a PERT chart, or textually analyzing Scripture would fall into this category. The term "liberal competency" is used to specify a proficiency in a learned behavior with broader application to a range of situations. Communications competency, problem solving competency, and leadership, for instance, would fall into this category. The study did not attempt to investigate graduates' behaviors.

Also, Weingartner categorizes educational outcomes in a somewhat similar fashion: Literacy (e.g., of language, mathematics, and computers); conversancies (e.g., of science, history, and the humanities); the major (including knowledge, skills and competencies); and character traits (moral and intellectual virtues) (Weingartner 1992). The last two categories are similar to the categorization used in here, although

knowledge, skills and competencies are not limited to those learned in the major.

This study also takes into account the fact that all of the respondents are graduates of Christian colleges or universities. This allowed (or more accurately, required) investigation into areas of knowledge and skills that are peculiar to such institutions. Specifically, knowledge assessment included knowledge of Scripture and skills assessment included skill in textual analysis of Scripture.

The Study Design

As a faculty member at Hope International University, the author had entry to the member colleges of the Council for Christian Colleges and Universities (CCCU). This is a nationwide organization of Christian institutions of higher education. Individuals were surveyed who had graduated in the prior 24 to 36 months from undergraduate management or business administration programs at institutions that are members of the CCCU. Deans of a number of these programs were queried regarding their willingness to share contact information on their graduates; approximately half of them responded positively. Since there are over 90 undergraduate management or business administration programs nationwide among CCCU members, each graduating 10 to 100 students per year, it was believed that a sufficient sample would be available. As it happened only 19 colleges actually agreed to participate in the study, but this provided a substantial sample nonetheless.

The sample was limited to the 24 to 36 month period primarily because it is effects during that time period which are of interest to the author. Getting graduates off to a good start in their profession is certainly not the only objective of a college

education, but it is an important one. This study focused on early career effects to help guide faculty and students in pursuing early career success.

Limiting the sample to graduates within a specific recent timeframe also avoided two problems common to earlier studies. First, it helped to control for variations in success that are related to length of employment. Obviously, salary, promotion, etc., may be strongly influenced by tenure. Second, assessing graduates early avoided the problem of confusing educational outcomes with learning done on the job. With greater experience it would be difficult to distinguish between the knowledge, skills, competencies and values developed while employed and those gained in college. One study which found significant relationships of GPA and internship experience with salary (Fuller and Schoenberger 1991) also found that the effects diminished rapidly with time after graduation. A second study (Harrell, Harrell et al. 1977) found that starting salary was not significantly associated with salary in the fifth year of employment, but that fifth year salary was significantly associated with tenth year salary. This suggests that very early success (at hiring) does not predict longer term success – job experience becomes the primary influence.

Information was gathered from graduates in both a quantitative survey (questionnaire) and qualitative survey (telephone interview), both of which were tested and refined in a pilot study. The author had personal access to ten graduates of the business program at Hope International University (a member of the CCCU) who had graduated in the appropriate timeframe. Those graduates were asked to complete the quantitative survey instrument, and then comment on it. Analysis of the data they provided, including their comments, was used to refine and finalize the instrument before

the primary survey was done. Several of these same graduates were also be asked to participate in a qualitative telephone interview, and comment on it as well. This information was used to refine the qualitative script, although it was not finalized until the quantitative survey had been administered.

Nineteen colleges provided mailing addresses for undergraduate business alumni. A total of 1265 surveys were mailed to these alumni, of which 1192 were deliverable. Of the 405 responses received, 372 were usable for the purposes of this study. (The 33 unusable responses included non-business majors, graduates of nontraditional undergraduate programs, and those who graduated at times outside the scope of this survey. These were apparently the result of errors in the colleges' records.) The overall response rate was 34%. Response rates of individual colleges are shown in Table 3.1 below.

Twenty qualitative interviews were done by telephone, a sample of the 185 respondents who, in their response to the quantitative survey, expressed a willingness to be interviewed.

Using mixed methodology – quantitative and qualitative – is particularly appropriate in this study. The literature review suggests that the nature of the relationships being investigated does not lend itself to complete understanding using quantitative methods only. The initial quantitative survey provided some insight into these relationships, but it also pointed to areas needing clarification. The qualitative interviews allowed more complete probing of areas where relationships needed additional illumination. Using such mixed methodology for just such a purpose is a well-established practice in the field of sociological research (Patton 1980; Creswell 1998;

Tashakkori and Teddlie 1998).

Table 3.1 Quantitative Surveys Mailed and Returned by College

Institution	Sent	Delivered	Completed	Usable	Response rate
Anderson Univ., OH	66	66	22	20	33%
Bethel Coll., IN	51	50	16	13	32%
Bethel Univ., MN	142	140	55	49	39%
Bluffton Coll., OH	48	48	14	14	29%
Cumberland Coll., KY	44	39	9	9	23%
Dordt Coll., IA	103	99	29	29	29%
Eastern Mennonite Univ., VA	53	49	21	21	43%
East Texas Baptist Univ., TX	43	35	8	8	23%
George Fox Univ., OR	88	87	34	31	39%
Houghton Coll., NY	47	45	24	19	53%
Indiana Wesleyan Univ., IN	72	68	26	26	38%
Malone Coll., OH	75	67	14	14	21%
Northwestern Coll., MN	61	60	14	12	23%
Northwest Nazarene Univ., ID	48	45	21	18	47%
Oklahoma Baptist Univ., OK	74	65	27	24	42%
Olivet Nazarene Univ., IL	63	55	17	17	31%
Roberts Wesleyan Univ., NY	29	24	12	12	50%
Trinity International Univ., IL	59	55	13	8	24%
Union Univ., TN	99	95	29	28	31%
Total	1265	1192	405	372	34%

Survey Instruments

The Quantitative Survey Instrument

The quantitative survey instrument is attached as Appendix B. It is organized into the five basic areas of the proposed study: Personal characteristics, personal experience, program characteristics, educational outcomes, and career success. The topic areas to be covered in the survey are the subjects of this section. The specific form of the questions asked may be seen in the instrument itself.

Personal Characteristics

Personal characteristics were not the primary focus of this study. However, since relationships have been found between some personal characteristics and both educational outcomes and career success, they were included in the data to be gathered so that they could be analyzed.

Gender. Gender has been found in earlier studies to be related to both educational outcomes and career success.

Age. Age was apparently related to employment success in earlier studies.

Ethnicity. In earlier studies, minority race was not found to be a factor in educational outcomes, and a factor in career success in only one study. Nevertheless, it seemed prudent to include this variable. The categories used were adapted from those used by the U.S. Census Bureau.

High school GPA. This was apparently related to college educational outcomes in earlier studies.

Socioeconomic background of the graduate's family. Numerous studies have looked for a connection between the graduate's background and subsequent achievement – little has been found. However, since it is easily obtained family background is included here in the form of family social class and parents' employment.

Personal Experience

There have been a number of relationships found in earlier studies between personal experience and both educational outcomes and career success. This section of the questionnaire investigated these relationships, and provided exogenous data for the

primary relationships sought in this study.

Work experience prior to college. Earlier studies found that work experience is related to career success. Work experience while in high school seems unlikely to be a major contributor to later success, but it could conceivably have some bearing. The information sought in the survey was a characterization on a four-point scale from "none" to "extensive." (This item appears in the "Personal characteristics" section of the survey because it seemed that respondents would find it more logically placed there.)

Age when beginning and completing bachelor's program. Age has been sought as a factor in educational outcomes in several studies, but no significant relationship has been found. The author, however, was of the opinion that older students, especially those with substantial pre-college work experience, are more diligent and perform better in college.

Date bachelor's degree received. The intent was to include only those graduates who received their degree 24 to 36 months prior to taking the survey. The date of graduation was used to confirm that condition.

Number of colleges attended. The author was of the opinion that students who change colleges – especially those who change colleges frequently – do not perform as well as other students.

Participation in extracurricular activities. Participation in extracurricular activities is a proxy for interaction with peers, which has been found in prior studies to be related to educational outcomes. Graduates were asked to rank their participation on a four-point scale from "none" to "extensive."

Leadership in extracurricular activities. Leadership roles in college have been

found to be related to educational outcomes in prior studies. A four point scale was used to rank this variable as well.

Internship participation. Participation in an internship during college has been found earlier to be related to career success. The response to this question regarding internship participation was simply yes/no.

Mentoring relationship. The existence of a mentor relationship with a faculty member is often anecdotally mentioned by graduates as a basis for later success, although it did not appear in any of the studies identified in the literature review above. The response to the question regarding such a relationship was yes/no.

Interaction between faculty and students. Earlier studies found that interaction with faculty was related to educational outcomes. (This item appears in the "College program characteristics" section of the survey instrument because it was felt that it would seem more logically placed there to the respondents.) This was rated on a four-point scale.

Work experience while in college. In earlier studies work experience prior to graduation was apparently related to career success. A four point scale ("none" to "extensive") was used to characterize this variable.

Employment immediately prior to graduation. The author was of the opinion that students who are employed immediately prior to graduation often continue employment with the same company after graduation, giving them an advantage in the pursuit of career success.

College Program Characteristics

Some college program characteristics have been found in prior studies to be related to educational outcomes and career success. The information gathered in the first part of this section essentially duplicated that gathered in the earlier studies for the purposes of control.

College granting bachelor's degree. This information was used to identify the size and selectivity of the institution. Enrollment size data was available from an annual "Peterson's Guide" to CCCU schools (Peterson 2003). That same publication provided tuition, the average incoming SAT scores, average high school GPA of incoming students, retention rates at the start of the sophomore year, and student/faculty ratio. This information was used as an indicator of selectivity.

Major, emphasis or concentration other than "Business." This data was used to confirm that the respondent was indeed in the desired population.

Teaching ability of the faculty. This was an attempt to gather additional information regarding the quality of the institution. Students were asked to respond on a five-point scale from "Very Weak" to "Very Strong."

Intellectual capacity of the student body. A second attempt to characterize institutional quality, with the same rating scale.

Job search preparation provided. The author was of the opinion that programs which provide effective assistance to their graduates in finding new jobs give those graduates a significant advantage over those graduates who do not receive such assistance. This program characteristic was rated on a five point scale.

Knowledge, skills, liberal competencies and values. As noted above, the

proposed study used a somewhat idiosyncratic categorization of program characteristics and educational outcomes. In each of the four areas of interest, graduates were asked to assess their undergraduate program's emphasis on four specific types of content. In each case, respondents were asked to characterize the emphasis on a five-point scale from "Very weak" to "Very strong." The emphases assessed were:

Knowledge:	Human culture (literature, etc.) Scripture Business functions (marketing, etc.) Managerial tasks (planning, etc.)
Skills:	Quantitative analysis Textual analysis of Scripture Financial analysis Market and/or strategic analysis
Liberal competencies:	Critical thinking Oral and written communications Interpersonal competence Leadership
Values (attitudes):	Initiative Commitment to life-long learning Integrity Commitment to Christian service in the workplace

Educational Outcomes

GPA. This is the only quantitative assessment of educational attainment that was available in a self-report survey. GPA has been found to be associated with some measures of career success in earlier studies.

Knowledge, skills, competencies and attitudes. In the prior section, the educational program's emphasis on these four areas was assessed. Here, the respondent was asked to evaluate how effective the program was in helping him or her develop in these four areas. The specific areas evaluated were the same as those listed in the prior

section. Their order was changed to limit simple duplication of responses by the graduates.

Career Success

There is no single measure of career success, and no consensus in the literature as to any particular group of outcomes that would be considered "successful." In an attempt to bring some degree of consistency to this untidy dependent variable, multiple measures of success were included in the survey instrument. These were assessed individually and in the aggregate to obtain an evaluation of success that was as comprehensive as possible.

Employment status. If a graduate had not been employed since graduation, no further information was gathered. Such a graduate was excluded from the study's data. If a graduate was self-employed, he or she was asked to respond to the remaining questions as they applied to that self-employment. If a graduate was unemployed at the time of the survey, he or she was asked to complete the remainder of the survey as it applied to the most recent employment. The current state of unemployment was itself considered a (negative) indicator of success.

Time to first employment. Earlier achievement of full-time employment has been used in prior surveys as a measure of success, although no significant relationships to antecedent variables was found there.

Location of employment. Included in case geographic influences on salary level were significant.

Employer. Included in case influences of industry type on salary level were significant.

Job title. This was included as a contingency, in case it was possible to categorize job titles as an indicator of success.

Starting salary. This was the most commonly used indicator of success in earlier studies.

Current salary. This was second only to starting salary as an indicator of success in earlier studies.

Number of salary increases. Increases in pay, not just the absolute level of pay, seemed to be a reasonable indicator of early career success.

Number of promotions. As with the number of salary increases received, this seemed to be a reasonable indicator of early career success.

Satisfaction with employment. Satisfaction with employment seemed to be a legitimate indicator of success, and has been used as such in a number of earlier studies. It was difficult to do a comprehensive evaluation of satisfaction, however, when it formed only a small portion of a broader survey. The questions asked in the survey were developed by the author after consideration of other studies and survey instruments. Respondents were asked to evaluate their satisfaction with each of the seven items below on a five-point scale from "Very Dissatisfied" to "Very Satisfied":

Salary and benefits
Relationship with supervisor(s)
Relationship with co-workers
Employment appropriate to abilities
Sense of achievement
Opportunities to grow and develop
Visible progress on a career path

Performance evaluation. Self-reports of performance at an absolute level are suspect, but relative evaluations among respondents might be more useful. In an attempt

to move the respondent away from a purely subjective view, prospective assessments of the evaluations that would be made by the respondent's supervisor, subordinates, and peers were requested before his or her own evaluation was recorded. For each of the four responses, the graduate was asked to rate job performance on a five point scale from "Failing" to "Outstanding."

The Qualitative Instrument

The final question in the quantitative survey asked for an indication of the respondent's willingness to participate in a telephone interview on the topic areas covered in the survey. A sample of 20 was selected from those who indicated an interest.

The quantitative survey necessarily focused on the variables in the model; determining relationships among the variables was sought through statistical analysis. The qualitative survey had the advantage of being able to address the relationships – which are the key area of interest, after all – directly. A script for the telephone interview is included in Appendix C below. The overall content of the qualitative survey script was relatively uncomplicated; it simply asked for information regarding the relationships specified in the study's model.

Personal background. The graduate identified components of pre-college background that helped in preparation for college and for career, and anything in their personal background that was detrimental to college or career success.

College experience. This is a key area of concern, since the primary focus of the study was to identify college outcomes that influence career success. The graduate identified the components of college program and experience that were most helpful in

preparing for his or her career, and any significant deficiencies that the graduate felt were detrimental to career progress.

Career success. Graduates were asked to assess their own success, and to identify the criteria that they felt were appropriate in evaluating the career success of someone in their position. They were also asked whether their college experience or their post-college work experience was the more important factor in their career success so far.

Chapter 4 – Results from Surveys

Descriptive Statistics

The quantitative survey provided an abundance of information regarding the characteristics and experiences of those who responded to the survey. Inasmuch as this information is the foundation of the subsequent analysis, the key descriptive statistics are summarized here.

Personal Characteristics of Survey Respondents

Demographic information gathered in the survey included the respondents' gender, age, ethnicity, high school GPA, socioeconomic status of their parents, and date of graduation.

Gender

One hundred eighty-two of the respondents (48.9%) were male, 190 were female (51.1%) were female. While population gender statistics for the business departments at the various colleges surveyed were not available, these proportions seemed reasonable in light of the author's experience of Christian colleges in general.

Age of Respondents

The mean and median age of the respondents at the time of the survey was 25 years old. Since the respondents had to have graduated from college at least two years before the time of the survey, this was about as expected. Ninety-five percent of the

respondents were 26 years old or younger; the oldest was 67. The high proportion of respondents between the ages of 22 and 26 suggest that the survey did in fact gather information from the intended population of graduates. Other than this confirmation, the ages of the respondents were generally uninteresting. Their distribution was so narrow that they did not correlate to any of the measures of educational outcomes or career success. (Each respondent was also asked to identify his or her age at matriculation and graduation from the undergraduate program. As with their ages at the time of the survey, this data was not found to correlate to any of the outcomes of interest in this study. The mean and median age at matriculation was 18, while the mean and median age at graduation was 22.) The distribution of ages at the time of the survey are shown in Table 4.1.

Table 4.1 Age at the Time of the Survey

Age	Frequency	Percent	Cumulative percent
22	1	.3	.3
23	11	3.0	3.2
24	164	44.1	47.3
25	149	40.1	87.4
26	28	7.5	94.9
27	4	1.1	96.0
29	4	1.1	97.0
30	3	.8	97.8
31	1	.3	98.1
34	1	.3	98.4
36	1	.3	98.7
39	1	.3	98.9
40	1	.3	99.2
42	1	.3	99.5
44	1	.3	99.7
67	1	.3	100.0
Total	372	100.0	

Ethnicity

Information was gathered on the ethnicity of the survey respondents. The information did not prove to be useful in identifying differences among groups, however, as 95% of those responding indicated that they were white or Anglo. This skewing of results, while surprising in its severity, was not unexpected. The colleges surveyed were all Protestant Christian colleges affiliated with evangelical denominations or generally associated with the evangelical movement. Individuals who are members of this movement are predominantly white. The situation was exacerbated by the fact that majority of the colleges that provided alumni contact information are located in the midwestern United States. Table 4.2 shows the reported ethnicities of respondents.

Table 4.2 Ethnicity of Respondents

Ethnicity	Percent
White/Anglo	94.9
Asian American	1.6
Hispanic/Latino	.8
Pacific Islander	.5
African American/Black	.3
Native American/Indian	.3
Multiple	1.6

High School Grade Point Average

It did not seem likely that many of the respondents would remember their precise grade point average from high school. Accordingly, they were asked to respond in categories of one-half grade point width: 2.00-2.49, for instance. Categories had to be included above the traditional "perfect" 4.0, since most high schools now offer an incentive of an additional grade point for Advanced Placement classes. The mean and

median grade point reported was approximately 3.60. The distribution of respondents' reported high school grade point averages is shown in Table 4.3 below.

Table 4.3 Respondent's High School Grade Point Average

2.00-2.49	2.50-2.99	3.00-3.49	3.50-3.99	4.00-4.49	>4.50
1.1%	9.4%	27.5%	47.2%	12.9%	1.9%

It is tempting to suggest in passing that these results are evidence of grade inflation in high schools, possibly as a result of the additional point added for Advanced Placement courses. But the high grades evidenced here may simply be the result of surveying only college-bound students.

Socioeconomic Status of Parents

The socioeconomic status of the respondent's parents was used as an indicator of the material prosperity of the respondent. Since about 3% of respondents were above what would be considered a "traditional" age for college students, this measure was imperfect. There was also the possibility that respondents would not be able to accurately report the socioeconomic status of their parents. In the absence of more quantitative measures, however, this was felt to be a reasonable indicator. The distribution of reported status is shown in Table 4.4.

Table 4.4 Socioeconomic Status of Respondent's Parents

Working class	Middle class	Upper middle class	Upper class
11.7%	60.9%	25.1%	3.0%

As this Table indicates, a majority of the respondents identified their families as

being in the middle class, with an additional quarter of the respondents being in the upper middle class. This is consistent with the author's expectations for this population of students. The colleges these graduates attended had annual tuitions (2004) of $10,300 to $18,300. This alone precludes the enrollment of the children of many working class families. On the other hand, upper class families are likely to send their children to more expensive (and prestigious) colleges than these.

Graduation Dates of Survey Respondents

Respondents were asked to identify their date of graduation. This was used primarily to confirm that each respondent belonged in the sample, since individuals who graduated less than two years or more than three years before the survey fell outside the intended parameters of the study. In the sample of 373 usable responses, 151 (40.6%) graduated at the end of the Spring semester 2001, 23 (6.2%) at the end of the Fall semester 2001, and 198 (53.2%) at the end of the Spring semester 2002. The survey was done in the summer of 2004, so the two to three year employment experience requirement was met by these respondents.

Personal Experiences of Survey Respondents

Respondents were asked for information about the number of colleges they attended, participation and leadership in extracurricular activities, mentor relationships with faculty, and their work experiences prior to and during their college years.

Number of Colleges Attended

Nearly 80% of the respondents attended only one college while earning their bachelor's degree, while two intrepid individuals reported that they had attended five different colleges before graduating. The distribution of respondents' experiences in this area are shown in Table 4.5.

Table 4.5 Number of Colleges Attended by Respondent

1	2	3	4	5
78.4%	15.4%	5.4%	.3%	.5%

Extracurricular Activities

The absolute level of student participation in or leadership in extracurricular activities was not as important for the purposes of this study as establishing a range of levels for comparison purposes. So there was no scale of "hours per week" or "positions held" in the survey. Rather, respondents were asked to place themselves in one of four categories for both participation and leadership with relativistic labels from "none" to "extensive." The classification was successful in that respondents did sort themselves into the categories, and these proved to be significant in later correlations.

The responses for extracurricular participation and leadership were as shown in Table 4.6 below.

Table 4.6 Extracurricular Participation and Leadership by Respondent

	1	2	3	4		
Extracurricular:	None	Limited	Average	Extensive	Mean	Std. dev.
Participation	4.3%	29.3%	37.9%	28.5%	2.91	.86
Leadership	11.0%	25.3%	39.0%	24.7%	2.77	.95

The small number of students who indicated that they had no role in either extracurricular participation or leadership is worth noting. Fewer than five percent said they took no part in extracurricular activities at all, and only eleven percent had no leadership experience. This would seem to be a peculiar feature of small colleges. One might well see a higher proportion of disconnected students in larger schools.

Mentor Relationships

To help determine if a close personal relationship with someone in the college was an important factor in respondents' educational outcomes or career success, the survey simply asked whether there were "one or two faculty members who you felt acted as mentors to you, with whom you had established a special relationship?" Two hundred seventy-nine respondents (75.0%) said that such a relationship did exist for them, while 93 (25.0%) said that there was no such relationship. This high proportion of positive responses also seems likely to be a peculiar feature of small colleges. The existence of a mentor did prove to be significant in some of the subsequent correlations.

Employment Experiences Before and During College

It was expected that work experience prior to graduation would have an effect on career success, and such was indeed the case. Four different kinds of information about work experience were gathered: Level of work experience prior to college; level of work experience while in college; participation in an internship as part of the college curriculum; and employment status at the time of graduation.

As was the case with extracurricular activities above, no attempt was made to

establish absolute levels of employment activities (hours per week, etc.) for the periods before and during college. It is unlikely that such a measurement could have been accurately remembered or reported by respondents. Instead, respondents were asked to place themselves in one of four categories for employment experience ranging from "none" to "extensive." The results were as shown in Table 4.7.

Table 4.7 Respondents' Work Experience Before and During College

Work experience:	1 None	2 Limited	3 Average	4 Extensive	Mean	Std. dev.
Before college	4.9%	30.4%	53.1%	11.7%	2.72	.73
During college	2.7%	27.0%	49.9%	20.5%	2.88	.76

The internship data were simple yes/no responses to the question "did you participate in a formal internship as part of your degree program?" 56.1% answered in the affirmative, while 43.9% said that they did not take part in an internship.

The employment status at graduation yielded similar dichotomous responses (employed or unemployed at graduation). 75.3% were working at graduation, while 24.7% were not. This proportion of positive responses is probably not unique to small colleges, nor to Christian colleges. But it is an indication of the extent to which today's college students must earn at least part of their own living and educational expenses. A generation ago, the proportion would almost certainly have been lower.

Program Characteristics of Respondents' Colleges

Characteristics of the programs at the various colleges were of interest because of their potential impact on both educational outcomes and career success. Data was gathered on three categories of characteristics. The first category included information

about the colleges that was publicly available in Peterson's Guide to Christian Colleges and Universities (Peterson 2003). The second category included respondents' evaluations of faculty and student capabilities, and of the career preparation support made available by the college. The third category included various aspects of the programs that were of particular interest in this study, structured around the model of educational emphases (knowledge, skills, competencies and values) developed for this analysis.

General Institutional Characteristics

The specific values of each characteristic are not in themselves useful to this analysis – it is their variation that is of interest. They are shown in Table 4.8 below, however, to provide indications of the size and quality of the colleges in this study:

Table 4.8 General Institutional Characteristics

Institution	State	Ave. Freshman H.S. GPA	% Verbal SAT > 600	% Quantitative SAT > 600	Sophomore Retention Rate	Student/ faculty Ratio	Annual Tuition	Undergraduate Enrollment
Anderson Univ.	OH	3.22	17%	23%	73%	13:1	15,380	1,768
Bethel Coll.	IN	3.27	26%	26%	86%	18:1	13,400	1,350
Bethel Univ.	MN	n/a	50%	45%	86%	16:1	16,815	2,336
Bluffton Coll.	OH	3.28	26%	13%	79%	14:1	15,076	1,036
Cumberland Coll.	KY	3.34	5%	15%	63%	17:1	10,388	1,666
Dordt Coll.	IA	3.34	45%	43%	87%	15:1	14,100	1,275
Eastern Mennonite Univ.	VA	3.46	32%	28%	76%	13:1	15,300	1,248
East Texas Baptist Univ.	TX	n/a	n/a	n/a	65%	16:1	10,305	1,168
George Fox Univ.	OR	3.59	37%	33%	83%	15:1	18,325	1,065
Houghton Coll.	NY	3.49	46%	39%	88%	15:1	16,290	1,215
Indiana Wesleyan Univ.	IN	3.40	28%	25%	74%	17:1	12,740	1,768
Malone Coll.	OH	3.29	24%	31%	74%	14:1	13,550	1,442
Northwestern Coll.	MN	3.10	20%	5%	65%	18:1	11,825	828
Northwest Nazarene Univ.	ID	3.38	n/a	n/a	72%	12:1	14,240	1,056
Oklahoma Baptist Univ.	OK	3.65	48%	38%	74%	14:1	10,240	1,596
Olivet Nazarene Univ.	IL	n/a	n/a	n/a	68%	20:1	13,464	1,640
Roberts Wesleyan Univ.	NY	n/a	25%	20%	81%	14:1	14,916	1,120
Trinity International Univ.	IL	3.21	n/a	n/a	76%	13:1	13,970	650
Union Univ.	TN	3.52	42%	35%	93%	12:1	12,670	1,764

Student and Faculty Characteristics

Respondents were asked to evaluate the characteristics of faculty and students in their college in three dimensions: The teaching ability of the faculty, the intellectual capacity of the students, and the level of student-faculty interaction. As shown in Table 4.9 below, respondents were most impressed with the level of student-faculty interaction. The median response for this was "very strong," the highest category. Such a close relationship between students and faculty is one of the primary claims of small Christian colleges; it is interesting to see the claim echoed in graduates' opinions. Respondents

were somewhat less generous in rating the teaching ability of the faculty, and noticeably less impressed with the intellectual capacity of the student body of which they were a part.

Table 4.9 Faculty and Student Characteristics

	1	2	3	4	5		
	Very weak	Weak	Average	Strong	Very strong	Mean	Std. dev.
Faculty teaching ability	0.0%	1.1%	14.8%	56.7%	27.4%	4.10	.68
Student intellectual capacity	0.0%	1.3%	32.8%	52.4%	13.4%	3.78	.69
Student-faculty interaction	0.0%	1.3%	9.9%	34.4%	54.3%	4.42	.72

Job Search Preparation

It is the author's conjecture that colleges' job preparation efforts may be important to early career success. This component of the colleges' programs does not fit into the knowledge-skills-competencies-values model used in classifying program emphases, but it is a nonetheless important program feature and respondents were asked to evaluate it for their colleges. The results, shown in Table 4.10 below, suggest that graduates see this as one of the weakest parts of their undergraduate preparation. In fact, the average rating for this characteristic (2.89 on a five point scale) is the lowest score given for any of the program characteristics that were evaluated.

Table 4.10 Quality of Job Search Preparation

1	2	3	4	5		
Very weak	Weak	Average	Strong	Very strong	Mean	Std. dev.
8.7%	25.7%	39.3%	20.3%	6.0%	2.89	1.02

Program Emphases

One of the key aims of this analysis was to determine if differences in emphases among the four components of the knowledge-skills-competencies-values model influenced educational outcomes and early career success. In each of the four categories, respondents were asked to rank four areas of possible program emphasis. Variations within each category might prove to be of interest, but it was variation among the categories that was the primary focus.

Knowledge. Respondents were asked to rate the emphasis placed on the transfer of four types of knowledge in their college programs: Knowledge of human culture, Scripture, managerial tasks, and business functions. These were intended to be representative of the general education, Christian, and business components of the programs. As with most of the information gathered in the quantitative survey, it was not the absolute level of the ratings that was of primary importance. Rather, it was the differences in these measures among the nineteen programs that was of most interest analytically. Nevertheless, it is interesting to consider the relative ratings for these areas across all of these presumably representative Christian colleges. The ratings for the four areas of knowledge emphases are shown in Table 4.11 below.

Table 4.11 Program Emphases on Selected Types of Knowledge

Emphasis on transferring knowledge of:	1 Very little	2 Little	3 Somewhat	4 Much	5 Very much	Mean	Std. dev.
Human culture	2.2%	11.0%	38.2%	37.9%	10.8%	3.44	.90
Scripture	2.2%	8.6%	23.5%	39.6%	26.1%	3.79	1.00
Business functions	0.5%	1.3%	15.3%	54.0%	28.8%	4.09	.73
Management tasks	1.1%	5.4%	26.7%	47.2%	19.7%	3.79	.86

In general terms, respondents indicated that in knowledge transfer their programs most emphasized the major (business) and least emphasized general education, with the Christian component in the middle range.

Skills. Respondents also rated the program emphasis on development of four types of skills: Mathematical or quantitative analysis, textual analysis of Scripture, financial analysis, and market and/or strategic analysis. Again, these were intended to be representative of the general education, Christian and major components of the program. Results are shown in Table 4.12.

Table 4.12 Program Emphasis on Selected Types of Skills

Emphasis on developing analytical skills:	1 Very little	2 Little	3 Somewhat	4 Much	5 Very much	Mean	Std. dev.
Quantitative	0.5%	8.9%	40.6%	38.7%	11.3%	3.51	.83
Scripture text	4.8%	19.4%	37.4%	27.7%	10.8%	3.02	1.03
Finance	0.5%	4.8%	27.2%	48.1%	19.4%	3.81	.82
Market/strategy	0.0%	2.7%	27.4%	48.1%	21.8%	3.89	.77

In this case the major skills (financial and market/strategic analysis) are rated as most emphasized, while the Christian component (textual analysis of Scripture) is lowest rated. The variation in emphasis on Scripture analysis is also noticeably higher. It appears from this that at least some of the colleges surveyed satisfy their commitment to Christian education with courses that focus primarily on transfer of Scripture knowledge, with less (if any) stress on exegesis (textual analysis).

Competencies. The general competencies rated by respondents did not fall into the categories of general education, Christian education and major that were typical of the knowledge and skills areas above. Rather, these competencies crossed the boundaries of

those areas: the ability to think critically, to communicate both orally and in writing, to be interpersonally effective, and to lead. These are also competencies that are of the type often identified as lacking in business graduates – the so-called "liberal arts" abilities that employers feel they need but have trouble finding. Respondents' ratings of the degree to which these were emphasized in their programs are shown in Table 4.13.

Table 4.13 Program Emphases on Selected Types of Competencies

	1	2	3	4	5		
Emphasis on competence in:	Very little	Little	Somewhat	Much	Very much	Mean	Std. dev.
Critical thinking	0.3%	3.0%	24.0%	46.6%	26.1%	3.95	.80
Communication	0.0%	3.0%	16.9%	46.8%	33.3%	4.10	.78
Interpersonal	0.0%	5.7%	26.7%	42.6%	25.1%	3.87	.85
Leadership	0.3%	5.9%	26.7%	42.6%	24.5%	3.85	.87

The most noticeable statistic here is the relatively high mean score for communication competence. This is probably the result of the explicit need for both written and oral communication abilities in many courses, regardless of subject matter. The other competences might typically be the subject of one or a few specific courses. Communication may be more strongly emphasized than the others because it is needed as part of the learning process in many parts of the typical program. The other abilities included here would tend to be viewed as specific outcomes of the program, rather than as part of the process; there would naturally be less time spent on them as a result.

Values. Respondents were asked to rate their program's emphasis on various attitudes or values: Initiative, desire for lifelong learning, integrity, and Christian service in the workplace. The first two, initiative and lifelong learning, might be thought of as "secular" values – though desirable, there is no particular ethical value attached to them.

The third, integrity, is an ethical quality but not exclusively a Christian one. The final value, a desire to provide specifically Christian service in the workplace, is one that might be emphasized in Christian colleges but would not be in others. The results of these ratings are shown in Table 4.14.

Table 4.14 Program Emphases on Selected Types of Values

Emphasis on influencing attitudes about:	1 Very little	2 Little	3 Somewhat	4 Much	5 Very much	Mean	Std. dev.
Initiative	0.3%	4.9%	27.2%	46.6%	21.0%	3.83	.82
Lifelong learning	0.3%	6.5%	27.4%	33.9%	32.0%	3.91	.93
Integrity	0.0%	0.5%	4.8%	27.2%	67.5%	4.62	.61
Christian service	1.3%	4.8%	14.2%	33.3%	47.6%	4.22	.91

The most noticeable statistic here is the high average rating of integrity. It is tempting to suggest that this high level of emphasis is a unique feature of Christian colleges. There is no way to justify such a claim from the data, of course, since there were no nonChristian colleges in the survey. Nevertheless, the Christian programs would probably be gratified to find that this emphasis was so well understood by their graduates.

Comparison of categories. The data above were aggregated in the four categories of knowledge, skills, competencies, and values so that the relative emphasis of these broader areas could be evaluated. The results are shown in Table 4.15.

Table 4.15 Program Emphases on Categories of Learning

Aspect of program emphasis	1 Very little	2 Little	3 Somewhat	4 Much	5 Very much	Mean	Std. dev.
Knowledge	1.5%	6.6%	25.9%	44.7%	21.3%	3.78	.91
Skills	1.5%	8.9%	33.1%	40.7%	15.8%	3.60	.91
Competencies	0.1%	4.4%	23.6%	44.6%	27.3%	3.75	.83
Values	0.5%	3.8%	18.4%	35.2%	42.0%	4.15	.88

The emphasis on values stands out in this data. Although data was not gathered on nonChristian schools to allow a comparison, it seems very unlikely that these relative emphases would be duplicated in that population.

Christian worldview. Finally, one question was asked about the program's emphasis on overall Christian worldview, beliefs and/or values. The purpose was to try to develop some basis of comparison of the overall "Christianness" of the nineteen schools so that the effect of the relative spiritual emphasis on educational outcomes and career success could be assessed. The results are shown in Table 4.16.

Table 4.16 Emphasis on Overall Christian Worldviews

1	2	3	4	5		
Very little	Little	Somewhat	Much	Very much	Mean	Std. dev.
0.8%	2.4%	19.2%	41.5%	39.0%	4.09	.85

This category is not of the same type as the knowledge, skills, competencies and values typology above, but it is nevertheless interesting that the overall rating of the schools' emphasis on a Christian worldview is similar to that of the rating for emphasis on values, and well above the average rating for the knowledge, skills and competencies components of the programs.

Educational Outcomes

The educational outcomes in this study are intervening variables. They are potentially dependent on the personal characteristics and experiences of the respondent and on program characteristics, but they are also independent in their potential effect on early career success.

Grade Point Average

One standard measure of educational outcomes is simply the student's grade point average. This was gathered from the respondents in half-grade point categories, with the results as shown in Table 4.17.

Table 4.17 Respondents' College Grade Point Average

2.00-2.49	2.50-2.99	3.00-3.49	3.50-4.00
3.0%	15.9%	38.0%	43.1%

This data does seem to suggest the presence of grade inflation at the college level. Even allowing for some self-selection bias in those who responded to the survey, there is little here to indicate that a C grade is any longer the norm in undergraduate education.

Program Effectiveness

The primary measures of educational outcomes in this study were estimates of effectiveness in students' development of the knowledge, skills, competencies and values in the study's model.

Knowledge. The relative rankings of the effectiveness of the programs in the four knowledge areas were the same as the relative rankings for the emphasis placed on these areas. This is not surprising. If colleges are accomplishing what they intend, this would be the effect. There is also the possibility that the respondents would tend to rank emphases and effectiveness similarly simply because they might have a difficult time distinguishing between the two. As will be discussed in the "Effectiveness of Program Emphases" section below, however, colleges are not always as effective as they intend to be in this or in other educational areas. The scores for the four knowledge areas are

shown in Table 4.18.

Table 4.18 Program Effectiveness in Transferring Selected Types of Knowledge

Effectiveness in transferring knowledge of:	1 Very little	2 Little	3 Somewhat	4 Much	5 Very much	Mean	Std. dev.
Human culture	2.2%	12.4%	45.3%	30.2%	10.0%	3.33	.90
Scripture	3.0%	12.2%	34.9%	35.7%	14.3%	3.46	.98
Business functions	0.0%	2.4%	14.6%	57.3%	25.7%	4.06	.70
Management tasks	0.0%	3.8%	27.8%	53.6%	14.8%	3.80	.73

As was the case with emphases, the apparent dominance of business and management knowledge over the general education and Christian components of the programs is noticeable.

Skills. The relative rankings of effectiveness in developing skills were also the same as the relative rankings of emphasis on development of those skills. The scores for the four skills areas are shown in Table 4.19.

Table 4.19 Program Effectiveness in Developing Selected Types of Skills

Effectiveness in developing analytical skills	1 Very little	2 Little	3 Somewhat	4 Much	5 Very much	Mean	Std. dev.
Quantitative	1.6%	9.4%	41.8%	36.1%	11.1%	3.46	.87
Scripture text	4.0%	18.3%	36.9%	31.0%	9.7%	3.24	.99
Finance	0.5%	5.9%	30.8%	45.1%	17.6%	3.73	.84
Market/strategy	0.3%	3.0%	24.7%	54.1%	17.8%	3.86	.74

Once again, respondents indicate that their skills in business areas (finance, marketing and strategy) were more highly developed in their undergraduate programs than were their general education or specifically Christian skills.

Competencies. As in the two prior areas, the relative rankings of effectiveness in

developing competencies mirrors the programs emphases on these competencies. The dominance of the communication competence is not as noticeable in this ranking as it is in the ranking of emphases. The scores for the four competence areas are shown in Table 4.20.

Table 4.20 Program Effectiveness in Developing Selected Types of Competencies

Effectiveness in developing competence in:	1 Very little	2 Little	3 Somewhat	4 Much	5 Very much	Mean	Std. dev.
Critical thinking	0.0%	5.1%	24.9%	44.9%	25.1%	3.90	.84
Communication	0.3%	2.4%	23.2%	46.5%	27.6%	3.99	.80
Interpersonal	0.5%	4.6%	26.6%	43.5%	24.7%	3.87	.86
Leadership	0.8%	7.0%	28.4%	41.1%	22.7%	3.78	.90

Attitudes. In this area alone, the rankings of program effectiveness do not mirror the rankings of program effectiveness. Respondents indicated that their programs emphasized the value of lifelong learning more than they emphasized the need for initiative, but the relative rankings for effectiveness in these two areas was reversed. The primary difference was the substantially lower rating of effectiveness in influencing respondents to value lifelong learning as compared to the ranking for emphasis. The section below on "Effectiveness of Program Emphases" will explore this and other significant differences between what colleges intend as their outcomes, and the outcomes that are actually achieved. The scores for influencing values are shown in Table 4.21.

Table 4.21 Program Effectiveness in Inculcating Selected Types of Values

Effectiveness in influencing attitudes about:	1 Very little	2 Little	3 Somewhat	4 Much	5 Very much	Mean	Std. dev.
Initiative	1.1%	6.2%	27.3%	40.8%	24.6%	3.82	.91
Lifelong learning	2.4%	11.1%	30.5%	33.4%	22.6%	3.63	1.03
Integrity	0.5%	2.7%	11.1%	41.2%	44.5%	4.26	.80
Christian service	1.9%	6.2%	16.8%	36.5%	38.6%	4.04	.99

Comparison of categories. The data above were aggregated in the four categories of knowledge, skills, competencies, and values so that the relative program effectiveness in these broader areas could be evaluated. The results are shown in Table 4.22.

Table 4.22 Program Effectiveness in Categories of Learning

Aspect of program effectiveness	1 Very little	2 Little	3 Somewhat	4 Much	5 Very much	Mean	Std. dev.
Knowledge	1.3%	7.7%	30.6%	44.1%	16.2%	3.66	.88
Skills	1.6%	9.2%	33.6%	41.6%	14.0%	3.57	.90
Competencies	0.4%	4.8%	25.8%	44.0%	25.0%	3.88	.85
Values	1.5%	6.5%	21.4%	38.0%	32.6%	3.94	.96

As was the case for almost all of the individual components of the effectiveness analysis, the relative rankings of effectiveness in the four categories is the same as the relative rankings of their emphasis.

Christian worldview. As in the "Emphasis" area, one final question was asked regarding the effectiveness of the programs in developing overall Christian worldviews. As before, the purpose was to try to identify differences among the programs in their "Christianness" so that the influence of this spiritual component on educational outcomes and career success might be considered. The results are shown in Table 4.23.

Table 4.23 Effectiveness in Developing an Overall Christian Worldview

1	2	3	4	5		
Very little	Little	Somewhat	Much	Very much	Mean	Std. dev.
2.7%	5.1%	22.1%	36.7%	33.4%	3.93	1.00

Early Career Success

Indicators of career success were gathered for each respondent in four categories: Employment (employed or unemployed, time to first employment), salary and promotion history, satisfaction with the employment situation (in seven subcategories) and prospective evaluation of the respondent's job performance by himself and those he worked with.

Employment

In the sample, 92.5% were employed at the time of the survey, 7.5% were not. Inasmuch as some of those not employed included individuals voluntarily out of the workforce (fulltime mothers primarily) this proportion was not out of line with population unemployment statistics for the U.S.

Respondents were asked how long it took them to find their first job after graduation (in time categories). Nearly half of them were employed immediately upon graduation. This no doubt included a number who were already employed full time while in college and simply continued in the same position, although this information was not sought in the survey. The breakdown of time to first employment is shown in Table 4.24.

Table 4.24 Time to First Employment After Graduation

None	Less than two months	Two to four months	More than four months
45.6%	23.2%	19.6%	11.6%

Each employee was also asked to provide his or her job title and employer, and the state in which they were employed. Unfortunately, it was not possible to categorize or group this information in a way that was meaningful for the subsequent analysis, so that data is not included here. It is interesting, though, that the graduates of colleges located in 13 states were employed in 39 states just two to three years after graduation.

Salary and Promotions

Respondents to the survey provided their starting salary (at graduation or the start of their first job after graduation), their salary at the time of the survey, the number of salary increases they had received since graduation, and the number of promotions that had received since graduation. Since only one year elapsed between the first and last graduations covered in this survey, no attempt was made to adjust for the passage of time (that is, an inflation adjustment) in considering the starting salary statistics. However, since respondents had graduated two, two and a half, and three years prior to the survey it was necessary to adjust for the passage of time in considering raises and promotions. Accordingly, three new statistics were calculated from the information provided in the survey: Average annual salary increase, average annual number of salary increases, and average annual number of promotions for each respondent. The resulting figures for the last two statistics were almost always less than one. For instance, a respondent who had graduated three years before taking the survey and had received two salary increases

during that time would have an average of .67 salary increases per year. The information regarding salaries and promotions is summarized in Table 4.25.

Table 4.25 Salary and Promotion Statistics

	25th percentile	Median	75th percentile	Mean	Std. Dev.
Starting salary	24,000	29,100	34,575	29,792	10,958
Average annual increase	500	2,000	3,714	2,716	3,759
Salary increases per year	.40	1.00	1.00	.80	.59
Promotions per year	0	0	.50	.30	.41

Satisfaction

Respondents were asked to rate their satisfaction (on a five point scale from "very dissatisfied" to "very satisfied") with seven aspects of their employment situations: Salary and benefits, relationship with supervisor, relationship with co-workers, employment appropriate to abilities, sense of achievement, opportunities to grow, and progress on a career path. The summary for each of these aspects is shown in Table 4.26.

Table 4.26 Satisfaction with Selected Aspects of Employment

	1	2	3	4	5		
Area of satisfaction	Very dissat.	Dissat.	Neutral	Satis.	Very satis.	Mean	Std. dev.
Salary & benefits	3.6%	12.1%	17.9%	45.5%	20.9%	3.68	1.05
Rel. with supervisor	0.8%	6.5%	9.6%	35.1%	48.0%	4.23	.93
Rel. with co-workers	0.3%	0.6%	7.2%	38.8%	53.2%	4.44	.68
Approp. employment	4.7%	11.3%	16.9%	37.6%	29.6%	3.76	1.14
Achievement	5.0%	11.0%	18.8%	34.3%	30.9%	3.75	1.15
Opportunities	4.7%	10.8%	16.0%	27.1%	41.4%	3.90	1.19
Career progress	6.4%	13.3%	18.5%	27.9%	34.0%	3.70	1.24

The most noticeable feature of this table is the substantially higher mean ratings

for satisfaction with working relationships compared to the other areas evaluated. In general, the respondents seem to have found the rewards of employment (salary, achievement, etc.) to be less satisfactory than the working relationships they have developed.

Performance Evaluation

The final area of career success included in this study is an evaluation of respondents' performance in their jobs. As noted in Chapter 3 above, a simple self-evaluation of performance by the respondents was deemed insufficient. But it was also infeasible to try to survey those who worked with the respondents. If nothing else, the likelihood of a very low response rate, if nothing else, precluded this option. In an effort to obtain something other than a simple self-evaluation, respondents were asked to provide estimates of the evaluations that would be made by their supervisors, subordinates, and peers. This provides four prospective performance evaluations for analysis. The results of these ratings are shown in Table 4.27.

Table 4.27 Prospective Evaluations of Respondent's Job Performance

	1	2	3	4	5		
Prospective evaluation by:	Failing	Below average	Average	Above average	Outstanding	Mean	Std. dev.
Supervisor	0.3	0.0	9.7	44.6	45.5	4.35	.68
Subordinates	0.4	0.4	9.5	54.6	35.1	4.24	.67
Peers	0.3	0.3	11.7	54.0	33.7	4.21	.67
Self	0.8	0.8	19.2	58.9	20.3	3.97	.71

Two features of this table are immediately noticeable. First, the ratings are extremely skewed. Overall, less than 1% of the ratings are below average while over

86% of the ratings are above average. Although the data gives no direct suggestions as to the cause of this phenomenon, speculatively there are two possible explanations for this: First, it is possible that the individuals surveyed were simply not capable of accurately assessing their shortcomings. Second, it may be that even in an anonymous survey, the respondents were unwilling to admit to the shortcomings they really believed they had. Since both of these characteristics are probably true of the human race as a whole, they are probably both applicable here. Nevertheless, the degree of skew in these ratings is remarkable.

Second, respondents have been harder on themselves than they think others would be. Again, the data does not explain why this is so, but speculatively one could conclude that respondents simply think that others don't perceive their shortcomings as well as they themselves do.

Variations Among Colleges

This study is based in part on the premise that different colleges, even from a fairly homogeneous population of small Christian schools, will both intend and realize different educational results and have different influences on their graduates. To determine whether this premise was actually true for the nineteen colleges whose graduates participated in the survey, an analysis of variance among the colleges was done for each of the variables in the survey.

(A note on Tables in this section: The items with significant variation among the colleges are identified in the narrative below. The actual average scores for each college for each of these variables may also be of interest to the reader. Since this information is

rather bulky, Tables showing these averages are included in Appendix D.)

Personal Characteristics of Survey Respondents

It is conceivable that the different colleges in the study attracted significantly different kinds of students. These differences (rather than differences in the colleges' programs) might then lead to different educational outcomes and career success levels. There was significant variation for only one of the personal characteristic variables, however: High school grade point average of the survey respondents. It appears that different colleges do attract student populations with different academic abilities, at least insofar as high school grade point average is an indication of such abilities. The survey collected information on GPA in half-grade-point categories (2.00-2.49, etc.) so a precise average for each school cannot be calculated. However, it can be interpolated from the average score from the survey. The average high school GPAs for students coming into each college ranged from 3.32 to 3.96. The averages for each college are in Table D.1.

Analyses of variance failed to reveal any significant differences between the graduates of the various colleges for any of the other personal characteristic variables considered: gender, age, or socioeconomic status of parents.

Personal Experiences of Survey Respondents

Similar analyses of the personal experiences of respondents showed four instances of significant variation among colleges. Three of these had to do with work experience while in college: Participation in an internship, level of work experience in college, and whether working at the time of graduation. The fourth was level of participation in

extracurricular activities.

Table D.2 shows the proportion of students in each college who participated in a formal internship while in college. That proportion varied from 11% to 100%. The level of work experience while in college was rated on a four-point scale, with four being the highest. The reported average level of work experience ranged from 2.50 to 3.33, as shown in Table D.3. The proportion of students working (either full- or part-time) at the time of their graduation varied from 57% to 100%, as shown in Table D.4.

The level of participation in extracurricular activities was rated on a four-point scale, with four being the highest. The reported average levels of participation at the various colleges ranged from 2.31 to 3.44. Individual averages for each college are shown in Table D.5.

There were several areas in which no significant variation among college samples were found: Work experience prior to college, age at matriculation and graduation, number of colleges attended, leadership in extracurricular activities, and relationship with a mentor.

Program Characteristics

If variations among colleges were to be found anywhere, they would be most likely within the specific characteristics of each college's program. This proved to be very much the case. Of the 21 program characteristics included in the survey, 20 were found to vary significantly among the colleges.

Of the four general characteristics of the programs that were rated in the survey, only the interaction between students and faculty was found not to vary significantly.

The other three general characteristics – teaching ability of the faculty, intellectual capacity of the students, and quality of the job search preparation provided by the college – all did show significant variation among the institutions.

There were 16 areas of program emphasis included in the survey – four each in the categories of knowledge, skills, competencies, and attitudes or values. Every one of these was found to have significant variations between the colleges in the sample. Finally, the overall level of emphasis on Christian worldview was also found to vary significantly among the colleges.

The individual college averages for the program characteristics are to be found in Tables D.6 through D.11.

Educational Outcomes

It is one thing for colleges to intend different emphases in their programs. That intention, of course, does not guarantee that actual differences in educational outcomes will result. To determine the extent to which educational outcomes varied among the colleges, analyses of variance were done for the 17 outcomes that were rated. Of these 17, all but three were found to vary significantly among the schools.

The college grade point averages of the respondents did not vary significantly among the colleges. (Since the high school grade point averages of these same individuals did vary significantly, the result for college GPA may indicate a certain amount of "grading on the curve" at the college level. That, however, will have to be the subject of another study.)

The perceived effectiveness of the institutions in transferring knowledge was

rated for the same four areas in which emphasis was assessed: Knowledge of human culture, Scripture, business functions, and management tasks. Significant variation was found for all of these except effectiveness in transferring knowledge of management tasks. College averages for these ratings are in Table D.12.

The effectiveness of the institutions' programs in all of the skills development and competency development areas were found to have significant variations. Tables D.13 and D.14 show the average ratings for these areas.

The institutions had significant variations in their effectiveness in influencing attitudes and values in three of the four areas surveyed: Initiative, integrity, and Christian service in the workplace. This was not true of their effectiveness in persuading students to value lifelong learning, however. In that category, no significant variations among programs was found. Finally, the colleges were found to be different in their abilities to help students develop an overall Christian worldview. The average ratings for these areas are shown in Tables D.15 and D.16.

Career Success

It is obvious from the above that the colleges included in the survey had different intentions in their educational programs, and that their effects on students were also different. If college programs have a substantial effect on career success, then it might be expected that the career experiences of graduates would also vary among the different colleges. For the most part, however, this was found not to be the case.

Fourteen variables that seem related to career success were measured directly in the survey: two related to employment status; one direct measure of starting salary; seven

related to various aspects of job satisfaction; and four related to prospective performance evaluation. An additional three variables were calculated from the survey data, all related to salary increases and promotions over time. Of these 17 variables, only three were found in an analysis of variance to have significant differences among colleges: Time to first employment after graduation, prospective subordinates' evaluation of performance, and prospective peers' evaluation of performance.

Table D.17 shows the scores for time to first employment. This variable was measured in categories: (1) employed immediately upon graduation; (2) employed 0 to 2 months after graduation; (3) employed 2 to 4 months after graduation; and (4) employed more than four months after graduation. This did not allow a precise calculation of the average times to employment for the graduates of each college. However, estimates were made using the average scores for each college on the above scale. These estimates provide a range of average times to first employment for the various colleges from 0.3 months to 2.0 months.

The ratings for prospective performance evaluations are shown in Table D.18. Evaluations by subordinates and peers vary significantly among colleges, but evaluations by the supervisor and by the employee himself do not. There is nothing in the data to suggest why this should be so.

Path Analyses

The central focus of this study was to try to determine the precursors of early career success. The primary method for evaluating the antecedent relationships was a set of path analyses using multiple regression to identify those independent and intervening

variables that had significant correlation with each of the dependent career success variables. A separate path analysis was done for each of the 16 dependent variables. In the first step of each analysis, all of the independent and intervening variables were entered stepwise into a multiple regression. When intervening (educational outcome) variables were found to have a significant correlation with a dependent variable, a path analysis was then done for the educational outcome variable with all of the independent variables entered stepwise. In this way, both the direct and indirect effects of independent variables (personal characteristics, personal experiences, and program characteristics) could be evaluated. To evaluate the overall effect of each independent variable a partial decomposition was done and the sum of direct and indirect effects was calculated for each variable.

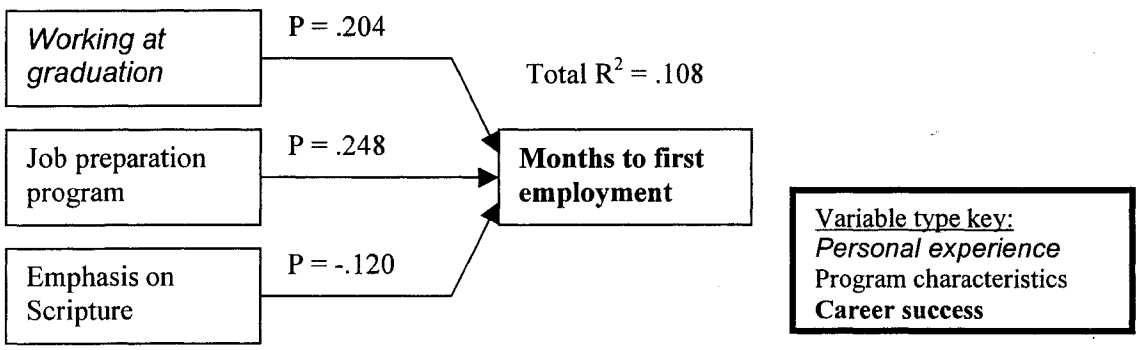
The nature of the career success variables made meaningful aggregation difficult. There was no effective means of aggregating such variables, for example, as months to first employment, starting salary, satisfaction with career progress, and a supervisor's prospective rating of performance. Since some indication of total influence was desirable, a three-step analysis was done to help form an understanding of how the various types of success were influenced by the antecedent variables. Counts were done of the number of times that a particular dependent or intervening variable appeared (directly and indirectly) in the sixteen path analyses. Next, the dependent and intervening variables with the highest counts were selected for further analysis. Finally, a summary was prepared of the effects of each of the selected variables on the four categories of career success. This analysis and its results are shown below in the final section of this chapter.

Employment Status Variables

There were two types of information gathered regarding employment: Whether the respondent was employed or not, and the amount of time that elapsed between graduation and first employment. There were no significant relationships found for employed/unemployed, presumably because there was so little variation in this dependent variable – 92.5% of the respondents were employed at the time of the survey.

There were significant correlations, however, with time to first employment. The path analysis for this variable is shown in Figure 4.1. (Note that the "Variable type key" box for this and other path analyses indicates the classification of each variable according to the typology of this study's model. Note also that "P" in the path analyses indicates the value of the path coefficient for each relationship.)

Figure 4.1 Time to First Employment



The relationship between employment status at graduation and the time taken to obtain a first job seems reasonable. Many graduates held fulltime jobs at graduation and stayed in them, reducing their time to first employment to zero. The relationship between the quality of the institution's job search preparation program and time to first employment is also logically supportable. The better the job search support given to the

student, the less time taken to find employment. (Of course, since the rating of the quality of the job search program is subjective, the causal relationship might also run in the opposite direction. Graduates who found employment quickly might retrospectively conclude that they were well prepared.)

The relationship with the final variable, program emphasis on knowledge of Scripture, is harder to support logically – particularly since the correlation is negative. The greater the emphasis on Scripture knowledge in the program, the longer the search time for the first job. Causality in this relationship is not obvious.

None of the intervening educational outcome variables were significantly correlated with time to first employment.

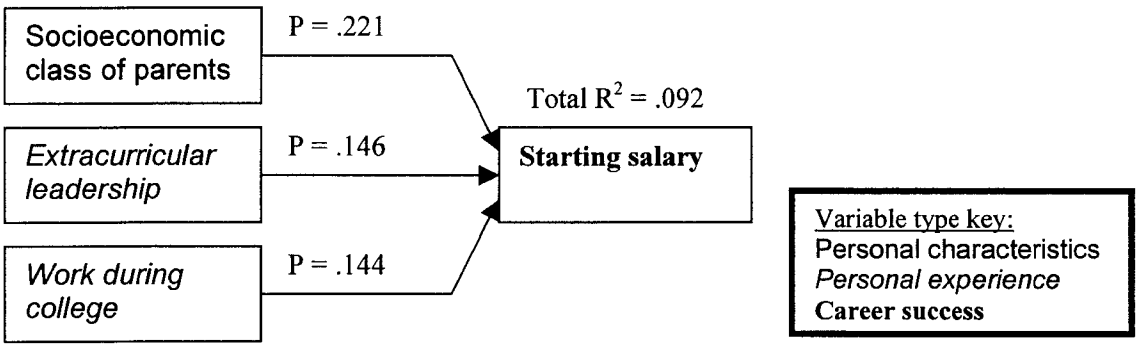
Compensation Variables

The information gathered from the survey included starting salary, salary at the time of the survey, number of salary increases received since graduation, number of promotions received since graduation, and time elapsed since graduation. From this information, three additional variables were computed: Average annual salary increase; average number of salary increases per year since graduation (typically a fraction); and average number of promotions per year since graduation (typically a fraction). These three allowed for a normalization of salary increase and promotion information, since the graduates had been out of college and employed for different lengths of time. Starting salary and these three variables were used as indicators of compensation "success."

Starting Salary

The path analysis for starting salary is shown in Figure 4.2 below.

Figure 4.2 Starting Salary



It is not surprising that the level of work experience during college was positively correlated with starting salary. Employers pay for experience as well as education, and some of the students were already employed full time while in college in jobs that they retained at graduation. The link between extracurricular leadership and starting salary is also plausible, since students with the initiative and energy needed for such positions might well find better jobs and command higher salaries than those who do not have such qualities.

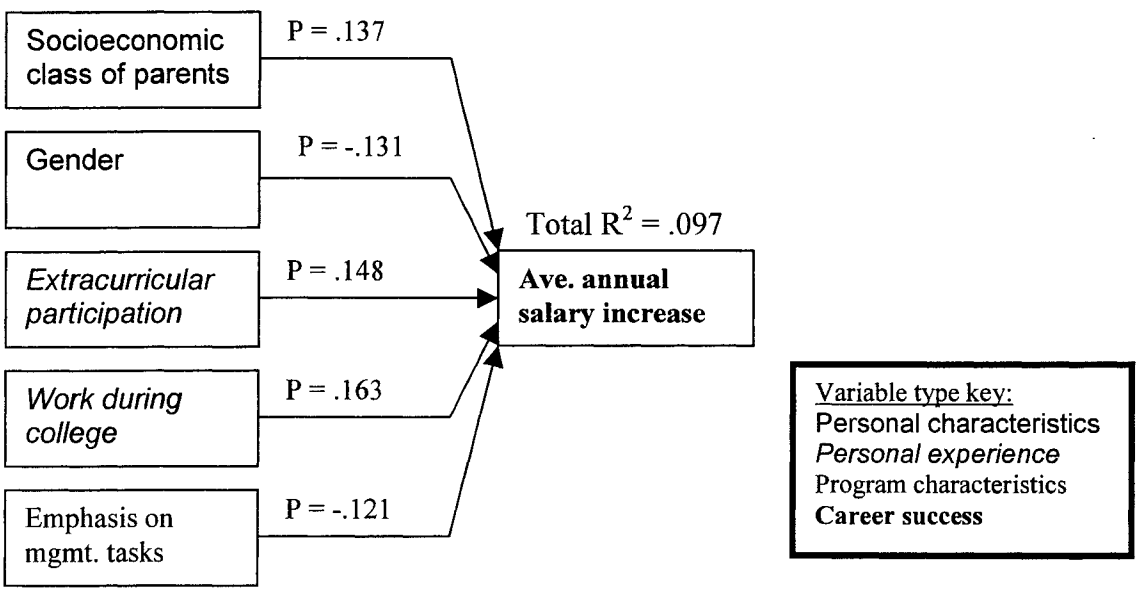
The link between socioeconomic class of the graduate's parents and starting salary is less clear. It may be that expectations play a role here – students who have had well-compensated parents may enter the job market expecting and seeking higher paying positions themselves.

Again, none of the intervening educational outcome variables were found to be significantly related to this particular form of career success.

Average Annual Salary Increase

The total increase in each respondent's salary (current salary less starting salary) was divided by the time elapsed since graduation (2.0, 2.5 or 3.0 years, depending on graduation date) to obtain an average annual salary increase. This is not a precise statistic, since actual time spent working might vary from these amounts if the start of employment was delayed, and because the issuance of the surveys extended over a period of about two months. However, if these small variations were randomly distributed – and there was no reason to think they were not – their effects should not substantially affect the usefulness of the analytical results. The path analysis for this dependent variable is shown in Table 4.3 below.

Figure 4.3 Average Annual Salary Increase



Gender is coded in the data such that "0" is male and "1" is female. This analysis, then, suggests that males made significantly greater salary progress than females. This is consistent with conventional wisdom. Extracurricular participation (rather than

extracurricular leadership, as above) and work experience during college are also positively correlated with salary progress. This seems reasonable for the same reasons suggested in the discussion of starting salary. And as with starting salary, the socioeconomic status of the graduate's parents is positively correlated to salary increases. Expectations may play a role in this relationship as well.

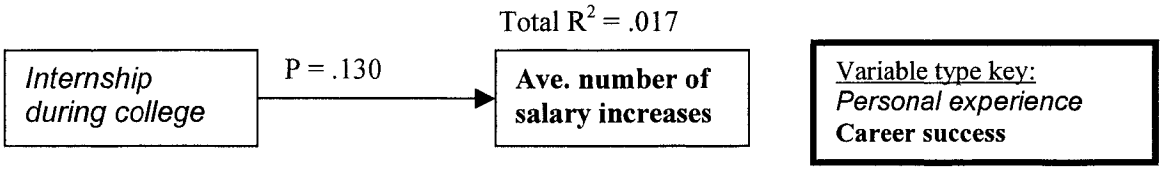
There is no such ready explanation for the negative correlation between a college program's level of emphasis on transferring knowledge about management tasks and salary increases received by that program's graduates. The causal factors in this relationship, if in fact they exist, are not apparent.

Once again, the intervening educational outcome variables are not significant in this analysis.

Average Annual Number of Salary Increases

The frequency of salary increases is not a particularly robust indicator of career success. A single substantial increase would be more desirable than several tiny ones. Nevertheless, it might provide some indication of the regard in which the graduate is held by an employer. The analysis, however, provides only the weakest of correlations between a single independent variable (internship during college) and average number of salary increases, as shown in Figure 4.4 below. While significant in a statistical sense, this seems to have minimal importance in providing understanding of career progress.

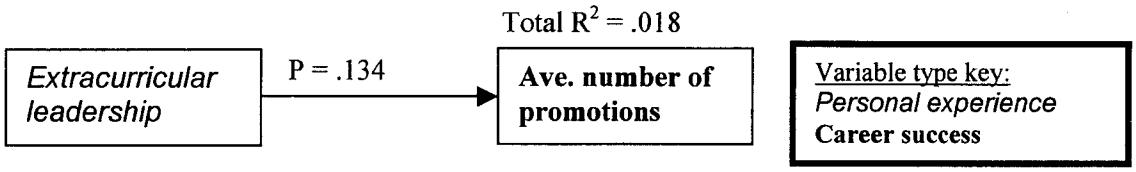
Table 4.4 Average Annual Number of Salary Increases



Average Annual Number of Promotions

If frequency of salary increases is a weak indicator of success, frequency of promotions may be even weaker – particularly since in a two to three year career more than one or two promotions is unlikely and none would not be out of the ordinary. The possibility of a useful relationship existed, but in the event none was revealed. Figure 4.5 below shows a single significant correlation (with extracurricular leadership) and a very small effect size.

Figure 4.5 Average Annual Number of Promotions



Satisfaction Variables

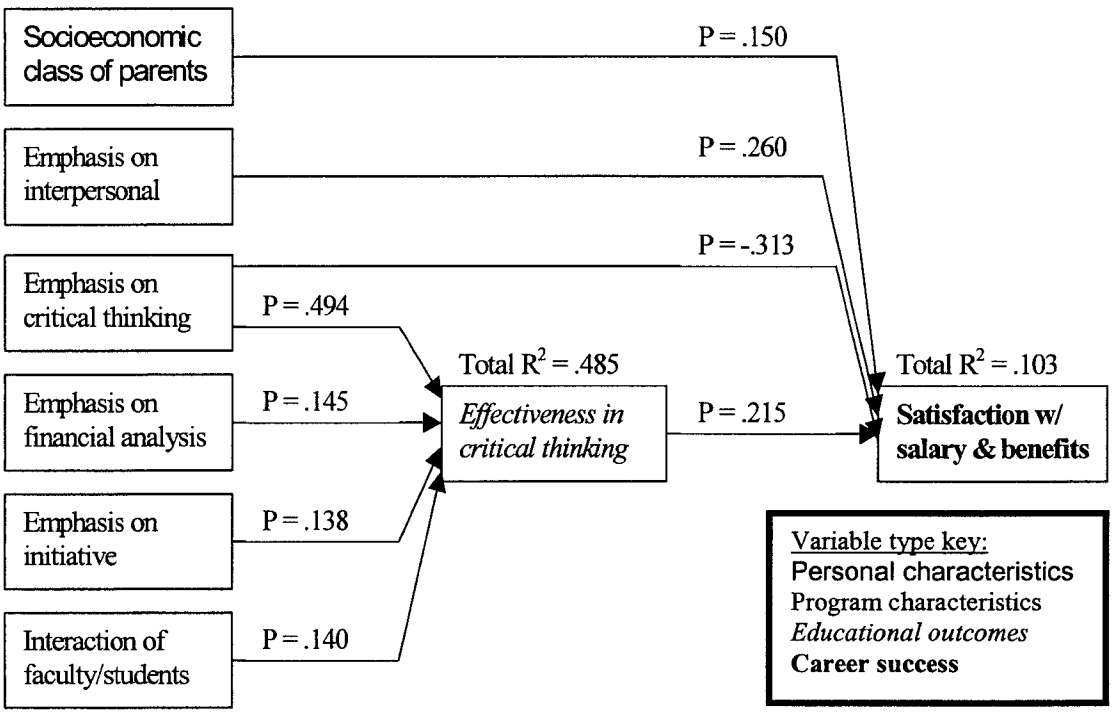
The questionnaire asked respondents to rate their job-related satisfaction in seven areas on five-point scales. A path analysis was done for each of these areas to see which, if any, of the dependent and intervening variables were correlated with satisfaction levels.

Satisfaction with Salary and Benefits

The absolute level of compensation and improvements in compensation were considered in the analyses above. But satisfaction may not be linearly or even directly related to compensation level or progress. The subjective satisfaction that is associated with compensation may be impacted by expectations, comparisons, etc. Nevertheless, satisfaction in this area is probably at least as important an indicator of success as is the

compensation level itself. The path analysis for this variable is shown in Figure 4.6:

Figure 4.6 Satisfaction with Salary and Benefits



An intervening educational outcome variable, effectiveness in developing critical thinking, appears in this analysis – this first analysis in which this is the case. Four independent variables, all part of the program characteristics category, are correlated with effectiveness in critical thinking and act on the dependent variable indirectly. Since it is their relationship to the dependent career success variable that is of primary interest, a partial decomposition of covariation was done for these variables. Each independent variable's influence on the dependent variable is calculated by multiplying the path coefficient of its correlation with the intervening variable by the path coefficient of that intervening variable's correlation to the dependent variable. In the case of emphasis on critical thinking, the independent variable had both a direct and an indirect correlation

with the dependent variable. The indirect and direct effects were added to obtain a measure of the total relationship between the independent and dependent variable. The results of this analysis are shown in Table 4.28.

Table 4.28 Decomposition of Covariation – Satisfaction with Salary and Benefits

Independent and intervening variables	Direct Effect	Indirect Effect	Total Effect
Socioeconomic class	.150		.150
Interaction of faculty/students		.030	.030
Emphasis on financial analysis		.031	.031
Emphasis on interpersonal comp.	.260		.260
Emphasis on critical thinking	-.313	.106	-.207
Emphasis on initiative		.030	.030
Effectiveness in critical thinking	.215		.215

The relationship of socioeconomic class with satisfaction in this area may simply reflect the relationship noted above between socioeconomic status and starting salary. The chain of causality, then, might be thus: Higher socioeconomic status leads to higher starting salary, which in turn leads to higher satisfaction with salary. The correlation of starting salary and satisfaction with salary and benefits (which were treated as two dependent variables in this path analysis) is .287, and is significant ($\alpha<.001$), so this seems at least plausible.

The reason for the relationship of this type of satisfaction with educational program effectiveness in developing critical thinking might also be suggested. The ability to think more objectively about something as personal as compensation level might lead to more reasonable expectations, and hence greater satisfaction.

The relationship between an educational program emphasis on critical thinking and this career success outcome is particularly interesting and problematic. The two are

indirectly positively correlated through the intervening critical thinking effectiveness variable, but they directly correlated in the negative direction. This is a conundrum.

Possible cause and effect relationships with the other dependent and intervening variables are not obvious. An educational program emphasis on interpersonal competence, for instance, is positively correlated with satisfaction with salary and benefits. The indirect effects of other variables in this analysis are very small an probably not of much practical consequence.

Satisfaction with Relationship with Supervisor

Three types of satisfaction with coworkers were included as dependent career success variables in this analysis. The first is satisfaction with the respondent's relationship with his supervisor. The path analysis for this is shown in Figure 4.7. A decomposition of covariation was also done for this analysis to determine the magnitude of the indirect relationships. The results are in Table 4.29.

Socioeconomic class appears here in an direct relationship, as it has in the two immediately prior analyses. A somewhat different explanation for its appearance here might be suggested, however. Children of families with relatively high socioeconomic status are more likely to have parents who are themselves managers or professionals than are children from lower socioeconomic groups. This may make them more empathetic towards the role of supervisors in general, making them less likely to be critical of or disappointed by the actions of their own supervisor.

Educational program effectiveness in developing interpersonal competence also has a plausible direct relationship to this dependent variable. Interpersonal competence

Figure 4.7 Satisfaction with Relationship with Supervisor

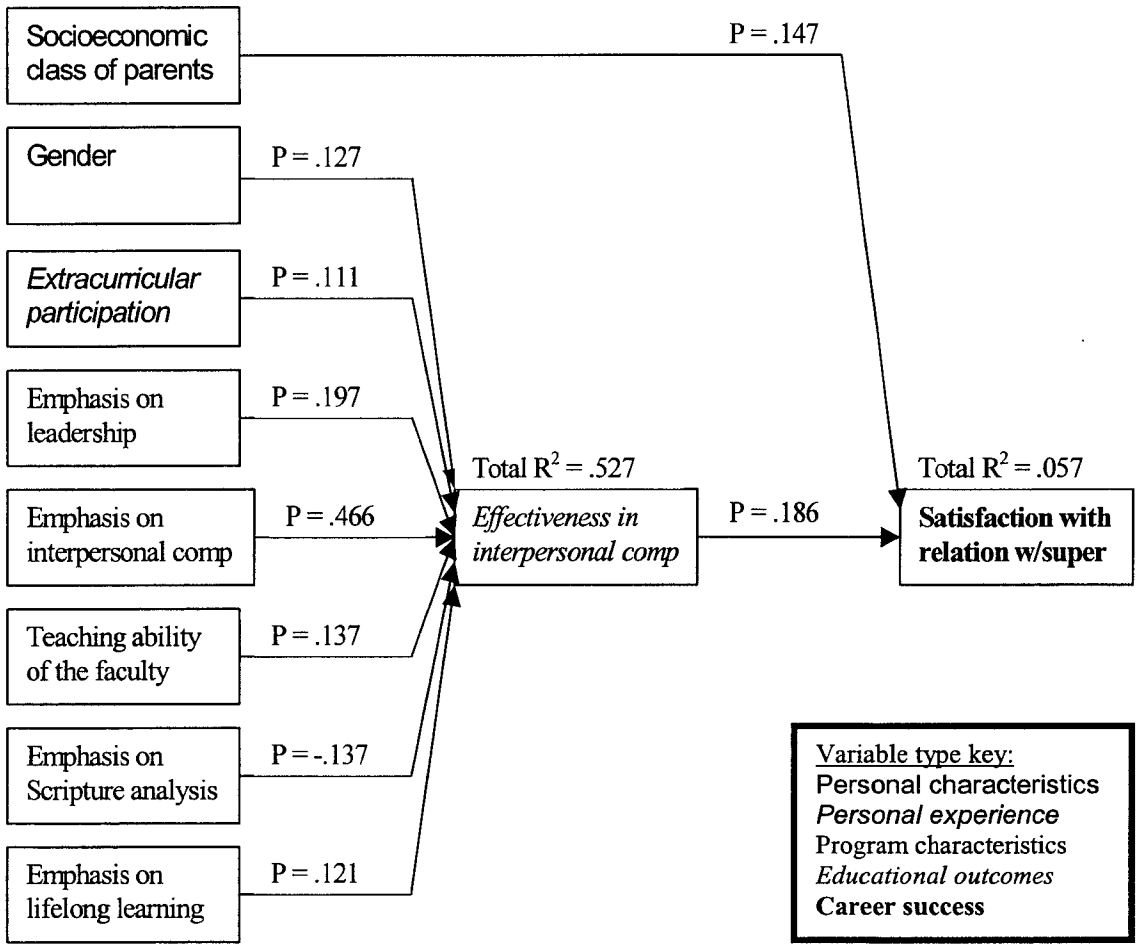


Table 4.29 Decomposition of Covariation – Satisfaction with Relationship w/Supervisor

Independent and intervening variables	Direct Effect	Indirect Effect	Total Effect
Gender		.024	.024
Socioeconomic class	.147		.147
Extracurricular participation		.021	.021
Teaching ability of the faculty		.025	.025
Emphasis on Scripture analysis		-.025	-.025
Emphasis on interpersonal comp.		.087	.087
Emphasis on leadership		.037	.037
Emphasis on lifelong learning		.023	.023
Effectiveness in interpersonal comp.	.186		.186

should help to create better relationships with those you work with. It might be especially important in the relationship with a supervisor, where the authority relationship presents special challenges. Respondents whose educational programs helped them become more effective in this area might be more satisfied with their relationship with their boss because that relationship is in fact of better quality than for those who are not as competent in working with their bosses.

The variable for gender was coded as "0" for male and "1" for female. This analysis, then, indicates that women are more likely to be satisfied with their relationship with their supervisor than are men. It is a small effect, but it is statistically significant.

The other effect of particular note in this analysis is the negative correlation between educational program emphasis on textual analysis of Scripture and program effectiveness in developing interpersonal competence. (The indirect effect on satisfaction with supervisor through the intervening variable of interpersonal competence is, of course, also negative.) One speculative explanation could be that in some programs the analysis of Scripture is emphasized at the expense of other more career-related program components, and that relative deficiencies had dispersed negative effects on educational outcomes and career success. It is also at least conceivable that programs that are known for their emphasis on Scripture tend to attract students with less capacity for interpersonal relationships (or quantitative analysis, as shown in path analyses below.)

Satisfaction with Relationship with Coworkers

The path analysis for satisfaction with relationship with coworkers is shown in Figure 4.8, and the associated decomposition of covariation is in Table 4.30.

Figure 4.8 Satisfaction with Relationship with Coworkers

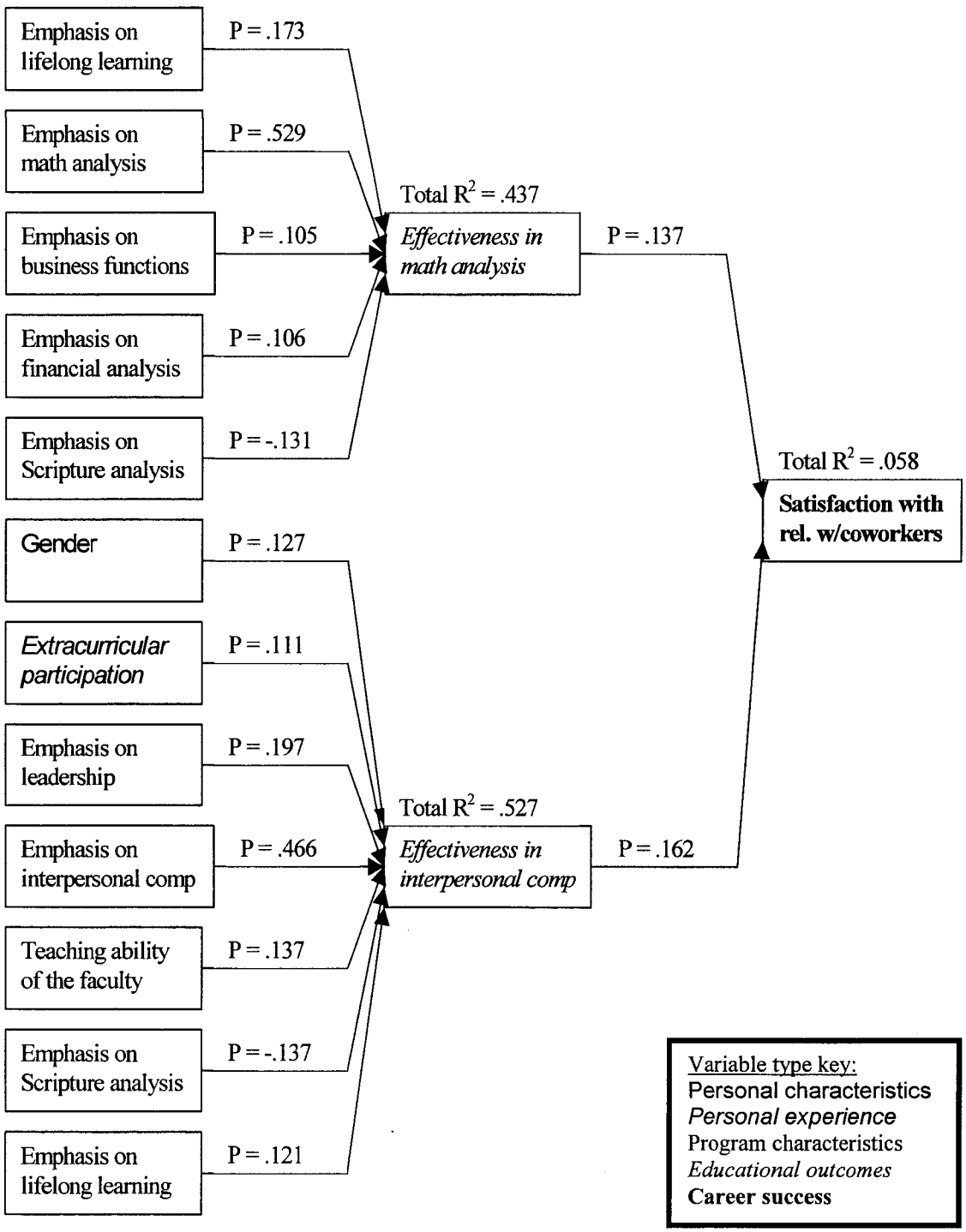


Table 4.30 Decomposition of Covariation – Satisfaction with Relationship w/Coworkers

Independent and intervening variables	Direct Effect	Indirect Effect	Total Effect
Gender		.021	.021
Extracurricular participation		.018	.018
Teaching ability of the faculty		.022	.022
Emphasis on business functions		.014	.014
Emphasis on financial analysis		.015	.015
Emphasis on Scripture analysis		-.040	-.040
Emphasis on math analysis		.072	.072
Emphasis on interpersonal comp.		.075	.075
Emphasis on leadership		.032	.032
Emphasis on lifelong learning		.044	.044
Effectiveness in math analysis	.137		.137
Effectiveness in interpers. comp.	.162		.162

Effectiveness in interpersonal competence is correlated with satisfaction with coworker relationships, just as it was with satisfaction with supervisor relationship. The earlier rationale is as plausible here as it was in that analysis – better interpersonal skills simply smooth relationships and increase satisfaction with them.

The correlation of this variable with educational program effectiveness in developing skills in math analysis does not lend itself to so ready an explanation. It is possible that they are linked through the self-confidence that competence in this skill area creates, but that is speculative.

The effect of gender once again favors women. And the negative correlation with educational program emphasis on textual analysis of Scripture is present as well, this time in indirect relationships through the intervening variables of mathematical skill and interpersonal competence.

Satisfaction with Employment Appropriate to Abilities

The path analysis for satisfaction with employment that is appropriate to the respondent's abilities is shown in Figure 4.9, and the associated decomposition of covariation is in Table 4.31.

Figure 4.9 Satisfaction with Employment Appropriate to Abilities

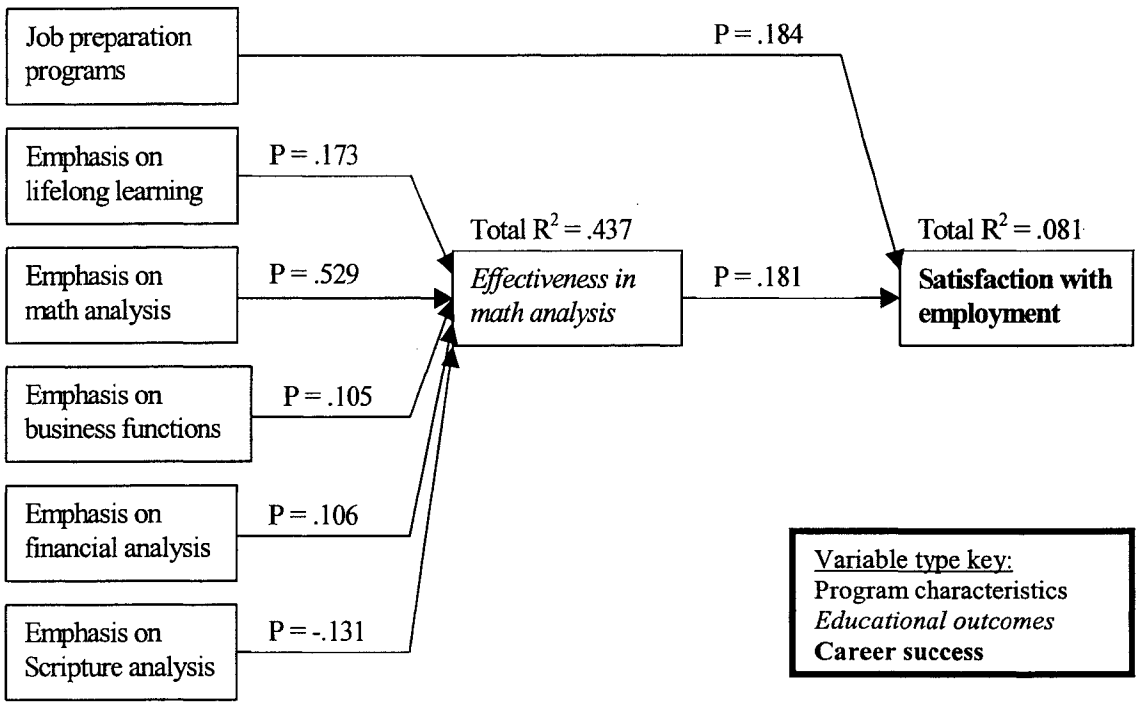


Table 4.31 Decomposition of Covariation – Employment Appropriate to Abilities

Independent and intervening variables	Direct Effect	Indirect Effect	Total Effect
Job search preparation	.184		.184
Emphasis on business functions		.019	.019
Emphasis on financial analysis		.019	.019
Emphasis on Scripture analysis		-.024	-.024
Emphasis on math analysis		.096	.096
Emphasis on lifelong learning		.031	.031
Effectiveness in math analysis	.181		.181

The correlation of this career success variable with the quality of the educational program's job search preparation program is not surprising. If a job search preparation program is in fact effective, the ability to obtain a job that fits the graduate's abilities should be enhanced. This is one of the more logically supportable relationships found in this study.

The correlation of appropriate employment with the educational program's effectiveness in creating math skills is not as easily explained. The earlier speculation that math skill improves self-confidence, which then creates more satisfactory career outcomes, does not seem to be as logically supportable with regard to this particular career success variable.

Once again, there is a negative correlation between educational program effectiveness in developing Scriptural analysis skills and this particular form of career success.

Satisfaction with a Sense of Achievement

The path analysis for satisfaction with a sense of achievement in the job is shown in Figure 4.10 below. This is the most complex analysis in this study. There are three personal characteristic variables, three personal experience variables, thirteen educational program characteristic variables, and three educational outcome variables that have direct or indirect correlations with this dependent variable. The total R^2 for this regression, .181, is the largest obtained for any of the career success variables as well.

The decomposition of covariation for this analysis is shown in Table 4.32.

Several of the variables with the greatest influence on this career success outcome

Figure 4.10 Satisfaction with a Sense of Achievement

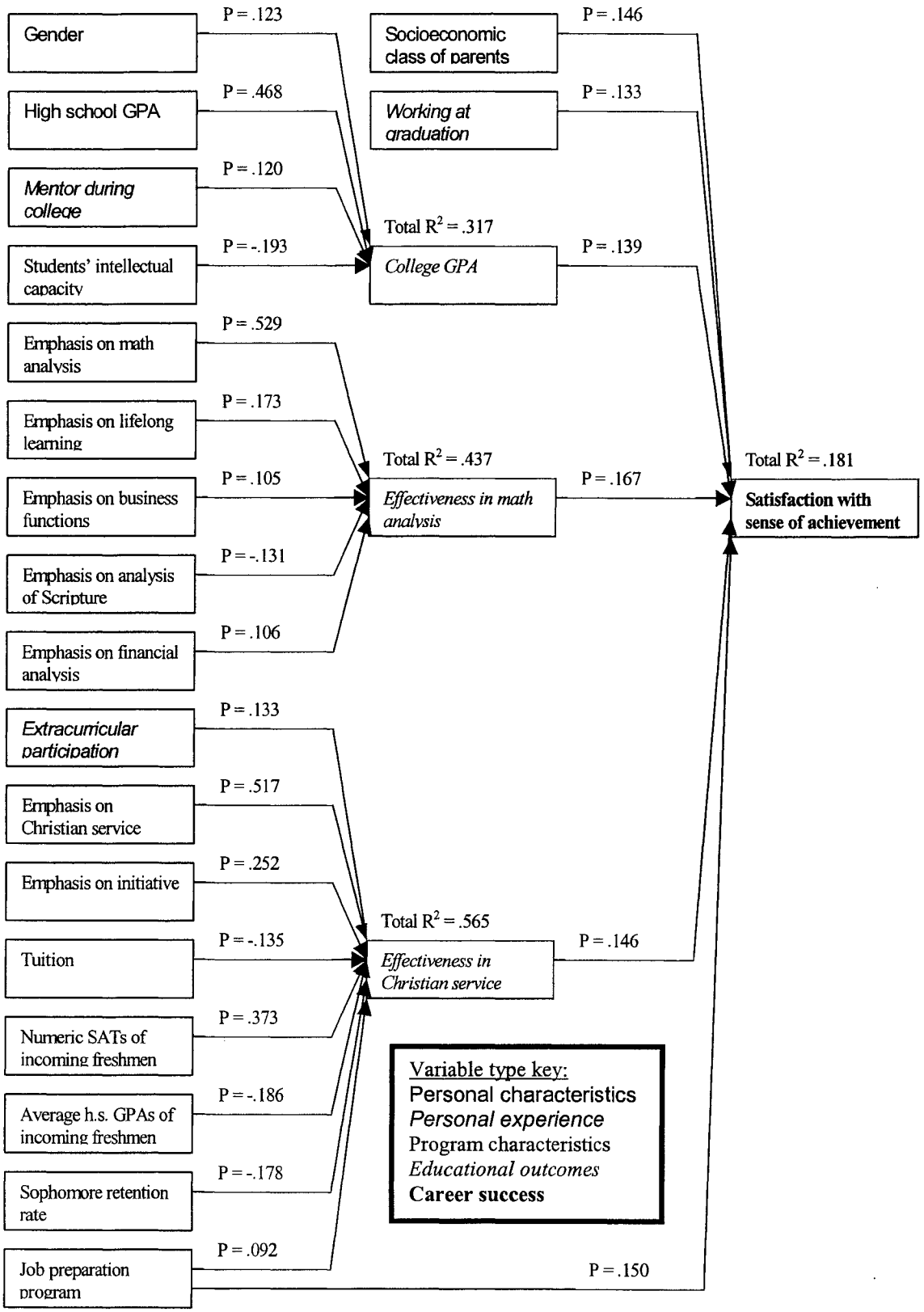


Table 4.32 Decomposition of Covariation – Satisfaction with a Sense of Achievement

Independent and intervening variables	Direct Effect	Indirect Effect	Total Effect
Gender		.017	.017
High school GPA		.065	.065
Socioeconomic class	.146		.146
Extracurricular participation		.019	.019
Work at graduation	.133		.133
Mentor during college		.017	.017
Freshmen ave. high school GPA		-.027	-.027
College numeric SAT		.054	.054
Sophomore retention rate		-.026	-.026
Tuition		-.020	-.020
Intellectual capacity of students		-.027	-.027
Job search preparation	.150	.013	.163
Emphasis on business functions		.018	.018
Emphasis on financial analysis		.018	.018
Emphasis on Scripture analysis		-.021	-.021
Emphasis on math analysis		.088	.088
Emphasis on Christian service		.075	.075
Emphasis on lifelong learning		.029	.029
Emphasis on initiative		.037	.037
College GPA	.139		.139
Effectiveness in math analysis	.167		.167
Effectiveness in Christian service	.146		.146

have also appeared in earlier analyses above. Socioeconomic class appears here with a direct relationship. As before, one can speculate that higher expectations and familiarity with the world of business may lead graduates from higher classes to obtain jobs that are, in fact, better than other graduates obtain. If true, this should result in a higher level of satisfaction here. Good job search preparation in colleges' programs, higher GPAs by graduates, and being employed at the time of graduation may all be reasonably expected to lead to better positions, reflected again in a higher sense of achievement.

Graduates who feel that their college programs have helped to prepare them for effective Christian lives – in the workplace as well as out of it – apparently feel a greater

sense of job satisfaction as well. Such individuals may well receive some of that satisfaction from their ability to live integrated lives of faith. The "achievement" with which they are satisfied may include spiritual fulfillment as well as accomplishment in their job responsibilities.

College program effectiveness in developing math skills appears in this analysis as well, directly and positively correlated with this measure of career success as it has with others above. Negative effects may be more important in this relationship than positive ones. That is, frustration with struggles resulting from weak quantitative skills may depress satisfaction with achievement.

Four indicators of college program quality make (rare) appearances in this analysis as well. Surprisingly, three of them – average high school GPA of incoming freshmen, sophomore retention rate, and tuition – are all negatively related to the college's effectiveness in developing a commitment to Christian service in the workplace, and thus are also negatively related to sense of achievement in employment through that intervening variable. Why this should be so it not clear. The fourth indicator of college quality – the percentage of entering freshmen with quantitative SAT scores over 600 – is positively correlated to that same intervening variable and hence to sense of achievement.

High school GPA appears here because it is so strongly correlated with college GPA, which is in turn correlated with a sense of achievement in employment. This the first instance in which college GPA is correlated with a career success variable. It seems reasonable that high achievers in high school would generally be high achievers in college, and would be more satisfied as a result. Finally, women have a small advantage over men in this measure of career success.

Satisfaction with Growth Opportunities

The path analysis for satisfaction with growth opportunities is in Figure 4.11; the decomposition of covariation is in Table 4.33.

Figure 4.11 Satisfaction with Growth Opportunities

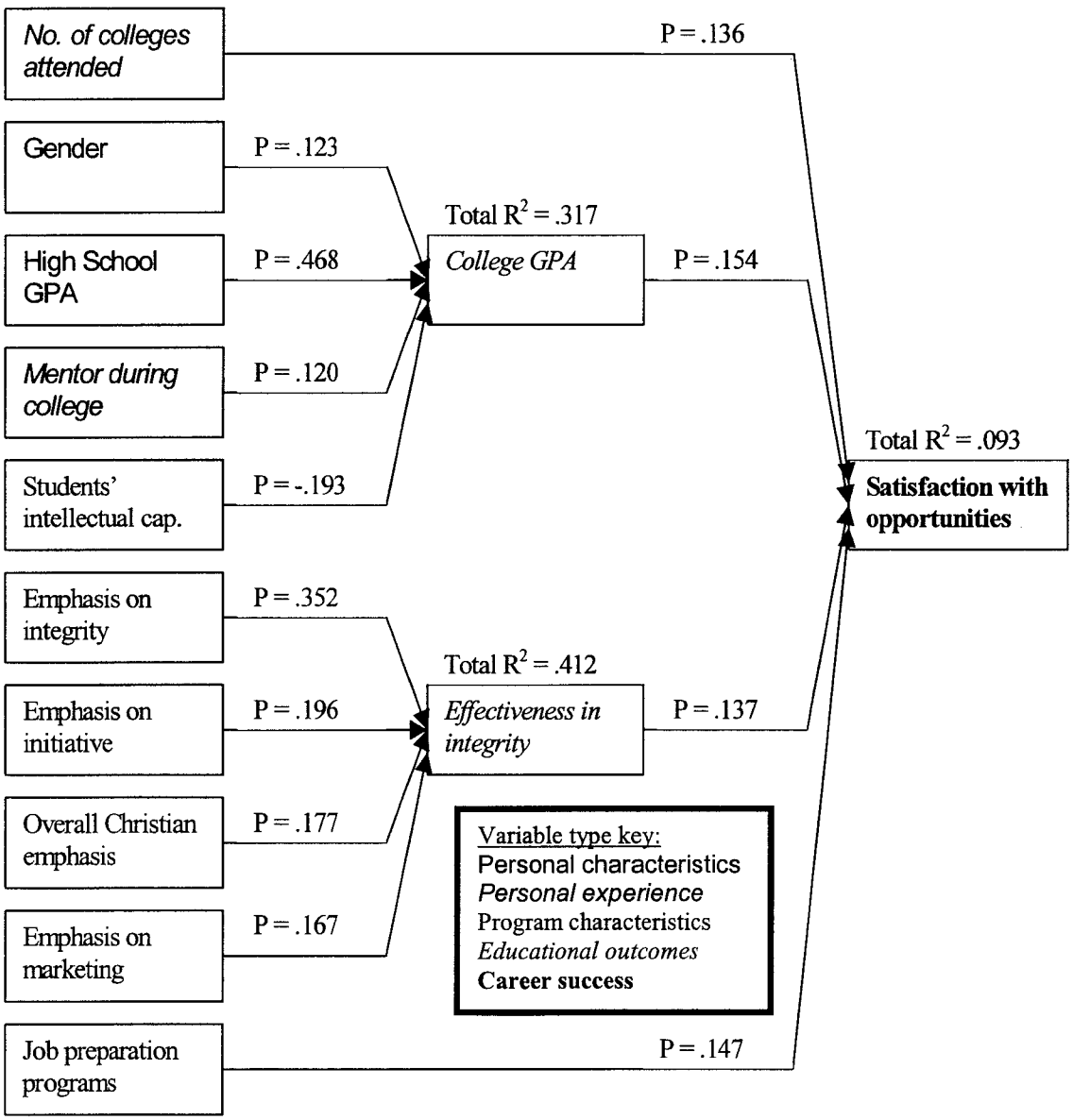


Table 4.33 Decomposition of Covariation – Satisfaction with Growth Opportunities

Independent and intervening variables	Direct Effect	Indirect Effect	Total Effect
Gender		.019	.019
High school GPA		.072	.072
Number of colleges attended	.136		.136
Mentor during college		.018	.018
Intellectual capacity of students		-.030	-.030
Job search preparation	.147		.147
Emphasis on market analysis		.023	.023
Emphasis on integrity		.048	.048
Emphasis on initiative		.027	.027
Overall Christian emphasis		.024	.024
College GPA	.154		.154
Effectiveness in developing integrity	.137		.137

The quality of the education program's job search preparation appears here as it has in several earlier analyses. The college GPA of the respondent is also positively correlated with satisfaction with growth opportunities. Logical bases for the appearance of these two antecedents of job satisfaction have been suggested earlier, and could apply here as well.

A logical basis for the appearance hereof a college program's emphasis on and effectiveness in developing integrity is not so apparent, although it is certainly conceivable that a reputation for integrity would be rewarded with more opportunities for advancement.

Respondents who attended multiple colleges tended to rate their satisfaction more highly here. It is not clear why this should be so.

High school GPA appears here, again, because it is strongly correlated with college GPA. And gender is once again significant, and once again suggests that women are more likely to be satisfied in this dimension than men are.

Satisfaction with Progress on a Career Path

The immediately previous item asked respondents to consider their satisfaction with prospects for their future. This item asks them to consider their satisfaction with their actual career progress to date. The results of the two analyses are quite different. Apparently, respondents were able to make a meaningful distinction between their progress (or lack of it) since graduation, and their prospects for future progress future. The results of this analysis are shown in Figure 4.12, and the decomposition of covariation is shown in Table 4.34.

Figure 4.12 Satisfaction with Visible Progress on a Career Path

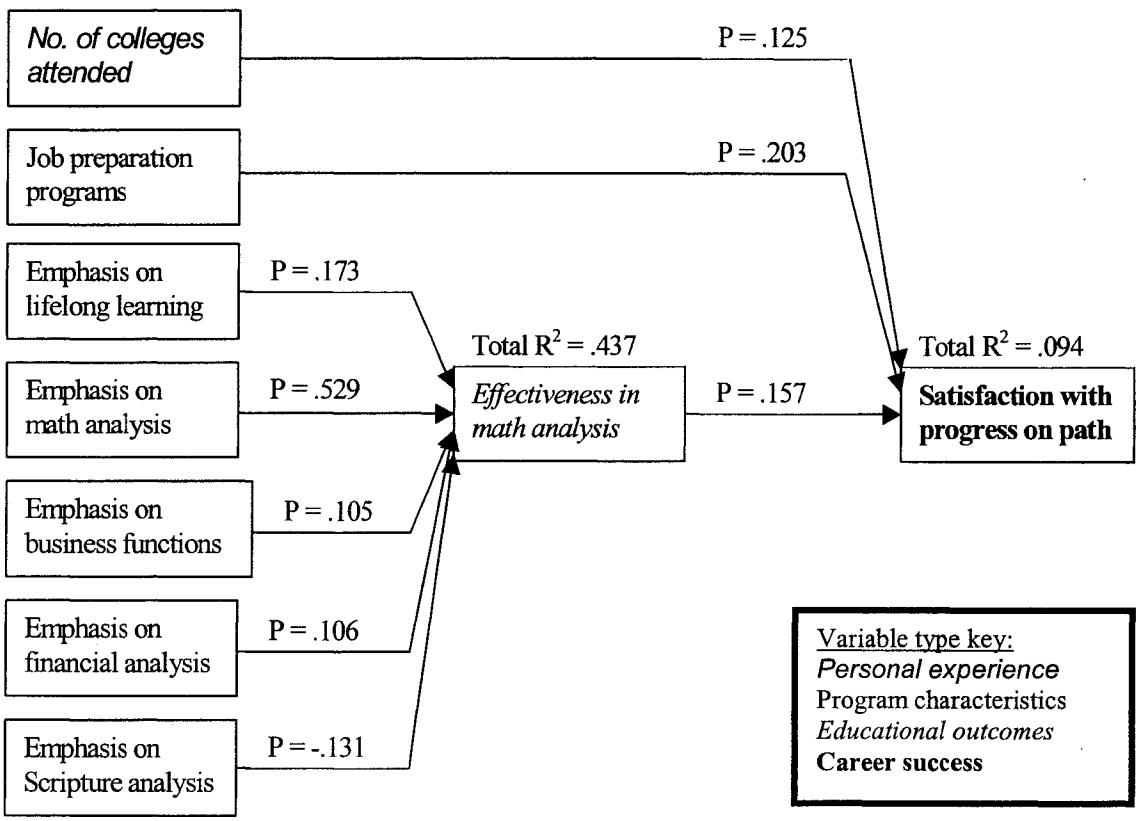


Table 4.34 Decomposition of Covariation – Satisfaction with Visible Career Progress

Independent and intervening variables	Direct Effect	Indirect Effect	Total Effect
Number of colleges attended	.125		.125
Job search preparation	.203		.203
Emphasis on business functions		.016	.016
Emphasis on financial analysis		.017	.017
Emphasis on Scripture analysis		-.021	-.021
Emphasis on math analysis		.083	.083
Emphasis on lifelong learning		.027	.027
Effectiveness in math analysis	.157		.157

Job search preparation is present in this analysis, as might be expected. Better preparation might well lead not only to a job that is more immediately satisfying, it might establish more reasonable expectations that first job as well. Effectiveness in quantitative analysis reappears here as well. It is certainly conceivable that employers value, recognize and reward quantitative ability. For the respondents, this relationship might well emerge in its retrospective association with career progress experienced so far, but not in its prospective relationship to growth opportunities – hence, quantitative abilities would not appear in the prior path analysis for growth opportunities.

As with the immediately prior item, respondents who had attended more colleges before receiving their degree tended to be more satisfied in this dimension. This is something of a puzzle as before.

Job Performance Variables

The final category of career success indicators addresses the area of job performance. The three earlier categories of success indicators – employment status, compensation, and satisfaction – generally address areas of historic success. They

provide some insight into how well the graduate has done so far, but success in these three areas is not necessarily suggestive of success in the future. Job performance is somewhat different in this regard. An individual whose job performance is high (and is seen to be so by others) in the first two or three years of his career might reasonably expect this to lead to continued success.

One important judge of job performance is the graduate himself, and the survey included an opportunity for self-evaluation. It was not deemed feasible to obtain job performance ratings from supervisors, peers and subordinates of the respondents, but it was recognized that their judgments are at least as important as the self-evaluation of the graduate. In an effort to get some indication of how others see the graduate's performance, the graduate himself was asked to make prospective evaluations on behalf of the others. The first such evaluation, for example, asked the respondent how he thought his supervisor would rate his performance. The same was done for peers and subordinates.

It is recognized that these are less-than-perfect measures. Paired sample t-tests were done for each of the three types of prospective evaluations with the respondent's self-evaluation to determine whether the respondents made a distinction between their own views and the views of those around them. In all three cases the t-test results indicated significant differences in the ratings ($\alpha < .001$), suggesting that such a distinction had been made. (Only 261 of the respondents included a prospective evaluation by subordinates in their surveys. The other respondents indicated that they did not have subordinates in their positions.) In all three cases, the respondents' average self-evaluations were lower than the prospective evaluations for the other parties.

Supervisor's Prospective Evaluation of Job Performance

The path analysis for this variable is shown in Figure 4.13; the decomposition of covariance is in Table 4.35.

Figure 4.13 Prospective Performance Evaluation by Supervisor

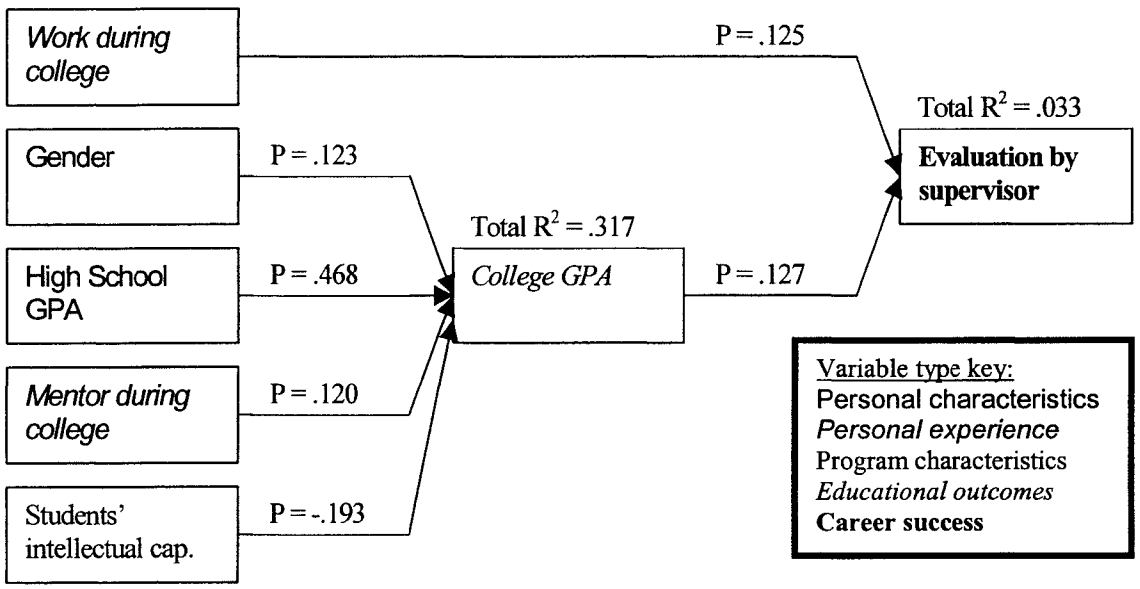


Table 4.35 Decomposition of Covariance – Prospective Supervisor's Evaluation

Independent and intervening variables	Direct Effect	Indirect Effect	Total Effect
Gender		.016	.016
High school GPA		.059	.059
Work during college	.125		.125
Mentor during college		.015	.015
Intellectual capacity of students		-.025	-.025
College GPA	.127		.127

In the opinion of the respondents, at least, supervisors would rate more highly the performance of those who had greater work experience in college and those who had higher GPAs there. Whether it is because these factors actually help to create better

performance, or because supervisors might be impressed with these factors themselves and then attribute that impression to performance, cannot be discerned from the data.

Subordinates' Prospective Evaluation of Performance

The path analysis for the prospective evaluation of respondents' performance by their subordinates is shown in Figure 4.14; the associated decomposition of covariance is in Table 4.36.

Figure 4.14 Prospective Performance Evaluation by Subordinates

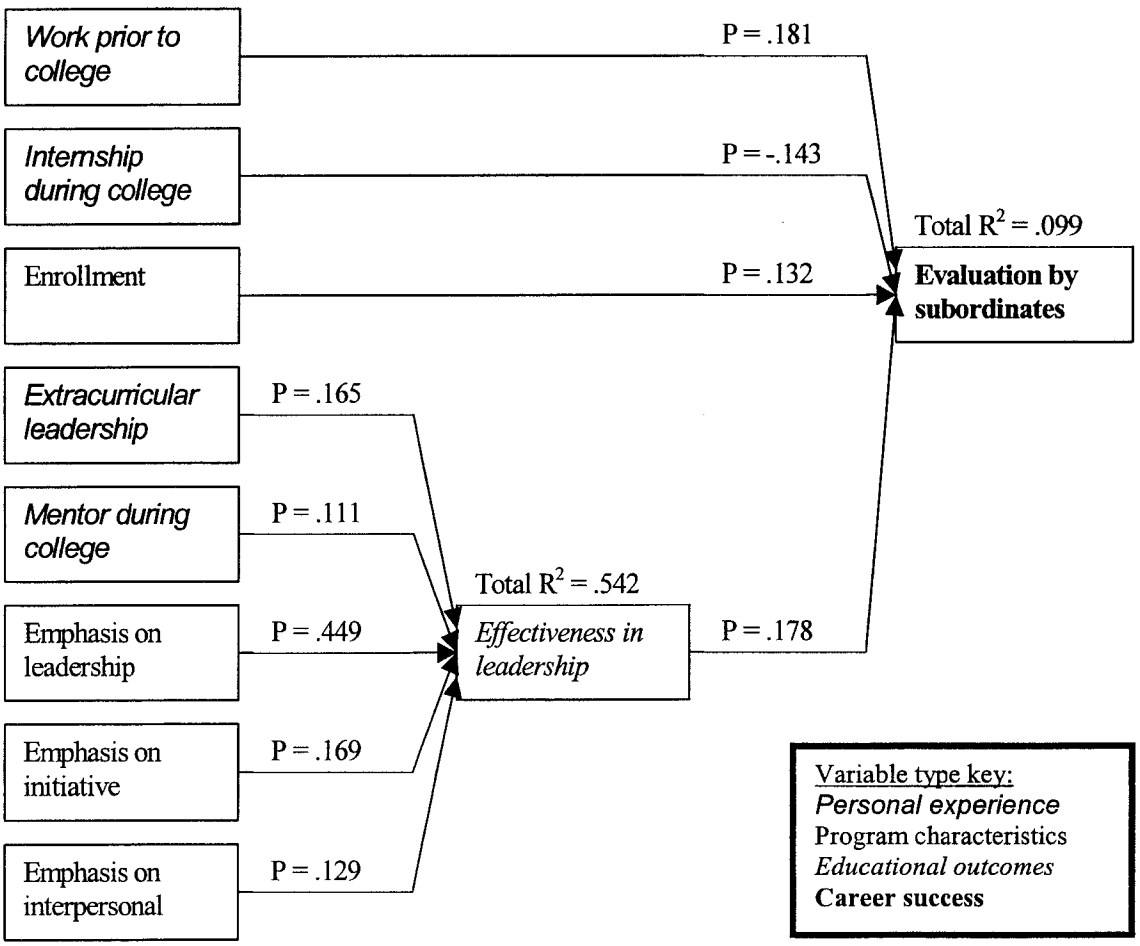


Table 4.36 Decomposition of Covariance – Prospective Subordinates' Evaluation

Independent and intervening variables	Direct Effect	Indirect Effect	Total Effect
Work prior to college	.181		.181
Extracurricular leadership		.029	.029
Internship during college	-.143		-.143
Mentor during college		.020	.020
College enrollment	.132		.132
Emphasis on interpersonal comp.		.023	.023
Emphasis on leadership		.080	.080
Emphasis on initiative		.030	.030
Effectiveness in leadership	.178		.178

One relationship in this analysis stands out as being perhaps the most logically supportable of all of those found in the various path analyses. Graduates of programs that were more effective in developing leadership competence believed that they would receive relatively high performance ratings from their subordinates. The presence of a relationship between work experience while in college and prospective performance evaluation by subordinates also seems reasonable – the work experience might well have prepared the respondent to create better relationships with subordinates.

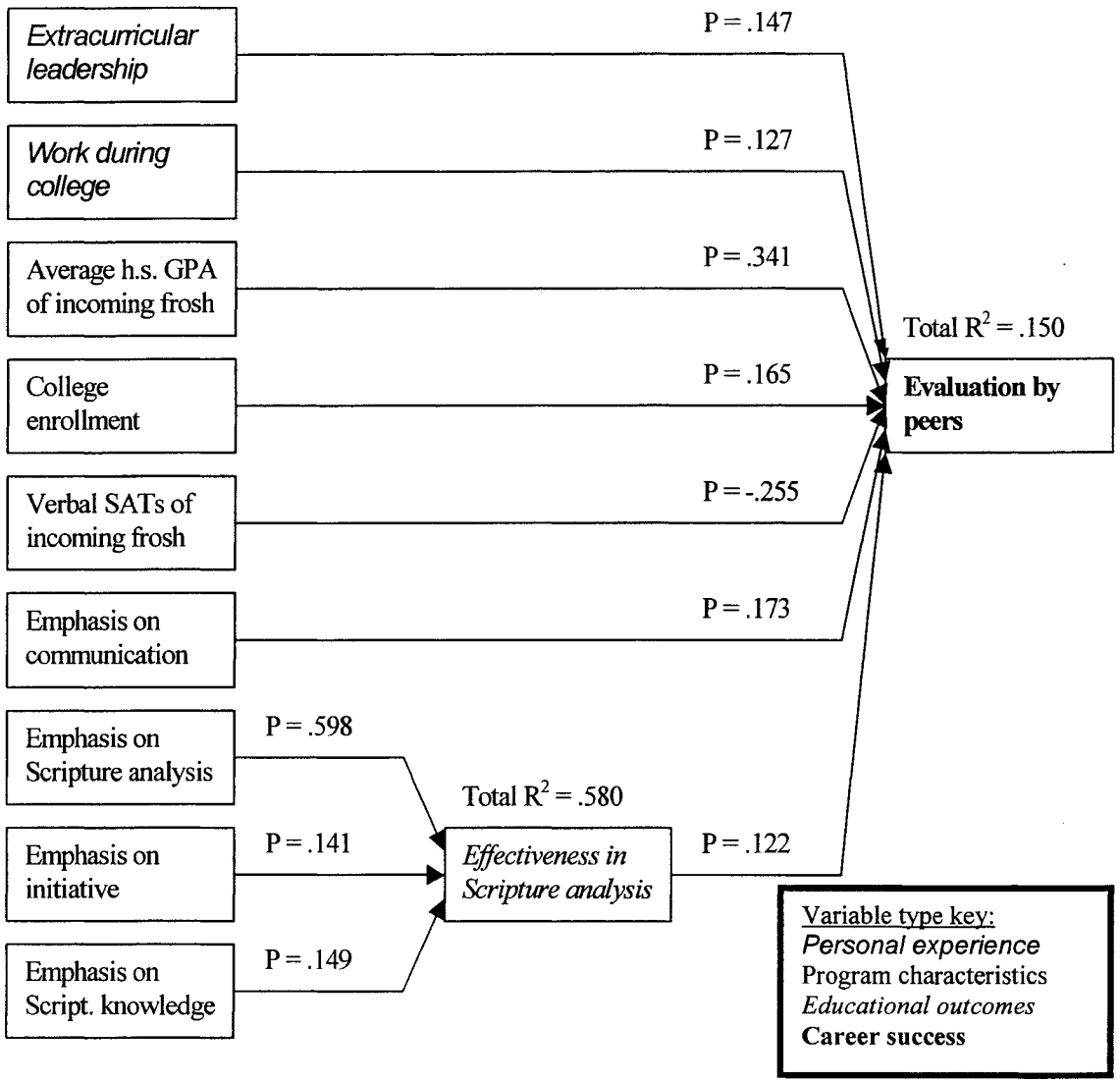
The other relationships in this analysis are not as easy to explain. It is not clear why respondents from larger colleges would feel that subordinates would rate them more highly. And it is highly unexpected that a respondent's internship experience would be negatively related to his subordinates' evaluations. Since an internship is itself a form of work experience, and work experience in general was positively correlated with subordinates' evaluations, this seems contradictory.

Peers' Prospective Evaluation of Job Performance

The path analysis for the prospective evaluation of respondents' performance by

their peers is shown in Figure 4.15; the associated decomposition of covariance is in Table 4.37.

Figure 4.15 Prospective Performance Evaluation by Peers



There is seemingly logical support for three of the variables having direct positive correlations with peer evaluations. Work experience during college, leadership experience in extracurricular activities, and education in a program that emphasizes communication competence would all seem to be reasonable antecedents to both

Table 4.37 Decomposition of Covariance – Prospective Peers' Evaluation

Independent and intervening variables	Direct Effect	Indirect Effect	Total Effect
Extracurricular leadership	.147		.147
Work during college	.127		.127
Average high school GPA	.341		.341
College verbal SAT	-.255		-.255
College enrollment	.165		.165
Emphasis on Scripture knowledge		.018	.018
Emphasis on Scripture analysis		.073	.073
Emphasis on communication comp.	.173		.173
Emphasis on initiative		.017	.017
Effectiveness in Scripture analysis	.122		.122

performance that is actually superior, and to the ability to impress others with one's capabilities.

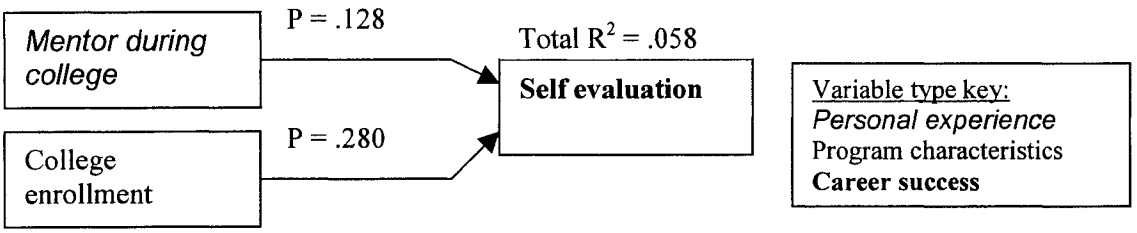
The other direct positive correlations are more problematic. It is far from clear why being in an education program that is effective in developing skills of Scripture analysis would raise one's peers evaluation of one's performance. The positive relationship with two measures of college quality – the average high school GPA of incoming freshmen and the size of the school – might be a reflection of some type of attribution effect, if peers are impressed by one's alma mater and credit it as superior performance. But these are seemingly contradicted by a negative correlation with another measure of college quality – the percentage of incoming freshmen with verbal SAT scores of 600 or greater.

Self Evaluation of Job Performance

Respondents' own evaluation of their job performance has fewer significant correlations with other variables than any of the career success measures except the

number of raises and promotions received. The path analysis for this is in Figure 4.16.

Figure 4.16 Self Evaluation of Performance



It is not apparent why either a mentoring relationship in college or the size of the college program should have much bearing on an individual's evaluation of their own job performance, but these variables were found to have significant correlations in the analysis. The paucity of significant relationships here is striking. Self evaluations are not correlated to work experience, college GPA, or any of the possible outcomes (knowledge, skills, competencies, or values/attitudes) of their college programs.

A Note on Effect Sizes

As a first step toward understanding the results of the path analyses above, the consistently small effect sizes for the dependent variables must be acknowledged. The coefficients of multiple determination (R^2) for the 16 analyses range from .017 (for the average number of salary increases) to .181 (for satisfaction with a sense of achievement). This clearly suggests that career success is strongly influenced by factors other than those included in this study. This is not surprising, of course. If the effects of the independent and intervening variables included here were large, earlier studies would have found and confirmed them. This does not invalidate this study, but it does suggest that caution be used in applying its results.

It is worth noting that some of the effect sizes for the intervening variables of educational outcomes are fairly large. The largest R^2 is seen in this stage of the analysis, .580 for effectiveness in Scriptural analysis, and several other educational outcomes have R^2 greater than .400. While these relationships were not the primary focus of the study, the results do suggest that the model has some important explanatory power for educational outcomes.

The indirect effects on the dependent variables of career success, however, are generally small. None of the indirect effects is greater than .106, and most are much smaller. Furthermore, in only two cases did an independent variable have both a direct and an indirect effect in the same path analysis. The decision to use path analyses rather than simple regression was made in large part because of the structure of the model on which this study is based. It seemed reasonable to treat educational outcomes as intervening variables, with the independent variables of personal characteristics, personal experiences and educational program characteristics having the potential for influence on career success both directly and indirectly through the educational outcomes. In hindsight, this may not have been necessary – treating all of the antecedents as independent variables would have been nearly as revealing. In the analysis that follows, primary emphasis is placed on direct effects. Indirect effects are noted only when variables have notable direct effects as well.

Aggregation of Path Analyses

The path analysis results above identify associations between specific independent and intervening variables and the dependent career success variables that are

of primary interest to this survey. Of necessity, however, these results are somewhat fragmented indicators of overall effects. There are sixteen career success variables in four categories, and while several of the dependent and intervening variables appear in more than one path analysis it is difficult to form a clear understanding of their relative importance.

Multiple measures of career success were included in this study because there was no single measure, or even category of measures, that could be universally recognized as indicative of "success." The multiple success variables have the virtue of providing a breadth of understanding that would not be possible with a narrower view of what constitutes success. They present their own set of problems, though, when one seeks to understand overall influences. The success variables do not lend themselves to a comprehensive aggregation – they are of different types, with different metrics. However, there is a useful middle ground between considering all 16 dependent variables independently and trying to combine them all into a single measure of success. The four categories of dependent variables – time to employment, salary, satisfaction, and performance evaluations – have some logical consistency, and they tend to be influenced by different types of antecedent variables.

A three-step analysis was done to help form an understanding of how the four categories of success are affected by personal characteristics, personal experiences, educational program characteristics, and educational outcomes. Although this is based on the results of the path analyses, it is not a statistical analysis *per se*. Rather, it is an attempt to identify meaningful categorizations and groupings of the relevant variables that are logically consistent, given the results of the surveys.

Table 4.38 Aggregation of Path Effects from Most Influential Variables

Key: **Bold** entries are direct effects *Italic* entries are indirect effects	Months to employment	Starting salary	Ave. annual salary increase	Ave. salary increases/year	Ave. promotions/year	Sat. w/salary and benefits	Sat. w/reln. w/supervisor	Sat. w/reln. w/co-workers	Sat. w/employment	Sat. w/achievement	Sat. w/opportunities	Sat. w/career progress	Evaluation by supervisor	Evaluation by subordinates	Evaluation by peers	Self evaluation	Number of Direct Effects	Number of Indirect Effects
Job search preparation	**.248**								**.184**	**.150** *.013*	**.147**	**.203**					5	*1*
Socioeconomic status of parents		**.221**	**.137**			**.150**	**.147**			**.146**							5	
Eff. in quantitative skills								**.137**	**.181**	**.167**		**.157**					4	
Work during college		**.144**	**.163**										**.125**		**.127**		4	
Extracurricular leadership		**.146**			**.134**									*.029*	**.147**		3	*1*
College enrollment														**.132**	**.165**	**.280**	3	
College GPA										**.139**	**.154**		**.127**				3	
Eff. in interpersonal comp.							**.186**	**.162**									2	
Working at graduation	**.204**									**.133**							2	
Number of colleges attended											**.136**	**.125**					2	
Gender			**-.131**				*.024*	*.021*		*.017*	*.019*		*.016*				1	*5*
Mentor while in college										*.017*	*.018*		*.015*	*.020*		**.128**	1	*4*
Emph. on interpersonal comp.						**.260**	*.087*	*.075*						*.023*			1	*3*
Extracurricular participation			**.148**				*.021*	*.018*		*.019*							1	*3*

As a first step in this analysis, counts were done of the number of times that a particular independent or intervening variable appeared (directly and indirectly) in the sixteen path analyses above. Tables showing the details of these counts are in Appendix E. Second, the independent and intervening variables with the highest counts were selected for further analysis. The results of this selection are shown in Table 4.38 below, listing the 14 variables having the greatest effect on career success (in approximate orderof the degree of their influence). In making the selection, priority was given to direct effects, with indirect effects considered only as a kind of "tie-breaker" in making the last few selections from among variables with a single direct effect. There is a pattern to the effects that is not immediately apparent in this table, but that is made clearer in the third step of the analysis. In this final step, a summary was prepared of the effects of each of the fourteen selected variables on the four categories of career success. This was done by simply noting the categories in which the each dependent and independent variable most frequently appeared. A summary of this is shown in Table 4.39 below. This shows that seven of the fourteen selected variables had important effects on only a single category of career success, while the remaining seven had important effects on only two categories.

Table 4.39 Aggregation of Path Effects on Career Success Categories

	Time to employment	Satisfaction	Salary and progress	Performance evaluation
Personal characteristics				
Gender		Female		
Gender			Male	
Socioeconomic status of parents		X	X	
Personal experience				
Number of colleges attended		X		
Extracurricular participation			X	
Extracurricular leadership			X	X
Work during college			X	X
Working at graduation	X	X		
Mentor while in college				X
Program characteristics				
College enrollment				X
Job search preparation	X	X		
Emph. on interpersonal comp.		X		
Educational outcomes				
College GPA		X		X
Eff. in quantitative skills		X		
Eff. in interpersonal comp.		X		

Effects of Independent and Intervening Variables

To this point in this analysis, the results of the survey have been considered with the groupings of independent and intervening variables. This is taken to its conclusion here. Reversing the perspective – looking at things through the lens of dependent variables – is done in the next section below.

Two variables from the category of personal characteristics appear in this list: Gender and socioeconomic status of the graduate's parents. Gender is unusual in its split relationship with success. Males tend to receive larger salary increases than females, but

females tend to be more satisfied with various aspects of their careers. The socioeconomic status of the graduate's parents was correlated with both starting salary and several satisfaction measures. It is near the top of the list in terms of degree of influence. This variable appeared in five of the path analyses, all with direct effects and positive path coefficients.

Six personal experience variables are in the fourteen selected. The number of colleges attended, oddly enough, is directly associated with two of the satisfaction variables (opportunities and career progress). Extracurricular participation is directly associated with salary increases, and extracurricular leadership is directly associated with starting salary, promotions, and evaluation by peers. Both the amount of work experience while in college and being employed at the time of graduation are in the list, but with noticeably different influences. Overall work experience is associated with starting salary, salary increases, and two types of performance evaluation, but being employed at graduation is associated with finding a first post-graduation job quickly and with one measure of satisfaction. Finally, having a mentor while in college is associated with higher self-evaluation of performance.

Three program characteristics appear here. At the top of the overall list is the quality of the job search preparation program at the institution. It appears in five path analyses (time to employment and four of the satisfaction variables), all with direct effects and positive path coefficients. It is interesting that, as noted in the Descriptive Statistics section above, this particular variable has the lowest average rating of all of the program characteristics in terms of program quality, but appears here at the top of list in terms of impact on career success.

The size of enrollment at the graduate's alma mater is associated with three of the performance evaluation variables. Only one program emphasis is among the selected variables – emphasis on interpersonal competence. It is associated, directly and indirectly, with three of the satisfaction variables.

There are three educational outcome (intervening) variables that appear on the list of variables with greatest aggregate impact. (Due to the structure of the model, these variables can have only direct effects on the career success variables.)

Two of the influential educational outcomes are program effectiveness variables. Effectiveness in developing quantitative skills is associated with four measures of satisfaction, while effectiveness in developing interpersonal competence is associated with two satisfaction variables. Both of these are correlated only with satisfaction variables.

Finally, college GPA appears in three of the path analyses with positive path coefficients. Two of the correlations are with satisfaction variables, the other with prospective supervisor's evaluation. It would have been a surprise if GPA did not have a noticeable effect on career success; at a minimum, any college professor who reads this would have been disappointed.

Effects Grouped by Dependent Variables

The discussion immediately above, and Table 4.39 on which it is based, are both organized by grouping independent and intervening variables. It is also useful – perhaps more useful – to consider what the relationships look like if categories of dependent career success variables are used as the organizing principle. Table 4.40 below is the

result of such a rearrangement. Because none of the independent or intervening variables are associated with more than two of the categories of independent variables, a fairly orderly pattern emerges. This makes it easier to see the primary influences on the different forms of career success.

Table 4.40 Path Effects Organized by Career Success Categories

	Time to employment	Satisfaction	Salary and progress	Performance evaluation
Job search preparation	X	X		
Working at graduation	X	X		
Eff. in interpersonal comp.		X		
Emph. on interpersonal comp.		X		
Eff. in quantitative skills		X		
Gender		Female		
Number of colleges attended		X		
College GPA		X		X
Socioeconomic status of parents		X	X	
Extracurricular participation			X	
Gender			Male	
Work during college			X	X
Extracurricular leadership			X	X
College enrollment				X
Mentor while in college				X

The most important influences on finding a job quickly, at least according to this study, are the quality of the job search preparation at the graduate's college, and whether or not the graduate was employed immediately prior to graduation. This seems logical – good preparation for looking for a job should make the process go more quickly, and it seems likely that, if already employed, many graduates simply stay in the jobs they had at graduation.

Over half of the factors that were included in the final list have some influence on job satisfaction. This dependent variable may, in fact, be the "best" indicator of career

success in this study. There are difficulties with the other three: Becoming employed is a single event and may be an ephemeral indicator of success; salary may be strongly influenced by the type of position pursued, and a low salary may be acceptable if other job factors are more important to the graduate; and the measures of job performance evaluation used in this study, since they all rely on the graduate's judgment, are less than ideal. But job satisfaction is more lasting than the single success of finding a job, potentially more important to most graduates than simple salary, and (because of the quality of the survey questions asked about it) more likely to be accurately measured here than is performance evaluation.. It is interesting if not surprising, then, that there are more identifiable precursors of satisfaction with the job than there of any of the three other measures of success.

The quality of the college's job search program is important to satisfaction, which seems reasonable – a graduate is more likely to find a suitable job if he knows how to go about finding it. Working at graduation is also important here. This is also supportable logically, as a student who keeps a job held before graduation is likely to do so because he already has an idea of its suitability. The graduate's personal capability, as evidenced in his college GPA, quantitative skills, and interpersonal competence, are also associated with job satisfaction. It is hardly surprising that someone with the capability to perform their job would tend to be satisfied with it. Higher socioeconomic status of the graduate's family is also associated with higher job satisfaction. A possible explanation for this has been suggested earlier – a graduate whose parents are managers or professionals is more likely to have realistic expectations of his first job. Finally, women tend to be more satisfied with their jobs than men. It is not clear why this should be so, and the

interviews did not shed any light on this particular conundrum.

Graduates with better earnings generally have four factors in common. Perhaps the most striking commonality is their more extensive participation and leadership in extracurricular activities. That this would better prepare them for work than those without such experience is, perhaps, not surprising. But it does seem less than obvious that employers would be perceptive enough to reward the effects of this experience with higher earnings. The parents of graduates with better earnings tend to have higher socioeconomic status, which may (as suggested earlier) simply mean that these graduates expect better salaries and are more likely to negotiate them both before and during employment. These graduates also have greater pre-graduation work experience, which may serve to make them more valuable to their first post-graduation employer. Finally, men have more success in this area than women. Here, though, it is interesting to consider the details of this relationship. The only advantage men have over women – according to this survey – is that they tend to get larger pay increases. They do not – again, according to this survey – enjoy higher starting salaries.

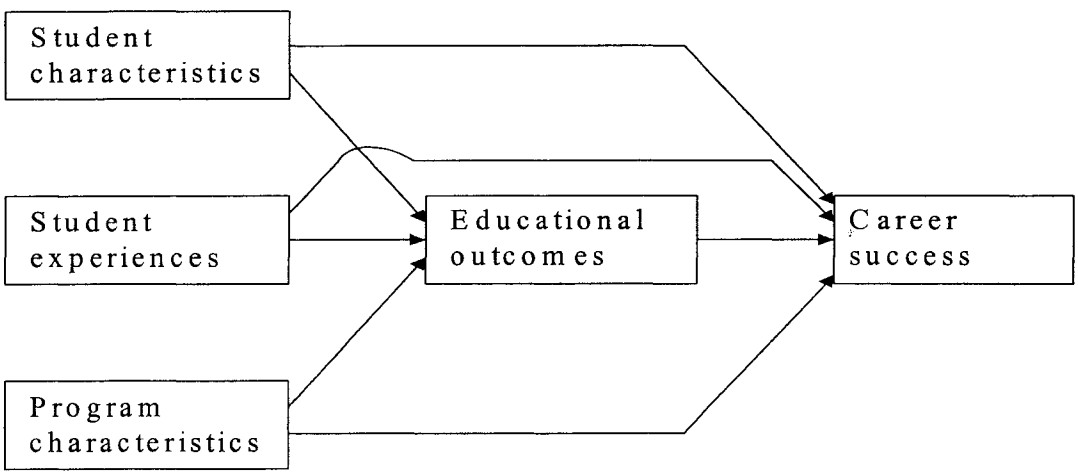
There is generally some logical support for the apparent precursors to high performance evaluations, just as there was for the other three categories above. A high college GPA, for instance, might very well result in better actual performance on the job. (This is certainly the conventional wisdom among most educators and employers, anyway.) Working during college and leadership in extracurricular activities might very well provide valuable preparation for the first post-graduation job as well. It not as clear why attending a larger college would lead to higher performance evaluations. One can speculate, however, that graduates of the very small colleges at the bottom of the range in

this survey (the smallest enrollment was only 650 total undergraduate students) might simply be less prepared for work because of the relative paucity of resources and experiences available at such schools. Finally, it is interesting that having a mentor in college is associated only with the graduate's self-evaluation of performance, not with the prospective evaluations of supervisors, peers and subordinates. Perhaps the reinforcement that comes from such a relationship in college makes a graduate feel that high performance is more likely.

An Assessment of the Model

The model that this study used for investigating the antecedents of early career success is reproduced in Figure 4.17 below. It was adapted from earlier studies, with the addition of program characteristics and educational outcomes unique to this study.

Figure 4.17 Model of Influences on Career Success



The data gathered in the survey of graduates can be used not only to illuminate the relationships that are of interest, it can also be the basis for evaluating whether the typologies of the program characteristics and educational outcomes that are used in this

model are representative of reality. That possibility is assessed in this section.

Typology of Educational Emphases

The model includes 26 variables that are intended to measure various institutional characteristics. Sixteen of these are measures of the emphasis given to various educational program components; they were created specifically for this study. They include:

Knowledge variables: Emphasis on transferring knowledge of human culture, Scripture, business functions and management tasks.

Skills variables: Emphasis on developing skills in quantitative analysis, textual analysis of Scripture, financial analysis, and marketing/strategic analysis.

Competency variables: Emphasis on developing competencies in critical thinking, communication, interpersonal relationships, and leadership.

Value or attitude variables: Emphasis on influencing attitudes about initiative, lifelong learning, integrity, and Christian service in the workplace.

The study was intended, in part, to determine which of the four broad categories – knowledge, skills, competencies, and values/attitudes – had the greatest effect on early career success. But this presumes the categories are in some way internally consistent. For instance, for this model to work well there would need to be some underlying factor, "knowledge," that was measured with some consistency by all four of the knowledge variables in the survey. If this were true, the responses for all four of those variables would be closely correlated, but they would not be closely correlated with other variables that measure, for instance, an underlying factor of "skill" or "competence." If the

consistency is not there, then it is fruitless to ask whether career success is more affected by knowledge than it is by skills; neither of those factors would actually exist in any meaningful form.

The statistical tools of factor analysis can be used to determine if the actual data supports the existence of the four presumed underlying constructs of knowledge, skills, competence, and attitudes/values. Such an analysis was run, using the principal components method and varimax rotation to obtain the most interpretable clusters of factors (Field 2003). Factor loadings of less than .500 were suppressed to maximize the clarity of the groupings. The results of this analysis appear in Table 4.41 below.

Table 4.41 Factor Analysis, Educational Emphasis Variables

	Component				Original
	1	2	3	4	category
Financial analysis	.748				Skill
Marketing or strategic analysis	.731				Skill
Mathematical or quantitative analysis	.639				Skill
Management tasks	.619				Knowledge
Business functions	.614				Knowledge
Integrity		.720			Value/attitude
Lifelong learning		.694			Value/attitude
Initiative		.692			Value/attitude
Christian service in the workplace		.660			Value/attitude
Leadership		.541			Competence
Interpersonal			.757		Competence
Communication			.742		Competence
Critical thinking			.572		Competence
Textual analysis of Scripture				.826	Skill
Scripture				.819	Knowledge
Human culture			.529	.565	Knowledge

Four factors emerge clearly from this analysis. They are not, however, exactly the same categories are were established in the original typology. The categories of Competence and of Values/Attitudes survive almost intact. If the variable concerning

leadership is reconceptualized as indicative of a willingness to lead rather than as the competence to lead that was intended in the original categories, then grouping educational emphases into the two broad categories of Competence and Values/Attitudes is indeed supported by the actual data.

The categories of knowledge and skills do not fare so well, but a useful pattern does seem evident in the data. The first factor in the analysis contains all of the variables that deal with knowledge and skills in the business arena; this can simply be called a Business factor. The practical application of these variables to career tasks was obviously more of an organizing aspect than were the more abstract attributes of knowledge or skills. The fourth factor in the analysis contains the two knowledge and skill variables that were specifically associated with the study of Scripture. As with the first factor, it was apparently the purpose or use of the knowledge and skill that was the most important organizing aspect here. The variable regarding knowledge of human culture is more of wild card. It appears in both the Competence and the Scripture factors in this analysis. Given the four factors that emerged in this analysis it is conceptually difficult to see exactly where this variable would best fit, since it has to do with knowledge that is associated with neither Business nor Scripture. It is somewhat surprising that it did not form a fifth factor of its own.

Typology of Educational Effectiveness

The model includes 17 variables that are intended to measure various educational outcomes. Sixteen of these (all but the GPA of the respondent) are measures of the programs' effectiveness in the same areas of knowledge, skills, competencies, and

values/attitudes that were used in the program emphasis typology. The same issues of internal consistency exist with this set of variables as with the program emphasis variables, and a factor analysis was again used to determine if the presumed typology could be supported by the data. The analysis was run using the same parameters – the principal components method and varimax rotation – as above. The results are shown in Table 4.42.

Table 4.42 Factor Analysis, Educational Effectiveness Variables

	Component				Original category
	1	2	3	4	
Marketing or strategic analysis	.786				Skill
Financial analysis	.753				Skill
Business functions	.709				Knowledge
Management tasks	.634				Knowledge
Mathematical or quantitative analysis	.623				Skill
Integrity		.784			Value/attitude
Initiative		.754			Value/attitude
Lifelong learning		.668			Value/attitude
Christian service in the workplace		.666			Value/attitude
Human culture			.741		Knowledge
Communication			.717		Competence
Interpersonal			.667		Competence
Leadership		.511	.568		Competence
Critical thinking			.521		Competence
Scripture				.891	Knowledge
Textual analysis of Scripture				.887	Skill

The same four factors emerge from this analysis as with the analysis of emphases, with some slight variations. The first factor here, Business, groups the same five knowledge and skills variables as that factor did in the analysis of emphases. The second factor here, Values/Attitudes, groups the four values and attitudes variables that are in the original model. Leadership, which appeared in this factor in the emphases analysis, appears in this factor here as well but is slightly more strongly associated with the

Competence factor in this case.

The Competence factor that emerges here contains the four competence variables that were included in the original typology, and also includes the variable concerned with knowledge of human culture. Finally, the Scripture factor that emerges from this analysis includes the same two knowledge and skill variables as in the prior analysis, but does not include the "wild card" human culture variable.

Distinguishing Between Emphasis and Effectiveness

Another potential weakness in the model is that those taking the survey might not be able to distinguish between a program's emphasis on a particular instructional component, and that program's effectiveness in creating learning in the student. There might be a very large "halo" effect – that is, a program with a particular emphasis might simply be assumed to have the intended effect, or (in the opposite direction) a program that is effective in creating a particular type of learning might be credited with intending that effect whether the intention was there or not. To check this, paired t-tests for each of the sixteen emphasis-effectiveness pairs were run to see if the mean ratings given by respondents for the two measures were significantly different. The results are shown in Table 4.43. Pairs with significant differences are shown in italics, and the significance level of the t-test is shown for these pairs as well.

There was a significant difference between the mean rankings of emphasis and effectiveness in eight of the sixteen pairs of variables. There is always the possibility that there really was no difference between the real levels of emphasis and effectiveness, so differences that are not significant are not necessarily victims of a "halo" effect. It is

Table 4.43 Tests for Significant Differences in Emphasis and Effectiveness Ratings

	Emphasis Mean	Effectiveness Mean	Mean Difference	Significance (α of t-test)
Knowledge:				
Human culture (literature, etc.)	*3.44*	*3.33*	*-.11*	*.016*
Scripture	*3.79*	*3.46*	*-.33*	*<.001*
Business functions	4.09	4.06	-.03	n.s.
Managerial tasks (planning, etc.)	3.79	3.79	.00	n.s.
Skills:				
Math or quantitative analysis	3.52	3.46	-.06	n.s.
Textual analysis of Scripture	3.21	3.24	.03	n.s.
Financial analysis	*3.81*	*3.73*	*-.08*	*.042*
Market and/or strategic analysis	3.89	3.86	-.03	n.s.
Competencies:				
Critical thinking	3.96	3.90	-.06	n.s.
Oral and written communications	*4.11*	*3.99*	*-.12*	*<.001*
Interpersonal competence	3.88	3.88	.00	n.s.
Leadership	*3.86*	*3.78*	*-.08*	*.035*
Values/attitudes:				
Initiative	3.84	3.81	-.03	n.s.
Commitment to life-long learning	*3.92*	*3.63*	*-.29*	*<.001*
Integrity	*4.62*	*4.26*	*-.36*	*<.001*
Christian service in workplace	*4.24*	*4.04*	*-.20*	*<.001*

interesting, although not encouraging to educators, that in all eight of the instances of significant differences in ratings the effectiveness rating was lower than the emphasis rating.

Chapter 5 – Results from Interviews

The twenty telephone interviews with individuals who had previously completed the survey questionnaire were done for several purposes: to seek confirmation and understanding of the survey's results; to identify areas where survey results might be misleading or not tell the whole story; and to look for precursors to early career success that might not have been considered in the survey questionnaire. Accordingly, the information developed from the interviews is not reported here as if it were the result of an independent study. Rather, the interview information is considered as it pertains to the survey results.

Interview responses are first compared below to the survey information in each of the four model categories. The information from the interviews is also used to examine whether the career success variables used in the survey are valid, i.e., whether graduates in fact consider them indicators of success. Then one final question is considered using interview information: Do graduates consider their college experiences or experience gained while working to have had more of an influence on their early career success? One of the premises of this study is that college effects are still important two or three years after graduation. If graduates felt that college effects have already been overwhelmed by work experience that soon after graduation, this premise would be in doubt.

The Interview Sample

Candidates for the telephone interviews were selected from among those who

indicated on the survey that they would be willing to participate. They were not randomly chosen, but were selected to represent a reasonable cross-section of the survey sample. Forty-two individuals were contacted in writing with a telephone follow-up in most cases. Twenty of the forty-two agreed to be interviewed.

A post hoc evaluation was done to determine if the interviewees were indeed reasonably representative of the larger survey sample. The survey sample was split into two groups: Interviewees (20 individuals) and everyone else (352 individuals). T-tests for independence were then run for the 70 ordinal and interval variables in the survey. The results were as follows:

Personal characteristics: No significant differences between the two groups were found in the three personal characteristic variables. (Ethnicity, a nominal variable, was not checked.)

Personal experience: No significant differences in the eight variables.

Program characteristics: No significant differences in the 26 variables.

Educational outcomes: No significant differences in the 17 variables.

Career success: Significant differences in three of the 16 variables: Months to first employment, satisfaction with salary and benefits, and satisfaction with relationship with supervisor. The averages for these three variables are shown in Table 5.1 with the corresponding levels of significance (α) for their differences.

Table 5.1 Differences Between Telephone Interviewees and All Others

Variable	Interviewees	All others	Significance
Months to first employment	1.45	2.00	.023
Satisfaction with salary and benefits	4.20	3.65	.003
Satisfaction with relationship with supervisor	4.65	4.21	.037

(The variable "months to first employment" presented some statistical challenges because of the way the data was collected. Survey respondents were asked to select one of four categories: 1 = employed immediately; 2 = zero to two months to employed; 3 = two to four months to employed; 4 = more than four months to employed. The "averages" shown in Table 5.1 are averages of these scores. Since the scores are ordinal and roughly interval, a t-test should not be misleading in this application. The other averages in Table 5.1 are average scores on a Likert scale of 1 to 5, with 5 being best.)

In each of these three cases the interviewees had "better" average results than the remainder of the survey sample. This suggests the possibility of a self-selection bias in the interview sample – that graduates who were more satisfied with their employment history and other factors were more likely to agree to be interviewed either in their response on the original survey instrument, or when contacted to schedule the actual interview, or both. However, it can also be argued that obtaining three significant results by chance in 70 comparisons is about what would be expected with a .05 significance level.

Interview and Survey Comparisons

The interview information is reported here in four categories that correspond to the relationships of primary interest in this study: (1) The effects of personal characteristics on educational outcomes and early career success; (2) The effects of personal experiences on the same; (3) The effects of program characteristics on the same; and (4) The effects of educational outcomes on early career success.

In each of these four categories, four possible associations between survey results

and interview information were considered: (1) Variable relationships that were found in the survey and confirmed in the interviews; (2) Variable relationships that were found in the surveys but contradicted by information from the interviews; (3) Variable relationships found in the surveys that were not supported by the interviews; and (4) Information from the interviews that suggest potentially important precursors to career success that were not explored in the survey.

The frequencies of responses (out of twenty interviews) are included below to give an indication of the relative level of importance attached to the various interview responses. They are not perfect indicators – they give no hints as to the conviction with which a position is held, and summarization by merely counting is bound to miss nuances. But it seems reasonable to conclude that a relationship believed to be important by a dozen interviewees is probably more significant than a relationship seen by only two or three.

Personal Characteristics

Interviews confirming survey findings. The survey suggested a relationship between the socioeconomic status of a graduate's parents and that graduate's level of career success. The interviews provided some oblique support for that relationship. Fifteen respondents indicated that parental expectations and parental support were important to college and/or career success. Although there is no data in either survey or interviews to suggest that more affluent parents are more supportive of their children's college and career ambitions, that is the conventional wisdom.

Personal Experiences

Interviews confirming survey findings. The interviews suggest that work experience while in high school was important to educational outcomes and/or career success (four responses), and one response suggested that lack of work experience in high school was a detriment in both college and career. This supports a (weak) relationship between work in high school and later career success found in the survey. In contrast, one interviewee suggested that work experience in high school led her to want to skip college altogether, certainly a negative relationship with regard to college outcomes.

The surveys found a positive relationship between work experiences in college and later career success. The surveys did not suggest that formal internships were particularly important in this regard – employment in general was the issue. The interviews supported this relationship, but with more emphasis on internships. In the interviews, three respondents identified both internships and non-internship work experience as being important, four respondents identified only internships as important, and four identified only non-internships as important.

The survey found that leadership in college extracurricular activities was related to several measures of career success, and simple participation in extracurricular activities was more weakly related to career success as well. The interviews provided some support for this relationship. Six respondents indicated that they felt that the development of interpersonal competence during college was important to career success; some of these indicated that extracurricular programs were a direct source of this development, while others did not specify how the interpersonal competence was created.

The interviews (nine responses) identified mentoring relationships with one or

more faculty members in college that had contributed to their career success. This is a stronger association than was found in the surveys, but the association was reflected there as well; mentoring relationships were found to have one direct and four indirect associations with career success variables, although the aggregate effect was not sufficient for this variable to appear on the "top twelve" list in Chapter 4.

Interviews suggesting relationships not addressed in the surveys. The surveys suggested that the survey instrument was least effective in providing adequate scope of response in the area of personal experience. There were four experiential precursors of good educational outcomes or career success that appeared in the interviews that were not included in the surveys. At this point, of course, there is no way to tell whether survey information might have also confirmed these relationships, since the questions were not asked.

First, there was substantial evidence in the interviews (18 responses) that the support of family members, high school teachers, church leaders and others played an important role in preparing students for college and even career success.

Second, the interviews strongly suggested (14 responses) that pre-college personal experiences outside of the classroom and work were important in preparing individuals for college and even for career. The types of experiences mentioned included church activities, volunteer work, athletics, extracurricular activities, outside reading and even family responsibilities.

Third, interviews suggested that the quality of high school and even elementary educational programs was associated with college educational outcomes. Eleven responses identified positive relationships, while three other responses indicated that poor

quality high school programs were associated with poor college outcomes.

Finally, there was some weak support in the interviews for a positive relationship between level of effort in high school and college outcomes (three responses), and also between level of effort in college and career success (three responses).

Program Characteristics

Interviews confirming survey findings. The surveys indicated that there were direct relationships between some indicators of overall college quality (or school reputation) and career success. The two independent variables in this category that had the strongest association with success were the average high school GPA of incoming freshmen and the total enrollment in the program. The interview results tend to support the existence of this relationship, with some caveats. The program quality was typically defined in terms not found in the survey, and the relationships between program quality and career success were almost always defined in negative terms. For example, several interviewees felt that their small Christian college had inadequate academic challenges, social networks, or instructional resources and that their career preparation was affected by these deficiencies. Hence negative program attributes had a negative career effect. There were nine such responses. (But see the next section for a seeming contradiction of this.)

Interviews failing to support survey findings. Perhaps the most striking difference between the results of the surveys and the results of the interviews is in the area of colleges' job search preparation programs. The surveys clearly suggested that the quality of the job search preparation provided by colleges to their students had a direct effect on

several measures of early career success. This was the relationship most strongly supported when regression results were aggregated. Yet this was almost completely unmentioned in the interviews. Only one interview response suggested that weak job search preparation had been detrimental to career success. There were no positive responses suggesting that strong job search preparation had had positive results.

Interviews contradicting survey findings. There was strong support in the interviews for the idea that the effectiveness of formal instructional programs (not the same as overall quality indicators or school reputation, above) was positively associated with career success. There were 14 responses in which positive instructional attributes (such small class sizes, instructor competence, group project work, oral skills development) led to positive career success, and six additional responses in which negative instructional attributes (inapplicable course content, lack of structure, inadequate connection to the world of business) led to negative effects on career success. This contradicts the survey results if frequency of response is taken as an indicator of the strength of the relationship. The relationships found in the survey were noticeably weaker. Only two of the 16 program effectiveness attributes (quantitative skills and interpersonal competence) were found to be associated with two or more career success variables, and only five others were found to be associated with a single career success variable. (The teaching ability of the faculty was also found to be weakly associated with career success in the survey.) In general, the interviews seemed to suggested stronger influences of instructional program effectiveness on career than did the survey.

The interviews also contradicted the survey findings regarding the source of interpersonal competencies. The interviews did support the idea that strong interpersonal

skills developed in college were associated with high levels of career success (six responses). However, the survey suggested that interpersonal competence had been emphasized in the formal educational programs of the colleges (and that these programs had been effective). The interviews, on the other hand, were nearly universal in indicating that this competence had been developed outside of the instructional program, in such areas as extracurricular activities, sports, and simple social interaction. One response took this a step further, suggesting that classroom emphasis on development of interpersonal competence had been inadequate and detrimental to career.

Educational Outcomes

Interviews confirming survey findings. As noted just above, the importance of interpersonal competence to career success was confirmed by the interviews. Six responses specifically mentioned the effects of interpersonal competence, with three additional responses suggesting that personal connections made while in college had proven important to later career success. Although interviewees stressed the importance of experiences outside of the classroom in developing this competence, it is likely that the effect of intentional program design played a role as well. This competence, then, can – at least to some extent – be considered an outcome of the educational program, confirming the link of this program outcome to career success.

Interviews failing to support survey findings. College GPA was found to be positively associated with three indicators of career success in the survey. This relationship is also supported by conventional wisdom. It is surprising, then, that there was little mention of GPA or other indicators of classroom educational achievement in

the interviews. None of the interviewees suggested that GPA had helped their search for employment, and none suggested that academic learning had proven to be of benefit in making career progress. One response did specifically identify low GPA as an impediment in the search for employment, and two other responses indicated that the interviewees wished they had been more diligent in their studies and skills development.

In the survey, two program effectiveness categories stood out as having the clearest direct effect on career success: Interpersonal competence and quantitative skills. While the importance of interpersonal competence was supported by the interviews (see above) the importance of quantitative skills was not. There were no interview responses that mentioned quantitative or mathematical skill either positively or negatively.

Interviews suggesting relationships not addressed in the surveys. There were eight interview responses that suggested that various aspects of the college experience had had the effect of creating greater maturity on the part of the interviewee, and that this effect had been important in achieving career success. The influences all occurred outside of the classroom, through travel experiences, athletics, or simply learning to live independently. It is not clear how much of this can be attributed to experiences unique to the college environment and how much was simply related to the passage of time. Nevertheless, the survey did not consider sources of maturation or maturity itself as having a potential effect on career success.

Indicators of Career Success

The survey instrument provided the opportunity for respondents to evaluate seventeen indicators of career success: Two in the area of employment status, four in the

area of compensation and advancement, seven in the area of personal satisfaction, and four prospective or personal evaluations of performance. In the subsequent telephone interviews, interviewees were specifically asked to identify their most important indicators of career success to see whether the survey's typology was supported. As might be expected, some of the information from the survey and interviews matched well, but some did not.

Employment Status

Apparently, simply being employed or being employed quickly did not impress interviewees as being much of an indicator of success. Only two responses suggested that gainful employment should be considered a criterion of success, and none of the interviewees mentioned that finding a job quickly after graduation was important. Perhaps employment in and of itself was simply considered too basic by interviewees – it permits career success, but is not in itself indicative of it.

Salary and Advancement

This was the most frequently mentioned indicator of success – 17 respondents in all suggested that it should be on the list. Several of them did modify this by suggesting that income alone is not a sufficient indicator of success. Most simply identified finances as a measure, without trying to pinpoint a specific level of income that would be required to be considered successful. Those that did specify a satisfactory level of income varied in their estimates from simply being financially independent, to having enough money not to be stressed about money, to making a good income that supports a good lifestyle.

None of the interviewees identified increases in salary as indicators of success, nor were promotions mentioned by anyone. Current income was the only criterion specifically mentioned in this category, but it was nearly universal in its prevalence.

Satisfaction

Four of the seven satisfaction variables that were used in the survey as indicators of career success were mentioned in the telephone interviews, though not all were equally well supported. Ten responses suggested that satisfaction with the work itself (which seems equivalent to "satisfaction with work that is appropriate to one's abilities" in the survey) was important. Six responses identified challenging work as an indicator of success, while four suggested satisfaction with career progress to date or satisfaction with the potential for career growth. Three categories from the survey – satisfaction with the relationship with one's supervisor, satisfaction with the relationship with one's co-workers, and satisfaction with a sense of achievement – were not mentioned in any of the interviews.

Prospective Evaluations

The idea that career success might be indicated by an evaluation of one's performance, whether by oneself or someone else, was not widely supported in the interviews. Only two responses indicated that good evaluations by supervisors or coworkers were indicative of career success, and none mentioned subordinates' opinions as having any bearing on success. Nor did any of the respondents suggest that their own evaluation of their performance was a means of determining their level of success. There

was, however, one new source of performance evaluation suggested in the interviews that was simply overlooked in the survey design: Six interviewees suggested that a favorable evaluation of their performance by their customers was indicative of success.

Other Indicators of Success

Four responses suggested that success was indicated by having a job that was not all-consuming – that gave one time to enjoy life, family and friends. The survey design did not include anything like this. Frankly, it did not occur to the author that current leisure time was positively related to success in a career.

The Relative Importance of School and Work Experience

The final question in each interview asked whether the interviewee believed that college experiences and outcomes, on the one hand, or work experience since graduation, on the other, had more influence on the level of career success experienced. The responses were close to being evenly split. Nine of the responses indicated that work experience was more important, six suggested that college was more important, and five of the interviewees were either unable to choose or gave explanations of why both school and career experiences were important.

Chapter 6 – Conclusions

A brief review of the background, objectives and methods of this study seems an appropriate way to introduce its final conclusions.

The impetus for this work was a desire to better understand the relationship between business students' college experiences and their professional success in the first two to three years after graduation. As a college instructor the author wanted to know what, if anything, a college could do to better assist its graduates starting well professionally. The focus on the short term was intentional, since it seemed likely that college influences would be outweighed by the effects of actual work experience within a few years.

A review of the literature suggested that there was certainly room for improvement in the overall understanding of this area. There has been much criticism of college programs for not adequately preparing their business graduates, and many suggestions of what should be done to improve it. But researchers who have tried to determine what colleges' influences actually are have not been particularly successful. The relationships that have been reported have generally been weak, and inconsistent across studies.

The author hoped to improve the clarity of the situation by first imposing some structure on it. A model of the possible influences on early career success was adapted from sources in the literature. This model included four types of possible precursors to success: A student's personal characteristics, his personal experiences, the nature of his college's program, and the outcomes of his college education. In an attempt to enhance

the explanatory power of this model, a four-way classification of knowledge, skills, liberal competencies and values (or attitudes) was used to organize the college program and educational outcomes components. This latter addition to the model was more freely adapted from the literature – so far as could be determined, such a structure has not been used in previous studies. It was expected that career success would be more closely associated with some of these antecedents than others, and that research would reveal something about these relationships.

It also had to be acknowledged that career success is itself an ill-defined concept. In an attempt to be inclusive of different indicators of overall success, four categories of early-career events or outcomes were included in the model: Finding a job, salary and promotions, satisfaction with the job, and performance evaluations.

To guide and provide boundaries for the planned research, the author posed four specific research questions. They were:

1. Which types of educational outcomes (acquisition of knowledge, development of analytical skills, development of liberal competencies, or inculcation of attitudes/values) have the greatest effect on early career success?

2. Are different types of educational outcomes associated with different types of career success?

3. Does the four-way model of educational outcomes used in this study help to illuminate the general understanding of the field?

4. In addition to the effects of educational outcomes, what personal characteristics, personal experiences, and educational program characteristics have the greatest effects on early career success?

The research itself was done in two stages. First, a survey was done of recent graduates of business programs in 19 Christian colleges across the United States. A total of 372 responses were received, a reasonable if not spectacular sample. Then twenty of the graduates who completed that survey were interviewed to see if discussions would yield more detail or clarification of the results of the survey.

General Findings of the Research

This study has not succeeded in definitively identifying the antecedents of early career success. Given the limited and fragmented results of the many earlier studies of the complex relationships in this area, it was highly unlikely that it would do so. Nevertheless, the insights provided by this research do add something to the understanding of the field, and some of the additions could prove to be useful to colleges, students, and even students' families as they seek to enhance graduates' early career performance.

Different Types of Success Have Different Antecedents

This research suggests that different types of career success have different sources. The precursors of finding a job quickly, for instance, are not the same things that lead to higher salary and higher performance evaluations. Similarly, the antecedents of higher salary are not, for the most part, associated with job satisfaction. There are some overlaps across the four categories, but the separation of effects is noticeable. This means that there is no single way to improve all aspects of career success – no "silver bullet." This may help to explain why earlier research has yielded inconsistent results. If

different types of success outcomes are investigated, relationships with different antecedent variables will be found.

Influences on Success Are Multiple and Diffuse

Just as different kinds of success seem to have different antecedents, this study also suggests that there are a great many factors that influence success to generally small degrees. There were 54 independent or intervening variables in the statistical analysis of the survey. Forty-five of them (80%) had some direct or indirect association with at least one measure of success. If nothing else, this helps to explain the highly divergent opinion expressed in the literature about what preparation is needed for success. A case can be made that nearly anything that happens to a student during college has some influence after graduation.

Colleges Do Not Control Most Key Influences

The original intention of this study was to help inform colleges as they designed their educational programs. It was hoped that clear relationships between educational program design and career success would emerge, and that this could help colleges provide better career preparation for their graduates. This hope has not gone completely unmet – there are some findings here that would help colleges in this area. But more than half of the factors that were found to have important influences on career success are either uncontrollable (like the graduate's socioeconomic background) or depend on choice and action by the student (like extracurricular participation and leadership). Of the fourteen factors that the survey results (generally supported by the interviews) suggest

are most influential, only three are clearly under the control of colleges. There are also three educational outcomes that have some influence that would have to be considered the joint responsibility of the college and the student.

This is not really surprising. It makes sense that the primary responsibility for preparation for career success rests with the student – the college cannot be expected to unilaterally create that success. But it appears that there are fewer opportunities for impact than most educators would hope for.

Experience Outside the Classroom Is More Important Than Inside

According to the survey results, things that happen outside the classroom during the college years clearly have more overall influence on career success than things that happen inside it. Extracurricular activities and work experience in particular seem to be good preparation for careers. Most course content – at least as defined in this study – has little to no measurable impact at all. At a basic level, for instance, the effectiveness of colleges in transferring knowledge to their students was not found to be related to career success. Only one type of skill (quantitative analysis) was found to be importantly related to success, and only one type of competency (interpersonal competence) was found to have an important relationship. There was a weak relationship between one value (integrity) and one success variable, but neither it nor any other value factor appears in the list of the most important influences.

The interviews were generally more supportive of the effectiveness of classroom instruction. But the term "generally" is used advisedly. Even interviewees rarely identified specific course content as particularly beneficial – they focused more on the

presumed positive attributes of small colleges.

Job Search Preparation Programs Are a Neglected Key Influence

Job search preparation intentionally provided by colleges to their students holds a unique distinction in this study. On the one hand, graduates clearly felt that it was the weakest component of their educational programs. Their average rating of 2.89 for this program component (on a scale of 1-5) is lower than any of the other general program components or program effectiveness measures, whose averages ranged from 3.24 to 4.26 with an overall average of 3.82. On the other hand, job search preparation emerged from the surveys as one of the most important influences on early career success. That job search preparation would be closely associated with success seems logically supportable – good preparation for the initial job search helps graduates get jobs more quickly, and it is associated with higher degrees of satisfaction with the jobs that they get.

(It should be noted here that the specific sample of colleges used in this survey may have had an important influence on this particular finding. The 19 colleges that participated in the study tended to be among the smallest in the CCCU. They probably have less ability to fund programs such as career counseling than do the larger schools in the Coalition.)

It is interesting that this finding of the surveys was not supported in the interviews. Interviewees didn't deny the relationship, it simply didn't come up. It would seem that the (good and bad) effects of job search preparation are simply unknown to graduates, possibly because they don't generally compare their experiences in this area with graduates of other colleges. This seems to be an area in which the survey revealed a

relationship that would otherwise have remained hidden.

The Scriptural Components of College Programs Do Not Aid Career Success

As a professor at a Christian college, the author is not enthusiastic about this finding. But it seems clear from the surveys that, to the extent that the Scriptural components of graduates' educations had any influence on their career success, it was primarily a negative influence. The effects are weak, but high levels of program emphasis on Scripture knowledge and analysis were negatively related to how long it took to find a job and how satisfied the graduate was with the job that was found. A Scriptural emphasis, and effectiveness in actually providing students with Scriptural knowledge and skills, was found to be positively associate with only a single measure of success – prospective performance evaluations by the graduates' peers.

The author feels compelled to note that this does not imply that a Scriptural emphasis is "bad," nor that programs should be modified based on this finding. The inclusion of Scripture in Christian education is obviously foundational, and any influence on careers must be considered incidental to its primary purposes.

Graduates Surveyed Think Highly of Their College Faculty

Graduates' opinions of the quality of their instructors in college have only weak and indirect associations with any of the measures of career success. It is worth noting, however, that the graduates did have very high opinions of the faculty under whom they studied. Student-faculty interaction was rated as "strong" or "very strong" by 89 percent of the respondents, and the teaching ability of faculty was rated in one of those categories

by 84 percent of respondents. Additionally, 75 percent of respondents reported that there were one or more faculty members who acted as their mentors while they were in college. While this study did not gather comparable data from graduates of larger or public colleges, these ratings seem on their face to be complimentary to the nineteen small Christian colleges that were the subjects here.

Average Job Performance Isn't Average

Survey participants' ratings of their own job performance were uniformly, almost certainly unrealistically, high. This should not effect the validity of the statistical associations that were found with this particular measure of career success, since the regressions done against these outcome variables were effectively based on relative ratings within the sample rather than on absolute levels of performance. However, it is a remarkable artifact of the survey that in this one area average ratings are noticeably not average. When asked to rate their own performance in their jobs, 79 percent of respondents rated themselves as "above average" or "outstanding" while only 21 percent rated themselves as "average" or below. Even more remarkably, 89 percent of the graduates indicated that they thought that their supervisors, subordinates and peers would rate their (the graduate's) performance as "above average" or "outstanding" with only 11 percent rating them as "average" or below. Either the graduates are remarkably poor evaluators of their own performance compared to those around them, or they are very reluctant, even in an anonymous survey, to admit their misgivings about that performance.

Specific Findings and Implications for Action

Ultimately, the conclusions of this study are only valuable if they help colleges, students, or both, understand how to do a better job of preparing graduates to be successful. But integrating the weak and sometimes conflicting information from the literature, the survey and the interviews is not straightforward and cannot be done mechanically. The conclusions presented below seem to make sense, but they are the product of judgment applied to all of the information that this study has made available. Other researchers, or other readers of this dissertation, may find supportable reasons to disagree. Nevertheless, these conclusions and recommendations represent the author's understanding of how this study can inform colleges and students.

Implications and Recommendations For Colleges

Provide Good Career Preparation Programs

Perhaps the most forceful recommendation that can be made for colleges is that they should create good job search preparation programs for their students. The study suggests that most small colleges – the population studied here – do not seem to be very good at this. There is probably no other single improvement that the colleges in this study could make that would be easier, cheaper, and more effective in helping students do well when they leave. (This recommendation cannot be supported by the literature review, since none of the studies included there looked for this particular precursor to success.)

Help Students Develop Interpersonal Competencies

In the classroom and out of it, colleges need to make sure that students have the opportunity to develop interpersonal competence. Whether developed as part of the program, or through extracurricular activities, or just through the normal interaction of college students in the process of maturing, this study found that good interpersonal abilities are associated in one way or another with most kinds of success. It must be noted that earlier research (Kuh 1993; Kuh 1995) looked for a link between interpersonal competence development and career success, and didn't find it. It may be that out-of-the-classroom development of this competence is of primary importance (as was suggested by the interviews) and that this suppressed its influence in these earlier studies. However, extracurricular participation was also considered in two prior studies (Astin 1977; Anaya 1999) and was not found to have a relationship to success. These earlier results may be seen to weaken this particular recommendation. But both the survey results and the interviews clearly support it.

Help Students Develop Quantitative Analysis Skills

In the classroom, colleges need to make sure that business students are capable – and confident of their capabilities – in mathematics and quantitative analysis. According to the survey, this capability is one of the more important factors in creating job satisfaction. Why this should be so is not entirely clear. In fact, graduates themselves may be unaware of it – it was not mentioned in the interviews. It may be that graduates who are unsure of their mathematical abilities find themselves on the defensive, at least mentally, in a business world that is so strongly driven by numbers. It is the author's

opinion, supported only by personal observation, that small Christian colleges tend to attract students who are not highly capable in mathematical analysis. This makes it doubly important for such colleges to do a good job in this area. The possible impact of quantitative skills on success was not considered in any of the studies included in the literature review.

Don't Agonize Over Other Skills and Competencies

This study suggests that, except for quantitative analysis and interpersonal abilities, colleges do not need to agonize over practitioners' complaints that students are not sufficiently prepared in analytical skills and liberal competencies. There is only weak and scattered evidence in this study that program emphasis in these areas is rewarded by employers. Communication competency, in particular, which is so often mentioned in the popular press as a weakness of graduates, is noticeable in its absence in this analysis. Only one prior study in the literature (Penley, Alexander et al. 1991) found communication competency to be related to career success. The importance of emphasizing this particular competency in college programs may be more apparent than real.

Implications and Recommendations For Students

Use Work as a Preparation for Career

Students should not overlook the value of work as a preparation for more work. Students with greater work experience while in college tend to make more money and have others think more highly of their performance. Earlier researchers (Richards 1984;

Dreher, Dougherty et al. 1985) also found that graduates with greater work experience in college tended to be better paid after graduation. This may be the result of employers paying merely for the presumed benefits of the earlier experience, rather than for actual better performance. Nevertheless, it seems reasonable to believe that coursework alone is an incomplete preparation for employment. "Knowing the ropes" seems to give graduates a head start. Interestingly, internships were not found here to be a particularly important kind of work experience, at least according to the survey. This fails to support earlier research (Gault, Redington et al. 2000) that did find internships to be particularly beneficial.

Have a Job at Graduation

The survey seems clear – holding a job immediately prior to graduation can lead to having a job more quickly after graduation. Students who were working immediately prior to graduation not only found jobs more quickly, they had greater satisfaction in the jobs they found. It may be that this is caused in at least some of the cases by students staying with their same employers, and maybe even their same jobs, after graduation. There was some support for this in the interviews. This is apparently new information, incidentally – none of the earlier studies included in the literature review asked about this relationship.

Develop Interpersonal Competence While in College

Just as colleges are encouraged to focus on interpersonal competency above, students are encouraged to do so as well. Extracurricular activities are one way to do

this, as are some courses. Regardless of the method, it seems that students should seek to intentionally develop their abilities to relate to, get along with, and work with other people while in school.

Develop Quantitative Analysis Skills

Many college students have an aversion to the study of mathematics and related quantitative analysis. The ways in which they are taught this aversion in elementary and high school have been the subject of many analyses and they do not need to be revisited here. Nevertheless, college students do themselves a disservice if they allow themselves to graduate with deficient skills in this area. Lack of such skills not only places them at a real disadvantage to some of their fellow workers, it probably makes them feel that disadvantage emotionally. Numbers are the second language of business – illiteracy in this language is a drag on success. This relationship, incidentally, was not looked for in any of the prior research considered in the literature review.

Get Good Grades

Good grades are not a panacea, nor are they mandatory for success. They are, however, associated with some types of job satisfaction and with some evaluations of performance. Despite the findings of earlier studies (Fuller and Schoenberger 1991; Callaway, Fuller et al. 1996; Thomas 2000) good grades were not found here to be associated with higher salaries. Nevertheless, grades are beneficial to some extent and they are one of the things that students can control (for the most part) by simple effort. It seems foolish not to do as well as possible. Additionally, the effort to achieve good

grades is a good way to develop a work ethic that will (according to the interviews) be valuable after graduation. (At the same time, 4.0 GPA students should realize that grades alone do not have an overriding influence on success. Some students may overemphasize them to the detriment of interpersonal competence development, which this study suggests is unwise.)

Develop a Mentoring Relationship If You Can

If a student can develop a mentoring relationship with a faculty member it will probably work to his benefit. It seems to make the student feel better about himself, and it should help the student learn how to relate to those with authority. At the same time, the absence of a mentor is apparently not a very significant hindrance to success – it seems to have more effect on a graduate's self-evaluation than on more objective types of success. The idea that a mentor is particularly helpful in getting one started in a career is a popular one – it was mentioned in several interviews – but it wasn't strongly supported by the survey data.

Go to a Larger School

Students seeking every possible advantage over the competition in their careers should probably not attend a very small college. A negative influence of small college experience on performance evaluations was found in the surveys, and some interviewees also mentioned the negative effects of going to a small school. Of course small is a relative term, and this study was very limited in the range of school sizes included. Enrollment in the colleges studied varied only from 650 to 2350 traditional undergraduate

students. Perhaps the most that can be said in this area is that very small colleges tend to have negative effects on graduates' professional reputations.

Implications and Recommendations For Students' Families

This study's design did not include the influences of students' families on their college or career success. But two important areas of influence emerged from the interviews and a discussion of the study's conclusions would be incomplete without them.

Provide Support and Encouragement

Although it was overlooked in the design of the survey, parental support was a recurring theme in the interviews. Many interviewees felt that parental example, expectations and reinforcement had important influences in college and were still having an impact well after graduation. This relationship, somewhat surprisingly in hindsight, was not looked for in any of the earlier studies considered in the literature review.

Pay Attention to the Quality of Early Education

Again, information about this influence came from the interviews since it was not included in the survey design. Interviewees frequently mentioned that good pre-college preparation in high school (and even elementary school) helped them in both college and career. Parents are typically concerned with the impact that high school experience has on college success, but they may not realize that (according to this study, at least) this influence carries over into career as well. Again, the relationship to career success has

apparently not been the subject of much study – it was not included in the studies in the literature review.

Uncontrollable But Important Factors

The study also revealed a couple of important influences on career success that are beyond the control of either students or colleges.

Socioeconomic Status of Parents

The socioeconomic status of parents seems to have an important influence on both job satisfaction and salary. The effect on job satisfaction may exist because graduates whose parents were more involved in business or the professions have a better idea of what to expect – so the reality of the business world is not disappointing. With regard to the influence on salary, it may simply be that students from more affluent families have higher expectations and, in the aggregate, tend to have these expectations met by employers. The relationship with salary is consistent with the findings of earlier studies (Dreher, Dougherty et al. 1985; Smart 1988).

Gender

According to this study, gender has some impact on career success but it is limited. Despite the fairly consistent findings of earlier studies (Dreher, Dougherty et al. 1985; Smart 1988; Fuller and Schoenberger 1991; Callaway, Fuller et al. 1996) men in this study did not receive higher starting salaries than women. Men did, however, receive larger pay raises than women did, which is consistent with one other study in the

literature (Richards 1984). Women who were surveyed here, on the other hand, tended to be more satisfied with their work. This was not found in any of the studies in the literature review.

Limitations of the Study – Revisited

No study is ever fully satisfying in its design, execution or results. This study was not an exception.

Weaknesses of Design and Outcomes

The model created for the survey structure did not fit reality too well in three areas. First, the two-stage effects that were looked for and expected (personal characteristics, personal experiences and program characteristics acting through educational outcomes to affect career success) were present but were not consistent across different measures of success and were very weak. Some of these independent factors did have important direct influences on success measures, but the consistent pattern of indirect effects that was looked for was, for the most part, not found.

Second, even the direct effects of the dependent and intervening variables on success were weak compared to what was hoped for. The largest multiple correlation coefficient (R^2) was .18, and only four of the 16 success variables had R^2 measures above .10. This suggests that although the variables in the model do have some effect on career success, there are other factors that have five to ten times as much influence as they do. The interviews suggested what some of these influences might be. Parental encouragement and schooling before college, for instance, were considered important by

many interviewees. But speculation beyond that is beyond the bounds of this study – data is simply not available here.

Third, the four-way categorization of program characteristics and educational outcomes was only partially supported by the results of the survey. The competencies and values/attitudes groups seemed to be reasonable categories, but the knowledge and skills groups didn't hold together. Instead, the groupings that emerged from the data were based on major studies (business) and Christian studies. The knowledge and skills associated with business formed one category, and those associated with Christian content formed a second category. While these categories may inform future studies, the failure of the model as used in this study may cast some doubt on the results here.

There was a final issue with this study that has to be acknowledged. The information from the three sources used – literature review, survey, and interviews – was not very consistent. In only two or three cases did all of the sources agree on a particular relationship, and there were not many more where even two sources agreed.

Limitations on the Generalizability of the Study

Obviously, this study is not definitive. There are some important limitations on its application because of the way it was done and the group that was studied. The study considered only the experiences of business majors who are graduates of small Christian colleges, and a case can certainly be made that there are peculiarities in the programs of those colleges and the experiences of their students that set them apart from the larger universe of higher education. The model of relationships that was used, which is obviously flawed in some of its structure, might also lead to conclusions here that are not

reflective of the real world. And finally, the entire subject of the study is limited – career success in the first two or three years out of school. With such a limited scope, it would be foolish to reach substantial conclusions about the design of college programs or the actions of students and their parents on the basis of this study alone. Nevertheless, the results here are not entirely without merit. Colleges, and particularly the author's college, may benefit from insights into the value of job search preparation programs, interpersonal competency, and quantitative analysis skills.

Ideas for Future Research

There are two general areas of additional research suggested by the results of this study: Research to clarify those results, and research to investigate related areas not considered in this study.

Research to clarify the results of this study

Naturally enough, while this study answered some questions it also created others. Future research could be done to gain useful insight into areas not fully illuminated here. For instance, research that would lead to a better understanding of the attributes of good job search preparation programs in colleges would be valuable. The conclusion of this study that such programs are generally deficient is one of the most strongly supported outcomes, but it rests on a single question in the survey. If colleges are going to improve in this area, a clearer definition of adequate preparation is needed.

It would also be useful to establish a clearer understanding of how interpersonal competencies develop within the college context. There is an interesting contrast

between the results of the surveys and the interviews in this area. The survey asked only about interpersonal competence as it was developed in the college "program." The implication was that it was a planned learning objective for the college. But most of the interviewees suggested that interpersonal competence was developed outside of the classroom in extracurricular activities, athletics, work, and so on. Both forms of development were identified as being associated with success, which seems to suggest that the competence itself is particularly important. It would be valuable for both colleges and students if a better understanding could be gained of how such competence is created. Such an understanding might allow the competence to be developed more intentionally.

It would also be useful – or at least interesting – to better understand why quantitative skills are associated with job satisfaction. It has been speculated here that this is the result of confidence (or lack of it) in the use of the second "language" of business. But this may not be correct, and it would be valuable to better understand why this unexpected relationship exists.

Insight about the relationships considered in this study would also be improved if a better characterization of "success" could be developed. It is a complex concept, and that complexity is reflected in the multiple dimensions and substantial degree of subjectivity in the indicators of success used here. It would be beneficial in future work in this field if research were to lead to a more concise measure of success that could be supported both logically and statistically.

Research to extend the scope of this study

There are numerous facets of college preparation for careers that were not included in the scope of this study. For instance, there is a growing interest in academe in developing the "strengths" of individual college students in preparation for their careers. The suggestion is made that colleges tend to focus excessively on the remediation of student deficiencies, when a more productive approach would be to identify and intentionally develop students' innate or previously developed capabilities. While this seems logical on its face, there has been little investigation of the actual career outcomes that result from such an approach. Research into the relationship between such a programmatic approach and career success would be worthwhile.

The scope of this study was limited to the colleges that were willing to participate by sharing access to their alumni. The resulting sample of 19 colleges contained primiarily the smaller colleges in the CCCU. It has been acknowledged earlier that the generalizability of the findings here is limited by inclusion of only CCCU schools. It is limited even within that universe by the self-selection of smaller schools for the sample. It would be interesting to extend this study to the larger and more prosperous CCCU institutions to see if practices there, especially in mentoring and career counseling, manifest themselves differently in the career success of their graduates.

This research began with the assumption that the effects of college preparation are most distinguishable in the first two or three years after graduation; after that, success is presumed to be more dependent on work experience than on educational experience. This assumption, though, could certainly be challenged. It would interesting to extend the scope of this study further into graduates' careers. Educational effects might well be

discernable later, perhaps much later, than the period that this study examined.

Finally, it is worth asking whether "success" is the best measure of education's influence on later life. With a population of Christian students in particular, some evaluation of the "significance" of graduates' contributions to the lives of others, to society, or to their churches, might be more meaningful to the graduates themselves. Operationalizing "significance," of course, may well present a more formidable challenge than was encountered in defining measurable indicators of success for this study. But the effort might be more relevant to both CCCU graduates and the colleges in which they studied.

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APPENDIX A

Summaries of Prior Studies

Table A.1. Prior Study Variables: Personal Characteristics

Age (Astin 1977) (Davis and Murrell 1993) (Flowers, Osterlind et al. 2001) (Harrell, Harrell et al. 1977) (Richards 1984)
Business aptitude (Harrell, Harrell et al. 1977)
Effort (Davis and Murrell 1993) (Franklin 1995) (Terenzini, Springer et al. 1995)
Family background (Callaway, Fuller et al. 1996) (Davis and Murrell 1993) (Dreher, Dougherty et al. 1985) (Kuh 1993) (Terenzini, Springer et al. 1995) (Smart 1986) (Smart 1988)
Gender (Anaya 1999) (Astin 1977) (Callaway, Fuller et al. 1996) (Davis and Murrell 1993) (Dreher, Dougherty et al. 1985) (Franklin 1995) (Fuller and Schoenberger 1991) (King, Wood et al. 1990) (Kuh 1993) (Kuh 1995) (Li, Long et al. 1999) (Pike 1993) (Richards 1984) (Smart 1986) (Smart 1988) (Terenzini, Springer et al. 1995)
High school grades (Anaya 1999) (Franklin 1995) (Smart 1986) (Smart 1988)
Parents' education (Terenzini, Springer et al. 1995)
Personal goals (Anaya 1999) (Smart 1986) (Terenzini, Springer et al. 1995)
Personality (Harrell, Harrell et al. 1977)
Pre-college critical thinking ability (Terenzini, Springer et al. 1995)
Predicted success (Franklin 1995)
Ethnicity (Anaya 1999) (Astin 1977) (Flowers, Osterlind et al. 2001) (Kuh 1993) (Kuh 1995) (Smart, 1986) (Smart 1988) (Terenzini, Springer et al. 1995)
SAT or ACT scores (Anaya 1999) (Flowers, Osterlind et al. 2001) (Franklin 1995) (Li, Long et al. 1999)

Table A.2. Prior Study Variables: Personal Experience

Campus residence (Anaya 1999) (Astin 1977) (Kuh 1993) (Kuh 1995)
Extracurricular activities (Anaya 1999) (Astin 1977)
Interaction with faculty (Anaya 1999) (Franklin 1995) (Kuh 1995)
Interaction with peers (Anaya 1999) (Franklin 1995) (Kuh 1995) (Li, Long et al. 1999) (Terenzini, Springer et al. 1995)
Internships (Fuller and Schoenberger 1991) (Gault, Redington et al. 2000) (Richards 1984)
Leadership activities (Kuh 1995)
Work experience (Dreher, Dougherty et al. 1985) (Kuh 1995) (Richards 1984)

Table A.3. Prior Study Variables: Program Characteristics

College or university (Franklin 1995) (Kuh 1993)
Institutional mission (Kuh 1995)
Location (Astin 1977)
Public or private (Anaya 1999) (Astin 1977) (Astin 1999) (Franklin 1995) (Kuh 1993) (Kuh 1995) (Smart 1986) (Thomas 2000)
Quality of institution (Schick and Kunnecke 1982) (Smart 1988) (Thomas 2000)
Quality of instruction (Li, Long et al. 1999)
Quality of lower division courses (Li, Long et al. 1999)
Religious or secular (Astin 1977)
Residential vs. commuter (Kuh 1993) (Kuh 1995)
Selectivity (Anaya 1999) (Astin 1977) (Franklin 1995) (Kuh 1993) (Smart 1986)
Size (Astin 1977) (Kuh 1995) (Smart 1986) (Smart 1988) (Thomas 2000)

Table A.4. Prior Study Variables: Educational Outcomes

Attitudes (various) (Astin 1977)
CBASE scores (Flowers, Osterlind et al. 2001) (Pike 1995) (Pike 1996) (Pike 1999)
Cognitive skills (Kuh 1993) (Kuh 1995)
Cognitive and affective outcomes (Astin 1993)
Communication skills (Gault, Redington et al. 2000) (Li, Long et al. 1999) (Penley, Alexander et al. 1991)
Competencies (various) (Astin 1977)
Critical thinking skills (King, Wood et al. 1990) (Li, Long et al. 1999) (Terenzini, Springer et al. 1995)
ETS Field Tests (Mirchandani, Lynch et al. 2001)
Grade point average (Anaya 1999) (Callaway, Fuller et al. 1996) (Franklin 1995) (Fuller and Schoenberger 1991) (Kuh 1993) (Mirchandani, Lynch et al. 2001) (Richards 1984) (Schick and Kunnecke 1982)
GRE score (Anaya 1999)
Humanitarian attitude (Kuh 1993) (Kuh 1995)
Interpersonal competencies (Kuh 1993) (Kuh 1995)
Job acquisition skills (Gault, Redington et al. 2000)
Leadership (Gault, Redington et al. 2000)
Practical competencies (Kuh 1993) (Kuh 1995)
Psychological and behavioral outcomes (Astin 1993)
Satisfaction (Astin 1999) (Li, Long et al. 1999) (Pike 1993) (Smart 1986) (Smart and Pascarella 1986)
Self-report of learning (Anaya 1999) (Davis and Murrell 1993) (Franklin 1995) (Pike 1995) (Pike 1996) (Pike 1999)
Skills (various) (Astin 1977)

Table A.5. Prior Study Variables: Career Success

Appropriate employment (Richards 1984)
Career satisfaction (Gault, Redington et al. 2000) (Pike 1993) (Richards 1984)
Current salary (Dreher, Dougherty et al. 1985) (Gault, Redington et al. 2000) (Richards 1984) (Smart 1988)
Employed (vs. unemployed) (Callaway, Fuller et al. 1996) (Richards 1984)
Job stability (Richards 1984)
Occupational status (Smart 1986) (Smart and Pascarella 1986)
Organization level (Penley, Alexander et al. 1991)
Promotion (Penley, Alexander et al. 1991)
Retention with first employer (Schick and Kunnecke 1982)
Salary at 5 and 10 years (Harrell, Harrell et al. 1977) (Schick and Kunnecke 1982)
Salary increases (Penley, Alexander et al. 1991)
Time to first employment (Gault, Redington et al. 2000)
Self-report of success (Penley, Alexander et al. 1991)
Starting salary (Callaway, Fuller et al. 1996) (Dreher, Dougherty et al. 1985) (Fuller and Schoenberger 1991) (Gault, Redington et al. 2000) (Thomas 2000)

Table A.6. Prior Study Populations

Students (Anaya 1999) (Astin 1977) (Astin 1993) (Astin 1999) (Davis and Murrell 1993) (Flowers, Osterlind et al. 2001) (Franklin 1995) (Kuh 1993) (Kuh 1995) (Li, Long et al. 1999) (Mirchandani, Lynch et al. 2001) (Pike 1995) (Pike 1996) (Pike 1999) (Terenzini, Springer et al. 1995)
Graduates (Callaway, Fuller et al. 1996) (Dreher, Dougherty et al. 1985) (Fuller and Schoenberger 1991) (Gault, Redington et al. 2000) (Harrell, Harrell et al. 1977) (King, Wood et al. 1990) (Penley, Alexander et al. 1991) (Pike 1993) (Richards 1984) (Richards 1984) (Schick and Kunnecke 1982) (Smart 1986) (Smart and Pascarella 1986) (Smart 1988) (Thomas 2000)

Table A.7. Prior Studies: Personal Characteristics Related to Educational Outcomes

Academic effort related to educational gains (Davis and Murrell 1993) (Franklin 1995)
Academic effort related to GPA (Franklin 1995)
Academic effort related to critical thinking competency (Terenzini, Springer et al. 1995)
High school GPA related to college GPA (Franklin 1995)
High school GPA related to self-report of college learning (Franklin 1995)
Male gender related to higher self-report of educational gains (Davis and Murrell 1993) (Franklin 1995)
Male gender related to higher CBASE scores (Flowers, Osterlind et al. 2001)
Male gender related to higher GPA (Franklin 1995)
Male gender related to higher critical thinking skills (King, Wood et al. 1990) (Li, Long et al. 1999)
Male gender related to higher satisfaction with education (Li, Long et al. 1999)
Parents' education related to critical thinking competency (Terenzini, Springer et al. 1995)
Pre-college critical thinking related to critical thinking competency (Terenzini, Springer et al. 1995)
Predicted success related to higher GPA (Franklin 1995)
Predicted success related to higher self-report of college learning (Franklin 1995)
SAT/ACT score related to GPA (Franklin 1995)
SAT/ACT score related to higher self-report of college learning (Franklin 1995)
SAT/ACT score related to satisfaction with education (Li, Long et al. 1999)
SAT/ACT score related to ETS field tests at graduation (Mirchandani, Lynch et al. 2001)
Social effort related to self-report of educational gains (Davis and Murrell 1993)

Table A.8. Prior Studies: Personal Characteristics Related to Career Success

Age related to starting salary (Callaway, Fuller et al. 1996)
Age related to current income (Richards 1984)
Age related to perceived job stability (Richards 1984)
Age related to employment (vs. unemployment) (Richards 1984)
High school GPA related to current salary (Smart 1988)
Male gender related to employment (vs. unemployment) (Callaway, Fuller et al. 1996) (Richards 1984)
Male gender related to higher starting salary (Callaway, Fuller et al. 1996) (Dreher, Dougherty et al. 1985) (Fuller and Schoenberger 1991) (Smart 1988)
Male gender related to current income (Richards 1984)
Male gender related to perceived job stability (Richards 1984)
Male gender related to higher occupational status (Smart 1986)
Personal goals related to occupational status (Smart 1986)
Minority race related to higher current salary (Smart 1988)
Socioeconomic origin related to current salary (Dreher, Dougherty et al. 1985) (Smart 1988)

Table A.9. Prior Studies: Personal Experience Related to Educational Outcomes

Interaction with peers related to interpersonal competence (Kuh 1995)
Interaction with peers related to cognitive complexity (Kuh 1995)
Interaction with peers related to humanitarianism (Kuh 1995)
Interaction with peers related to critical thinking competency (Li, Long et al. 1999)
Interaction with peers related to communication competence (Li, Long et al. 1999)
Interaction with peers negatively related to critical thinking competency (Terenzini, Springer et al. 1995)
Leadership experience related to interpersonal competence (Kuh 1995)
Leadership experience related to practical competence (Kuh 1995)
Leadership experience related to humanitarianism (Kuh 1995)
On-campus residence related to satisfaction with education (Kuh 1993)
Relationship with faculty related to GPA (Franklin 1995)
Relationship with faculty related to self-report of learning (Franklin 1995)
Work experience related to practical competence (Kuh 1995)

Table A.10. Prior Studies: Personal Experience Related to Career Success

Internship related to starting salary (Fuller and Schoenberger 1991) (Gault, Redington et al. 2000)
Internship related to time to first position (Gault, Redington et al. 2000)
Internship related to current salary (Gault, Redington et al. 2000)
Internship related to job satisfaction (Gault, Redington et al. 2000)
Internship related to appropriate employment (Richards 1984)
Previous work experience related to starting salary (Dreher, Dougherty et al. 1985)
Previous work experience related to current salary (Richards 1984)
Previous work experience related to employment (vs. unemployment) (Richards 1984)
Previous work experience related to perceived job stability (Richards 1984)

Table A.11. Prior Studies: Program Characteristics Related to Educational Outcomes

High relationship environment related to self-report of educational gains (Davis and Murrell 1993)
Private college related to satisfaction with education (Astin 1999)
Quality of lower-division courses related to critical thinking competency (Li, Long et al. 1999)
Quality of lower-division courses related to communication competency (Li, Long et al. 1999)
Quality of teaching related to communication competency (Li, Long et al. 1999)
Quality of lower-division courses related to satisfaction with education (Li, Long et al. 1999)

Table A.12. Prior Studies: Program Characteristics Related to Career Success

College quality related to current salary (Smart 1988) (Thomas 2000)
College size related to current salary (Smart 1988) (Thomas 2000)
Private college related to current salary (Thomas 2000)

Table A.13. Prior Studies: Educational Outcomes Related to Other Educational Outcomes

Critical thinking competency related to satisfaction with education (Li, Long et al. 1999)
Communication competency related to satisfaction with education (Li, Long et al. 1999)
GPA related to satisfaction with education (Kuh 1993)
Self-report of learning related to GPA, GRE (Anaya 1999)
Self-report of learning CBASE exam results (Pike 1995) (Pike 1996)

Table A.14. Prior Studies: Educational Outcomes Related to Career Success

Communication competency related to self-report of success (Penley, Alexander et al. 1991)
GPA related to employment (vs. unemployment) (Callaway, Fuller et al. 1996) (Richards 1984)
GPA related to starting salary (Callaway, Fuller et al. 1996) (Fuller and Schoenberger 1991)
GPA related to current salary (Thomas 2000)
Satisfaction with education related to satisfaction with job (Pike 1993)

Table A.15. Prior Studies: Career Success Related to Other Career Success

Job satisfaction related to appropriate employment (Richards 1984)
Job satisfaction related to current salary (Richards 1984)
Job satisfaction related to perceived job stability (Richards 1984)
Occupational status of current job related to occupational status of first job (Smart 1986)
Salary at 5 years of employment related to salary at 10 years (Harrell, Harrell et al. 1977)

APPENDIX B

Quantitative Survey Questionnaire

Questionnaire – The Experiences of Recently Graduated Business Majors

The purpose of this survey is to help identify those personal and educational characteristics that lead to early career progress for undergraduate Business majors. The questions below are organized into five areas: (1)Your background as an individual; (2) Your experience in college; (3) The characteristics of the college from which you received your degree; (4) The outcomes of your undergraduate educational process; and (5) Your experiences in your career. Some of the questions are factual, others require your personal evaluation.

Your personal background:

Gender: ☐ Male ☐ Female What is your current age? _____

Ethnicity (mark as many as apply):

White/Anglo Asian American Pacific Islander Hispanic/Latino
African American/Black Native American/Indian Decline to state
Other_____

What was your grade point average in high school?

Less than 2.00 2.00-2.49 2.50-2.99 3.00-3.49
3.50-3.99 4.00-4.50 More than 4.50

What is the socioeconomic status of your parents?

Working class Middle class Upper middle class Upper class
Father's occupation_____ Mother's occupation_____

How would you characterize your work experience prior to entering college?

None Limited About average Extensive

Your college experience:

At what age did you first enter an undergraduate degree program? _____
At what age did you receive your bachelor's degree in Business? _____
When did you receive your Business degree (month and year)? _____
How many colleges did you attend prior to receiving your bachelor's degree (including the college which granted your degree)? _____

How would you characterize your **participation** in extracurricular activities while in college?

None Limited About average Extensive

How would you characterize your **leadership** in extracurricular activities while in college?

None Very little Some Extensive

Did you participate in a formal business internship as a part of your degree program?

Yes No

How would you characterize your work experience **while in college**?

None Limited About average Extensive

Were you employed (either part-time or full-time) immediately prior to your graduation?

Yes No

Were there one or two faculty members who you felt acted as "mentors" to you, with whom you established a special relationship?

Yes No

College program characteristics:
(This section deals with the **emphasis** placed on certain portions of your undergraduate program)

From what college did you receive your degree?
Name: _____
Location: _____
If you had a major, emphasis or concentration other than just "Business," what was it?
_____

Please rate the following as it applies to your undergraduate program:

	Very weak	Weak	Average	Strong	Very strong
Teaching ability of the faculty	1	2	3	4	5
Intellectual capacity of the student body	1	2	3	4	5
Interaction between faculty and students	1	2	3	4	5
Job search preparation	1	2	3	4	5

To what extent did your undergraduate program **emphasize** the following areas?

	Very little	Little	Somewhat	Much	Very much
Business functions (marketing, etc.)	1	2	3	4	5
Human culture (literature, etc.)	1	2	3	4	5
Scripture	1	2	3	4	5
Managerial tasks (planning, etc.)	1	2	3	4	5

To what extent did your undergraduate program **emphasize** the following skills?

	Very little	Little	Somewhat	Much	Very much
Financial analysis	1	2	3	4	5
Textual analysis of Scripture	1	2	3	4	5
Market and/or strategic analysis	1	2	3	4	5
Quantitative analysis	1	2	3	4	5

To what extent did your undergraduate program **emphasize** the following competencies?

	Very little	Little	Somewhat	Much	Very much
Oral and written communications	1	2	3	4	5
Interpersonal competence	1	2	3	4	5
Critical thinking	1	2	3	4	5
Leadership	1	2	3	4	5

To what extent did your undergraduate program **emphasize** values in the following areas?

	Very little	Little	Somewhat	Much	Very much
Integrity	1	2	3	4	5
Christian service in the workplace	1	2	3	4	5
Commitment to life-long learning	1	2	3	4	5
Initiative	1	2	3	4	5

Compared to other **Christian** colleges and universities, how much **emphasis** do you feel your undergraduate program placed on Christian worldviews, beliefs, and/or values?

	Very little	Little	Somewhat	Much	Very much
Christian emphasis	1	2	3	4	5

Which of the following best describes your undergraduate program?
A traditional undergraduate program, intended for recent high school graduates
A degree completion program, intended for working adults

Educational outcomes:
(This section deals with the **effectiveness** of your undergraduate program in helping you to learn, acquire skills and competencies, and develop values.)

What was your final GPA in your undergraduate program?

Less than 2.00	2.00-2.49	2.50-2.99
3.00-3.49	3.50-4.00	

To what extent was your college program **effective** in helping you acquire knowledge in the following areas?

	Very little	Little	Somewhat	Much	Very much
Human culture (literature, etc.)	1	2	3	4	5
Managerial tasks (planning, etc.)	1	2	3	4	5
Scripture	1	2	3	4	5
Business functions (marketing, etc.)	1	2	3	4	5

To what extent was your undergraduate program **effective** in helping you develop the following skills?

	Very little	Little	Somewhat	Much	Very much
Quantitative analysis	1	2	3	4	5
Financial analysis	1	2	3	4	5
Textual analysis of Scripture	1	2	3	4	5
Market and/or strategic analysis	1	2	3	4	5

To what extent was your undergraduate program **effective** in helping you develop the following competencies?

	Very little	Little	Somewhat	Much	Very much
Critical thinking	1	2	3	4	5
Oral and written communications	1	2	3	4	5
Leadership	1	2	3	4	5
Interpersonal competence	1	2	3	4	5

To what extent was your undergraduate program **effective** in reinforcing or changing your attitudes in the following areas?

	Very little	Little	Somewhat	Much	Very much
Commitment to life-long learning	1	2	3	4	5
Integrity	1	2	3	4	5
Initiative	1	2	3	4	5
Christian service in the workplace	1	2	3	4	5

How **effective** do you feel your undergraduate program was in helping you to develop or strengthen Christian worldviews, beliefs and/or values?

	Very little	Little	Somewhat	Much	Very much
Developing/strengthening Christian outlook	1	2	3	4	5

Career experience:

What is your employment status?

Have not been employed since graduation. (You have completed the survey. Please disregard the remainder of the questions.)

Currently self-employed. (Please answer the questions below to the extent that they apply to your self-employment.)

Currently unemployed. (Please answer the questions below as they apply to your most recent employment.)

Currently employed. (Please answer the questions below as they apply to your current employment.)

How many months elapsed between your college graduation and first employment?

None Less than 2 months 2 to 4 months More than 4 months

In what state or country are you employed? _____

Who is your employer? _____

What is your job title? _____

What was your starting salary? _____

What is your current salary? _____

How many salary increases have you received? _____

How many promotions (with change in job title) have you received? _____

Please rate your degree of satisfaction with the following elements of your employment:

	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
Salary and benefits	1	2	3	4	5
Relationship with supervisor(s)	1	2	3	4	5
Relationship with co-workers	1	2	3	4	5
Employment appropriate to your abilities	1	2	3	4	5
Sense of achievement	1	2	3	4	5
Opportunities to grow and develop	1	2	3	4	5
Visible progress on a career path	1	2	3	4	5

In your judgment, how would the following individuals or groups evaluate your current level of job performance?

	Failing	Below average	Average	Above average	Outstanding	Not applicable
Supervisor's evaluation	1	2	3	4	5	-
Subordinates' evaluation	1	2	3	4	5	6
Peers' evaluation	1	2	3	4	5	-
Your own evaluation	1	2	3	4	5	-

Would you be willing to participate in a 15 to 20 minute phone interview on the above topics as a follow-up to this survey? Yes No

If yes: Name:_____ Daytime phone no.:_____

(Note: Only a sample of those who agree to be interviewed will be.)

APPENDIX C

Qualitative Survey Script

Questionnaire – The Experiences of Recently Graduated Business Majors

Questions asked in a follow-up discussion with individuals selected from among those who completed the quantitative questionnaire.

Personal background:

1. What elements of your personal background do you feel helped to prepare you for your college experience and for your career? In what way were they helpful?

2. Was there anything in your personal background that you feel held you back?

College program and experience:

3. What components of your college program and experience do you feel were most helpful to you in preparing for your career? In what way were they helpful?

4. Was there anything in your college program and experience that you feel held you back?

Career success to date:

5. Overall, how would you characterize your professional success since leaving college? What criteria do you think are important in determining the success of someone in your position?

6. Which set of experiences has had more impact on your success so far – what you learned in college, or what you have learned on the job?

APPENDIX D

Average Survey Ratings by Institution

Table D.1 Average High School GPA of Incoming Students

Institution	Average high school GPA
Anderson Univ., OH	3.60
Bethel Coll., IN	3.41
Bethel Univ., MN	3.51
Bluffton Coll., OH	3.40
Cumberland Coll., KY	3.64
Dordt Coll., IA	3.70
Eastern Mennonite Univ., VA	3.32
East Texas Baptist Univ., TX	3.49
George Fox Univ., OR	3.59
Houghton Coll., NY	3.57
Indiana Wesleyan Univ., IN	3.51
Malone Coll., OH	3.57
Northwestern Coll., MN	3.59
Northwest Nazarene Univ., ID	3.61
Oklahoma Baptist Univ., OK	3.96
Olivet Nazarene Univ., IL	3.66
Roberts Wesleyan Univ., NY	3.42
Trinity International Univ., IL	3.75
Union Univ., TN	3.65
Overall average	3.59
Significance (α of ANOVA)	.021

Table D.2 Internship Participation by College

Institution	Participation rate
Anderson Univ., OH	45%
Bethel Coll., IN	69%
Bethel Univ., MN	57%
Bluffton Coll., OH	69%
Cumberland Coll., KY	11%
Dordt Coll., IA	83%
Eastern Mennonite Univ., VA	50%
East Texas Baptist Univ., TX	62%
George Fox Univ., OR	45%
Houghton Coll., NY	47%
Indiana Wesleyan Univ., IN	19%
Malone Coll., OH	21%
Northwestern Coll., MN	81%
Northwest Nazarene Univ., ID	67%
Oklahoma Baptist Univ., OK	57%
Olivet Nazarene Univ., IL	41%
Roberts Wesleyan Univ., NY	91%
Trinity International Univ., IL	100%
Union Univ., TN	65%
Overall average	56%
Significance (α of ANOVA)	<.001

Table D.3 Work Experience While in College

Institution	Work experience
Anderson Univ., OH	2.95
Bethel Coll., IN	2.62
Bethel Univ., MN	3.18
Bluffton Coll., OH	3.07
Cumberland Coll., KY	2.88
Dordt Coll., IA	3.03
Eastern Mennonite Univ., VA	2.50
East Texas Baptist Univ., TX	2.67
George Fox Univ., OR	2.71
Houghton Coll., NY	2.84
Indiana Wesleyan Univ., IN	2.50
Malone Coll., OH	2.50
Northwestern Coll., MN	3.33
Northwest Nazarene Univ., ID	3.10
Oklahoma Baptist Univ., OK	3.00
Olivet Nazarene Univ., IL	2.71
Roberts Wesleyan Univ., NY	2.75
Trinity International Univ., IL	3.00
Union Univ., TN	2.93
Overall average	2.98
Significance (α of ANOVA)	.009

Ratings shown are averages of responses on a four point scale:
1 = none, 2 = limited, 3 = about average, 4 = extensive

Table D.4 Respondents Working at Graduation

Institution	Working at graduation
Anderson Univ., OH	65%
Bethel Coll., IN	62%
Bethel Univ., MN	92%
Bluffton Coll., OH	71%
Cumberland Coll., KY	89%
Dordt Coll., IA	83%
Eastern Mennonite Univ., VA	62%
East Texas Baptist Univ., TX	57%
George Fox Univ., OR	71%
Houghton Coll., NY	58%
Indiana Wesleyan Univ., IN	62%
Malone Coll., OH	57%
Northwestern Coll., MN	100%
Northwest Nazarene Univ., ID	81%
Oklahoma Baptist Univ., OK	96%
Olivet Nazarene Univ., IL	71%
Roberts Wesleyan Univ., NY	83%
Trinity International Univ., IL	87%
Union Univ., TN	71%
Overall average	75%
Significance (α of ANOVA)	.009

Table D.5 Level of Participation in Extracurricular Activities

Institution	Work experience
Anderson Univ., OH	3.15
Bethel Coll., IN	2.31
Bethel Univ., MN	2.59
Bluffton Coll., OH	2.79
Cumberland Coll., KY	3.11
Dordt Coll., IA	2.62
Eastern Mennonite Univ., VA	2.63
East Texas Baptist Univ., TX	2.95
George Fox Univ., OR	2.84
Houghton Coll., NY	2.89
Indiana Wesleyan Univ., IN	2.81
Malone Coll., OH	3.07
Northwestern Coll., MN	3.44
Northwest Nazarene Univ., ID	2.81
Oklahoma Baptist Univ., OK	3.17
Olivet Nazarene Univ., IL	3.35
Roberts Wesleyan Univ., NY	2.92
Trinity International Univ., IL	3.38
Union Univ., TN	3.25
Overall average	2.91
Significance (α of ANOVA)	.003

Ratings shown are averages of responses on a four point scale:
1 = none, 2 = limited, 3 = about average, 4 = extensive

Table D.6 General Program Characteristics by Institution

Institution	Faculty teaching ability	Student intellectual capacity	Interaction of faculty & students	Job search preparation
Anderson Univ., OH	4.40	3.65	4.50	3.55
Bethel Coll., IN	3.77	3.08	4.23	2.31
Bethel Univ., MN	4.10	3.92	4.51	2.98
Bluffton Coll., OH	4.07	3.64	4.29	2.64
Cumberland Coll., KY	3.33	3.33	3.78	2.44
Dordt Coll., IA	4.17	3.97	4.24	3.55
Eastern Mennonite Univ., VA	3.75	4.13	4.38	2.13
East Texas Baptist Univ., TX	3.71	3.71	4.48	2.62
George Fox Univ., OR	4.23	3.84	4.45	2.76
Houghton Coll., NY	3.95	4.11	4.32	3.05
Indiana Wesleyan Univ., IN	4.12	3.69	4.31	2.34
Malone Coll., OH	3.64	3.43	4.14	2.43
Northwest Nazarene Univ., ID	4.11	3.89	4.67	2.44
Northwestern Coll., MN	4.10	3.52	4.43	3.05
Oklahoma Baptist Univ., OK	4.71	4.21	4.75	2.83
Olivet Nazarene Univ., IL	4.18	3.53	4.59	3.00
Roberts Wesleyan Univ., NY	4.08	3.83	4.50	3.33
Trinity International Univ., IL	4.25	3.25	4.38	2.50
Union Univ., TN	4.25	3.96	4.46	3.25
Total	4.10	3.78	4.42	2.89
Significance (α of ANOVA)	<.001	<.001	n.s.	<.001

Ratings shown are averages of responses on a five point scale:
1 = very weak, 2 = weak, 3 = average, 4 = strong, 5 = very strong.

Table D.7 Emphases on Transferring Knowledge by Institution

Institution	Human culture	Scripture	Business functions	Management tasks
Anderson Univ., OH	3.20	3.50	4.45	3.75
Bethel Coll., IN	3.08	3.77	3.69	3.08
Bethel Univ., MN	3.49	3.80	4.10	3.86
Bluffton Coll., OH	3.43	3.50	3.86	3.50
Cumberland Coll., KY	2.78	2.44	4.11	3.89
Dordt Coll., IA	3.69	4.24	4.17	4.00
Eastern Mennonite Univ., VA	3.38	4.00	4.13	3.71
East Texas Baptist Univ., TX	3.48	3.24	3.76	3.14
George Fox Univ., OR	3.45	4.00	3.87	3.71
Houghton Coll., NY	3.79	3.63	4.00	3.74
Indiana Wesleyan Univ., IN	3.27	4.12	4.08	3.96
Malone Coll., OH	3.50	3.64	3.71	3.29
Northwest Nazarene Univ., ID	3.00	3.11	4.44	4.00
Northwestern Coll., MN	3.33	4.52	4.24	3.86
Oklahoma Baptist Univ., OK	4.29	3.75	4.50	4.04
Olivet Nazarene Univ., IL	3.29	4.18	4.06	3.65
Roberts Wesleyan Univ., NY	3.25	3.75	4.25	3.92
Trinity International Univ., IL	3.25	2.88	4.00	4.25
Union Univ., TN	3.25	3.86	4.18	4.21
Total	3.44	3.79	4.09	3.79
Significance (α of ANOVA)	.001	<.001	.014	<.001

Ratings shown are averages of responses on a five point scale:
1 = very little, 2 = little, 3 = average, 4 = much, 5 = very much

Table D.8 Emphases on Developing Skills by Institution

Institution	Quantitative/ mathematical analysis	Textual analysis of Scripture	Financial analysis	Marketing/ strategic analysis
Anderson Univ., OH	3.65	2.95	3.60	4.20
Bethel Coll., IN	3.15	2.85	3.23	3.62
Bethel Univ., MN	3.51	3.35	4.04	3.78
Bluffton Coll., OH	3.50	3.00	3.86	3.68
Cumberland Coll., KY	3.33	2.33	3.89	3.78
Dordt Coll., IA	3.76	3.59	4.21	4.00
Eastern Mennonite Univ., VA	4.00	2.57	4.00	4.13
East Texas Baptist Univ., TX	3.33	3.75	3.38	3.29
George Fox Univ., OR	3.29	3.42	3.71	3.84
Houghton Coll., NY	3.26	3.21	3.68	3.53
Indiana Wesleyan Univ., IN	3.27	3.23	3.69	4.00
Malone Coll., OH	3.36	3.07	3.29	3.43
Northwest Nazarene Univ., ID	3.22	2.56	3.67	4.11
Northwestern Coll., MN	3.62	4.19	3.95	4.10
Oklahoma Baptist Univ., OK	4.08	2.79	4.17	4.08
Olivet Nazarene Univ., IL	3.71	3.53	3.94	3.88
Roberts Wesleyan Univ., NY	3.75	3.50	3.83	3.92
Trinity International Univ., IL	3.50	2.50	3.50	4.25
Union Univ., TN	3.43	3.07	3.82	4.25
Total	3.51	3.02	3.81	3.89
α of ANOVA	.022	<.001	.002	.001

Ratings shown are averages of responses on a five point scale:
1 = very little, 2 = little, 3 = average, 4 = much, 5 = very much

Table D.9 Emphases on Developing Competencies by Institution

Institution	Critical thinking	Communi-cation	Interpersonal relationships	Leadership
Anderson Univ., OH	3.95	4.15	3.75	3.75
Bethel Coll., IN	3.38	3.62	3.00	3.00
Bethel Univ., MN	4.02	4.04	3.96	3.84
Bluffton Coll., OH	3.79	3.93	3.97	3.43
Cumberland Coll., KY	3.00	3.44	3.22	3.44
Dordt Coll., IA	4.38	4.31	4.00	4.00
Eastern Mennonite Univ., VA	4.25	4.75	4.38	3.88
East Texas Baptist Univ., TX	3.57	3.90	3.62	3.67
George Fox Univ., OR	3.87	3.97	3.70	3.90
Houghton Coll., NY	3.84	3.89	3.63	3.79
Indiana Wesleyan Univ., IN	4.04	4.15	3.96	3.81
Malone Coll., OH	3.64	3.79	3.71	3.64
Northwest Nazarene Univ., ID	4.11	4.78	4.11	3.89
Northwestern Coll., MN	4.19	4.33	4.14	4.24
Oklahoma Baptist Univ., OK	4.33	4.46	4.29	4.21
Olivet Nazarene Univ., IL	3.59	4.06	3.82	4.00
Roberts Wesleyan Univ., NY	4.08	4.42	4.17	4.08
Trinity International Univ., IL	4.00	4.50	3.88	3.50
Union Univ., TN	4.11	3.96	3.96	4.11
Total	3.95	4.10	3.87	3.85
α of ANOVA	<.001	<.001	.002	.009

Ratings shown are averages of responses on a five point scale:
1 = very little, 2 = little, 3 = average, 4 = much, 5 = very much

Table D.10 Emphases on Influencing Attitudes by Institution

Institution	Initiative	Lifelong learning	Integrity	Christian service
Anderson Univ., OH	3.85	3.90	4.65	4.10
Bethel Coll., IN	3.00	3.31	4.38	3.85
Bethel Univ., MN	3.90	4.00	4.88	4.43
Bluffton Coll., OH	3.71	3.71	4.29	3.57
Cumberland Coll., KY	3.22	2.67	3.56	2.56
Dordt Coll., IA	3.97	3.90	4.62	4.59
Eastern Mennonite Univ., VA	3.63	4.50	4.38	4.00
East Texas Baptist Univ., TX	3.38	3.57	4.38	4.00
George Fox Univ., OR	3.87	3.87	4.77	4.52
Houghton Coll., NY	3.72	4.32	4.42	4.21
Indiana Wesleyan Univ., IN	3.85	4.15	4.65	4.58
Malone Coll., OH	3.50	3.79	4.50	3.93
Northwest Nazarene Univ., ID	3.67	4.00	4.78	4.22
Northwestern Coll., MN	4.24	4.24	4.86	4.71
Oklahoma Baptist Univ., OK	4.08	3.92	4.71	4.00
Olivet Nazarene Univ., IL	4.06	4.00	4.59	4.53
Roberts Wesleyan Univ., NY	3.92	3.75	4.67	4.25
Trinity International Univ., IL	3.88	3.63	4.25	3.25
Union Univ., TN	4.14	3.96	4.75	4.25
Total	3.83	3.91	4.62	4.22
α of ANOVA	.001	.004	<.001	<.001

Ratings shown are averages of responses on a five point scale:
1 = very little, 2 = little, 3 = average, 4 = much, 5 = very much

Table D.11 Emphasis on a Christian Worldview

Institution	
Anderson Univ., OH	3.60
Bethel Coll., IN	3.77
Bethel Univ., MN	4.20
Bluffton Coll., OH	3.57
Cumberland Coll., KY	2.89
Dordt Coll., IA	4.41
Eastern Mennonite Univ., VA	3.63
East Texas Baptist Univ., TX	3.80
George Fox Univ., OR	4.13
Houghton Coll., NY	4.11
Indiana Wesleyan Univ., IN	4.54
Malone Coll., OH	4.21
Northwest Nazarene Univ., ID	3.89
Northwestern Coll., MN	4.71
Oklahoma Baptist Univ., OK	4.00
Olivet Nazarene Univ., IL	4.41
Roberts Wesleyan Univ., NY	3.91
Trinity International Univ., IL	3.25
Union Univ., TN	4.36
Total	4.09
α of ANOVA	<.001

Ratings shown are averages of responses on a five point scale:
1 = very little, 2 = little, 3 = average, 4 = much, 5 = very much

Table D.12 Effectiveness in Transferring Knowledge by Institution

Institution	Human culture	Scripture	Business functions	Management tasks
Anderson Univ., OH	3.20	3.05	4.35	4.00
Bethel Coll., IN	2.92	3.38	3.46	3.31
Bethel Univ., MN	3.43	3.59	4.18	3.84
Bluffton Coll., OH	3.36	3.00	3.79	3.43
Cumberland Coll., KY	2.88	2.75	4.00	3.63
Dordt Coll., IA	3.52	3.79	4.14	3.97
Eastern Mennonite Univ., VA	3.25	4.25	4.25	4.00
East Texas Baptist Univ., TX	3.76	2.95	3.76	3.48
George Fox Univ., OR	3.39	3.42	3.94	3.71
Houghton Coll., NY	3.63	3.26	3.79	3.68
Indiana Wesleyan Univ., IN	3.19	3.58	3.88	3.73
Malone Coll., OH	3.21	3.36	3.64	3.71
Northwest Nazarene Univ., ID	3.00	3.00	4.33	4.22
Northwestern Coll., MN	2.90	4.20	4.15	3.86
Oklahoma Baptist Univ., OK	3.83	3.42	4.22	4.00
Olivet Nazarene Univ., IL	3.41	3.65	4.06	3.71
Roberts Wesleyan Univ., NY	3.58	3.58	4.33	4.00
Trinity International Univ., IL	2.88	2.50	4.38	3.63
Union Univ., TN	3.00	3.71	4.21	3.96
Total	3.33	3.46	4.06	3.80
Significance (α of ANOVA)	.006	<.001	<.001	n.s.

Ratings shown are averages of responses on a five point scale:
1 = very little, 2 = little, 3 = average, 4 = much, 5 = very much

Table D.13 Effectiveness in Developing Skills by Institution

Institution	Quantitative/ mathematical analysis	Textual analysis of Scripture	Financial analysis	Marketing/ strategic analysis
Anderson Univ., OH	3.53	3.05	3.75	4.25
Bethel Coll., IN	3.08	3.38	3.38	3.31
Bethel Univ., MN	3.61	3.59	3.92	3.76
Bluffton Coll., OH	3.29	3.00	3.57	3.86
Cumberland Coll., KY	3.63	2.75	3.88	4.00
Dordt Coll., IA	3.83	3.79	4.07	3.97
Eastern Mennonite Univ., VA	4.00	4.25	4.13	4.13
East Texas Baptist Univ., TX	3.38	2.95	3.24	3.38
George Fox Univ., OR	3.19	3.42	3.55	3.87
Houghton Coll., NY	3.16	3.26	3.74	3.63
Indiana Wesleyan Univ., IN	3.23	3.58	3.77	3.88
Malone Coll., OH	3.36	3.36	3.43	3.64
Northwest Nazarene Univ., ID	3.00	3.00	3.44	4.00
Northwestern Coll., MN	3.38	4.20	3.95	3.90
Oklahoma Baptist Univ., OK	4.00	3.42	3.96	4.29
Olivet Nazarene Univ., IL	3.41	3.65	3.71	3.69
Roberts Wesleyan Univ., NY	3.58	3.58	3.75	4.00
Trinity International Univ., IL	3.00	2.50	3.25	4.00
Union Univ., TN	3.43	3.71	3.71	3.96
Total	3.46	3.24	3.73	3.86
α of ANOVA	.007	<.001	.039	.003

Ratings shown are averages of responses on a five point scale:
1 = very little, 2 = little, 3 = average, 4 = much, 5 = very much

Table D.14 Effectiveness in Developing Competencies by Institution

Institution	Critical thinking	Communi-cation	Interpersonal relationships	Leadership
Anderson Univ., OH	4.05	4.10	3.63	3.75
Bethel Coll., IN	3.38	3.31	3.08	3.08
Bethel Univ., MN	4.00	3.94	3.92	3.02
Bluffton Coll., OH	3.57	3.71	3.50	3.50
Cumberland Coll., KY	3.88	3.25	3.25	3.50
Dordt Coll., IA	4.21	4.21	4.00	3.86
Eastern Mennonite Univ., VA	4.00	4.63	4.13	3.88
East Texas Baptist Univ., TX	3.67	4.00	3.86	3.52
George Fox Univ., OR	3.74	3.81	3.77	3.58
Houghton Coll., NY	3.95	3.95	3.79	3.63
Indiana Wesleyan Univ., IN	3.96	4.00	3.92	3.69
Malone Coll., OH	3.21	3.57	3.71	3.50
Northwest Nazarene Univ., ID	4.11	4.67	3.89	4.11
Northwestern Coll., MN	3.90	3.95	4.05	3.95
Oklahoma Baptist Univ., OK	4.21	4.50	4.39	4.21
Olivet Nazarene Univ., IL	3.76	4.06	4.06	4.24
Roberts Wesleyan Univ., NY	3.92	4.25	4.08	4.08
Trinity International Univ., IL	4.00	4.25	3.63	3.50
Union Univ., TN	4.00	3.79	4.00	3.96
Total	3.90	3.99	3.87	3.78
α of ANOVA	.036	<.001	.009	.026

Ratings shown are averages of responses on a five point scale:
1 = very little, 2 = little, 3 = average, 4 = much, 5 = very much

Table D.15 Effectiveness in Influencing Attitudes by Institution

Institution	Initiative	Lifelong learning	Integrity	Christian service
Anderson Univ., OH	3.75	3.80	4.25	3.95
Bethel Coll., IN	2.92	3.08	3.77	3.62
Bethel Univ., MN	3.94	3.84	4.59	4.27
Bluffton Coll., OH	3.64	3.21	3.93	3.07
Cumberland Coll., KY	3.38	3.25	3.63	3.50
Dordt Coll., IA	3.97	3.55	4.48	4.55
Eastern Mennonite Univ., VA	4.25	4.63	4.63	4.25
East Texas Baptist Univ., TX	3.38	3.24	3.76	3.62
George Fox Univ., OR	3.65	3.48	4.32	3.87
Houghton Coll., NY	3.58	3.84	4.05	3.89
Indiana Wesleyan Univ., IN	3.73	3.46	4.27	4.04
Malone Coll., OH	3.43	3.57	3.93	3.93
Northwest Nazarene Univ., ID	3.89	3.56	4.00	3.89
Northwestern Coll., MN	4.10	3.62	4.52	4.48
Oklahoma Baptist Univ., OK	4.04	3.92	4.33	4.21
Olivet Nazarene Univ., IL	4.12	4.00	4.47	4.65
Roberts Wesleyan Univ., NY	4.25	3.33	4.25	3.83
Trinity International Univ., IL	3.50	3.50	3.75	3.25
Union Univ., TN	4.26	3.71	4.43	4.11
Total	3.82	3.63	4.26	4.04
α of ANOVA	<.001	n.s.	<.001	<.001

Ratings shown are averages of responses on a five point scale:
1 = very little, 2 = little, 3 = average, 4 = much, 5 = very much

Table D.16 Effectiveness in Creating a Christian Worldview

Institution	
Anderson Univ., OH	3.60
Bethel Coll., IN	3.62
Bethel Univ., MN	4.27
Bluffton Coll., OH	2.86
Cumberland Coll., KY	3.63
Dordt Coll., IA	4.34
Eastern Mennonite Univ., VA	3.88
East Texas Baptist Univ., TX	3.67
George Fox Univ., OR	3.90
Houghton Coll., NY	3.95
Indiana Wesleyan Univ., IN	4.08
Malone Coll., OH	4.07
Northwest Nazarene Univ., ID	3.67
Northwestern Coll., MN	4.43
Oklahoma Baptist Univ., OK	3.83
Olivet Nazarene Univ., IL	3.88
Roberts Wesleyan Univ., NY	3.67
Trinity International Univ., IL	2.88
Union Univ., TN	4.18
Total	3.93
α of ANOVA	<.001

Ratings shown are averages of responses on a five point scale:
1 = very little, 2 = little, 3 = average, 4 = much, 5 = very much

Table D.17 Average Months to First Employment After Graduation

Institution	Months to employment
Anderson Univ., OH	1.1
Bethel Coll., IN	1.5
Bethel Univ., MN	0.7
Bluffton Coll., OH	0.9
Cumberland Coll., KY	0.6
Dordt Coll., IA	0.8
Eastern Mennonite Univ., VA	1.6
East Texas Baptist Univ., TX	1.3
George Fox Univ., OR	1.5
Houghton Coll., NY	0.8
Indiana Wesleyan Univ., IN	1.7
Malone Coll., OH	2.0
Northwestern Coll., MN	1.0
Northwest Nazarene Univ., ID	0.7
Oklahoma Baptist Univ., OK	0.6
Olivet Nazarene Univ., IL	1.1
Roberts Wesleyan Univ., NY	0.7
Trinity International Univ., IL	0.3
Union Univ., TN	1.0
Overall average	1.0
Significance (α of ANOVA)	.009

Table D.17 Prospective Performance Evaluations

Institution	Supervisor's evaluation	Subordinates' evaluation	Peers' evaluation	Self evaluation
Anderson Univ., OH	4.42	4.27	4.26	4.21
Bethel Coll., IN	4.18	3.86	3.92	3.92
Bethel Univ., MN	4.43	4.45	4.35	4.23
Bluffton Coll., OH	4.00	4.25	3.77	3.62
Cumberland Coll., KY	4.33	4.67	4.22	4.00
Dordt Coll., IA	4.37	3.79	3.93	3.89
Eastern Mennonite Univ., VA	4.13	4.33	4.38	4.00
East Texas Baptist Univ., TX	4.26	4.14	4.10	3.75
George Fox Univ., OR	4.43	4.39	4.38	4.03
Houghton Coll., NY	4.42	4.08	4.05	3.74
Indiana Wesleyan Univ., IN	4.38	4.35	4.38	3.92
Malone Coll., OH	4.50	4.40	4.14	4.00
Northwestern Coll., MN	4.22	4.14	4.33	3.89
Northwest Nazarene Univ., ID	4.10	3.75	3.86	3.52
Oklahoma Baptist Univ., OK	4.33	4.43	4.29	4.05
Olivet Nazarene Univ., IL	4.41	4.30	4.19	4.00
Roberts Wesleyan Univ., NY	4.42	4.20	4.33	4.17
Trinity International Univ., IL	4.43	4.33	4.25	3.88
Union Univ., TN	4.42	4.25	4.43	4.11
Overall average	4.35	4.24	4.21	3.97
Significance (α of ANOVA)	n.s.	.025	.027	n.s.

Ratings shown are averages of responses on a five point scale:
1 = failing, 2 = below average, 3 = average, 4 = above average, 5 = outstanding

APPENDIX E

Aggregated Path Analysis Effects

Table E.1 Aggregation of Path Analysis Effects from Personal Characteristics Variables

Key: **Bold** entries are direct effects *Italic* entries are indirect effects	Months to employment	Starting salary	Ave. annual salary increase	Ave. salary increases/year	Ave. promotions/year	Sat. w/salary and benefits	Sat. w/reln. w/supervisor	Sat. w/reln. w/co-workers	Sat. w/employment	Sat. w/achievement	Sat. w/opportunities	Sat. w/career progress	Evaluation by supervisor	Evaluation by subordinates	Evaluation by peers	Self evaluation	Number of Direct Effects	Number of Indirect Effects
Gender			**-.131**				*.024*	*.021*		*.017*	*.019*		*.016*				**1**	*5*
High school GPA										*.065*	*.072*		*.059*					*3*
Socioeconomic status of parents		**.221**	**.137**			**.150**	**.147**			**.146**							**5**	

Table E.2 Aggregation of Path Analysis Effects from Personal Experience Variables

Key: **Bold** entries are direct effects *Italic* entries are indirect effects	Months to employment	Starting salary	Ave. annual salary increase	Ave. salary increases/year	Ave. promotions/year	Sat. w/salary and benefits	Sat. w/reln. w/supervisor	Sat. w/reln. w/co-workers	Sat. w/employment	Sat. w/achievement	Sat. w/opportunities	Sat. w/career progress	Evaluation by supervisor	Evaluation by subordinates	Evaluation by peers	Self evaluation	Number of Direct Effects	Number of Indirect Effects
Work experience prior to college														**.181**			**1**	
Number of colleges attended											**.136**	**.125**					**2**	
Extracurricular participation			**.148**				*.021*	*.018*		*.019*							**1**	*3*
Extracurricular leadership		**.146**			**.134**									*.029*	**.147**		**3**	*1*
Work during college		**.144**	**.163**										**.125**		**.127**		**4**	
Working at graduation	**.204**									**.133**							**2**	
Internships while in college				**.130**										**-.143**			**2**	
Mentor while in college										*.017*	*.018*		*.015*	*.020*		**.128**	**1**	*4*

Table E.3 Aggregation of Path Analysis Effects from Program Characteristic Variables

Key: **Bold** entries are direct effects *Italic* entries are indirect effects	Months to employment	Starting salary	Ave. annual salary increase	Ave. salary increases/year	Ave. promotions/year	Sat. w/salary and benefits	Sat. w/reln. w/supervisor	Sat. w/reln. w/co-workers	Sat. w/employment	Sat. w/achievement	Sat. w/opportunities	Sat. w/career progress	Evaluation by supervisor	Evaluation by subordinates	Evaluation by peers	Self evaluation	Number of Direct Effects	Number of Indirect Effects
Freshman ave. h.s. GPA										*-.027*					**.341**		**1**	*1*
College verbal SAT															**-.255**		**1**	
College numeric SAT										*.054*								*1*
Sophomore retention rate										*-.026*								*1*
Tuition										*-.020*								*1*
College enrollment														**.132**	**.165**	**.280**	**3**	
Teaching ability of faculty							*.025*	*.022*										*2*
Intellectual capacity of students										*-.027*	*-.030*		*-.025*					*3*
Student/faculty interaction						*.030*												*1*
Job search preparation	**.248**								**.184**	**.150** *.013*	**.147**	**.203**					**5**	*1*
Emph. on Scripture knowledge	**-.120**														*.018*		**1**	*1*
Emph. on business knowledge								*.014*	*.019*	*.018*		*.016*						*4*
Emph. on management know.			**-.121**														**1**	
Emph. on quantitative skills								*.072*	*.096*	*.088*		*.083*						*4*
Emph. on Scripture skills							*-.025*	*-.040*	*-.024*	*-.021*		*-.021*			*.073*			*6*
Emph. on financial skills						*.031*		*.015*	*.019*	*.018*		*.017*						*5*
Emph. on marketing skills											*.023*						**1**	
Emph. on critical thinking comp.						**-.313** *.106*											**1**	*1*
Emph. on communication comp.															**.173**		**1**	
Emph. on interpersonal comp.						**.260**	*.087*	*.075*						*.023*			**1**	*3*
Emph. on leadership comp.							*.037*	*.032*						*.080*				*3*
Emph. on initiative						*.030*				*.037*	*.027*			*.030*	*.017*			*5*
Emph. on lifelong learning							*.023*	*.044*	*.031*	*.029*		*.027*						*5*
Emph. on integrity											*.048*							*1*
Emph. on Christian service										*.075*								*1*
Emph. on Christian worldview											*.024*							*1*

Table E.4 Aggregation of Path Analysis Effects from Educational Outcome Variables

Key: **Bold** entries are direct effects *Italic* entries are indirect effects	Months to employment	Starting salary	Ave. annual salary increase	Ave. salary increases/year	Ave. promotions/year	Sat. w/salary and benefits	Sat. w/reln. w/supervisor	Sat. w/reln. w/co-workers	Sat. w/employment	Sat. w/achievement	Sat. w/opportunities	Sat. w/career progress	Evaluation by supervisor	Evaluation by subordinates	Evaluation by peers	Self evaluation	Number of Direct Effects	Number of Indirect Effects
College GPA										**.139**	**.154**		**.127**				**3**	
Eff. in quantitative skills								**.137**	**.181**	**.167**		**.157**					**4**	
Eff. in Scripture skills															**.122**		**1**	
Eff. in critical thinking comp.						**.215**											**1**	
Eff. in interpersonal comp.							**.186**	**.162**									**2**	
Eff. in leadership comp.														**.178**			**1**	
Eff. in integrity											**.137**						**1**	
Eff. in Christian service										**.146**							**1**	