INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

UMI

A Bell & Howell Information Company
300 North Zeeb Road, Ann Arbor MI 48106-1346 USA
313/761-4700 800/521-0600

Downloaded from SHAREOK. Persistent Handle URL: https://hdl.handle.net/11244/5720

UNIVERSITY OF OKLAHOMA
GRADUATE COLLEGE

CHEATING AND MOTIVATION: AN EXAMINATION OF THE RELATIONSHIPS AMONG CHEATING BEHAVIORS, MOTIVATIONAL GOALS, COGNITIVE ENGAGEMENT, AND PERCEPTIONS OF CLASSROOM GOAL STRUCTURES

A Dissertation
SUBMITTED TO THE GRADUATE FACULTY
in partial fulfillment of the requirements for the
degree of
Doctor of Philosophy
Instructional Psychology and Technology

By
MARCY A. BLACKBURN
Norman, Oklahoma
1998

UMI Number: 9911853

Copyright 1998 by
Blackburn, Marcy Anne

All rights reserved.

UMI Microform 9911853
Copyright 1999, by UMI Company. All rights reserved.

This microform edition is protected against unauthorized
copying under Title 17, United States Code.

UMI
300 North Zeeb Road
Ann Arbor, MI 48103

c Copyright by MARCY A. BLACKBURN 1998
All Rights Reserved

CHEATING AND MOTIVATION: AN EXAMINATION OF THE RELATIONSHIPS BETWEEN CHEATING BEHAVIORS, MOTIVATIONAL GOALS, AND PERCEPTIONS OF CLASSROOM GOAL STRUCTURES

A Dissertation APPROVED FOR THE
DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

BY

Raymond B. Miller

Barbara A. Greene

Deven K. DeBacker

Patricia L. Smith

Mary John O'Hair

DEDICATION

This dissertation is dedicated to my grandmother, Virgie Austin (Nannie), who believed education was the ultimate reward. Nannie literally pushed me to complete my coursework for my bachelor's degree, encouraged and supported me throughout the years of study for my masters degree, and planted the seeds for my pursuit of a doctorate. The beliefs and values she exemplified served as a model to me and influenced all facets of my life. When I encountered difficulties along the way during the past five years, the one-sided conversations I carried on with her and my knowledge of what her answers would probably have been enabled me to generate the strength and determination necessary to carry this educational endeavor through to the end. I think she would have both approved of and enjoyed the topic of this dissertation. Self-educated far beyond her high school studies, Nannie knew a lot about motivation and believed in positive alternatives to punishment. While she would not have dreamed of cheating in school, she did enjoy cheating at cards as a child and admitted that card-playing was no longer fun after the adults made them quit cheating.

ACKNOWLEDGEMENTS

This research contained in this dissertation was inspired by an earlier research study I conducted with Ray Miller, the chair of my committee. I owe a huge debt of gratitude to him for the time, expertise, and guidance he provided throughout this project. During the five years of his mentorship, I developed a passion for conducting educational research and a respect for both the processes involved in academic research and the foundational work of other researchers.

I would also like to thank the members of my committee. Barbara Greene consistently provided sagacious and perceptive feedback that challenged my thinking, served as an impetus for improvement, and encouraged me to "process at a higher level." Teresa DeBacker was always there to listen when I encountered problems or needed to share the excitement of a new finding. More than once she calmed my nerves and offered just the piece of information or advice that enabled me to take the next step in my dissertation journey. The thoughtful comments Patricia Smith wrote on my prospectus made me look at things from another perspective. My confidence was bolstered by her encouragement and trust in my work. At the prospectus meeting, Ann Cavallo, the first outside member of my committee, insisted upon the development and pilot investigation of a new instrument that proved to be an important contribution to the dissertation. When she left the university, I was rescued from the throes of intense panic by Dr. Mary John O'Hair who agreed to serve as the outside member my committee for the dissertation defense.

The process of data collection could not have proceeded as smoothly as it did without the assistance and cooperation of many others. I would like to

thank my colleagues at Cameron University, Mary Rubin, Susanne Dennis, Bill James, and Isolete DeAlmeida, fellow doctoral students, Melanie Reap and Sharon Brickman, and my committee member, Teresa DeBacker, who graciously allowed me to collect data in their classrooms. In addition, I would like to recognize Debbie Goode of Cameron University and Patti Kessler of the University of Oklahoma who provided the demographic data necessary to describe the populations from which my sample was drawn.

The years of coursework and the time spent writing the dissertation were no less difficult for me than they were for my family. I want to thank my husband Doyle for assuming many of my responsibilities over the past five years. In addition to the extra effort he put forth on the homefront, he chauffeured me to Norman numerous times when he felt I had stayed up too late to drive safely or when he knew I could use the traveling time for some much needed study.

My son, Drew, served as a very young "graduate assistant" during the last two years. He spent countless hours both at home and in the Cameron library locating articles in the stacks and on microfilm, making photocopies, inputting data, and proofreading. While assisting me, he also managed to excel in his own education. Not only did he provide his labor, but he also served as a sounding board and resource person. Many times when I was confounded about the results of an analysis, he provided, as only a very insightful high school student could, at least one possible explanation. Thanks to my mother, Anne Howard, Drew had both a second home and a second mother throughout my doctoral work (She now actually thinks she is his mother.).

In addition to my family, three very special friends, each in her own

unique way, contributed to my doctoral work and dissertation journey: Paula Buehne, Linda Cockrell, and Jody Sherry. My best friend, Paula Buehne, despite long periods without the contact usually necessary to maintain a friendship, was steadfast in providing support and encouragement when I needed it the most. Her unconditional acceptance and love sustained me through the most difficult times. I always knew that if I needed her she was there to listen (even in the wee hours of the night).

Linda Cockrell served as a proofreader for many papers and projects, kept updated on my progress. As a beginning teacher, she shared her own difficulties with me, helping me keep mine in perspective. Jody Sherry, my principal for many years, guided my career, made me believe in myself and provided the opportunities necessary for my growth as a professional. Without her support many years ago, I would not have had the courage to pursue a doctoral degree or the dedication to see the dissertation through to completion.

Finally, I would like to thank the students in my classes as Cameron University who kept me going and were an ever-present reminder that there was a greater purpose for completing the dissertation than the resulting written product.

TABLE OF CONTENTS

DEDICATION iv

ACKNOWLEDGEMENTS v

LIST OF TABLES xi

LIST OF FIGURES xii

ABSTRACT xiv

CHAPTER

I. INTRODUCTION 1

II. REVIEW OF THE LITERATURE 7

Definitions of Cheating 7

Measurement of Cheating 11

Reasons for Cheating 21

Cheating and Theories of Motivation 25

Cheating and Intrinsic Motivation 25

Cheating and Social Cognitive Theory 28

Cheating and the Neutralization Theory of Delinquency 34

Cheating and Attribution Theory 37

Cheating and Achievement Motivation 38

Cheating and Other Motivational Constructs 40

Cheating and Perceived Ability 42

Achievement Goals and Cheating 47

Cheating and Perceptions of Classroom Goal Structures 53

Statement of the Problem 62

Research Questions 67

III. RESEARCH METHODOLOGY 70

Sample 70

Description of Sample Populations 70

Participants 71

Sampling Method 72

Procedures 73

Provisions for Anonymity 73

Research Protocol 74

Instruments 75

Survey on Approaches to Learning 75

Survey of Classroom Goal Structures 78

Survey of Cheating Behaviors 82

Limitations of the Study 85

IV. RESEARCH RESULTS 88

Factor Analyses of Instrument Scales 88

Instrument Reliabilities 90

Treatment of Missing Data 91

Types and Frequencies of Cheating Behaviors 95

Intrinsic Motivation for Cheating 98

Mismatch Between Course Challenge Level and Student Skill Level 100

Differences Between Cheaters and Noncheaters 108

Relationships Among Cheating, Reasons for Cheating, Achievement Goals, Perceived Ability, Cognitive Engagement, and Perceptions of Classroom Goal Structures 111

Motivational Model for Predicting Cheating 131

Achievement Goals and Perceived Ability Models for Predicting the Frequency of Cheating 136

Hierarchical Regression Analyses for Predicting the Frequency of Cheating 154

Achievement Goals and Perceived Ability Models for Explaining Cognitive Engagement 156

Hierarchical Regression Analyses for Explaining Cognitive Engagement 166

Perceptions of Classroom Goal Structures Models for Explaining Achievement Goals and Perceived Ability 168

V. DISCUSSION AND CONCLUSIONS 172

BIBLIOGRAPHY

APPENDICES

Appendix A Survey on Approaches to Learning

Appendix B Survey of Classroom Goal Structures

Appendix C Survey of Cheating Behaviors

Appendix D Pilot Instrument: Survey of Classroom Goal Structures

Appendix E ANOVA Tables for Regressions of Cheating Measures, Effort, Achievement Goals, and Perceived Ability on Match Scores

Appendix F Hierarchical Regression Models for Predicting Cheating and Explaining Cognitive Engagement

LIST OF TABLES

Table		Page
1.	Number and Percentage of Students Reporting Cheating in Each Category	95
2.	Number of Participants Reporting Engagement in Cheating Behaviors in Each Frequency Range	96
3.	Correlations Between Intrinsic Motivation for Cheating and Other Variables for the Group of Cheaters	99
4.	Means and Standard Deviations of Motivational, Cognitive Engagement, and Reasons for Cheating Variables for Cheaters and Noncheaters	109
5	Correlations Among Motivational, Cognitive Engagement, and Reasons for Cheating Variables: Noncheaters (N = 59-60) and Cheaters (N = 139-141)	112
6.	Intercorrelations Among the Cheating Measures Used in the Study: Cheaters (N = 139-141)	123
7.	Intercorrelations Among the Cheating Measures Used in the Study: Entire Sample (N = 199-201)	124
8.	Correlations Between Cheating Measures and Other Variables Used in the Study: Cheaters (N = 136-141)	127
9.	Correlations Between Cheating Measures and Other Variables Used in the Study: Entire Sample (N = 194-201)	129
10.	Summary of Regression Analyses for Achievement Goal and Perceived Ability Models Predicting the Frequency of Cheating (N = 201)	137
11.	Results of Regression Analyses of Achievement Goal and Perceived Ability Models for Explaining Cognitive Engagement	157
12.	Results of Regression Analyses of Perceptions of Classroom Goal Structures Models for Explaining Achievement Goals and Perceived Ability	169

LIST OF FIGURES

Figure		Page
1.	Proposed model explaining cheating behaviors	64
2.	Curvilinear relationship between total frequency of cheating and the match between perceived class challenge level and perceived student skill level	103
3.	Curvilinear relationship between effort and the match between perceived class challenge level and perceived student skill level	105
4.	Curvilinear relationship between learning goal and the match between perceived class challenge level and perceived student skill level	106
5.	Variations in the overall frequency of cheating as a function of the learning goal by performance goal and performance goal by perceived ability interactions	139
6.	Variations in the frequency of cheating on tests as a function of the learning goal by performance goal and performance goal by perceived ability interactions	140
7.	Variations in the frequency of cheating on assignments as a function of the learning goal by future consequences by perceived ability interaction	143
8.	Variations in the frequency of cheating for self on assignments as a function of the learning goal by perceived ability and perceived ability by future consequences interactions	145
9.	Variations in the frequency of cheating for others as a function of the learning goal by future consequences by perceived ability interaction	147
10.	Variations in the frequency of cheating for others on tests as a function of the learning goal by performance goal and performance goal by perceived ability interactions	149
11.	Variations in the frequency of cheating for others on assignments as a function of the learning goal by future consequences by perceived ability interaction	151

12. Variations in the frequency of cheating for others on assignments as a function of the performance goal by perceived ability interaction....153

13. Variations in self-regulation as a function of the learning goal by performance goal by perceived ability interaction....159

14. Variations in deep strategy use as a function of the learning goal by performance goal and performance goal by future consequences interactions....162

15. Variations in persistence as a function of the performance goal by future consequences interaction....165

ABSTRACT

Academic cheating was examined from a motivational perspective. Two constructs served as the basis for exploring relationships between cheating and intrinsic motivation: intrinsic motivation for cheating (the degree to which students experienced "flow" during acts of cheating) and optimal challenge (the match between student skill level and class challenge level). Relationships between cheating and achievement goals (learning goals, performance goals, and future consequences), perceptions of ability, cognitive engagement (effort, persistence, self-regulation, and deep cognitive processing strategies), and perceptions of classroom goal structures were examined by testing the efficacy of a motivational model for predicting engagement in cheating behaviors. Early in the semester education students from two universities completed instruments measuring achievement goals, perceived ability, cognitive engagement, and perceptions of classroom goal structures. An instrument measuring engagement in cheating behaviors, reasons for cheating, and intrinsic motivation for cheating was administered at the end of the semester.

Seventy percent of the students reported cheating in the first class they attended each week. Approximately 20% of the those who cheated indicated they were intrinsically motivated to do so. Regression analyses revealed curvilinear relationships between the match between students' skill levels and class challenge levels and cheating, effort, and learning goals. Students who perceived their skills for performing in a class to be well below or well above the challenge level of the class cheated more frequently, put forth less effort, and were less likely to adopt learning goals. Students' achievement goals (learning goals, performance goals, and future consequences), perceived

ability, and interactions among goals and perceived ability were significant predictors of engagement in cheating behaviors. Deep processing strategies and perceptions of student autonomy accounted for additional variance in cheating beyond that accounted for by achievement goals and perceived ability. Results indicate the importance of considering cognitive and motivational factors within both the student and the classroom environment in order to gain a better understanding of academic cheating. The quality of instruction and the characteristics of those who deliver instruction are likely the keys to reducing the amount of cheating taking place in today's classrooms.

CHAPTER 1

INTRODUCTION

Background of the Problem

In recalling the activities involved in preparing for university examinations, most students are likely to have memories of intensive hours of study, reviewing class notes, rereading elusive passages of text, memorizing countless definitions, and creating mnemonic devices for remembering lists of information. Other students, however, recall spending their time and energies devising schemes for cheating on the examinations. The following scenario was compiled from open-ended questionnaires in which students described their engagement in cheating behaviors (Blackburn, 1996):

On the first day of final examination week at Anywhere University, the students are prepared to provide evidence of the knowledge they have gained during the semester. Melinda's hands are covered with the ink of words that may need to be recalled in the next two hours. Joe and Marta carefully conceal scraps of paper that will later be slipped discreetly beneath their tests. The caps worn by Jonathan and Fred serve a greater purpose today than mere head adornments; the copious notes on the cap bills require only thoughtful upward glances in order to be transferred to paper. Dressing for success takes on a new meaning for Samantha who has cleverly taped a sheet of vital information inside her flannel overshirt.

In a chemistry lab, Kent hurries to the black table top where he wrote formula possibilities an hour earlier. He inclines his head to be sure that, at the right angle, the pencil marks conveniently reflect light coming through the nearby blinds. Sylvia and Fran each carry two blue books into their history

class, one containing a prewritten essay and the other blank for writing during the exam as camouflage for the "blue book switch" at the end of the period. Those less creative souls in sundry classes clamber to sit by classmates perceived as "smart" so that answers may be lifted from one paper to another with cautious, rapid eye movements. In the hallway a post-it note containing geometry proofs flutters a few feet then glues itself to the floor; it will be sorely missed by Randy who did not notice when it separated from his shoe.

The activities taking place in the scenario do not appear to be rare occurrences. Researchers have had self-reports of students admitting to cheating in high school as high as 96% (Adams, 1960) and 97.5% (Schab, 1991), in college as high as 91% (Sims, 1993), and in medical school as high as 58.2% (Sierles, Hendrickx, & Circle, 1980), and experimental studies have revealed cheating rates among college undergraduates as high as 95.3% (Tittle & Rowe, 1973) and 98% (Gardner, Roper, Gonzalez, & Simpson, 1988). In a review of cheating research that duplicated an earlier review of Bushway and Nash (1977) and extended that review into the 1990s, Kibler (1993) found that cheating in colleges and universities had steadily increased from 23% in 1941 to over 67% in 1992.

It may be that the academic goals held by institutions of learning are not the same as the achievement goals held by some of the students attending those institutions. While some students may pursue degrees primarily to increase their knowledge, attain deeper conceptual understandings, and improve their performance, others may be less concerned with learning and skill improvement than they are with obtaining the credentials necessary for entering their chosen careers, receiving high grades in college courses so friends and family members will view them as smart and successful, or

simply having a good time and making friends before they have to enter the work force (Newstead, Franklyn-Stokes, & Armstead, 1996). For students whose primary achievement goals are different from those of the institutions they are attending, cheating may be seen as the most expedient means for attaining the goals they view as important. Students whose primary achievement goals are related to future careers may wish to understand concepts and improve performances in areas they view as essential for fulfilling their future job responsibilities while topics or courses perceived as irrelevant for meeting these future goals may be considered as unnecessary or even a waste of time. Those students attending college for more social reasons may see coursework and studying as an infringement on the time they wish to spend having fun with friends and may engage in cheating as a means of work avoidance. Even students who pursue degrees with the intention of increasing their understanding and improving their skills may find that the methods of instruction, evaluation, and general classroom protocol in some courses make such goals difficult, if not impossible, to achieve. If these students lack confidence in their own abilities or have not developed strategies for learning on their own, even they may resort to cheating in such courses in order to maintain the grade point average necessary to remain in school. Although instructors and administrators in schools and universities tend to assign blame for engagement in cheating on the personal character traits of the students involved, cheating may be attributable to the types of achievement goals held by students, students' perceptions of their abilities, lack of effective learning and study strategies, or even the instructional, evaluative, and management structures of classrooms.

That administrators and instructors view cheating as a behavior

attributable to character deficiencies within students rather than as an outcome of flawed instructional, evaluative, or classroom management practices can be seen in the various ideas and suggestions that have been offered for curtailing cheating during tests. Preventive techniques to curb cheating include using separate forms of tests, spacing students with empty desks between them during test taking, constant and diligent monitoring during test taking, informing students of the reasons they should not cheat (Aiken, L. R., 1991; Davis, Grover, Becker, & McGregor, 1992; Houston, 1976a, 1976b, 1983a, 1986a; Pactor, McKeen, & Morris, 1990), and institution of honor codes (Livosky & Tauber, 1994; McCabe & Trevino, 1993). Statistical methods for detecting cheating have also been offered as deterrents for cheating (Aiken, L. R., 1991; Bellezza & Bellezza, 1989; Frary, 1993; Link & Day, 1992; Roberts, 1987). Punitive measures for cheating include telling students to keep their eyes on their own papers during testing, giving failing grades to those caught cheating, and expelling students who cheat (Aiken, L. R., 1991; Davis, et al., 1992; Livosky & Tauber, 1994). Before instituting punitive measures and external controls to prevent cheating, the possible effects of such measures should be examined.

Ryan, Connell, and Deci (1985) presented empirical evidence that punitive measures and external controls in schools are associated with a variety of negative consequences for students in terms of motivation, attitudes, adjustment, and achievement. More specifically, increases in external control are associated with increases in anxiety and decreases in intrinsic motivation, autonomy, interest, perceived ability, and achievement. According to Ryan et al., students in schools that utilized external controls and punishment were less likely to select and pursue challenging activities,

less likely to enjoy school work, more likely to have difficulty coping with the social and emotional aspects of school, and more likely to attribute their own successes and failures to external causes. They also revealed that conceptual learning was lower for students whose learning was regulated through external means. Although there were no differences in initial rote learning levels of students controlled externally and students who were provided with more choices and opportunities to self-regulate their learning, those controlled externally experienced lower retention of even rote learning. Based on the findings of Ryan et al. (1985), it appears that the use of recommended punitive and external preventive measures to control cheating in classes may produce outcomes that are even less desirable than cheating. If motivational factors underlying cheating behaviors are not understood and addressed, it is unlikely the cheating situation in our colleges and universities will be meaningfully resolved.

The purpose of the current study is to explore the relationships between cheating and motivational factors in university settings. Through students' self reports, this study will identify the types of cheating behaviors in which students engage and the frequencies with which they engage in different cheating behaviors. The motivational factors to be examined in the current study are students' academic achievement goals, self-judgments about their abilities for learning, their perceptions of university classroom environments, the reasons they give for cheating, and the feelings they experience when engaging in cheating behaviors.

In the following chapter I review the cheating literature to determine how cheating has been defined and measured and to examine students' self-reported reasons for cheating. I then review previous research on cheating

within the context of social and motivational theories that may be pertinent to the understanding of cheating behaviors. Included in this portion of the review are theories of intrinsic motivation, social cognitive theory, the neutralization theory of delinquency, attribution theory, and early theories of achievement motivation. Next, motivational factors related to students' cognitive engagement and achievement are reviewed to provide a current theoretical framework for understanding the relationships among cheating, the goals and perceived abilities of students who engage in cheating, and the motivational environments in which cheating occurs. Included in this part of the review are academic achievement goals, perceptions of abilities, cognitive strategies, classroom goal structures, and related findings from recent studies of cheating. The review concludes with a statement of the problem and the research questions addressed by this study.

CHAPTER 2

REVIEW OF THE LITERATURE

Definitions of Cheating

Academic cheating is an intentional, goal-directed act in which illicit means are used in the completion of an assignment or examination in order to increase or maintain one's own or another's score in a course. Although studies of academic cheating appear in the literature as early as the 1920s, relatively few have explicitly defined academic cheating. Academic cheating has been referred to as deceit or deception (Aiken, L. R., 1991; Hartshorne & May, 1928; McQueen, 1957; Stevens & Stevens, 1987; Taylor & Lewit, 1966; Williams, 1969), deviance (Harp & Taietz, 1966; Hill, J. P. & Kochendorfer, 1969; Mischel & Gilligan, 1964; Parr, 1936), transgression behavior (Lueger, 1980), criminal-like behavior (Brownell, 1928; Bunn, Caudill, & Gropper, 1992; Kurre & Tauber, 1987), yielding to temptation (Asendorpf & Nunner-Winkler, 1992; Dmitruk, 1973; Walsh, 1967), misrepresentation (Aiken, L. R., 1991; Peterson, 1988), and fudging (Rigano & Ritchie, 1995). Cheating has also been described as a creative endeavor (Weldon, 1966), a game (Knowlton & Hamerlynck, 1967), a means of wielding power over one's surroundings (Leming, 1980b), and "just another generally accepted way of getting ahead" (Fass, 1986, p. 32). Unlike Fass, Dmitruk (1971) defined cheating as unacceptable, disparaged social behaviors that increase when incentives are proffered. In a similar vein, academic cheating has been viewed from a social science perspective as "a fraudulent means of achieving the scarce valued resources (e.g., higher grades) allocated within that setting" (Michaels & Miethe, 1989, p. 870).

Although the intentionality of the cheating act is implied in virtually

all studies of academic cheating, few directly address the intentionality of the behavior in their definitions. Academic cheating was explicitly depicted as intentional behavior by Gardner et al. (1988) in their definition of cheating as any conscious breach of course policies which could increase one's score in the course. Findings from a study of cheating behaviors of fifth grade children (Pearlin, Yarrow, & Scarr, 1967) yielded a different dimension of intentionality. While the act of cheating may be intentional, Pearlin et al. concluded that the acquisition of cheating behaviors may be an unintentional outcome of parents' goals for their children. Children's cheating was associated with pressures placed upon them by parents who aspired for their children to achieve greater success academically and occupationally than they themselves had achieved.

Whereas the initial learning of cheating behaviors is associated with goals held by parents for their children, once those behaviors are acquired, the act of cheating may be instrumental to one's own goals for academic achievement (Drake, 1941; Genereux & McLeod, 1995; Harp & Taietz, 1966; Hill, J. P., & Kochendorfer, 1969; Shelton & Hill, J. P., 1969; Smith, Ryan, & Diggins, 1972). Shelton and J. P. Hill described cheating in achievement contexts as a reaction to a real or perceived discrepancy between what one can attain on one's own and an established standard. However, the appearance of successfully attaining the standard, rather than actual attainment of the standard, may be the primary impetus behind an act of cheating (Hill, J. P., & Kochendorfer, 1969; Williams, 1969). Avoiding the appearance of being unsuccessful may be as important as the semblance of personal success. Drake saw academic cheating as not only a means for attaining an achievement goal, but also as a means by which the consequences of failure might be avoided.

The failure-avoidant function of academic cheating was also recognized by L. R. Aiken (1991) in his description of students cheating on examinations in order to circumvent the receipt of low scores.

Regardless of whether cheating is defined in terms of goal-directedness or failure-avoidance, most definitions of academic cheating refer to the use of illicit means in carrying out the cheating act (Aiken, L. R., 1991; Genereux & McLeod, 1995; Harp & Taietz, 1966; Hill, J. P., & Kochendorfer, 1969; Smith et al., 1972; Williams, 1969). While there is general agreement among researchers that cheating involves the use of unethical, prohibited behaviors to increase or maintain one's own score in a course, they do not all include the use of those same means in assisting another student to increase or maintain his or her score as part of the definition of cheating. Although providing illicit help to another student was clearly excluded from only the Smith et al. definition of cheating, only a few of the stated definitions actually stipulated that using unethical means to help another student cheat on academic work constituted an act of cheating (Bunn et al., 1992; Genereux & McLeod, 1995; Knowlton & Hamerlynck, 1967; Stevens & Stevens, 1987).

Instead of defining cheating per se, some researchers have separated cheating behaviors into different categories or types of cheating and defined the different categories of cheating. Knowlton and Hamerlynck (1967) categorized cheating as either active or passive with active cheating defined as cheating that is engaged in for the academic benefit of the cheater and passive cheating defined as cheating that is engaged in for the benefit of another person. The same definitions of active and passive cheating were used by Hetherington and Feldman (1964) who further categorized cheating as independent (involving only one person) or social (involving two or more

people) and opportunistic (unplanned) or planned. Planned cheating included behaviors in which the cheater engaged in cheating activities or preparation for cheating prior to the actual testing situation. The definitions of active and passive cheating formulated by Calabrese and Cochran (1990) were quite different from the aforementioned definitions. While they did use separate categories for cheating for oneself and cheating for others, they defined active cheating as any cheating behavior in which a person actually engaged in the cheating act, including engagement in cheating for the benefit of another. Passive cheating included any cheating behavior in which the cheater did not take an active role such as failing to report instances of cheating by others, failing to report grading errors that increased one's score, or using a paper or assignment written by another person.

Although categories or types of cheating defined by researchers have varied, cheating behaviors can be classified into two broad categories: cheating on tests and cheating on assignments (McCabe & Trevino, 1993). Any academic situation involving cheating can ultimately be grouped into one of those two categories. Cheating behaviors may also be classified according to the person directly benefiting from the behavior (Calabrese & Cochran, 1990). The direct beneficiary of a cheating behavior may be either the student who cheats or others involved in the cheating situation; students may cheat to benefit themselves or to benefit others. The student who copies others' answers during a test or has someone else write her report is the beneficiary of both her own cheating behavior and the cheating behavior of the person writing her report, whereas the student who allows others to copy from his test or writes a report for another student is not the direct beneficiary of either of his cheating behaviors, at least not in terms of academic grades. In the latter

case the student is cheating for others, while in the former case the student is cheating for self. Combining the two classifications of cheating behaviors results in four categories, or types, of cheating: cheating for self on tests; cheating for self on assignments; cheating for others on tests; and cheating for others on assignments.

Measurement of Cheating

When academic cheating is not explicitly defined, implicit definitions can be derived from the manner in which the construct was operationalized in the research. Research related to academic cheating has been conducted predominantly through the use of surveys and questionnaires that solicit self-reports of cheating. Studies that have employed surveys or questionnaires to obtain self-report data of academic cheating have varied widely in their operationalization of the construct of cheating. Some surveys and questionnaires simply requested responses as to whether one had cheated in grade school, high school, college, during one's school career, or during a specified period of time and used percentages of students answering in the affirmative as a measure of the frequency of cheating at each educational level (Davis et al., 1992; Davis & Ludvigson, 1995; Davis, Noble, Zak, & Dreyer, 1994; Huss et al., 1993; Ludeman, W. W., 1938; Vandewiele, 1980; Weiss, Gilbert, Giordano, & Davis, 1993). Others asked whether one had cheated on broad categories of academic work such as exams, quizzes, or assignments and provided the percentage of students who reported engaging in each category of cheating as separate measures of cheating frequency, sometimes combining the categories to obtain an overall measure of cheating (Aiken, L. R., 1991; Bunn et al., 1992; Diekhoff et al., 1996; Haines, Diekhoff, LaBeff, & Clark, 1986; Harp & Taietz, 1966; Houston, 1986b; May & Loyd, 1993;

Oaks, 1975). Frequency of cheating has also been measured using Likert scales that require students to indicate the frequency with which they have engaged in the aforementioned categories of cheating (Ackerman, 1971; Adams, 1960; Eve & Bromley, 1981; Roskens & Dizney, 1966; Smith et al., 1972). Many surveys used in cheating research included lists of specific behaviors usually regarded as cheating and asked the respondents to indicate whether they had or had not engaged in each behavior. While many of the behaviors were the same from one survey to the next, others were not. The number of specific behaviors included in the lists also varied from as few as four to as many as sixty-three. Some surveys that listed cheating behaviors employed dichotomous scales or otherwise dichotomized the construct of cheating (Blackburn & Miller, 1996; Bonjean & McGee, 1965; Genereux & McLeod, 1995; McCabe & Bowers, 1994; McCabe & Trevino, 1996; Newstead et al., 1996; Nuss, 1984; Partello, 1993; Schab, 1980, 1991; Sierles et al., 1980; Sierles, Kushner, & Krause, 1988; Sims, 1993; Stern & Havlicek, 1986; Wright & Kelly, 1974) while others utilized Likert scales (Baird, 1980; Hawley, 1984; Liska, 1978; McCabe & Trevino, 1993; Roth & McCabe, 1995; Stevens & Stevens, 1987; Tom & Borin, 1988), unnumbered graphic scales (Ferrell & Daniel, 1995), percentage scales (Franklyn-Stokes & Newstead, 1995), or randomized response techniques (Nelson & Schaefer, 1986; Scheers & Dayton, 1987) for indicating the frequency with which each behavior had been performed.

Besides reporting frequencies of cheating, numerous survey studies have classified respondents as cheaters or noncheaters and compared the two groups on various psychological, social, situational, and demographic variables (Bunn et al., 1992; Diekhoff et al., 1996; Haines et al., 1986; Houston, 1986b; May & Loyd, 1993; Oaks, 1975; Tom & Borin, 1988). McCabe and

Trevino (1993) further classified those who reported cheating according to whether the cheating acts occurred in test or nontest situations. Respondents in one of Knowlton and Hamerlynck's (1967) two samples were categorized as active cheaters (cheating for oneself), passive cheaters (cheating for others), and noncheaters; those who engaged in both active and passive cheating behaviors were classified as active cheaters.

Rather than, or in addition to, asking respondents if they *have* engaged in specific behaviors, a few surveys have asked if respondents *would* engage in the behaviors. Bonjean and McGee (1965) classified respondents in their study as actual or potential cheaters and noncheaters. Calabrese and Cochran (1990) classified potential cheaters according to whether they or others were the beneficiaries of the acts of cheating and whether the cheating act was active (participating in the act) or passive (i.e. failure to report cheating), resulting in four categories of potential cheaters. In addition to the four categories of cheaters, four other variables were formed from the totals of active cheating, passive cheating, cheating for oneself, and cheating for others; these four variables were then summed to arrive at a total cheating measure.

Total cheating measures, or cheating indexes, employed in other survey studies have included the total number of cheating behaviors engaged in by a participant (Blackburn & Miller, 1996; Knowlton & Hamerlynck, 1967; McCabe & Bowers, 1994; Sierles et al., 1980; Sierles et al., 1988; Sims, 1993), composite means of reported frequencies of cheating behaviors (McCabe & Trevino, 1993; Roth & McCabe, 1995), percentage of listed behaviors in which a respondent engaged (Newstead et al., 1996), and the percentage of courses in which one cheated during the previous and current semester (Smith et al., 1972). Sims examined dishonest behaviors in both school and work

environments. Respondents indicated participation or nonparticipation in each of 18 school-related cheating behaviors and 18 dishonest behaviors occurring in the workplace. In addition to using the total number of behaviors engaged in as an index of cheating in each environment, Sims created a weighted index which considered the severity of the behaviors. University administrators and business managers rated the severity of each behavior on a five-point Likert scale. The weighted index for each respondent in each environment was obtained by summing the severity ratings for the behaviors in which the respondent reported he or she had engaged. Although other studies have obtained seriousness ratings (Franklyn-Stokes & Newstead, 1995; Tom & Borin, 1988) this was the only study that used those ratings to weight the reported cheating behaviors.

Regardless of the frequency or index derived, studies that use surveys and questionnaires rely on the responses of participants regarding their involvement in cheating behaviors for their measures of cheating. In experimental studies it is possible to obtain measures of actual engagement in particular types of cheating. The following types of cheating have been investigated in experimental studies: copying answers on examinations, using crib notes, switching bluebooks, taking answers from an answer key or using other means of covertly looking at answers, plagiarism, reporting a score that is higher than possible, failing to report grading errors that increase one's score, continuing to work after the allotted time, and changing answers or otherwise distorting one's grade when scoring one's own test. Even experimental studies of the same type of cheating behavior have measured that behavior quite differently.

Like survey studies, many experimental studies have used the

classification of participants as cheaters or noncheaters as the measure of cheating. In some studies participants were classified as cheaters if they engaged in even one cheating behavior (Antion & Michael, 1983; Asendorpf & Nunner-Winkler, 1992; Atkins & Atkins, 1936; Barlow, 1967; Bronzaft, Stuart, & Blum, 1973; Campbell, 1933; Dickstein, Montoya, & Neitlich, 1977; Dienstbier & Munter, 1971; Drake, 1941; Eisenberger & Shank, 1985; Ellenburg, 1973; Erickson & Smith, 1974; Fakouri, 1972; Feldman & Feldman, 1967; Flynn, Reichard, & Slane, 1987; Fodor, 1972; Forsyth, Pope, & McMillan, 1985; Gardner et al., 1988; Hetherington & Feldman, 1964; Hill, J. P., & Kochendorfer, 1969; Hill, K. T., & Eaton, 1977; Hoff, 1940; Johnson, C. D. & Gormly, 1971, 1972; Johnson, L. H., 1943; Johnson, P. B., 1981; Lobel, 1993; Lueger, 1980; McNally, 1950; Millham, 1974; Parr, 1936; Rettig & Pasamanick, 1964; Shelton & Hill, J. P., 1969; Sherrill, Salisbury, Horowitz, & Friedman, 1971; Steiner, 1930, 1932; Tittle & Rowe, 1973; Uhlig & Howes, 1967; Vitro, 1971; Ward & Beck, 1990; Williams, 1969; Yepsen, 1927; Zastrow, 1970). In other studies participants were classified as cheaters if their scores differed from those of the experimenter by two or more answers (Fakouri, 1972; Feldman & Feldman, 1967; White, Zielonka, & Gaier, 1967), if they answered nine or more sham items correctly (Fischer, 1970), if they answered all questions correctly (Dmitruk, 1971, 1973), or if their scores were one standard error of measurement or more above the mean (Vitro & Schoer, 1972), two standard deviations or more above the score obtained by a control group (Leming, 1980b; Pearlin et al., 1967), or three standard deviations or more above the score obtained by a control group (Leming, 1980a).

In addition to classifying students as cheaters or noncheaters, experimental studies have utilized measures of the amount of cheating. Such

measures have included the number or proportion of students cheating (Black, 1962; Campbell, 1931; Cloninger & Hodgin, 1986; Karlins, Michaels, & Podlogar, 1988; Krueger, 1947; McQueen, 1957; Vitro & Schoer, 1972), the number or percentage of assignments, items, or trials on which a student cheated (Gardner et al., 1988; Hoff, 1940; Houser, 1982; Lobel, 1993; Malinowski & Smith, 1985; Tittle & Rowe, 1973), the score reported by the student (Mischel & Gilligan, 1964), amounts of cheating derived from statistical probabilities (Houston, 1976a, 1976b, 1977a, 1977c, 1983a, 1983b, 1986a), and ratings of the amount of cheating on a three-point Likert scale ranging from no cheating to repeated cheating (Hinshaw, Heller, & McHale, 1992).

Several types of difference scores have also been used as measures of the amount of cheating. Difference scores have included differences between the mean scores of groups of students given opportunities to cheat and the mean scores of control groups afforded no opportunity to cheat (Ackerman, 1971; Berger, Jacobson, & Millham, 1977; Davis, Pierce, Yandell, Arnow, & Loree, 1995; Eisenberger & Masterson, 1983; Houston, 1977d, 1983c; Jacobson, Berger, & Millham, 1970; Perry, Kane, Bernesser, & Spicker, 1990), differences between mean scores on items which could be answered by cheating and mean scores on items which could not be answered by cheating (Houston, 1976c, 1977b, 1978; Houston & Ziff, 1976; Weinland, 1947), and the difference between a participant's self-reported score and actual score (Antion & Michael, 1983; Johnson, P. B., 1981; Malinowski & Smith, 1985; McNally, 1950; Millham, 1974; Taylor & Lewit, 1966; Ward, 1986).

A few experimental studies have included measures of cheating latency. Cheating latency was operationally defined as the first trial on which a participant cheated (Malinowski & Smith, 1985; Mischel & Gilligan, 1964) or

the amount of time a participant spent attempting to solve unsolvable problems prior to claiming to have solved one (Eisenberger & Shank, 1985).

The majority of the studies related to academic cheating have employed quantitative measures of cheating. Qualitative measures of cheating have only recently begun to appear in the literature (LaBeff, Clark, Haines, & Diekhoff, 1990; Payne & Nantz, 1994; Peterson, 1988; Rigano & Ritchie, 1995). Peterson utilized a scenario of a specific situation involving collaboration on a research assignment leading to misrepresentation of students' work. Students wrote responses predicting their own behaviors in the situation, and follow-up interviews were conducted to explore the reasons, beliefs, and attitudes behind the behaviors. In order to examine instructional practices that might contribute to cheating, Rigano and Ritchie employed an interpretive cycle of long interviews to obtain information regarding students' attitudes toward and motivation for engaging in illicit practices when completing laboratory assignments in science classes. Participants in the study conducted by Payne and Nantz utilized description and metaphor as tools for interpreting their individual accounts of cheating. Within the context of a quantitative study, LaBeff et al. obtained descriptions of reasons and excuses for cheating from students who admitted engaging in cheating on tests and assignments.

The accuracy of cheating measures in qualitative and survey studies of cheating are dependent upon the honesty with which participants report their engagement in cheating. Due to the sensitivity of the topic of cheating, participants may not respond honestly even in situations that provide for anonymity (Kirk, 1995). In a study examining the relationship between actual cheating when scoring one's own test and subsequent self-reports of cheating

behaviors, Erickson and Smith (1974) found a substantial amount of underreporting. Although none of the participants who did not cheat when scoring their own tests reported having cheated, many of those who did cheat failed to report their cheating in the survey phase of the study. Correlations between actual cheating and self-reports of cheating were .17 for females and .30 for males. The findings of Erickson and Smith suggest that estimates of the frequency of cheating based on self-report data are likely to be very conservative estimates.

The increased use of self-reports in studies of cheating and the associated likelihood of underreporting led Bushway and Nash (1977) to recommend that more credence be given to experimental studies of cheating than to those utilizing surveys or questionnaires. However, experimental and quasi-experimental studies do not seem to offer a viable alternative for providing an accurate picture of the incidence of cheating as they limit the measurement of cheating to only one or a very few occasions and the scope of cheating to a particular type of cheating such as scoring one's own test (e.g. Ward, 1986), looking at an answer key (e.g. Fischer, 1970), plagiarism (Karlins et al., 1988), or reporting of grading errors (e.g. Cloninger & Hodgin, 1986). Surveys and interviews can request reports of all types of cheating in several classes over an extended period of time (i.e. the last twelve months). Since results of experimental studies that measured cheating on more than one occasion revealed that different participants cheated on different occasions (e.g. Campbell, 1933; Gardner et al., 1988), it is not likely that experiments provide more accurate data regarding the frequency of cheating than do self-reports in survey or qualitative studies.

Underreporting of cheating in studies using self-reports and the

limited measurement of cheating in experimental studies could also affect results of studies in which differences between cheaters and noncheaters are being examined and studies seeking to establish relationships between cheating and other variables. Results could be confounded by cheaters, who either do not admit to cheating or do not happen to cheat at the time the construct is measured, being among those identified as noncheaters. Again, findings in such studies would tend to be conservative since differences would be harder to detect. However, this problem could be particularly severe and could prevent findings of significance when real differences do exist because cheaters who do not admit to cheating have been shown to differ from noncheaters even more than cheaters who admit to cheating (Campbell, 1933).

Due to the limited scope and narrow sampling involved in experimental studies, and contrary to the opinion of Bushway and Nash (1977), studies utilizing self-reports may offer more accurate estimates of the incidence of cheating than do experimental studies, particularly if care is taken to ensure anonymity and if methods that promote an atmosphere of trust and honesty are utilized. A method that appears promising for soliciting honesty in self-reports of cheating was used by Adams (1960). The graduate student collecting data from high school students used the following statement before distributing the questionnaire: "I am looking for cheaters and I want them to be honest about admitting that they are cheaters. If you cannot be honest throughout, please do not accept the questionnaire. Only honest answers will aid me in my search." (p. 234).

While care in the way instructions are worded may elicit more honesty in the reporting of cheating, equal care must be afforded to the way in which

questions are asked in questionnaires and surveys. Surveys and questionnaires that have requested responses as to whether one cheated in grade school, high school, college, during one's school career, or during a specified period of time (e.g. Davis et al., 1992; Davis et al., 1994; Weiss et al., 1993) and those that have asked whether one cheated on broad categories of academic work such as exams, quizzes, or assignments (e.g. Bunn et al., 1992; Diekhoff et al., 1996; May & Loyd, 1993) are dependent upon students' perceptions of what behaviors constitute cheating. This introduces error into the measurement as students do not always agree between themselves or with faculty as to what behaviors constitute cheating (e.g. Stern & Havlicek, 1986; Stevens & Stevens, 1987; Zastrow, 1970). Differences in perceptions of what constitutes cheating could affect results of studies investigating cheating behaviors. Surveys that list behaviors and ask students whether or not they have engaged in each behavior (e.g. Ferrell & Daniel, 1995) are more precise in that students are not required to decide if each behavior is considered to be cheating. Using such lists as a measure of cheating ensures that the operational definition of cheating is the same for all participants. However, short lists of behaviors that do not tap several different types of cheating increase the possibility that participants may have engaged in cheating behaviors that are not listed.

Similarly, in studies of students' reasons for cheating, attitudes toward cheating, or perceptions of cheating, measurement limitations inherent in using a predetermined set of questions and responses (e.g. Aiken, L. R., 1991) make survey approaches less desirable than qualitative approaches when rich and detailed descriptions are desired. For example, in asking participants their reasons for cheating (e.g. Baird, 1980), surveys offer only a limited set of

possible responses and may not include the reasons some participants choose to cheat. Interviewing students about their reasons for and attitudes toward cheating provided researchers with a depth and breadth of descriptive information that could not have been obtained through other methods of research (e.g. Payne & Nantz, 1994; Rigano & Ritchie, 1995). Although the students in the cited studies seemed to provide honest, detailed accounts of their involvement in cheating situations, participants in qualitative studies may not always provide honest or complete answers due to the lack of anonymity. Surveys and questionnaires can offer more anonymity than is afforded in face-to-face interviews and can support much larger samples in a much shorter time. The limitation of having participants respond to a restricted number of items could be overcome by adding a single, open-ended item. For example, an item requesting that participants describe any reasons they had for cheating that were not listed among the responses on a survey would provide a means for eliciting all possible reasons within the survey format.

Reasons for Cheating

The reasons behind acts of cheating must be thoroughly examined before the problem of cheating can be adequately understood and addressed. In asking what the reasons are for cheating, we are actually concerned with student motivation. There are two ways in which we may explore the motivation behind acts of cheating. We can directly ask students why they cheat, and we can indirectly probe the interpersonal and intrapersonal motivational interactions that take place in the environments in which they cheat. Self-reported reasons for cheating may reveal the motivation behind cheating, but they may also be surface excuses that mask the complexity of

motivational factors involved in decisions to cheat and in acts of cheating. It is also possible that students are not fully conscious of the motivational factors involved in their behaviors (Berndt & Keefe, 1996). Therefore, in addition to directly asking students why they cheat, it is necessary to also indirectly explore the relationships between cheating and other motivational factors that might be related to cheating behaviors. The literature relevant to relationships between cheating and other motivational factors will be presented in a later section. In the following sections, the literature related to self-reported reasons for cheating is reviewed. Both qualitative and quantitative studies have elicited students' self-reported reasons for cheating. Self-reported reasons for cheating can be classified into five major categories: social, instructional, work avoidant, extrinsic, and intrinsic.

Social Reasons for Cheating

Some reasons offered by students are closely tied to the affiliative social aspects of the educational setting and primarily involve concerns about friendship issues. Students have reported pressures or influence from friends (Baird, 1980; Newstead, Franklyn-Stokes, & Armstead, 1996; Payne & Nantz, 1994; Stevens & Stevens, 1987), avoiding a friend's anger (Davis et al., 1992), or simply wanting to help one's friend (Franklyn-Stokes & Newstead, 1995; LaBeff et al., 1990; Ludeman, W. W., 1938; Newstead et al., 1996; Payne & Nantz, 1994) as reasons to explain their cheating. Reports of students cheating to avoid other students' negative judgments of their abilities (Rigano & Ritchie, 1995) seem to reflect a concern for one's own social image while reports by students that they cheat because others are cheating (Fass, 1986; McCabe & Trevino, 1993; Newstead et al., 1996; Oaks, 1975) seem to suggest that the social context of the school environment may promote cheating.

Prevailing social norms regarding cheating have been shown to have an effect on students' decisions to cheat. McCabe and Trevino (1993) found that students were more likely to engage in cheating themselves when they perceived their peers to be cheating.

Instructional Reasons for Cheating

The failure to punish cheating may be interpreted by students as indicative that their instructors are unconcerned about cheating in the classroom. Davis et al. (1992) found that students cheated because they believed cheating behaviors were condoned by their teachers and because deterrents for cheating were ineffective. Students have also attributed their cheating to poor instructional equipment (Rigano & Ritchie, 1995), assignments and tests that are unfair, unreasonable, or too difficult (Baird, 1980; Daniel, Blount, & Ferrell, 1991; Fass, 1986; LaBeff et al., 1990; McCabe & Trevino, 1993), instruction that is unclear, irrelevant, or boring (Baird, 1980; LaBeff et al., 1990; McCabe & Trevino, 1993; Payne & Nantz, 1994; Stevens & Stevens, 1987), and poor quality of teaching in general (McCabe & Trevino, 1993; Payne & Nantz, 1994; Zastrow, 1970).

Work Avoidant Reasons for Cheating

While some students blame their cheating on poor instruction, others say they cheat in order to conserve their time and expend less effort (Payne & Nantz, 1994; Stevens & Stevens, 1987). While some have touted cheating as the easiest route for meeting course requirements (Ludeman, W. W., 1938) or a way to avoid having to study (Davis & Ludvigson, 1995; Zastrow, 1970), others have admitted to cheating because of their own laziness (Baird, 1980; Ludeman, W. W., 1938; Newstead et al., 1996). Work avoidance has been identified as academic alienation (Nicholls, 1989) or as a form of avoidance

motivation in which students seek to minimize effort (Meece & Holt, 1993).

Extrinsic Reasons for Cheating

Regardless of the quality of instruction or a personal desire to avoid work as much as possible, the bottom line for many students is the grade they receive for the course. Grades are the most prevalent reason reported for cheating (Baird, 1980; LaBeff, et al., 1990; Oaks, 1975; Payne & Nantz, 1994; Rigano & Ritchie, 1995; Zastrow, 1970). More specific reasons for cheating that are tied closely to grades are getting correct answers (Rigano & Ritchie, 1995), improving one's score (Davis & Ludvigson, 1995; Franklyn-Stokes & Newstead, 1995; Newstead et al., 1996), avoiding failure (Nuss, 1984; Stevens & Stevens, 1987), concerns about employment and admission to graduate school (Baird, 1980; Davis & Ludvigson, 1995), and parental pressures for grades (Adams, 1960; Barnett & Dalton, 1981; Davis et al., 1992; Davis & Ludvigson, 1995; LaBeff et al., 1990). Anther extrinsic reason for cheating commonly reported by students is time pressure (Baird, 1980; Daniel et al., 1991; Davis & Ludvigson, 1995; Franklyn-Stokes & Newstead, 1995; LaBeff et al., 1990; Newstead et al., 1996; Rigano & Ritchie, 1995).

Intrinsic Reasons for Cheating

As opposed to extrinsic influences on cheating, a few studies report intrinsic reasons for cheating. Students may view cheating as a game (Oaks, 1975; Payne & Nantz, 1994) or an amusing way of outsmarting the teacher (Adams, 1960). Others report positive intrinsic feelings associated with the cheating act itself (Stevens & Stevens, 1987). For some students cheating may be more personally rewarding than studying. Research has shown that students rarely rate academic tasks associated with school as being intrinsically rewarding (Adelman & Taylor, 1990; Csikszentmihalyi & Larson,

1978; Csikszentmihalyi & Nakamura, 1989; Sansone & Morgan, 1992).

Cheating and Theories of Motivation

Cheating and Intrinsic Motivation

In an examination of the relationship between intrinsic motivation and school crime, Csikszentmihalyi and Larson (1978) argued that participation in school crime may be far more enjoyable to students than activities offered by the schools. According to Csikszentmihalyi and Larson, students may engage in acts of school crime such as vandalism because such acts provide what they have described as the flow experience involved in intrinsic motivation. In the flow experience people concentrate on and are totally absorbed in the task at hand, are unaware of the passage of time, are aware of what they want to accomplish, do not worry about not succeeding, engage in the task for the sheer enjoyment it provides, and find involvement in the task to be rewarding in and of itself (Csikszentmihalyi & Nakamura, 1989). According to Csikszentmihalyi and Nakamura (1989), the flow experience requires a fairly high level of challenge and a correspondingly high level of skill in carrying out the task. If the challenges of the task are at a higher level than the skills a person possesses to carry the task, the person experiences anxiety; if the person's skills for carrying out the task are at a higher level than the challenge of the task, the person experiences boredom. Cheating could be motivated by either of these mismatches in skill level and challenge and maintained in part by the match between the challenges of cheating and the level of the student's cheating skill.

A student whose skills in a subject are greater than the challenges afforded by a particular class may experience boredom in class and may not have to study for tests over the material learned. On the other hand, a student

who has few academic skills to meet the challenges of a class may experience anxiety when taking tests. Neither student is likely to experience "flow" in connection with learning in the class. The act of cheating, however, could meet the basic requirements for experiencing flow for both students if they find the act of cheating to be highly challenging and have developed a high level of skill in carrying out their cheating activities. In a study of cheating among graduates and upper level undergraduates, Blackburn and Miller (1996) found that 19% of the students who reported cheating had scores indicative of intrinsic motivation for cheating, or "flow." The assumption that the challenge of cheating can lead to a flow experience is further supported by the lengths to which students go to engage in cheating and the complexity of the schemes they develop for making cheating a successful activity (Davis et al., 1992; Weldon, 1966). A bored student may cheat, in part, to create a sense of challenge which a class itself does not provide while a student who lacks the skills necessary for success in the class may be motivated to cheat in order to avoid anxiety.

Anxiety has been shown to be negatively related to academic intrinsic motivation (Gottfried, 1982, 1985). To decrease anxiety related to academic activities in school, it is necessary that either students increase their skills in the subjects creating the anxiety or teachers decrease the complexity or difficulty of the tasks (Csikszentmihalyi & Larson, 1978). When students are unable to increase their skills and teachers do not decrease task difficulty, cheating provides another avenue for avoidance of anxiety. The relationship between cheating and test anxiety has been examined in several studies (Antion & Michael, 1983; Bronzaft et al., 1973; Hill, K. T., & Eaton, 1977; Malinowski & Smith, 1985; Shelton & Hill, J. P., 1969; Smith et al., 1972).

Neither Antion and Michael nor Bronzaft et al. found differences in test anxiety between cheaters and noncheaters when the cheating task involved students scoring their own tests at a later date than the test was taken. However, Antion and Michael did find a relationship (r = .20) between the amount of cheating and test anxiety. Similarly, Malinowski and Smith found that students high in test anxiety cheated on more trials and cheated sooner than those low in test anxiety. Test anxiety was also found to be positively related to the percentage of courses in which students admitted to cheating (Smith et al., 1972). In an experiment conducted by Shelton and J. P. Hill, there was a positive correlation between test anxiety and cheating only when normative information was provided to the students. Students high in test anxiety cheated when provided normative information regardless of whether the information showed them to be performing higher or lower than a fictitious reference group. Those with moderate test anxiety cheated only when normative information led them to believe they were performing below the reference group norms while students low in test anxiety showed no differences in amount of cheating based on the type of normative information provided. It appears that cheating does offer an avenue for avoidance of anxiety, especially in situations where normative comparisons are made. If the commission of cheating results in not only the avoidance of anxiety, but also a flow experience, repetition of the act of cheating may be encouraged. "Flow is such an intrinsically pleasurable experience that a person often repeats the same activity with the intention and hope of experiencing flow again and again" (Reeve, 1992, p. 152).

While Csikszentmihalyi describes intrinsic motivation in terms of a match between high skill and challenge levels, other theorists view self-

determination (Deci & Ryan, 1987), the perception of control and choice (deCharms, 1968), and competence (deCharms, 1968; Deci & Ryan, 1987) as necessary ingredients of intrinsic motivation. In order for school tasks to be intrinsically rewarding, students need to feel they have choices in their learning, that they are competent at what they are doing, and that they, and not others, are in control of the learning situation. When the school provides academic tasks in which students see the teacher as in control, perceive themselves as lacking competence, and feel they have no choices of their own, students may resort to crime to achieve flow (Csikszentmihalyi & Larson, 1978). This same reasoning can be related to the act of cheating. Cheating allows students to be in control during the testing situation. Students who do not feel competent in academic endeavors may feel extremely competent in the skills of cheating, and students experience choice in the very decision to cheat.

Cheating and Social Cognitive Theory

Like Csikszentmihalyi, Bandura (1986) states that people are motivated to elude boring situations and relieve anxiety; in fact, boredom may be the stimulus for the pursuit of other avenues of pleasure or excitement. For cheating to be the avenue chosen, one might expect those choosing it to lack internal restraints or personal standards that would be violated by cheating acts. However, Bandura points out that peer pressure may weaken compliance to one's own standards of performance and, when tasks are not of personal value, self-evaluative responses may not be generated; in either case, students usually take the easy way out, choosing to expend as little effort as possible. When instruction is perceived by students as boring or irrelevant and cheating is encouraged or condoned by peers, cheating may be seen as a

viable, effort-reducing alternative.

Modeling of cheating behaviors is one way peers can exert influence over a student's decision to cheat. Observing others engaging in behaviors that violate one's personal standards can ultimately lead one to change those standards, particularly when the modeled behavior is prevalent (Bandura, 1986). The fact that studies have shown a dramatic increase in collaborative cheating on assignments over the last thirty years lends support to the effectiveness of peer modeling in lowering inhibitions for cheating (McCabe & Bowers, 1994; McCabe & Trevino, 1996; Schab, 1991). According to Bandura, the effects of modeling of prohibited behaviors can be exacerbated when the modeled behavior is rewarded or when it is not punished. Observers of illicit behaviors make judgments about the outcomes likely to result if they, too, engage in the behaviors. Seeing others rewarded by parents and teachers for good grades that were obtained by cheating may actually induce further acts of cheating (Calabrese & Cochran, 1990; Ellenburg, 1973; Johnson, L. H., 1943; Steiner, 1932).

The disinhibitive effects of unpunished cheating were revealed in studies of cheating that took place over the duration of an entire course. In a four-phase study of cheating on class assignments, Gardner et al. (1988) found that the level of cheating progressively increased from 30% to 63% one semester and from 39%, to 63.7%, and finally to 79.2% in another semester despite student development of an honor pledge and counseling sessions that provided feedback about personal rates of cheating. Over the course of both semesters, 98% of the 245 students had cheated on at least one assignment. When Tittle and Rowe (1973) allowed students to grade their own quizzes only 5 of the 107 students participating in the study refrained from cheating

the entire quarter. Following the grading of three quizzes, a verbal appeal for honesty in grading was made to students in the experimental group. Despite the appeal, the rate of cheating increased. Only when negative sanctions were employed prior to grading the seventh test and students were told that cheating had been reported and tests would be spot checked by the instructors did the rate of cheating decrease.

Negative sanctions are utilized by society to deter participation in proscribed acts. According to Bandura (1986), the rewards gained from engaging in the acts, the accessibility of other ways of obtaining desired results or rewards, the magnitude of the penalties involved, and the probability that one will get caught and be so penalized determine the effectiveness of negative sanctions. When one does not have access to other means of obtaining the results or rewards one wants, when the other means are not as appealing, or when one does not believe he or she possesses the skills necessary for attaining those rewards through legitimate means, negative sanctions will have little effect. If one has found that rewards can be garnered with little chance of penalties being imposed, negative sanctions lose their power to discourage the behavior. Negative sanctions, therefore, are unlikely to be effective in deterring cheating behaviors. When students do not have the skills necessary to obtain the grades they desire or when they believe themselves incapable, cheating may be viewed as a means for achieving the grades they want. Even if a student is capable of making the higher grade without resorting to cheating, studying or putting in the time necessary to complete an assignment may appear tedious in comparison. Studies have shown that the probability of cheating being detected is minimal. Surveys revealed that in a university with an honor system 23.7% of the students

admitted to cheating and only 2.8% had been caught or accused of cheating (May & Loyd, 1993) while in a university without an honor system 54.1% of the students had cheated and only 1.3% were caught (Haines et al., 1986). When the possible benefits are weighed against the likelihood of being apprehended and punished for cheating, it is not surprising that many students choose to cheat.

Honor systems have been heralded as a means for curbing the cheating occurring on college campuses. Although the cheating rates are usually lower at colleges with honor codes, the findings that 23.7% (May & Loyd, 1993), and 62% (McCabe & Bowers, 1994) of the students are cheating in honor code schools does not support the institution of honor codes as the best way to combat cheating. Rather than employing sanction threats or instituting honor codes, Genereux and McLeod (1995) suggest that colleges assist students in acquiring positive perceptions of their abilities and achieving competence in academics so they can attain the grades they want without resorting to cheating. In discussing prohibited activities in general, rather than cheating in particular, Bandura (1986) states that "the most effective solution is to combine negative sanctions for transgressive behavior with development of positive alternatives. However, this dual strategy is not applied very often because it is easier simply to punish transgressors than to spend the time, effort, and resources needed to develop new competencies and prosocial standards of behavior" (p. 271).

Although negative sanctions and remedial programs might reduce cheating, it is doubtful that these two means alone would eradicate it. Negative sanctions are clearly not working, and students who are quite capable of earning high scores are among those who cheat. In order to devise

proactive programs addressing behavioral standards in ways that might serve to ameliorate the problem of cheating, it is necessary that we have a clearer understanding of the mechanisms involved in acts of cheating. In his social cognitive theory of morality, Bandura (1986, 1991) postulates that moral actions are governed and motivated by the processes involved in self-regulation. However, self-regulatory mechanisms must be engaged in order to direct behavior. Bandura describes the following four means, each occurring at a different stage in the process of self-regulation, by which self-evaluative responses can fail to be activated: recasting the behavior, diminishing one's responsibility, discounting or distorting the harmful effects of one's actions, and condemning and degrading the recipient of one's immoral actions. When these means are successful in disengaging self-regulatory processes, one is able to engage in condemnatory behavior without self-censure.

The first of these means, that of recasting behavior, can take the form of moral justification, euphemistic labeling, or advantageous comparison (Bandura, 1986, 1991). One may depict an illicit behavior as being carried out for moral reasons; thus, the behavior becomes justified in moral terms. The behavior may be renamed in such a way that it sounds more acceptable or even wholesome. Labels such as fudging, copying, ghostwriting, sharing, or helping a friend may be substituted for the word "cheating" thereby suspending self-reactive mechanisms that might normally inhibit the behavior. By comparing one's cheating behavior to other behaviors that are perceived morally as much worse, one is able to cheat without experiencing self-reprimands. Similarly, some cheating behaviors can be construed as "not really cheating" when compared to other behaviors that are more definitive

of cheating. For example, getting information about test items from students who have already taken a test may be relabeled as sharing information or helping friends, and may not even be considered cheating when compared to stealing a copy of an examination from a professor's office. When cheating behaviors are recast in this fashion, one may not only escape self-recriminations, but one may actually feel justified in engaging in acts of cheating.

Self-recriminations may also be avoided by diminishing one's responsibility for illicit acts (Bandura, 1986, 1991). If responsibility for the acts can be shifted to a person in authority, one can deny personal responsibility for engaging in the behavior. Undergraduate students may deny their own responsibility in using an illegal test bank for a state certification examination when that test bank is maintained by faculty in the university. They are merely doing what faculty encourage and expect them to do, and it is the faculty who are responsible if, indeed, the test bank is illegal. Also responsibility may be diminished by sharing it with others. When a group is involved in cheating, the responsibility is divided among many with no one having to assume much of the responsibility as an individual.

In addition to diminishing responsibility, self-regulatory mechanisms may be disengaged by discounting or distorting consequences of illicit behavior (Bandura, 1986, 1991). Cheating has often been regarded as a behavior that does not hurt anyone, at least not anyone other than the cheater. In some situations, this may be true; but, when grades are determined by class curves, others may suffer at the hands of cheaters. The doctor who cheated her way through medical school may harm her patients with inferior care, and the teacher who cheated his way through education classes may

cheat his own students out of the quality education they deserve.

Perhaps the means for disengaging self-regulatory processes that are most relevant to cheating behaviors are those in which the recipient of the behavior is condemned or degraded. Bandura (1986, 1991) states that condemnation and degradation of the victim takes place through dehumanization and attribution of blame. Students who cheat may dehumanize their instructors by viewing them as uncaring or by using terms for them that imply they are less than human (i.e. witches, hags, brutes, monsters). Students may also lay the blame for their cheating behaviors on their instructors or conditions within the classroom setting. When poor instruction, unfair testing practices, or personality conflicts are blamed, students may view their cheating as justified, as something they were forced to do rather than something they decided to do willingly.

Cheating and the Neutralization Theory of Delinquency

None of the studies in the cheating literature have assessed cheating within the context of Bandura's (1986, 1991) social cognitive theory of morality. However, several studies have explored the relationships between cheating and techniques of neutralization (Daniel, Adams & Smith, 1994; Daniel et al., 1991; Diekhoff et al., 1996; Haines, et al., 1986; LaBeff, et al., 1990; Liska, 1978; McCabe, 1992; Michaels & Miethe, 1989; Ward & Beck, 1990). Techniques of neutralization are the basis of a theory of delinquency (Sykes & Matza, 1957). The neutralization techniques described by Sykes and Matza correspond closely to the means by which self-regulatory mechanisms are disengaged in Bandura's social cognitive theory of morality. The five techniques of neutralization are denial of responsibility, denial of injury, denial of the victim, condemnation of the condemners, and appeal to higher

loyalties. According to Sykes and Matza, these techniques are utilized prior to commission of an illicit behavior, result in disengaging social controls, and permit one to commit illicit acts without loss to one's self concept.

The neutralization technique of denial of injury corresponds to Bandura's description of discounting or distorting consequences of illicit behavior. Denial of responsibility, denial of the victim, and condemnation of the condemners in Sykes and Matza's theory are similar to attribution of blame in Bandura's theory. In denying responsibility, the individual attributes external sources as responsible for, or causing, the behavior, while in denying the victim, the individual justifies behavior as deserved by the victim, and in condemning the condemners, the individual points out improper behavior of those who do not approve of his or her behavior. The neutralization technique of appealing to higher loyalties does not have a direct counterpart in Bandura's theory. In appealing to higher loyalties, one engages in behavior that is unacceptable to society not because one believes it is acceptable, but because one accords higher priority to expectations and norms of one's peer group.

Haines et al. (1986) investigated the relationships among neutralization, cheating, and demographic and personal characteristics of undergraduate students. They found that age explained the greatest amount of the variance in cheating; neutralization explained an additional 6.2% of the variance in cheating beyond the 15.9% explained by age. Additional variance in cheating was explained significantly by only one other variable included in their study, that of noticing others engaging in cheating behaviors; this variable accounted for an additional 3.3% of the variance in cheating. A qualitative study of narrative data obtained in the Haines et al. study (LaBeff

et al., 1990) found that reasons students gave for cheating could be classified into three of the five neutralization techniques of Sykes and Matza (1957): denial of responsibility, appeal to higher loyalties, and condemnation of condemners. Reasons for cheating classified as denial of responsibility attributed cheating to external circumstances while those classified as appealing to higher loyalties reflected students cheating to help others and those classified as condemnation of condemners blamed their cheating behaviors on unfair and unethical practices of their instructors. In a ten-year follow-up study (Diekhoff et al., 1996), it was found that, while cheaters still reported higher levels of neutralization than noncheaters, there had been a significant decrease in the amount of neutralization among both cheaters and noncheaters. The decrease in use of neutralization techniques was so great that cheaters in 1994 reported less neutralization than noncheaters of 1984.

A study of cheating conducted by Liska (1978) may offer an explanation for the decrease in neutralization found by Diekhoff et al. (1996). Liska tested the adequacy of several models of delinquency for explaining cheating among college students. It was found that delinquent attitudes, specifically positive attitudes toward cheating, was the variable explaining most of the variance in cheating behaviors. The effect of associations with delinquent peers on cheating behaviors was mediated largely through delinquent attitudes for the entire sample, and mediated entirely through attitudes for those students who had low scores on the neutralization scale and extremely positive attitudes toward cheating. As the reported use of neutralization decreased, the effect of attitudes on cheating increased. The more positive students were in their attitudes toward cheating, the less they appeared to need to neutralize their cheating behaviors. Since students in the Diekhoff et al. study reported

more condoning attitudes toward cheating than those in 1984 (Haines et al., 1986), given the inverse association between attitudes and neutralization found by Liska, we might well expect a decrease in neutralization to accompany the increase in pro-cheating attitudes.

A factor analysis of the techniques of neutralization scale was performed by Daniel et al. (1991) in a study examining the relationships between peers' perceptions of the types and amount of cheating being engaged in by their classmates in a teacher education program and their perceptions of the degree to which these classmates neutralized their cheating. Two separate factors, which Daniel et al. described as disabling neutralization and opportunistic neutralization, emerged from the analysis. The disabling neutralization factor was made up of items indicating students' lack of skills in completing assignments and tests while the opportunistic neutralization factor was made up of items in which students perceived others to take advantage of situations offering opportunities for cheating. Perceptions of the degree of neutralization explained 37% of the variance in peers' perceptions of cheating above the 6% initially explained by age, marital status, ability, and commitment variables. In the regression analysis neutralization scores were not separated into the two identified neutralization factors. In a later study of the relationships between peers' perceptions of cheating and neutralization among nursing students, neutralization, age, marital status, ability, and commitment explained 33% of the variance in perceived cheating with the majority of the variance being explained by disabling neutralization (Daniel, et al., 1994).

Cheating and Attribution Theory

The neutralization technique of denial of responsibility (Sykes &

Matza, 1957) and attribution of blame in Bandura's (1986, 1991) theory of morality are quite similar to the attributing one's behavior to external causes in Weiner's (1986) attribution theory. Only one study, that of Forsyth et al., (1985), examined cheating within the context of Weiner's theory. Participation or nonparticipation in cheating during an experimental task was rated by both participants and observers as to the degree the behavior was attributable to internal and external causes and along the distinctiveness, consistency, and consensus dimensions of Kelly's attributional cube. Distinctiveness was defined as the degree to which cheating was confined to the experimental setting; consistency was the degree to which a person had engaged in cheating in the past, and consensus was the degree to which others were perceived likely to take the same action. Those who cheated attributed their cheating to the experimental treatment while those who did not cheat attributed their behavior to internal causes. Cheaters rated their behavior as more distinctive, less consistent, and higher in consensus than did noncheaters or observers of the behavior (Forsyth et al., 1985).

Cheating and Achievement Motivation

Although relationships between cheating and theories of morality, delinquency, neutralization, and attributions have been explored, relatively few studies have directly investigated the relationship between academic cheating and academic achievement motivation. Early studies that directly investigated the relationship between achievement motivation and cheating utilized measures of the need for achievement based on Atkinson's theory of achievement motivation (Fakouri, 1972; Johnson, C. D. & Gormly, 1972; Johnson, P. B., 1981; Smith et al., 1972). In Atkinson's theory, achievement motivation or the need for achievement was seen as a motive to achieve

success and was usually measured with the Thematic Apperception Test or similar tests that measured the amount of achievement imagery an individual produced to describe pictured situations (Reeve, 1992).

In their studies of the relationships between cheating and achievement motivation, Fakouri (1972) and P. B. Johnson (1981) surreptitiously graded tests completed by undergraduates. Tests were returned to the students under the guise of being ungraded, and students scored their own tests. Fakouri found no relationship between cheating and achievement motivation, while P. B. Johnson found a positive relationship with those high in achievement motivation cheating more than those low in achievement motivation. The differences in these findings may be explained by the makeup of the samples or the salience of evaluation. Students in P.B. Johnson's study were told the number of points they needed to obtain various grades in the course while such information was not provided in Fakouri's study. Fakouri's sample included both males and females while P. B. Johnson's sample consisted of only males. Females have been shown to refrain from cheating under conditions where the likelihood of detection is perceived to be high (Dickstein et al., 1977; Leming, 1980b; Tittle & Rowe, 1973).

C. D. Johnson and Gormly (1972) conducted a similar study with a sample of fifth grade students. However, two conditions were utilized. In one condition the tests were scored and returned to students while in the other, students scored their own tests immediately after they were taken with previously inserted inconspicuous carbon sheets recording any changes made. Cheating was positively related to achievement motivation in the condition where tests were graded and returned, but was negatively related to achievement motivation in the less conspicuous condition. High

achievement motivation was associated with the absence of cheating among females and with cheating behaviors among males. Children who cheated attributed successes and failures to external causes. Although noncheaters had higher IQs than cheaters in the condition where the risk of detection was high, there were no differences in IQ between cheaters and noncheaters in the low-risk of detection condition (Johnson, C. D., & Gormly, 1972). Opposite results were found by Smith et al. (1972) in a study of self-reported cheating among college students. Significant, but weak, correlations indicated that men with high need for achievement reported less cheating than men with low need for achievement ($\underline{r}$ = -.09), while among women, need for achievement and self-reported cheating had a positive relationship ($\underline{r}$ = .14).

Cheating and Other Motivational Constructs

Recent research involving academic achievement motivation has focused on such constructs as self-efficacy (Bandura, 1986), goals (Ames & Archer, 1988; Bandura, 1986; Dweck, 1986, 1991; Dweck & Leggett, 1988; Meece & Holt, 1993; Nicholls, 1992), and the structures of classrooms (Ames, 1992a, 1992b; Ames & Archer, 1988; deCharms, 1976; Rosenholtz & Simpson, 1984; Ryan et al., 1985). Of particular interest have been the findings that students' perceptions of their own abilities, the goals they have for learning, and their perceptions of the goal structures of classrooms are related to their cognitive engagement and achievement (Ames, 1992a, 1992b; Ames & Archer, 1988; Dweck, 1986; Dweck & Leggett, 1988; Greene & Miller, 1996; Meece, Blumenfeld, & Hoyle 1988; Miller, Greene, Montalvo, Ravindran, & Nichols, 1996; Pintrich & Schrauben, 1992). Since cheating behaviors have been found to be negatively related to cognitive engagement (Anderman, Griesinger, & Westerfield, 1998), it would seem that students' cheating behaviors would

also be impacted by the motivational factors that influence students' academic achievement and cognitive engagement.

Cognitive engagement comprises the activation and sustained maintenance of students' attention, involved participation, effort, and persistence in academic tasks and the affective moods associated with those processes (Skinner, Wellborn, & Connell, 1990). Pressley and McCormick (1995a, 1995b) described students who are cognitively engaged as those who approach academic tasks with interest, enthusiasm, concentration, commitment, and the desire to understand and master the content presented. "Corno and Mandinach (1983) proposed four qualitatively different approaches, called forms of engagement that students can adopt while learning in classrooms: recipience, resource management, task focus, and comprehensive engagement [termed self-regulated learning in the original work]" (Howard-Rose & Winne, 1993, p. 591). Cognitive engagement was depicted by Brophy (1998) as one of four possible outcomes in an expectancy x value model, with cognitive engagement resulting when a student values the academic task and has high expectations for success on the task.

In investigating the impact of various constructs on cognitive engagement, researchers have employed differing operational definitions of cognitive engagement. Anderman et al. (1998) used students' self-reports of deep cognitive processing strategies in science as their measure of cognitive engagement. Teachers' ratings of students' active participation and affect were the measure of cognitive engagement used by Skinner et al. (1990). Meece, et al. (1988) utilized two measures of cognitive engagement. Their measure of active engagement was students' use of cognitive, metacognitive, and self-regulatory strategies, while superficial engagement was measured by items

indicating students' lack of effort. Two types of cognitive engagement were also measured by Greene and Miller (1996). Meaningful cognitive engagement was measured with items reflecting the use of deep cognitive processing, metacognitive, and self-regulatory strategies; shallow cognitive engagement was measured with items reflecting students' use of strategies involving rote memorization, maintenance rehearsal, and shallow cognitive processing. Perhaps the most comprehensive measure of cognitive engagement was that of Miller et al. (1996) who included measures of effort, persistence, cognitive strategy use, and self-regulation. The findings of the aforementioned researchers and other researchers studying cognitive engagement will be presented in connection with the motivational factors investigated in their studies that are relevant to the current study: perceptions of ability, achievement goals, and classroom goal structures.

Cheating and Perceived Ability

Bandura (1986) employed the term "self-efficacy beliefs" in referring to students' beliefs about or perceptions of their abilities. Self-efficacy is defined by Bandura (1986) as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (p.391). Self-efficacy refers to individuals' evaluations of the abilities they have for structuring and implementing successive performances necessary to accomplish chosen goals, not to whether they actually possess the requisite abilities. Of course, to be successful, individuals must have the abilities required for accomplishing tasks; but merely having the abilities does not ensure success if individuals perceive themselves as incapable. In order to be successful in accomplishing a task, one must possess the requisite abilities, believe that one possesses those abilities, and perceive oneself as capable of

using those abilities to complete the given task (Bandura, 1986). Students with high perceptions of ability feel they are competent to accomplish the task at hand, while those with low perceptions of ability feel they do not have the competence required for completing the task. Perceptions of ability are likely to differ depending upon the task, with students feeling able to accomplish some tasks and unable to accomplish others. Therefore, perceptions of ability, as they relate to academic achievement, are likely to be dependent upon the particular situation or subject in which the student is engaged.

According to Bandura (1986), self-efficacy influences achievement through its effects on effort, persistence, and selection of goals and tasks. Those with high self-efficacy are more likely to choose tasks that are challenging, set higher goals for achievement, put forth more effort, and persist longer than those with lower self-efficacy. The attributions one makes regarding the causes of achievement successes and failures are also determined by one's self-efficacy (Bandura, 1986). As Bandura explains, those with high self-efficacy are more likely to determine lack of effort to be the cause of failure, whereas those with lower efficacy perceive failures to be caused by a lack of ability. A somewhat cyclical relationship exists between self-efficacy and attributions. Attributions made following achievement transmit information which is used in assessing self-efficacy, thereby impacting subsequent achievement indirectly through their effects on self-efficacy (Bandura, 1986).

In a review of the effects of self-efficacy on performance, Bandura (1993) presented the results of several studies that illustrated the impact of self-efficacy on performance and cognitive engagement constructs and how that impact was exerted. In a study of adults' memory performance, Berry (as cited

in Bandura, 1993) found that self-efficacy affected performance both directly (beta = .19) and indirectly through its effect on effort (beta = .38). The cumulative effects of self efficacy were illustrated in Bandura and Wood's (1989) study of the performance of organizational managers. The resulting path analysis showed that self-efficacy influenced initial performance indirectly though its effects on goals (beta = .25) and use of strategies (beta = .31) and influenced subsequent performance both directly (beta = .55) and indirectly through its effects on goals (beta = .62) and use of strategies (beta = .26).

The effects of self efficacy on students' cognitive engagement and academic achievement were revealed in several studies. In a study of self-efficacy and use of self-regulatory strategies among gifted and regular students (Zimmerman & Martinez-Pons, 1990), students' self-efficacy for verbal and mathematical tasks was related to use of self-regulatory strategies with verbal self-efficacy explaining 18% and mathematical self-efficacy explaining 16% of the variance in use of self-regulatory strategies. Schunk (1984) found that self-efficacy influenced children's mathematical performance directly (beta = .46) and indirectly through its effect on persistent effort (beta = .30). In a study of students' self-efficacy for self-regulation, Zimmerman, Bandura, and Martinez-Pons (1992) illustrated in a causal model that students' self-efficacy for self-regulated learning directly (beta = .51) influenced their academic achievement efficacy which, in turn, affected their achievement both directly (beta = .21) and indirectly through its influence on their achievement goals (beta = .36).

Studies using measures of self-efficacy that combined task-referent judgments of ability and judgments of ability in relation to others have

produced similar results regarding the relationships between self-efficacy and cognitive engagement. Pintrich and DeGroot (1990) found that high self efficacy resulted in greater use of both cognitive and self-regulatory strategies. Both self-efficacy and use of self-regulatory strategies were significant predictors of students' average grades, but only self-regulatory strategies were related to achievement on specific types of classroom tasks and evaluations. Although Meece et al. (1988) found significant positive correlations between perceived competence and all the goal and cognitive engagement measures included in the study, their analysis revealed no significant effects of perceived competence on goals or cognitive engagement, and it was deleted from the model. Contrastingly, Greene and Miller (1996) found that perceived ability had both a direct (beta = .30) and an indirect (beta = .27) effect on meaningful cognitive engagement through its effect on achievement goals.

There are few studies that have directly examined the relationship between perceptions of ability, or self-efficacy, and cheating. Franklyn-Stokes and Newstead (1995) asked students to rate their ability on a five-point scale ranging from the upper 20% of their class to the lower 20% of their class. No relationship was found between students' ratings of ability and amount of self-reported cheating. Using a measure of anticipated success similar to measures of perceived ability or self-efficacy, Houston (1977), prior to a difficult class examination, asked students how many items they anticipated answering correctly and how confident they were that their estimates were correct. He found positive relationships between cheating and both anticipated success and confidence with these two variables explaining approximately 32% of the variance in cheating on the examination.

Campbell (1933) measured what he termed overstatement by showing

education students multiple-choice items and asking them to rate their ability to answer the items on a three-point scale ranging from not knowing the answer to being absolutely certain of knowing the answer. Students were then tested with the same items. The measure of overstatement used by Campbell is quite similar to recent and recommended measures of self-efficacy (Pajares, 1996; Schunk, 1991). Campbell found that students classified as cheaters overstated their knowledge more than noncheaters. Cheaters actually had higher, but more unrealistic, perceptions of their abilities than did noncheaters. The relationship between overstatement and cheating was also examined by Atkins and Atkins (1936). Since they had specifically instructed students not to answer any items to which they were not absolutely certain of the answers, their measure of overstatement was the number of incorrect responses. Students who cheated when scoring the test exhibited a larger amount of overstatement than those who did not cheat.

Based on the findings of Houston (1977), Campbell (1933), and Atkins and Atkins (1936), higher rates of cheating could be expected among students of higher perceived ability, especially if those perceptions are unrealistic. However, Shelton and J. P. Hill's (1969) description of cheating as a reaction to a real or perceived discrepancy between what one can attain on one's own and an established standard would lead to the conclusion that more cheating would occur among students of lower perceived ability. Since perceptions of ability have been shown to exert their influence on achievement through their effect on goals and cheating has been identified as instrumental to one's own goals for academic achievement (Drake, 1941; Genereux & McLeod, 1995; Harp & Taietz, 1966; Hill, J. P., & Kochendorfer, 1969; Shelton & Hill, J. P., 1969; Smith et al., 1972), we might expect students' goals to either have a more

direct effect on cheating than do perceptions of ability or to interact with perceptions of ability in their relationships with engagement in cheating behaviors.

Achievement Goals and Cheating

The goals described by Bandura (1986, 1993) referred primarily to internal standards students hold for achievement or students' desired achievement outcomes. Other achievement goals held by students, which are closely associated with their motivational beliefs, have also been determined to influence their cognitive engagement, choice of tasks, and attributions for success and failure (Ames, 1992a, 1992b; Ames & Archer, 1988; Greene & Miller, 1996; Meece et al., 1988; Miller et al., 1996; Pintrich & Schrauben, 1992).

Three types of achievement goals have been identified by motivation researchers. The first type of achievement goal, identified as a learning goal (Dweck, 1986; Dweck & Leggett, 1988), task-orientation (Nicholls, 1989), or mastery goal (Ames & Archer, 1988), is associated with preference for tasks that enable one to acquire new skills, improve current skills, and increase one's knowledge and understanding. The second type of achievement goal, identified as a performance goal (Ames & Archer, 1988; Dweck, 1986; Dweck & Leggett, 1988) or ego-orientation (Nicholls, 1989), is associated with seeking positive evaluations of one's abilities, being concerned about appearing competent to others in achievement settings, and avoiding situations which would result in one appearing less than capable or receiving negative evaluations. While students usually possess both of these goals, one type of goal is usually dominant. Miller et al. (1996) identified a third achievement goal, future consequences, that has an impact on students' engagement in learning activities. As defined by Miller et al., future consequences refer to

more distal goals students hold in relation to their future careers, earning capacities, educational pursuits, and participation in extra-curricular activities.

Miller et al. (1996) investigated the effects of high school mathematics students' goals and perceived ability on four components of their cognitive engagement: effort, persistence, use of cognitive strategies, and use of self-regulatory strategies. The goals included in their study were learning goals, performance goals, future consequences, and the social goals of pleasing the teacher and pleasing the family. Two goals, learning goals and future consequences, emerged as having significant effects on cognitive engagement. Learning goals and future consequences accounted for 32% of the variance in the use of self-regulatory strategies and 23% of the variance in the use of deep cognitive processing strategies. Learning goals explained the greatest amount of the variance in both the use of self-regulatory strategies and the use of deep cognitive processing strategies (26% and 20% respectively). Learning goals together with perceived ability accounted for 15% of the variance in effort and 32% of the variance in persistence, which included variance accounted for by a significant interaction between perceived ability and learning goals. According to Miller et al. the interaction showed that, when learning goals were low, persistence was low at all levels of perceived ability; but, when learning goals were high, persistence was lowest when perceived ability was low and highest when perceived ability was high. This interaction indicated that, in order for students to exhibit the highest degrees of persistence, dominant (high) learning goals had to be accompanied by high perceived ability.

Dominant learning goals appear to be conceptually antithetical to

engagement in cheating behaviors. If students hold dominant academic achievement goals in which their aim is understanding of concepts and attainment of skills and which predispose them to pursue challenging tasks that will increase their understanding and skill levels it would seem that engagement in cheating would be in direct opposition to such goals. Therefore, learning goals might be expected to be negatively related to engagement in cheating behaviors that are engaged in for the possible benefit of the person cheating. Noncheaters would also be expected to have higher learning goals than cheaters. Such a relationship was postulated by Newstead et al. (1996) who found that college students who were pursuing a degree for personal improvement purposes (such as gaining understanding and improving skills) engaged in a lower percentage of cheating behaviors than did students whose reasons for pursuing a degree were to take some time out before going to work or deciding on a career to have fun and pursue social interests. However, using the same measures as Newstead et al., Franklyn-Stokes and Newstead (1995) found no relationship between the amount of cheating reported by students and pursuing a degree for personal improvement.

Using a more direct measure of the relationship between cheating and learning goals with a sample of middle school students, Anderman et al. (1998) found a significant negative relationship ($\underline{r}$ = -.19) between engagement in cheating behaviors and personal mastery goals, a significant negative relationship ($\underline{r}$ = -.18) between engagement in cheating behaviors and deep cognitive processing strategies, and a significant positive relationship ($\underline{r}$ = .65) between personal mastery goals and deep cognitive processing strategies. The measure of cheating in the Anderman et al. study included only cheating

behaviors engaged in for the possible benefit of the cheater; behaviors related to cheating for others were not included in their measure. Although Newstead et al. (1996) did include cheating for others among the behaviors measured in their study, they did not consider these behaviors separately in computing their cheating index (the percentage of 21 cheating behaviors in which the participant reported engaging). While cheating for oneself would seem to conflict with the pursuit of a personal learning goal, there does not appear to be a conflict between holding a learning goal for one's own academic pursuits and being willing to cheat to help another student.

Neither the Anderman et al. (1998) study nor the Newstead et al. (1996) study included measures of performance goals. However, Newstead et al. did speculate that differences in cheating based on gender and college major might be due to those with higher rates of cheating holding dominant performance goals. In academic contexts pursuit of performance goals is associated with the desire to appear successful to others and to avoid failure. Researchers studying cheating have stated that the primary impetus behind an act of cheating may be to either create the appearance of being successful (Hill, J. P., & Kochendorfer, 1969; Williams, 1969) or to avoid the appearance or consequences of failure (Aiken, L. R., 1991; Drake, 1941). If cheating does provide the means for appearing successful to others, attaining favorable judgments of one's abilities, or avoiding appearing unsuccessful, performance goals would be expected to be positively related to cheating behaviors. The fact that learning goals and performance goals are usually unrelated or negatively related and the expectation that learning goals will be negatively related to cheating behaviors (at least those performed for the benefit of the cheater) lends further support to the expectation of a positive

relationship between cheating behaviors and performance goals. However, it is possible that engagement in cheating behaviors might be perceived by some students as an indicator to others that they are not smart. If this is the case, engaging in cheating would be in conflict with the pursuit of performance goals. This interpretation would lead to the formulation of an opposite expectation: that performance goals will be negatively related to cheating behaviors.

The relationship between performance goals and cheating may be further complicated by perceptions of ability. The achievement goal theories of Dweck (1986; Dweck & Leggett, 1988) and Nicholls (1989) predict that students with dominant performance or ego-oriented goals will exhibit different approaches to learning situations depending on their perceived ability. According to Dweck and Nicholls, students with dominant performance goals and high perceived ability will exhibit a mastery- or task-oriented approach to learning as do students with dominant learning goals at all levels of perceived ability. Students with dominant performance goals and low perceived ability, however, will exhibit a helpless or maladaptive orientation toward learning. If cheating is viewed as an adaptive (albeit illicit) behavior which is utilized to meet academic challenges and maintain persistence in the face of difficulty, higher rates of cheating might be expected among students of high perceived ability regardless of their levels of learning and performance goals and lower rates of cheating among students with dominant performance goals and low perceived ability. If, on the other hand, cheating is viewed as a maladaptive approach to learning, higher rates of cheating might be expected among students with dominant performance goals and low perceived ability and lower cheating rates among students with

dominant learning goals and students with high perceived ability. Regardless of whether cheating is viewed as an adaptive or maladaptive behavior, perceived ability is expected to interact with students' achievement goals (learning and performance goals) in explaining their engagement in cheating behaviors.

While theoretical and empirical evidence exists for predicting relationships between cheating and learning goals, performance goals, and perceived ability, there is sparse evidence regarding the relationship between cheating and future consequences. Franklyn-Stokes and Newstead (1995) found no relationship between cheating and pursuing a degree for purposes of attaining future career goals. Newstead et al. (1996) found that the cheating index for students pursuing a degree for purposes of attaining future goals was higher than that of students pursuing a degree for personal improvement reasons (similar to learning goals), but lower than that of students pursuing a degree as a means of taking time out to enjoy life before becoming serious about the pursuit of future goals. C. D. Johnson and Gormly (1971) found that when university students in an ROTC class were told a test they were taking was able to predict success as an officer, those students who planned to pursue careers as officers cheated more than those who did not. In this case, it may have been the future goal of being an officer that precipitated the cheating. Based upon these findings, we might expect higher rates of cheating among students who view education courses as important for attaining future goals as opposed to students who do not see these courses as important for reaching their future goals. Conversely, Smith et al. (1972) found that for more important tests such as midterm and final examinations, the amount of self-reported cheating was less than that reported for quizzes

and class assignments. While the importance of the tests was inferred by the researchers and the utility of the course for meeting future goals was not mentioned in this study, the findings do suggest that high future consequences might be associated with lower rates of cheating than low future consequences. Future consequences may also interact with perceived ability and other achievement goals (learning and performance) in explaining engagement in cheating behaviors.

Cheating and Perceptions of Classroom Goal Structures

Students' choices of achievement goals, perceptions of ability, and cognitive engagement have been found to be influenced by their perceptions of the goal structures of classrooms (Ames, 1992a, 1992b; Ames & Archer, 1988; deCharms, 1976; Rosenholtz & Simpson, 1984; Ryan et al., 1985). Rosenholtz and Simpson distinguished between two diametric types of classrooms based on differences in the way teachers structured tasks, groups, and evaluations, and differences in the amount of autonomy granted students. Classrooms in which the four structures (tasks, grouping, evaluations, and autonomy) focused on only one dimension of ability were identified by Rosenholtz and Simpson as "unidimensional" while those focusing on more than one dimension of ability were identified as "multidimensional." Unidimensional classrooms were characterized by a narrow range of tasks and evaluations that were qualitatively similar, ability grouping of students, grading procedures and performance feedback that encouraged social comparisons among students, and low student autonomy. In multidimensional classrooms teachers used a wider variety of methods and materials for instruction, activities, and assessments; students worked in groups that were not structured by ability; evaluations were less amenable to

social comparison among students; and students were provided greater autonomy regarding choice of tasks, methods used to complete tasks, and the rate and time allotted for task completion (Rosenholtz & Simpson, 1984). In their research in elementary classrooms, Rosenholtz and Simpson found that students' perceptions of ability varied more in unidimensional classrooms with greater percentages of students in unidimensional classrooms rating themselves as high or low in ability than students in multidimensional classrooms.

The four classroom structures used by Rosenholtz and Simpson (1984) to distinguish between unidimensional and multidimensional classrooms and two additional classroom structures, recognition and time, were utilized by Ames (1992a, 1992b) to distinguish between mastery-oriented and performance-oriented classrooms. According to Ames (1992a), "these six areas were initially identified and described by Joyce Epstein (1988, 1989)....She used the acronym TARGET to represent the six structures: task, authority, recognition, grouping, evaluation, and time" (p. 332). These structures, depending on how they are designed and utilized by teachers, can have either positive or negative impacts on students' motivation and cognitive engagement. Mastery-oriented classrooms have been associated with positive effects on motivation while performance-oriented classrooms have been associated with negative effects or have been found to be unrelated to motivational and cognitive factors (Ames, 1992a, 1992b; Ames & Archer, 1988; Rosenholtz & Simpson, 1984; Ryan et al., 1985). Performance-oriented classrooms are conceptually similar to the unidimensional classrooms described by Rosenholtz and Simpson (1984) while mastery-oriented classrooms are similar to Rosenholtz and Simpson's multidimensional

classrooms. In mastery-oriented classrooms, structures are focused on learning and improvement while in performance oriented classrooms structures are focused on abilities of students relative to others in the class.

A mastery-oriented task structure is evidenced by instruction and tasks that are varied, interesting, novel, challenging, meaningful, and relevant. Students are actively involved in learning, and understanding and improvement of skills are emphasized as the purposes for learning. The structure of time overlaps with the task structure in that the time allotted should be carefully coordinated with tasks in order for work to be completed without undue anxiety or frustration.

When students are given input into decisions regarding the amount of time to be spent on tasks, the order in which tasks are completed, or the due dates for task completion, the time and task structures are working in concert with the structure of authority (Ames, 1992a). The multi-dimensional autonomy structure described by Rosenholtz and Simpson (1984), the autonomy-oriented classroom identified by Ryan et al. (1985), and the "originlike" classroom in deCharms' (1976) research are quite similar to the mastery-oriented authority structure identified by Ames. Likewise, Ames' performance-oriented authority structure corresponds with a unidimensional autonomy structure (Rosenholtz & Simpson, 1984), a controlling classroom (Ryan et al., 1985) and a "pawnlike" classroom (deCharms, 1976). A mastery-oriented authority structure is one in which students are given choices and are encouraged to think independently and creatively, to attempt tasks that offer challenge, and to take responsibility for their learning in an environment that provides the necessary supports for development of self-regulatory skills and cognitive strategies (Ames, 1992a). Classrooms that

provide students with autonomy have been found to encourage students' adoption of learning goals and mastery motivation (Ames, 1992a; Ryan et al., 1985).

Adoption of learning goals and positive perceptions of ability are also associated with a mastery-oriented recognition, or rewards, structure. Ames (1992a, 1992b) and Ryan et al. (1985) stress that rewards and recognition can be interpreted by students as being controlling and can negatively influence intrinsic motivation and adoption of achievement goals. When rewards are not linked to effort or recognition is given publicly rather than privately students may adopt performance goals rather than learning goals (Ames, 1992b). In order to promote a mastery orientation and to prevent decreases in perceived competence, Ryan et al. recommended that rewards and recognition be informative rather than extrinsically controlling.

Like the recognition and rewards structure, the grouping and evaluation structures of a classroom can have debilitative effects on motivation and cognitive engagement when the structures are used to compare students in a normative fashion, when competition among students and differences in ability are emphasized, and when social comparisons occur frequently and publicly (Ames, 1992a, 1992b; Rosenholtz & Simpson, 1984). Classroom evaluation practices appear to be especially salient to the relationship between classroom structures and cheating behaviors. When students are allowed to revise work or retake examinations, mistakes are treated as natural outcomes of the learning process, several modes of evaluation are utilized, improvement and effort are valued, and evaluative feedback is given privately, students are more likely to adopt personal learning (mastery) goals and to be cognitively engaged (Ames, 1992a, 1992b).

Conversely, when normative comparisons are utilized as the primary mode of evaluation, students must compete for recognition and grades, and evaluative information is public, students are more likely to adopt performance goals and to engage in other behaviors that debilitate the motivation to learn. According to Ames (1992a) "social comparison may be among the most potent factors contributing to a negative motivation pattern" (p. 328).

Research examining the relationship between social comparison and cheating provides additional evidence of the negative effects of social comparison (e.g., Hill, J. P., & Kochendorfer, 1969; Shelton & Hill, J. P., 1969; Taylor & Lewit, 1966). J. P. Hill and Kochendorfer (1969) manipulated normative information provided to students under conditions of high and low risk of their cheating being detected. In a crossed design, half of the students were given fictitious, high scores purported to have been made by other students, and half were told a black box, which sometimes malfunctioned, was recording their scores. More of the students who were given the normative information cheated than students who were not given normative information, and more students in the low risk of detection condition cheated than in the high risk condition. Groupwise comparisons showed the only significant difference in percentage of students cheating was between the high-risk group given no normative information and the low-risk group given normative information. Cheating latency was affected by providing normative information but was not affected by risk of detection.

Shelton and J. P. Hill (1969) found a positive relationship between test anxiety and cheating only when normative information was provided to the students. The results of their research suggest that for students with test

anxiety, social comparisons are particularly debilitative. It appears that students with test anxiety may not be the only ones notably affected by normative information. Davis et al. (1995) told only students in an experimental group that an exceedingly high score was the average score attained by college students on a word-forming task. Students in the experimental group who were identified as having Type A personalities cheated significantly more than Type B students in either group and more than Type A students in the control group implying that normative information may also produce maladaptive behaviors in students with Type A personalities.

The results of studies involving competition are similar to those for social comparison, perhaps because normative information is usually given to induce competition. Girls five to nine years old had dramatic increases in cheating under competitive conditions in which they were informed that all of their friends had been successful at the experimental task (Dmitruk, 1973). Undergraduate students identified as Type A and Type B personalities were given a fictitious high score as that of the average college student and were then tested with and without an opportunity to cheat under competitive and individual conditions (Perry et al., 1990). Type A students given the opportunity to cheat cheated more than Type B students and cheated at the same high rate both individually and in competition. Thus, it may be that cheating is instigated by the normative information given rather than by competition.

Other studies, though not directly investigating social comparison or competition, provide additional evidence of the effects of social comparison on cheating. In a number of studies, students were told that an extremely

high score was representative of the average score attained by students their age (Dickstein et al., 1977; Dienstbier & Munter, 1971; Flynn et al., 1987; Jacobson et al., 1970; Leming, 1980a, 1980b; Pearlin et al., 1967). Although experimental groups were usually exposed to the manipulation of other constructs under study and, therefore, may have cheated more than students in a control or comparison group, the considerable amount of cheating that went on in many of the control and comparison groups may have been due to the normative information given.

An informative study regarding the effects of different levels of normative information was conducted by Millham (1974). A computerized task which was preprogrammed to produce a score of 19 points for each student was used to investigate cheating under conditions of success and failure. Students in the failure condition were told the average score for a college student was 31 and were exposed to a list of 13 scores ranging from 29 to 36 that were purported to be scores from previous students in the study. Students in the success condition were told the average expected score was 18 and were exposed to a list of scores ranging from 15 to 21. Only one student in the success condition cheated while 30% of those in the failure condition cheated. More cheating occurred when the social comparison information indicated a student had lower than average ability than when the information indicated higher than average ability.

The results of studies of cheating related to competition and social comparison suggest that classroom evaluation structures that promote normative comparisons among students may be accompanied by increased cheating. Not only may students in such classrooms adopt performance goals, as opposed to learning or mastery goals, such information, when indicative of

lower than average ability, may be particularly devastating to students' perceptions of ability. Of all the motivational factors influenced by classroom goal structures, the one that can most debilitate or facilitate cognitive engagement is perceived ability (Ames, 1992a, 1992b). As Ames explained, perceptions of ability are related to and impacted by all six structures in the TARGET model. Ames pointed out the debilitative effects on cognitive engagement for each of the six classroom structures as they are related to perceptions of ability. In addition she stressed that for learning goals and cognitive engagement to be maximized, all six structures need to be mastery-oriented as one performance-focused structure may neutralize or destroy the facilitative effects of another structure which is mastery-focused. The interaction between learning goals and perceived ability in Miller et al.'s (1966) predictive model of persistence in which the greatest persistence was exhibited when both learning goals and perceived ability were high is illustrative of the pattern one might expect to find when students perceive the classroom goal structures to be performance-focused as opposed to learning- or mastery-focused (Ames, 1992a, 1992b). When classrooms are mastery-focused, effort rather than ability is accentuated resulting in a more positive emotional environment.

Only one study directly examined the relationships among classroom goal structures, achievement goals, cognitive engagement, and cheating (Anderman et al., 1998). In addition to students' cheating behaviors, mastery goals, and use of deep processing strategies, Anderman et al. examined students' use of self-handicapping strategies, the degree to which students' worried about their performance, and perceptions of both classroom goal structures and the goal structures of the school. The measures of classroom

goal structures included a measure of perceived classroom mastery and a measure of perceived classroom extrinsic orientation; school-level measures included a measure of perceived school mastery and perceived school performance. Perceptions of classroom and school mastery were conceptually similar to Ames' (1992a, 1992b) descriptions of perceptions of classroom mastery-orientation. Perceptions of school performance were similar to perceptions of classroom performance-orientation in Ames' theory. However, the measure of perceived classroom extrinsic orientation was more akin to work-avoidance. Only two items, both of which described performing well in order to be excused from completing homework or assignments, were used to measure perceived classroom extrinsic orientation. Although correlations between cheating behaviors and measures of achievement goals, perceived classroom and school-level goals, school worry, and use of deep processing and self-handicapping strategies were all significant in the Anderman et al. (1998) study, students' personal goals (mastery and extrinsic), perceptions of classroom mastery, and perceptions of school mastery were not significant predictors of cheating behaviors in their logistic regression model. In their model, cheating behaviors were predicted by perceptions of classroom extrinsic goals (beta = .26), perceptions of school-level performance goals (beta = .49), school worry (beta = .46), use of self-handicapping strategies (.45), and use of deep processing strategies (beta = -.86).

The results of Anderman et al. (1998) indicate that perceptions of classroom mastery-orientation may not have direct effects on cheating behaviors. However, perceptions of classroom mastery-orientation may have indirect effects on cheating through its effects on achievement goals and perceptions of ability. Anderman et al. did not include measures of perceived

ability or personal performance goals in their study. In the absence of these motivational variables, the finding that cognitive engagement (use of deep processing strategies) was a significant predictor of cheating behaviors is not surprising. When perceptions of ability and performance goals are included in a model of cheating, cognitive engagement may not explain additional variance in cheating beyond that explained by perceived ability and achievement goals.

Statement of the Problem

From the extensive cheating research it can be concluded that cheating behaviors are pervasive among students at all educational levels. Since the majority of studies report cheating rates in excess of 50%, it seems that cheating among students is more normative than it is deviant. When survey reports of cheating frequency are coupled with empirical studies of cheating over a sixty-year period, it appears that perhaps cheating has not so much increased as has the honesty with which the behaviors are self-reported.

The fact that large percentages of students engage in cheating behaviors in spite of reporting that cheating is wrong indicates they may be successfully disengaging self-regulatory mechanisms that might normally prevent them from cheating. Approximately one-fifth of the students who cheat may be intrinsically motivated to do so (Blackburn & Miller, 1996); for the other four-fifths of those cheating, it is likely that they do so for social, work avoidant, instructional, or other extrinsic reasons. The construct of intrinsic motivation for cheating, derived from the theory of Csikszentmihalyi (Csikszentmihalyi & Larson, 1978; Csikszentmihalyi & Nakamura, 1989), has been identified in only one study. Replication of the finding that students' are intrinsically motivated to cheat, that they do experience feelings of "flow" during acts of

cheating, is necessary to establish intrinsic motivation for cheating as a unique variable related to students' cheating behaviors. The proposition that cheating may be motivated by mismatches between the challenge level of a class and students' skill levels was also derived from the theory of flow (Csikszentmihalyi & Larson, 1978; Csikszentmihalyi & Nakamura, 1989) but has not yet been empirically tested.

Very little is known about the relationships between cheating and motivation. Although much speculation has been made about possible associations between cheating and motivation, little empirical evidence exists to support such assumptions. We need to know which motivational and classroom factors contribute to cheating and which factors might prevent or, at least, decrease cheating. We need to move beyond behavioristic remedies that call for more extensive punishment and negative sanctions to constrain cheating and examine how instruction and classroom environments might be changed so that learning, rather than control, becomes the major focus. A first step in this direction would be to examine the relationships among cheating, students' motivational goals, perceptions of ability, perceptions of classroom goal structures, and cognitive engagement.

A model of cheating was developed to guide the examination of relationships among cheating, motivational variables, and cognitive engagement (see Figure 1). A growing body of evidence supports the effects of classroom goal structures on both perceived ability (Ames, 1992a, 1992b; Rosenholtz & Simpson, 1984; Ryan et al., 1985) and achievement goals (Ames, 1992a, 1992b; Nicholls, 1989; Ryan et al., 1985). The correlational relationship between perceived ability and achievement goals is well established, with researchers finding a positive relationship between perceived ability and

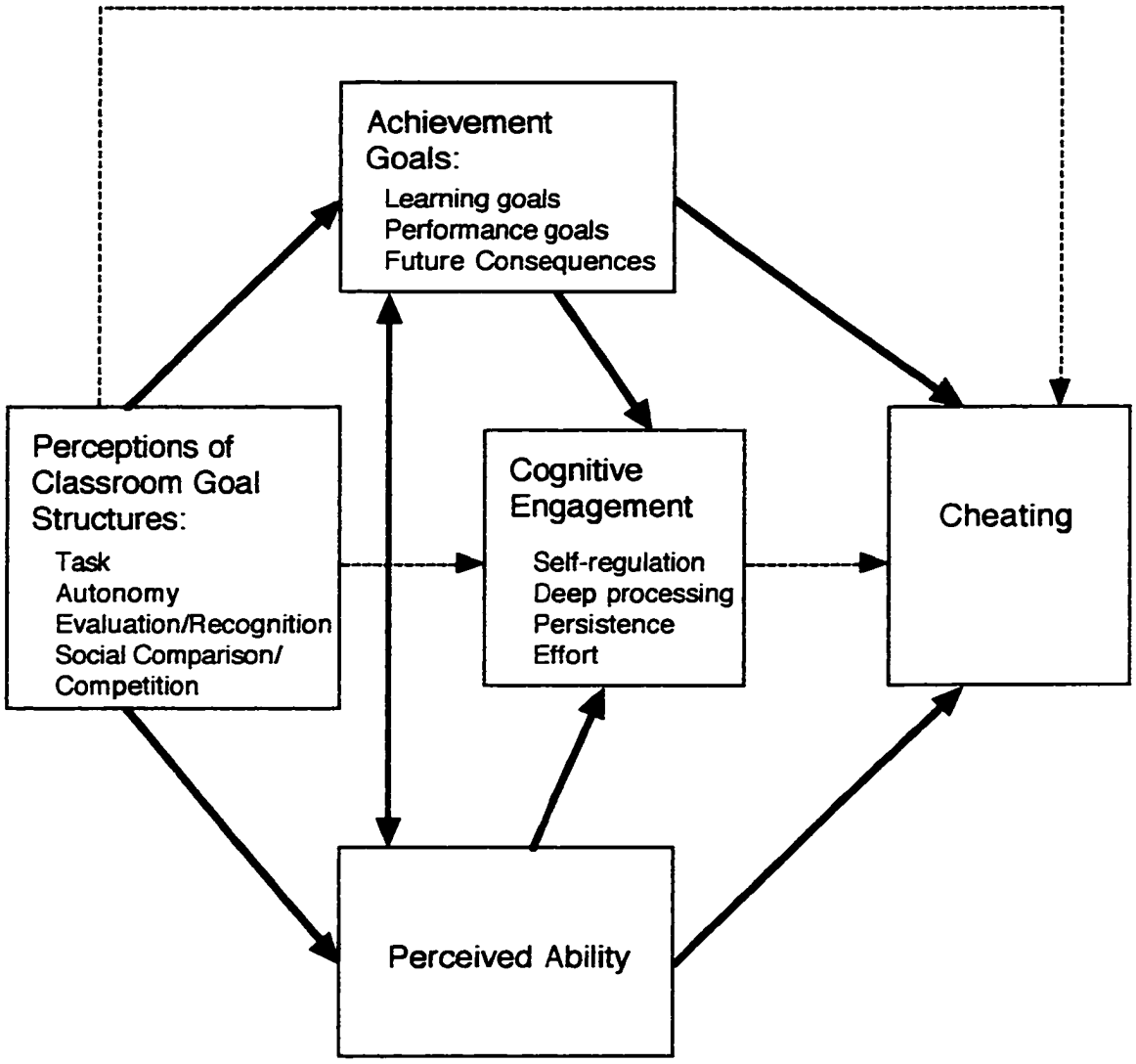


Figure 1: Proposed model explaining cheating behaviors. Solid lines in the model indicate relationships that have been established by previous research and that are expected to be supported by the current study. Dotted lines indicate relationships that have either not been established or that are not expected to explain additional variance beyond the variance explained by other variables in the model. Arrows at only one end of a line indicate established or presumed causal paths while lines with arrows at both ends indicate a correlational relationship without an assumption regarding a causal path.

learning goals (Greene & Miller, 1993, 1996; Meece, et al., 1988; Miller et al., 1996; Pintrich & Garcia, 1991; Ryan & Pintrich, 1997), a positive relationship between perceived ability and future consequences (Blackburn & Miller, 1996; Miller et al., 1996), and both negative (Meece et al., 1988; Ryan & Pintrich, 1997) and positive (Miller et al., 1996) relationships between perceived ability and performance goals. Much evidence exists to support the effects on cognitive engagement of both perceived ability (Bandura, 1986, 1993; Greene & Miller, 1993, 1996; Miller et al., 1996; Pintrich & DeGroot, 1990; Zimmerman & Martinez-Pons, 1990) and achievement goals (Ames & Archer, 1988; Anderman et al., 1998; Elliott & Dweck, 1988; Greene & Miller, 1993, 1996; Meece et al., 1988; Miller et al., 1996). Although there is some evidence that perceptions of classroom goal structures in general (Ames & Archer, 1988), and perceptions of autonomy or control in particular (Skinner et al., 1990; Ryan et al., 1985), directly influence cognitive engagement, the studies finding direct effects did not include separate measures of both perceived ability and personal achievement goals. It is not certain if perceptions of classroom goal structures will explain additional variance in cognitive engagement beyond that accounted for by achievement goals and perceived ability.

Research has also implied links between perceived ability and cheating (Atkins & Atkins, 1936; Blackburn & Miller, 1996; Campbell, 1933; Houston, 1977) and between achievement goals and cheating (Anderman et al., 1998; Blackburn & Miller, 1996; Newstead et al., 1996). Though evidence suggests that cognitive engagement might be directly linked to cheating (Anderman, et al., 1998), the study establishing this link did not include a measure of perceived ability. It is not known whether cognitive engagement will have a direct effect on cheating once the effects of perceived ability and achievement

goals on cheating have been taken into account.

There is no research directly linking perceptions of classroom goal structures to engagement in cheating behaviors in the presence of achievement goals and perceived ability. Anderman et al. (1998) did find a negative correlation between perceptions of classroom mastery orientation and cheating, but classroom mastery orientation was not a significant predictor of engagement in cheating behaviors. Perceptions of school-level performance orientation and perceptions of an extrinsic classroom orientation (similar to work avoidance) did emerge as significant predictors of cheating behaviors. Although the Anderman et al. study did not include a measure of perceived ability, it is the only study of cheating that included measures of perceptions of classroom goal structures. Overall perceptions of classroom goal structures do include perceptions of social comparison and competition, and these factors have been examined in studies of cheating.

Studies of cheating and social comparison or competition have established that social comparison is a highly contributory factor in the instigation of cheating (Davis et al., 1995; Dickstein et al., 1977; Dienstbier & Munter, 1971; Dmitruk, 1973; Flynn et al., 1987; Hill, J. P., & Kochendorfer, 1969; Jacobson et al., 1970; Leming, 1980a, 1980b; Millham, 1974; Pearlin et al., 1967; Perry et al., 1990; Shelton & Hill, J. P., 1969; Taylor & Lewit, 1966). These findings do imply that perceptions of the classroom evaluation and recognition structures, particularly perceptions associated with social comparison, may influence engagement in cheating behaviors. How this influence will manifest itself in a classroom setting is uncertain.

Most studies conducted to examine the relationship between social comparison and cheating utilized games or other tasks that are not

commonly a part of life in schools. The majority of studies that did examine cheating in classrooms also used tasks that do not normally occur in the school environment. Teachers do not usually have students grade their own midterm or final examinations, nor do they usually give assignments for which all students have access to answer keys. The relationship between cheating and social comparison needs to be examined in situations that are more representative of those occurring in actual classrooms and with tasks that are more typical of those presented to students in school. This could be accomplished by either experimental studies that utilize natural classroom settings and situations or surveys that obtain reports of cheating in classroom environments.

Research Questions

This study utilized self-reports to identify the types and frequencies of cheating behaviors engaged in by university education students and to examine the relationships between and among students' cheating behaviors, intrinsic motivation for cheating, reasons for cheating, personal achievement goals (learning goals, performance goals, and future consequences), perceptions of ability, cognitive engagement (effort, persistence, self-regulation, and deep cognitive processing strategies), and perceptions of classroom goal structures. The specific research questions investigated in this study were as follows:

1. What are the types and frequencies of cheating behaviors engaged in by education students?
2. Are there students in teacher education programs who are intrinsically motivated to cheat? If so, what are the relationships between students' intrinsic motivation for

cheating and their reasons for cheating, personal achievement goals (learning goals, performance goals, future consequences), perceived ability, and perceptions of classroom goal structures?

3. Are differing degrees of mismatch between the challenge levels of courses and students' perceived skill levels for performance in those courses associated with differences in the amount of cheating behaviors engaged in by students?
4. Do differences in learning goals, performance goals, future consequences, perceived ability, cognitive engagement, perceptions of classroom goal structures, reasons for cheating, and/or intrinsic motivation for cheating exist between students who cheat and students who do not cheat?
5. What are the relationships between and among students' cheating behaviors, reasons for cheating, personal achievement goals (learning, performance, and future consequences), perceived ability, cognitive engagement, and perceptions of classroom goal structures?
6. Do the results of the study support the proposed model for predicting cheating as shown in Figure 1?
    a. Do achievement goals, perceived ability, and interactions among goals and perceived ability predict engagement in cheating behaviors? If so, what combinations of achievement goals, perceived ability, and interactions among those variables are the best predictors of engagement in different categories of cheating?
    b. Do cognitive engagement variables add to the prediction

of cheating beyond variance accounted for by the achievement goals and perceived ability?

c. Do perceptions of classroom goal structures add to the prediction of cheating beyond variance accounted for by achievement goals, perceived ability, and cognitive engagement variables?

d. Do achievement goals, perceived ability, and any possible interactions between goals and perceived ability explain variation in the cognitive engagement variables in the proposed model?

e. Do perceptions of classroom goal structures explain additional variation in cognitive engagement scores beyond that explained by achievement goals, perceived ability, and interactions between goals and perceived ability?

f. Do perceptions of classroom goal structures explain variation in scores for achievement goals and perceived ability?

g. Are there significant correlational relationships between perceived ability and achievement goals?

CHAPTER 3

RESEARCH METHODOLOGY

Methodological Approach

The present study was a relationship study which used a single sample design and combined descriptive, correlational, and causal-comparative methods to address the research questions. Since no previous research had examined the relationships among all the variables explored in this study, combining these three methods of research provided a more in-depth examination of cheating behaviors and related motivational factors than could any one of these methods alone. The purposes of the study were to describe cheating behaviors and motivational factors as they existed in the sample, to examine the relationships among cheating behaviors, reasons for cheating, intrinsic motivation for cheating, achievement goals (learning, performance, future consequences), perceived ability, cognitive engagement (effort, persistence, self-regulation, and deep processing strategies), and perceptions of classroom goal structures, and to test a proposed predictive model of cheating (see Figure 1).

Sample

Description of Sample Populations

The populations from which samples were drawn for this study were students enrolled during the spring semester of 1998 as undergraduate education majors in two midwestern universities, one small and one large. The following demographic descriptions of the populations are based on university enrollment data for the spring semester of 1998.

At the small university 403 students were enrolled as education majors with 316 enrolled as full-time students and 87 enrolled as part-time students.

Fifteen percent of the students were male; 85% were female. The ethnic makeup of the population was 84% White, 7% Black, 3% Native American, 1% Asian/Pacific Islanders, 4% Hispanic, and 1% non-resident aliens. The breakdown of the population by class was 20% freshmen, 19% sophomores, 17% juniors, 43% seniors, and 1% special. (Students who already have a degree but are obtaining undergraduate certification requirements are identified by the university as seniors even though they may identify themselves as graduates.) Students ranged in age from 18 to 55 years with an average age of 29 years. The average age for males was 35 years, for females, 28 years. Primarily a "commuter college," less than 10% of the students actually live on campus. Over half of the students commute to classes from towns within a seventy-mile radius of the university.

The total enrollment for education majors at the large university was 761. Twenty-four percent were males, 76% females. The ethnic makeup of the population was 81.3% White, 5.1% Black, 3.8% Hispanic, 2.6% Asian, 6.7% American Indian, and .4% nonresident aliens. The age range for students campus-wide was from under 19 years to over 60 years. The average age of undergraduates was 22.8 years, for graduates, 32.4 years. Total campus enrollment for the spring semester was 19,177. Three thousand students lived in the dormitories. In addition, 921 university apartments were occupied by students, but the university does not have a count of the total number of students in the apartments.

Participants

Two hundred twenty-five students participated in the study. Twenty-three of the students were excluded from the study due to missing data. A complete description of the treatment of missing data in this study is

provided in Chapter 4. One student reported engaging in every one of the 27 cheating behaviors listed on the third survey and reported cheating a minimum of 99 times during the semester in the first class he attended each week. Because the veracity of the data was in question, and because he would be identified as an extreme outlier in any statistical analysis, he was also excluded from the study. Of the remaining 201 participants, 105 were education majors at a small midwestern university and 96 were education majors at a large midwestern university. Eighteen percent (36) of the participants were male; 82% (165) were female. The breakdown by class was 2.5% freshmen, 17.9% sophomores, 30.3% juniors, 37.8% seniors, 10% graduates, and 1.5 % (3) who did not report their classification. The participants ranged in age from 18 to 50 years with an average age of 26.2 and a median age of 22.5. One participant did not report age. Grade point average of the group ranged from 2.0 to 4.0 with an average GPA of 3.21 and a median GPA of 3.20. Three participants did not report GPA. Participants from the small university were enrolled in one of the following education courses: Introduction to Teaching, Survey of Elementary Methods and Content, Math Methods and Practicum, Survey of Secondary Instruction, or Reading in the Content Area. The participants from the large university were enrolled in one of three sections of a developmental psychology course.

Sampling Method

The sample used in this study was a convenience sample. I had access to students in a large number of education courses but, unfortunately, did not have access to all classes. While the majority of professors and instructors would have allowed access to their students, those who would not allow such access prevented me from being able to randomly sample classes. Therefore, I

sampled students in classes taught by professors and instructors who granted me access to conduct the study. I did not include my own classes in the sample.

Procedures

Provisions for Anonymity

Due to the sensitive nature of the questions the participants were asked regarding classroom practices and engagement in cheating behaviors, special provisions were made to ensure anonymity of both participants and classes. These provisions were undertaken to meet requirements of institutional review boards and to encourage honesty in reporting. The first surveys administered to participants were precoded with numbers. Each survey was accompanied by a stick-on label with the same precoded number as was printed on the survey. Participants were directed to peel off the labels and stick them in books or notebooks they normally brought to class so they would have the numbers available when responding to the final survey at the end of the semester. In addition to the precoded number, the survey contained a space for a code name. Each participant was asked to write a code name that he or she would remember, but that would not identify him or her to the researcher or instructors. Separate containers were used for collecting surveys and informed consent forms so that no participant could be identified. When the final survey was administered, a list of code names and corresponding numbers was available for participants who had misplaced or forgotten their numbers.

The final survey administered, The Survey of Cheating Behaviors, contained a scale asking participants to indicate the reasons they had for engaging in cheating behaviors and a scale asking participants to indicate how

they felt during acts of cheating. While this information was actually pertinent to only those who reported cheating, those who indicated they had not cheated were instructed to complete the two scales as they thought someone who cheated would complete them. The major reason for having noncheaters complete the two scales was to insure that participants who reported cheating could not be readily identified by others as cheaters. If only participants who reported cheating were required to respond to the scales regarding reasons for cheating and feelings during acts of cheating, others nearby could identify them as cheaters by merely noticing that they were answering items on the last two scales of the instrument. Having all participants respond to the two scales insured that participants could not be identified as cheaters or noncheaters by the number of scales they completed.

In addition to the steps taken to insure anonymity in completing the surveys, the classes students used in responding to the surveys were not identified. Each survey asked students to respond to all items as they pertained to one class. The instructions accompanying the first survey directed participants to select the first academic class they normally attended each week as their "target" class. A copy of the instructions accompanying the first surveys is provided in Appendix A. The "target" class was used in responding to items on all surveys. Therefore, the classes in which the surveys were administered were not necessarily the classes about which the participants responded. In this way, participants' responses could not be traceable to a particular class, ensuring further anonymity.

Research Protocol

Each participant in the study was administered three surveys: the Survey on Approaches to Learning, the Survey of Classroom Goal Structures,

and the Survey of Cheating Behaviors. The Survey on Approaches to Learning and The Survey of Classroom Goal Structures were administered the sixth week of the semester so participants would have time to formulate perceptions of goal structures operating within a specific classroom setting and to decide how they would approach learning in that particular class. The Survey of Cheating Behaviors was administered during the last two weeks of the semester prior to final examinations. All items on these instruments pertained to the same course. Participants were instructed to select the first academic class attended each week as their designated target class. All responses were made in reference to the target class as specified in the directions for each of the instruments. Copies of the instruments are provided in Appendices A, B, and C.

Instruments

Survey on Approaches to Learning

The Survey on Approaches to Learning, a 47-item Likert scale adapted from an instrument used in earlier research (Miller et al., 1996), was used as a measure of motivational goals (learning goals, performance goals, and future consequences), perceived ability, cognitive engagement (effort, persistence, self-regulation, and deep processing strategies), and the match between class challenge and student skill levels. The instrument (reformatted and reduced to meet margin requirements) and a key listing the items by subscale are provided in Appendix A. The instrument included a scale measuring motivational goals and perceived ability and a scale measuring cognitive engagement. Two items were added to the instrument to measure the match between class challenge and student skill levels.

The goals and perceived ability scale included four subscales: learning

goal (4 items), performance goal (8 items: 4 measuring approach and 4 measuring avoidance goals), future consequences (6 items), and perceived ability (8 items: 4 measuring judgments of ability relative to others and 4 measuring task- or self-related judgments of ability). The scale asked students to rate their personal approaches to learning in their target class on a six-point scale ranging from strongly disagree to strongly agree. The following are sample items for each of the goal and perceived ability subscales of the Survey on Approaches to Learning:

Learning goal:

> I do the work assigned in my target class because I want to improve my understanding of the material.

Performance goal (Approach):

> I do the work assigned in my target class because I like to score higher than other students.

Performance goal (Avoidance):

> I do the work assigned in my target class because I don't want others to think I'm not smart.

Future consequences:

> I do the work assigned in my target class because my achievement plays a role in meeting my future goals.

Perceived ability (Task- or Self-Referent):

> I am confident about my ability to do the assignments in my target class.

Perceived ability (Other-Referent):

> Compared with other students in my target class my learning and study skills are strong.

The cognitive engagement scale had four subscales: self-regulation (9 items), use of deep processing strategies (7 items), persistence (1 item), and

effort (1 item). One item measuring use of shallow processing strategies was not used in this study. The items measuring persistence, self-regulation, and use of deep processing strategies asked students to rate their personal approaches toward studying in their target class on a six-point Likert scale ranging from strongly disagree to strongly agree. The item measuring effort was a multiple choice item asking participants to rate their effort in their target class compared to their typical amount of effort for school work. Five choices were given ranging from "Extremely low: probably the least amount of effort I've ever put into a class" to "Extremely high: probably as much effort as I've ever put into a class; the middle choice on the scale was "about average." The following are sample items for each of the cognitive engagement subscales (with the exception of effort) of the Survey on Approaches to Learning:

Self-regulation:

> I organize my study time well for my target class.

Deep strategies:

> When studying for my target class, I try to combine different pieces of information from course material in new ways.

Persistence:

> If I have trouble learning something in my target class, I go over it again until I understand it.

Cronbach alpha reliability coefficients from an earlier study using the goal and perceived ability subscales of The Survey on Approaches to Learning (Blackburn & Miller, 1996) were as follows: performance goals .90, learning goals .89, perceived ability .81, and future consequences .86. Two studies conducted by Miller et al. (1996) resulted in the following Cronbach alpha

reliability coefficients for goal, perceived ability, and cognitive engagement subscales of the Survey on Approaches to Learning: performance goals .87/.86; learning goals .80/.82; perceived ability .93/.93; future consequences .69/.65; self-regulation .80/.78; deep strategy use .63/.69; persistence .75/.81.

Two items were added to the scale to measure the perceived challenge level of the course and the perceived skill level for the course. Participants were asked to rate the challenge level of their target course on a five-point scale ranging from "not challenging at all (very easy)" to "extremely challenging (very difficult)." Participants' skill levels were measured by self-ratings of target class skill/ability level on a five point scale ranging from "very low skill/ability level" to "extremely high skill/ability level." The match between class challenge and participant skill level was computed by subtracting the reported challenge level of the class from the reported skill/ability level. A negative match score indicated a participant's perceived skill level was lower than the perceived challenge level of the course while a positive match score indicated a participant's perceived skill level was higher than the perceived challenge level of the course.

Survey of Classroom Goal Structures

Perceptions of classroom goal structures were measured using the Survey of Classroom Goals Structures, an instrument developed for this study to measure students' perceptions of classroom mastery orientation based on the structures of tasks, student autonomy, evaluation, and recognition, and perceptions of the salience of competition and social comparison. A 48-item pilot instrument was developed. Twelve of the items on the pilot instrument were items from, or adapted from, the Ames and Archer (1988) Classroom Achievement Goals Questionnaire. The remaining

36 items were based on Ames' (1992a, 1992b; Ames & Archer, 1988) descriptions of mastery and performance-oriented classrooms, the classroom structures described in Ames' (1992a, 1992b) TARGET model, Rosenholtz and Simpson's (1984) descriptions of unidimensional and multidimensional classrooms, and other research in the area of classroom control and student autonomy (deCharms, 1976; Ryan et al., 1985). The instrument required participants to rate statements about task, autonomy, recognition, and evaluation structures and practices involving competition and social comparison in their "target" class on a six-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree). A copy of the pilot instrument is provided in Appendix D.

The participants for the pilot of the instrument were from the same populations from which participants were drawn for the main study. None of the participants in the pilot study participated in the main study. Fifty-three students participated in the pilot of the instrument, 32 from a science methods course in the large university, 21 from a social studies methods course in the small university. The class in which participants completed the instrument was designated as the "target" class for responding to items. In addition to responding to items, participants were requested to write notes about any items they felt were not clearly worded or that, for any reason, posed problems for giving an accurate response. The administration of the pilot instrument took place during the fifth week of the semester.

The instructors for both courses were interviewed to obtain their perceptions of the classroom structures. Similarities and differences between the two classes were noted. Subsequent univariate tests showed significant differences between classes on all items noted as differences during the

interviews. For items that measured classroom procedures noted as similarities, no significant differences were found between students' perceptions in the two classes.

Instruments from five of the participants had missing data on one or more items and were eliminated from the analyses. A principal components factor analysis with an oblique rotation and extraction of factors with eigenvalues greater than 1 was used to identify the instrument's underlying factor structure. The initial factor analysis of the pilot instrument data revealed eleven overlapping factors with items loading on more than one factor. However, one primary factor accounted for 40% of the instrument's variance; the second factor identified accounted for only 8.1% of the variance. The large amount of factor overlap was not surprising as Ames (1992a, 1992b) stated that classroom structures overlap considerably. For example, an assessment, normally considered part of the evaluation structure, could overlap with the autonomy structure if students were allowed to retake the assessment to improve grades, could reflect the quality of the task structure as to the match between the assessment and instruction, and could be related to the recognition structure depending on the feedback given for assessment results. If the assessment were given under strict time limits, the structures of time and autonomy would be evidenced, and if the instructor announced the scores made on the assessment or curved the grades, social comparison and competition would become particularly salient.

The use of a varimax rotation produced no notable differences in the factor structure. Factor analyses with one-, two-, and three-factor solutions began to reveal a factor pattern. The majority of the items were loading on the first factor which was identified as perceptions of a classroom mastery-

orientation (Ames, 1992a, 1992b). Most of the items requesting responses regarding the salience of social comparison and competition (although reversed so that a high score indicated a lower degree of comparison and competition) were not loading on the mastery-orientation factor, but were loading together on a separate factor.

An initial reliability analysis resulted in a Cronbach alpha reliability coefficient of .96 for the entire scale. However, seven items either correlated negatively with the entire scale or had positive correlations of less than .10. An additional 4 items correlated positively with the entire scale but the correlations were between .10 and .40. Based on written comments of participants and the results of the factor analyses and the reliability analysis, eight items were removed from the scale: two items were determined to be inappropriate at the college level; three items that did not correlate adequately with the entire scale were determined to duplicate information provided by more reliable items; and one item contained ambiguous wording that resulted in two different interpretations of the statement. In addition to removing eight items, some slight changes were made in the wording of four other items.

A second reliability analysis was conducted without the eight items that were removed from the scale. Cronbach alpha reliability coefficients were as follows: entire scale, .96; mastery-oriented subscale, .96; social comparison/competition subscale, .79. Four items were identified as not correlating adequately with either the entire scale or their respective subscales. Since both classes taking part in the pilot were primarily mastery-oriented as opposed to performance-oriented, and due to the small number of participants in the pilot sample, it was decided to reserve judgment on these

four items (three of which were social comparison/competition items) until the data from the main study were analyzed. The revised instrument consisted of 40 items with 31 items measuring perceptions of the degree of mastery-orientation and 9 items measuring perceptions of the use of social comparison and competition. To facilitate interpretation of the social comparison/competition subscale, items on the subscale were not reversed on the revised instrument. Therefore a high score on the scale represented greater salience of social comparison and competition in the classroom. A copy of the instrument and a key listing items by subscale are provided in Appendix B. The following are sample items for the two subscales of the Survey of Classroom Goal Structures:

Mastery-orientation:

> The teacher shows how the tasks in my target class are related to students' everyday lives or future careers.

Social comparison/competition:

> The teacher tells us the highest and lowest grades made on tests/assignments in my target class.

Survey of Cheating Behaviors

The Survey of Cheating Behaviors, adapted from an instrument developed for an earlier study (Blackburn & Miller, 1996), contained three scales: occurrence and frequency of cheating behaviors; reasons for cheating; and intrinsic motivation for cheating. A copy of the Survey of Cheating Behaviors and a key listing the items by subscale is provided in Appendix C. The Occurrence of Cheating Behaviors scale, originally adapted from the Academic Misconduct Scale developed by Daniel et al. (1991), consisted of 27 items that used self-reports of students' own cheating behaviors to measure

the specific types of cheating behaviors in which they engaged and the frequency with which they engaged in the behaviors. The items utilized a five-point scale with the points 0, 1-2, 3-5, 6-8, and 9+ to report the frequency of engagement in each cheating behavior. Items with a frequency of greater than zero were counted to arrive at a total cheating score which represented the number of different types of cheating in which a participant reported engaging. The reported frequencies of the items were scored from 0 to 4 with a score of 0 representing a reported frequency of 0 and a score of 4 representing a reported frequency of 9+. The frequency scores were summed to arrive at a total cheating frequency score which represented the overall frequency with which a participant cheated in his or her target class. Of the 27 items on the Occurrence of Cheating Behaviors scale, 16 were designed to measure cheating on tests and 11 to measure cheating on assignments. These items were also classified according to the beneficiary of the cheating act: 18 items represented cheating for self and 9 items representing cheating for others. Items from this scale included "copying answers from another student during a test" and "writing a paper or assignment for another student to present as his/her own."

The Reasons for Cheating scale consisted of 25 items and 5 subscales: social (6 items), work avoidance (4 items), poor teaching (4 items), intrinsic (5 items), and extrinsic (4 items). One item identifying test anxiety as a reason for cheating was not used in this study. A five-point Likert scale ranging from 1 (never) to 5 (most of the time), was used with the first 24 items. Students who reported cheating on the Occurrence of Cheating Behaviors Scale were asked to rate the frequency of each item as a reason for engaging in the reported behaviors. Students who reported they had not cheated were asked to rate the

frequency of each item as they perceived someone cheating would use it as a reason for engaging in cheating behaviors. Example items for each subscale are as follows:

Social:	I cheated by helping others so that they would like me.
Work Avoidance:	I cheated so that I would not have to study.
Poor Teaching:	I cheated because of poor teaching by my instructors.
Intrinsic:	I cheated because I enjoy cheating.
Extrinsic:	I cheated so that I would be able to get the job I want.

An open ended item, "I cheated for a reason not listed," was added as the last item on the scale and participants were requested to write the reason for cheating in the space provided.

The Intrinsic Motivation for Cheating scale consisted of 18 items and employed a semantic differential scale with a five-point continuum. Fifteen items measured the degree to which a participant experienced "flow" during the act of cheating by asking participants to record their feelings associated with the act of cheating. Three items, which were created for this study, measured attitudes or beliefs about cheating by asking participants to record their beliefs about cheating. The descriptors used as anchors in this scale were derived from instruments used by Csikszentmihalyi, Rathunde, and Whalen (1993) in their studies of the flow experience in intrinsic motivation and from descriptors of intrinsic motivation used by other researchers (deCharms, 1968, 1976; Deci & Ryan, 1987). The stem, "When I cheated I felt:" was used for the "flow" items, while the stem, "I think cheating is:" was used for the attitude/belief items. Example anchors from this scale are: competent - incompetent; powerless - powerful, challenging - unchallenging. Since the neutral midpoint of the scale had a value of 3, a completely neutral position

on the entire "flow" subscale would be represented by a score of 45. Therefore, a score of more than 45 on the subscale was determined to be indicative of being intrinsically motivated to cheat as such a score would require that at least some of the feelings reported were those descriptive of intrinsic motivation. For the attitude/belief subscale a score of 9 represented a neutral attitude toward cheating. A score of more than 9 was indicative of a positive attitude toward cheating; a score of less than 9 was indicative of a negative attitude toward cheating. While students who reported cheating on the Occurrence of Cheating Behaviors Scale were asked to report how they felt while engaging in the reported behaviors and what they thought about cheating, those who reported they had not cheated were asked to report how they thought someone who cheated would feel while cheating or what someone who cheated would think about cheating.

Cronbach alpha reliabilities reported in an earlier study using the Survey of Cheating Behaviors (Blackburn & Miller, 1996) were as follows: occurrence of cheating behaviors scale, .81; reasons for cheating subscales: social, .87; work avoidance, .96; poor teaching, .85; intrinsic, .86; and extrinsic, .88; and intrinsic motivation for cheating scale, .90.

Limitations of the Study

The descriptive, causal-comparative, and correlational methods employed in this study posed several limitations. The correlations obtained in the study do not suffice to establish cause-and-effect relationships between the variables studied. Extraneous variables that may offer alternative explanations for the findings were not adequately controlled. Therefore, possible alternative explanations for any relationships found are presented in the discussion of the findings of this study.

The use of a convenience sample greatly reduced the generalizability of the study. Since the study was exploratory in nature, findings require support through later replications. Additional research needs to be conducted in a variety of settings to test the applicability of any findings to those settings.

Since this study utilized self-report data, specifically surveys and questionnaires, general limitations of self-reports are relevant in judging the merits of this method in relation to the questions that drove the research. Surveys, questionnaires, and interviews are dependent upon participants' self-reports. Perhaps the greatest limitation of self-reports is that participants may respond in ways they perceive to be socially desirable, may give answers they think will please the researcher, may not accurately remember their past behaviors, and may even lie if they do not feel assured their responses will remain confidential (Kirk, 1995; Smith et al., 1972). Also, while self-reports do allow researchers to explore and establish relationships between and among variables and provide much descriptive data, they do not provide the controls necessary for establishing causality (Gall, Borg, & Gall, 1996; Kirk, 1995). On the positive side, self-reports do allow the researcher to gather data about past behaviors and offer the flexibility of questioning participants about the occurrence of behaviors in authentic situations (Kirk, 1995; Smith et al., 1972). Compared to interviews, surveys and questionnaires allow data to be collected from large samples relatively easily, quickly, and inexpensively. (Gall et al., 1996; Kirk, 1995; Smith et al., 1972). However, surveys and questionnaires provide less flexibility than interviews in that the researcher cannot restate questions that are not clear to participants and cannot follow up on participants' responses to obtain more detailed accounts and meaningful explanations (Gall et al., 1996).

Underreporting of cheating could negatively affect the results of of the study. The study was susceptible to two types of underreporting: participants who did cheat may have reported that they did not and participants who did report their engagement in cheating behaviors may not have reported all behaviors they engaged in or may have understated the frequency with which they engaged in the behaviors. Differences between cheaters and noncheaters and relationships between cheating and the other variables of interest could be confounded by cheaters who did not admit to cheating being classified as noncheaters. Findings will tend to be conservative since differences and relationships will be more difficult to detect. Findings of Campbell (1933) that differences between cheaters and noncheaters were even more pronounced for nonadmitted cheaters point to the possibility that underreporting of cheating could prevent findings of significance when real differences do exist.

CHAPTER 4

RESEARCH RESULTS

Factor Analyses of Instrument Scales

Principal components factor analyses were conducted on the subscales of the Survey on Approaches to Learning, the Survey of Classroom Goal Structures, and the Reasons for Cheating and Intrinsic Motivation for Cheating subscales of the Survey of Cheating Behaviors. Because variables measured by the subscales were highly correlated, oblique rotations were used for all analyses except the analysis of the Intrinsic Motivation for Cheating subscale of the Survey of Cheating Behaviors which required a one-factor solution. The factor analysis of the motivational scale of the Survey on Approaches to Learning revealed that one of the future consequences items was loading on the learning goal factor, and it was omitted. The remaining items all loaded on their respective factors as expected. The factor analysis of the self-regulation and deep strategy use subscales of the cognitive engagement scale showed one deep strategy use item loading on the self-regulation factor and three self-regulation items loading on the deep strategy factor. These four items were omitted from the two subscales.

The factor analysis of all items on the Survey of Classroom Goal Structures revealed three factors: task, autonomy, and social comparison/ competition. Ten items that did not have loadings of at least .40 on any of the three factors were removed from the scale. Two of the four items that were questionable following the pilot investigation of the instrument were among those removed. The resulting scale included 19 items on the task subscale, 6 items on the autonomy subscale, and 5 items on the social comparison/ competition subscale. The items on the task and autonomy subscales had

originally been determined, following the pilot of the instrument, to be making up one subscale, identified as mastery-orientation. Although most of the items on these two subscales were moderately to highly correlated, the factor analysis indicated that the items were, indeed, loading on two separate factors. The six items on the autonomy subscale had loadings of .48, .71, .81, .67, .56, and .78 on the autonomy factor and respective factor loadings of .17, .21, .08, .42, .46, and .11 on the task factor. Therefore, the original mastery-orientation subscale was separated into two subscales, task and autonomy. Items on the social comparison/competition subscale were only modestly (and negatively) correlated with items on the task or autonomy subscales. The task and autonomy subscales revealed close to normal distributions while the distribution for the social comparison/competition subscale was positively skewed.

The factor analysis of the Reasons for Cheating Scale of the Survey of Cheating Behaviors showed that items for the poor teaching, work avoidance, and extrinsic subscales all loaded on their respective factors as expected. One item on the intrinsic subscale did not have a loading of at least .40 on any of the factors. This item had been removed for similar reasons in a previous study (Blackburn & Miller, 1996) and was, therefore, removed from the scale. All remaining items for the social and intrinsic subscales loaded together on one factor. All of the reasons for cheating subscales were positively skewed, but distributions for both the social reasons and intrinsic reasons subscales were skewed more extremely than distributions for the other subscales. Since examination of the distributions revealed that the loadings of these items on one factor was more an artifact occurring because participants rarely reported cheating due to intrinsic or social reasons rather than an indication that the

items measured only one construct, the two separate subscales were retained.

The first fifteen items of the Intrinsic Motivation for Cheating Scale were designed to measure only one factor, intrinsic motivation for cheating. A one-factor solution of the scale revealed that the first fifteen items all had loadings of .45 or greater, but, as expected, the last three items did not. The last three items measured attitudes and beliefs about cheating. Two of the three attitude/belief items loaded on one factor while one item loaded on a separate factor. It was determined that the two items loading together were measuring an emotional response, or attitude, toward cheating and these two items together were designated as the "attitude" variable. A score of 6 represented a neutral attitude toward cheating. The score denoting a positive attitude toward cheating was revised to a score of greater than 6, while a negative attitude toward cheating would be indicated by a score of less than 6. The single item loading on a separate factor was determined to be measuring a moralistic judgment of, or belief about, cheating and was designated as a "belief" variable. A score of 3 on this item would indicate a neutral belief about cheating while a score of greater than 3 would indicate a positive belief about cheating (believing cheating was "good" as opposed to "bad"), and a score of less than 3 would indicate a negative belief about cheating.

Instrument Reliabilities

Cronbach alpha reliabilities were computed for all scales on the three instruments. The subscales of the Survey on Approaches to Learning had the following reliabilities: learning goal, .88; performance goal, .93; perceived ability, .88; future consequences, .92; self-regulation, .83; deep strategy use, .87; and total engagement (self-regulation, deep strategy use, persistence, and effort), .90.

The Survey of Classroom Goal Structures had reliabilities of .94 for the task subscale and .82 for the autonomy subscale. The social comparison/ competition subscale of the Survey of Classroom Goal Structures originally had a reliability of .71, but the removal of one item increased the reliability of the subscale to .75.

The scales of the Survey of Cheating Behaviors revealed the following standardized Cronbach alpha reliabilities for the entire sample: occurrence of cheating behaviors scale, .91; reasons for cheating subscales: social, .92; work avoidance, .91; poor teaching, .89; intrinsic, .94; and extrinsic, .90; and intrinsic motivation for cheating scale, .93. Since some of the analyses included only the subsample of reported cheaters, reliabilities for the subsample were also computed. For the subsample of cheaters the following standardized item reliabilities were obtained for the Survey of Cheating Behaviors scales and subscales: occurrence of cheating behaviors scale, .89; reasons for cheating subscales: social, .83; work avoidance, .82; poor teaching, .89; intrinsic, .92; and extrinsic, .86; and intrinsic motivation for cheating scale, .93.

Treatment of Missing Data

Examination of the raw data revealed that many of the participants were missing values for one or more items. Regression procedures have been recommended as the most effective methods for imputing values for survey data (Witta, 1994). Witta, however, found that regression procedures were biased when values in survey data were not missing randomly. In an earlier study, Witta and Kaiser (1991) compared the accuracy of four procedures for imputing missing values in survey data: mean substitution, listwise deletion, pairwise deletion, and regression. They found no differences between the actual values and the values imputed by regression methods, but found

significant differences between actual values and the values imputed by the mean substitution method. No differences in results were found between the regression method and either of the deletion methods. Results of analyses using listwise and pairwise deletion were found by Raymond (1986) to be less accurate than results from analyses in which regression, or correlational, procedures were used to impute missing values. Raymond (1987) has also cautioned that the nature of the data itself should be the primary factor in selection of a method for imputing missing values.

A careful examination was made of missing data in the current study. Initially, 21 participants were excluded from the sample because they did not complete one or more of the surveys. Another was excluded because an entire page of the Occurrence of Cheating scale of the Survey of Cheating Behaviors was left blank. One participant, who did not otherwise report cheating, omitted an item on the Occurrence of Cheating scale. Since omission of the item made it impossible to classify the participant as a cheater or noncheater, this case was also excluded from the study. In all, 23 participants were excluded from the sample due to missing data problems that prevented their inclusion in the study, and one was excluded for reasons not related to missing data. The remaining 201 participants were retained in the sample. Missing data for the 201 participants included in the study was examined to determine which values could reasonably be imputed and which would be left as missing values.

Three participants did not identify their enrollment classification, two did not provide their grade point averages, and one did not furnish age. Since this information was not essential to any of the planned analyses, no further consideration was made of these missing values. Three participants failed to

answer the one item measuring effort, and one participant was missing values for class challenge level and student skill level. Since each of these variables were measured with only one item, it was determined that no imputation of these values would be undertaken. Three participants failed to complete the entire Intrinsic Motivation for Cheating scale and one participant did not complete the attitude and belief items on the scale making imputation using other items on subscales an impossibility. Because intrinsic motivation for cheating and attitudes and beliefs about cheating were used in only part of the analyses for the study, the cases were retained and included in analyses not requiring those variables. Other missing values which were not considered for imputation were values missing for items that had been removed from scales and subscales based on results of factor and reliability analyses and two missing values on the Occurrence of Cheating Behaviors scale of the Survey of Cheating Behaviors. The two missing values on the Occurrence of Cheating Behaviors scale resulted from two participants, both identified as cheaters, each omitting one item on the scale.

When values could not be imputed, the participants were included in all analyses that did not require the missing values. Pairwise deletion was used for correlational analyses involving only the computation of bivariate correlations between variables. Where cases were excluded by pairwise deletion a note explaining deletion procedures is included with the correlation matrix. Listwise deletion procedures were used to exclude cases that were missing values essential to a specific analysis (such as MANOVA and multiple regression). Therefore, listwise deletion excluded 3 participants from analyses involving the effort variable, 1 participant from analyses involving match scores, 3 participants (1 noncheater and 2 cheaters) from

analyses involving intrinsic motivation for cheating, 1 participant from analyses involving attitudes and beliefs about cheating, 1 participant from analyses involving cheating for others on tests, and 1 participant from analyses involving cheating for self on assignments.

The remainder of missing data represented missing values for variables measured with four or more items on an instrument. Twenty-seven different items had missing values. However, since twenty-four of these items were missing values for only one participant and the other three items were missing values for only two participants, there was no reason to believe the data were not missing randomly. For items on the achievement goal, perceived ability, cognitive engagement, and perceptions of classroom goal structures subscales, regression equations were computed from all existing data using only significant predictors among the remaining items for each subscale. Only participants identified as cheaters were missing data for items on the Reasons for Cheating and Intrinsic Motivation for Cheating scales of the Survey of Cheating Behaviors. Since these scales had conceptually different meanings for cheaters and noncheaters, regression equations for these items were computed from the existing data for only cheaters. Again, only significant predictors among the remaining items for each subscale were used to compute the regression equations.

For each of the missing values for which regression equations were computed, each participant's scores for the predictors in the regression equation were entered into the equation to compute his or her missing value. For example, one participant was missing a value for item 19 on the Survey on Approaches to Learning. Item 19 was one of four learning goal items. A regression equation was computed using the remaining three learning goal

items as predictors. All three predictors were significant as was the resulting regression equation, F (3, 194) = 94.37, $p < .0001$. The participant's scores for the remaining three learning goal items were entered into the regression equation to compute the missing value.

Types and Frequencies of Cheating Behaviors

Of the 201 participants in the study, 70.1% (141) reported cheating in their target classes; 69.4% (25) of the males and 70.3% (116) of the females reported cheating. Table 1 shows the number and percentage of participants who reported engaging in each category of cheating. As shown in Table 1,

Table 1
Number and Percentage of Students Reporting Cheating in Each Category

Cheating Category	Males	Females	Combined
On Assignments	20 (56%)	90 (55%)	110 (55%)
On Tests	18 (50%)	99 (60%)	117 (58%)
For Self	22 (61%)	104 (63%)	126 (63%)
For Self on Assignments	13 (36%)	68 (41%)	81 (40%)
For Self on Tests	17 (47%)	89 (54%)	106 (53%)
For Others	19 (53%)	93 (56%)	112 (56%)
For Others on Assignments	14 (39%)	65 (39%)	79 (39%)
For Others on Tests	14 (39%)	77 (47%)	91 (45%)

more students reported engaging in cheating behaviors for their own academic benefit than reported cheating for the academic benefit of others. More students in this study reported cheating on tests than reported cheating on assignments. The number of different cheating behaviors in which individual students reported engaging ranged from 0 to 24 behaviors.

The frequency with which students reported engaging in each cheating

behavior is shown in Table 2. Table 2 shows the number of students reporting engaging in each behavior for each frequency category. For example, item 1 on the Survey of Cheating Behaviors asked participants to report the number of times they copied answers from another student during a test or quiz in their target class. Table 2 shows that 167 of the participants reported they did not

Table 2

Number of Participants Reporting Engagement in Cheating Behaviors in Each Frequency Range

	ITEM	FREQUENCY REPORTED				
		0	1-2	3-5	6-8	9+
1.	copying answers from another student during a test or quiz	167	28	5	0	1
2.	knowingly letting another student look at your answers during a test or quiz	167	26	6	1	1
3.	obtaining answers from another student during a test through the use of any type of "signals"	195	5	1	0	0
4.	using "signals" to give answers to another student during a test	198	2	1	0	0
5.	using a "cheat sheet" (including writing on yourself) during a test	185	13	3	0	0
6.	looking up answers in a book during a "closed-book" test	196	4	1	0	0
7.	using a "test file" compiled by previous students to study for a test that will contain the same items	155	30	15	0	1
8.	participating in compiling a "test file" for other students to use to study for a test that will contain the same items	165	25	6	2	3
9.	obtaining a copy of a test before it is given	188	12	1	0	0
10.	using copies of previous students' tests to study for a test that will contain the same items	152	34	10	3	2
11.	giving a copy of a test you took to another student to use in studying for a test that will contain the same items	169	21	7	2	2

	ITEM	FREQUENCY REPORTED				
		0	1-2	3-5	6-8	9+
12.	asking another student who has already taken a test for the questions or answers prior to taking the test	117	48	26	3	7
13.	giving questions or answers to a test you have already taken to another student prior to him/her taking the test	128	43	20	5	4
14.	delaying taking a test due to a false excuse	185	16	0	0	0
15.	giving a false excuse for another student to delay taking a test	197	4	0	0	0
16.	changing a response after an exam is returned to you and reporting to the instructor that there has been an error in scoring	197	4	0	0	0
17.	having another person write a paper or assignment which you present as your own	190	9	0	1	1
18.	writing a paper or assignment for another student to present as his/her own	189	8	2	0	2
19.	presenting a paper obtained from a "term paper file or company" as your own (including internet papers)	193	8	0	0	0
20.	making up fictitious observations for assignments without completing required observations	146	40	11	2	2
21.	"padding" a bibliography with sources which you have not read	160	33	7	1	0
22.	making up sources for bibliographic citation in a paper	182	13	4	1	0
23.	directly copying large sections of a published work without giving credit to the author	176	20	4	1	0
24.	claiming to have turned in an assignment when you have not	196	5	0	0	0
25.	claiming authorship or participation in a group project when you have made no contribution	190	11	0	0	0
26.	giving credit for authorship or participation in a group project to a group member who made no contribution	164	33	3	1	0
27.	letting another student copy your homework	137	47	15	1	1

engage in this behavior; 28 participants reported engaging in the behavior once or twice, 5 reported engaging in the behavior three to five times, and one reported engaging in the behavior nine or more times during the semester. The cheating behaviors in which students engaged most often during the semester included asking others who had taken a test for the questions or answers, giving questions or answers to a test to others who had not yet taken the test, making up fictitious observations for an assignment without completing the required observations, and letting others copy homework assignments.

Intrinsic Motivation for Cheating

Of the 141 participants who reported cheating, 28 (19.9%) had intrinsic motivation for cheating (IMFC) scores indicative of being intrinsically motivated to cheat. Twenty eight percent (7) of the males and eighteen percent (21) of the females who cheated reported experiencing feelings descriptive of intrinsic motivation while engaging in cheating behaviors. (Two female cheaters did not complete the intrinsic motivation for cheating scale and were not included in the total number of female cheaters for this analysis. If they were included in the count of female cheaters, but not among those females intrinsically motivated to cheat, the percentage of female cheaters reporting IMFC scores indicative of being intrinsically motivated to cheat would be 15.1%.) These findings replicate those of Blackburn and Miller (1996) who found that 19% of their participants had IMFC scores indicative of being intrinsically motivated to cheat. In their study, 28.6% of the males and 15.2% of the females who cheated reported being intrinsically motivated to cheat. The differences in proportions of males and females reporting intrinsic motivation for cheating found by Blackburn and Miller were quite similar to

the proportions found in this study.

Correlations were computed to examine the relationships between intrinsic motivation for cheating and achievement goals, perceived ability, perceptions of classroom goal structures, and reasons for cheating. Since the intrinsic motivation for cheating variable represented different meanings for cheaters and noncheaters, correlations were computed for only the group of cheaters. In addition, because differences were found in the proportions of males and females having scores indicative of being intrinsically motivated to cheat, correlations between intrinsic motivation for cheating and other

Table 3

Correlations Between Intrinsic Motivation for Cheating and Other Variables for the Group of Cheaters

	CORRELATION WITH INTRINSIC MOTIVATION FOR CHEATING		
VARIABLE	MALES (N=25)	FEMALES (N=114)	COMBINED (N=139)
Learning Goal	-.12	-.02	-.07
Performance Goal	-.34	-.03	-.10
Future Consequences	-.32	-.04	-.10
Perceived Ability	-.08	.09	.06
Task	-.18	-.16	-.18 *
Autonomy	-.14	-.10	-.12
Comparison/Competition	-.45 *	.12	.01
Social	-.19	-.08	-.08
Work Avoidance	-.03	-.11	-.09
Poor Teaching	-.30	-.14	-.15
Intrinsic	.13	-.15	-.13
Extrinsic	-.14	-.03	-.03

* $p < .05$

variables were computed separately by gender. As shown in Table 3, the only significant correlation for the entire group of cheaters was the correlation between intrinsic motivation for cheating and the task variable. This correlation indicated that the more mastery-oriented cheaters perceived their target classes to be, the less they experienced intrinsic feelings while cheating. The higher the intrinsic motivation for cheating scores, the less target classes were perceived by cheaters as mastery-oriented.

A significant correlation was found between intrinsic motivation for cheating and perceptions of social comparison/competition for male cheaters, but not for females cheaters. The more male cheaters perceived their target classes to be emphasizing competition and social comparison, the lower their intrinsic motivation for cheating scores. High intrinsic motivation for cheating scores among male cheaters were associated with perceptions of low levels of social comparison and competition in their target classes. For female cheaters, the relationship between intrinsic motivation for cheating and social comparison/competition was positive, but was not significant. Fisher's r-to-Z transformation was used to convert the correlations for males and females to Z scores. The hypotheses that correlations for males and females were equal were tested in terms of Fisher's Z (Hays, 1994, p. 650-651). The only pair of correlations significantly different for males and females were the correlations between intrinsic motivation for cheating and perceptions of social comparison/competition, $t(1) = 2.61$, $p < .005$.

Mismatch Between Course Challenge Level and Student Skill Level

Based on the optimal challenge, or "flow," theory of Csikszentmihalyi (Csikszentmihalyi & Larson, 1978; Csikszentmihalyi & Nakamura, 1989), it was postulated that cheating could be motivated by mismatches between the

perceived challenge levels of courses and students' perceived skill levels for the courses. Mismatches between class challenge and student skill occurred when students perceived their skills to be either higher or lower than the skills needed to meet the challenge levels of their target classes. Match scores (perceived skill level - perceived challenge level) ranged from -4 to +4 with a match score of zero indicating a student's perceived skill was at the same level as the perceived challenge level of the course. The degree of mismatch between course challenge and student skill increased as match scores moved away from zero in either a positive or negative direction. The greater the mismatch (either positive or negative) between course challenge and student skill, the more cheating was expected to occur.

Multiple regression analyses were conducted to explore the relationship between cheating and the match (or mismatch) between skill and challenge levels. Since a curvilinear relationship was expected between cheating and match scores, regression equations contained both linear and quadratic components of the match variable (match scores). The criterion variables were measures of the frequency of cheating (based on the number of times a participant reported engaging in each cheating behavior during the semester) and measures of the number of different cheating behaviors in which a student reported engaging. The frequency of cheating variables were as follows: overall frequency of cheating, frequency of cheating on tests, frequency of cheating on assignments, frequency of cheating for self, frequency of cheating for self on tests, frequency of cheating for self on assignments, frequency of cheating for others, frequency of cheating for others on tests, and frequency of cheating for others on assignments. The following criterion variables were obtained from measures of the number of different

cheating behaviors in which participants engaged: total cheating behaviors, cheating on tests, cheating on assignments, cheating for self, cheating for self on tests, cheating for self on assignments, cheating for others, cheating for others on tests, and cheating for others on assignments. The criterion variables were regressed on match scores using the following regression equation: predicted value of $Y = b_1X + b_2X^2 + b_0$ (X = match score; Y = criterion cheating variable).

As predicted, a significant curvilinear relationship was found between cheating and the match between student skill levels and course challenge levels. The resulting curve for the regression of overall frequency of cheating on match scores is shown in Figure 2. The regression model was significant, $F(2, 195) = 7.52$, $p < .001$, as was the simple slope for the quadratic component of the match scores effect $t(1) = 3.88$, $p < .001$. The simple slope for the linear component of the match score effect was not significant. Match scores accounted for 7.2% of the variance in overall frequency of cheating. As shown in Figure 2, the greatest amount of cheating occurred when perceived student skills were far below perceived course challenge levels. Cheating decreased as perceived skills came closer to matching perceived challenge levels. However, when perceived skills began to exceed perceived challenge levels, cheating increased with increases in the discrepancy between skill and challenge levels. The least amount of cheating occurred when match scores were .41, suggesting that students do not engage in much cheating when their perceived skills are slightly above the perceived challenge level of the class.

Results similar to those for the overall frequency of cheating were found for the regressions of all criterion cheating variables on match scores with the exception of cheating for others on assignments (the number of

different types of assignment cheating behaviors engaged in for the benefit of others). Neither the linear nor the quadratic component of the match score effect was significant for the regression of cheating for others on assignments on match scores. All of the other regressions revealed significant quadratic components and nonsignificant linear components clearly showing that the relationship between cheating and match scores was curvilinear. ANOVA

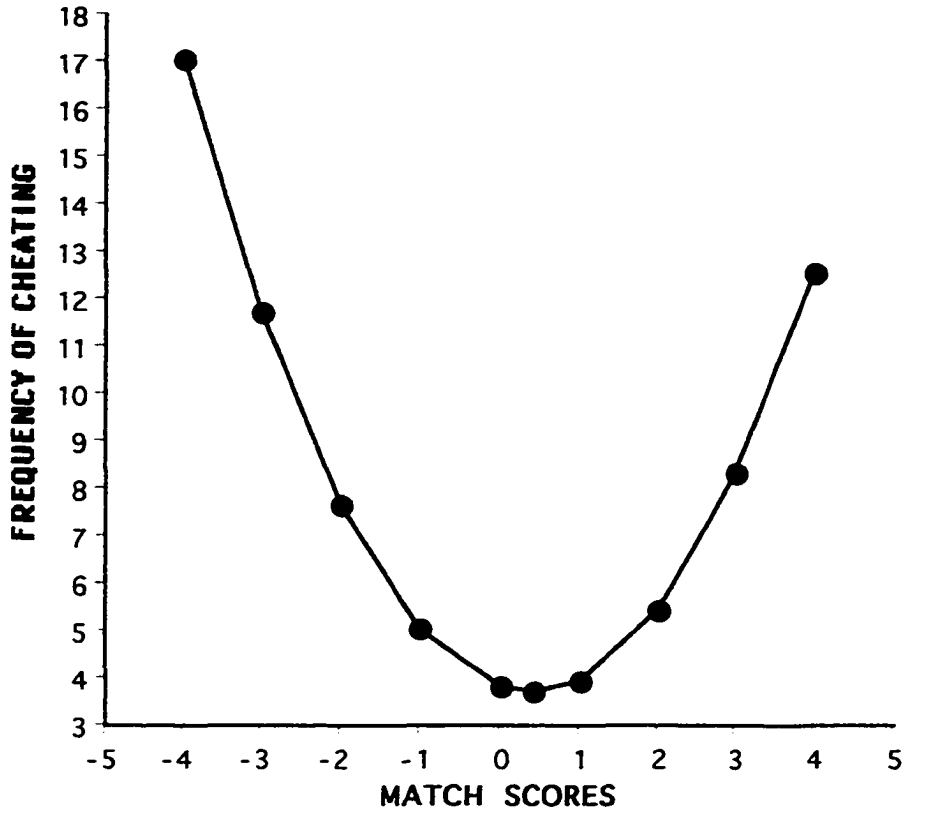


Figure 2. Curvilinear relationship between total frequency of cheating and the match between perceived class challenge level and perceived student skill level. A negative match score indicates a perceived skill level below the perceived challenge level of the class. A positive match score indicates a perceived skill level above the perceived challenge level of the class. Numbers for frequency of cheating indicate the minimum number of times students reported engaging in cheating behaviors. Actual frequencies may be higher, but not lower, than the numbers shown.

tables for the significant regressions of all the criterion (cheating) variables on match scores are contained in Appendix E.

The finding of significant curvilinear relationships between cheating and match scores led to the question, "How are match scores related to students' achievement goals, perceived ability, and the amount of effort they reported expending in their target classes?" If discrepancies between perceived student skill level and perceived course challenge are associated with increases in cheating it might be that greater degrees of mismatch between skill and challenge are also associated with lower learning goals, higher performance goals, and lower effort. While perceived ability might be expected to be lower for students who perceived their skills to be much lower than the skills required to meet the demands of class challenge levels, would those who perceived their skills as exceeding class challenge necessarily have higher perceived ability? To address these additional questions, effort, achievement goals, and perceived ability were regressed on match scores. Again, curvilinear regression equations including both linear and quadratic components were utilized to determine the nature of the relationships between match scores and each of the criterion variables. For comparison purposes, simple linear regressions were also conducted based on the following equation: predicted value of $Y = b_1X + b_0$ (X = match score; Y = dependent cheating variable). ANOVA tables for the quadratic regressions of each of the criterion variables on match scores are presented in Appendix E. ANOVA tables for the simple linear regressions are included in Appendix E for only those regressions in which the linear component was significant.

The amount of effort students expended in their target classes was significantly explained by both the linear regression, $F(1, 195) = 17.64$, $p <$

.0001, and the curvilinear regression, F (2, 194) = 13.81, $p < .0001$, of effort on match scores. The linear regression alone explained 8.3% of the variance in effort while the curvilinear regression (containing both linear and quadratic components) explained 12.5%. The linear relationship accounted for more of the variance in effort and suggested an overall negative relationship between effort and match scores. The negative linear effect indicated that as match scores increased, the amount of effort put forth in target classes decreased. As illustrated in Figure 3, a linear effect does explain decreases in effort with

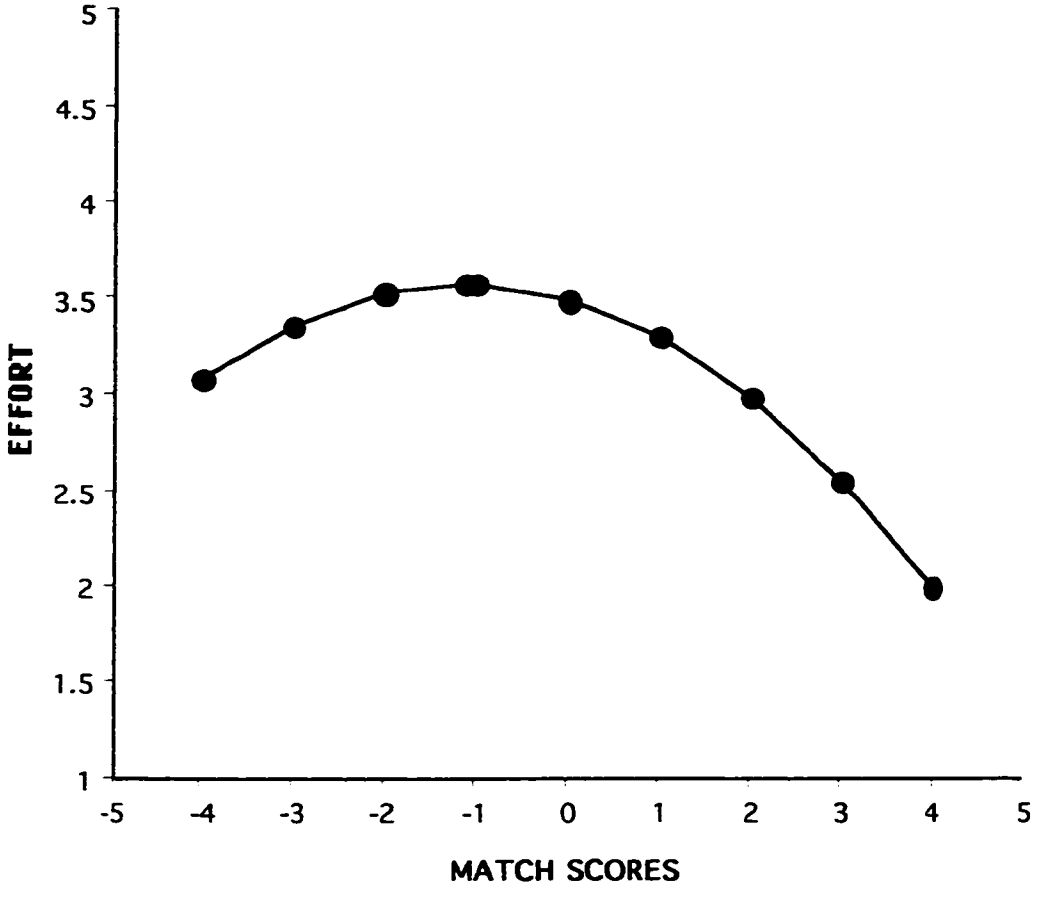


Figure 3. Curvilinear relationship between effort and the match between perceived class challenge level and perceived student skill level.

increases in match scores from -1 to +4. However, the curvilinear regression appears to better account for the relationship between effort and match scores below -1. The curve in Figure 3 reaches its maximum point at a match score of -1.13 indicating that students expended the greatest effort when they perceived their skills to be somewhat lower than the class challenge level. The lowest amounts of effort occurred when students perceived their skill levels to be greater than needed to meet the challenges of their target classes.

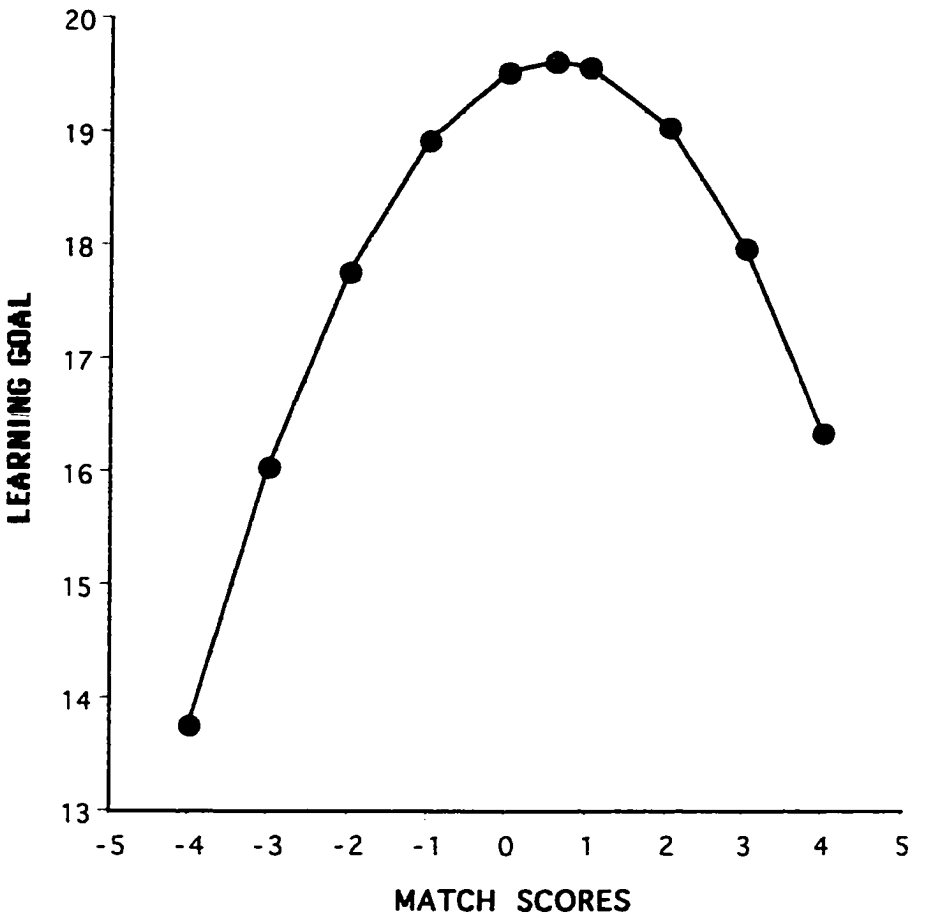


Figure 4. Curvilinear relationship between learning goal and the match between perceived class challenge level and perceived student skill level.

Regressions of achievement goals (learning goals, performance goals, and future consequences) on match scores resulted in only one significant model, a curvilinear relationship between learning goals and the match between student skill and class challenge, F (2, 197) = 6.77, p = .001, as depicted in Figure 4. While the linear regression of learning goals on match scores was not significant, F (1, 198) = .45, p = .5, the curvilinear regression accounted for 6.4% of the variance in learning goals. Learning goals were lowest when students perceived their skills to be far below the level of skill necessary to meet the perceived challenges of their target classes. As the mismatch between skill and challenge decreased, learning goals increased. The maximum of the curve corresponded to a match score of .57 indicating that learning goals were highest when students perceived their skill levels to be slightly higher than the challenge levels of their target classes. As shown in Figure 4, learning goals again decreased as the mismatch between skill and challenge levels increased.

Neither the linear nor the quadratic regression of performance goals on match scores was significant, Fs (1, 198) = .42, p = .52 and (2, 197) = 2.76, p = .07, respectively. Although the quadratic component of the curvilinear regression did reveal a significant simple slope, t (1) = -2.26, p = .025, match scores accounted for only 2.7% of the variance in performance goals. The linear and curvilinear regressions of future consequences on match scores were also nonsignificant, Fs (1, 198) = .26 and (2, 197) = .49, respectively, ps = .61. The regressions of perceived ability on match scores revealed a significant linear relationship, F (1, 198) = 54.73, p < .0001; the quadratic component of the curvilinear regression was not significant, t (1) = -.63, p = .53. The linear regression on match scores explained 21.7% of the variance in perceived

ability (beta = .47). As match scores increased, perceived ability increased. Perceived skill levels below perceived class challenge levels were associated with lower perceived ability while perceived skills greater than perceived class challenge were associated with higher perceived ability.

Differences Between Cheaters and Noncheaters

Means and standard deviations for achievement goals, perceived ability, cognitive engagement, perceptions of classroom goal structures, and reasons for cheating variables used in the study (see Table 4) were obtained for two groups: the group of participants who indicated they had cheated (cheaters) and the group who reported they had not cheated in their target classes (noncheaters). A MANOVA was conducted to determine if there were differences in means between cheaters and noncheaters on any of the variables. The multivariate tests showed significant differences between the two groups, F (17, 177) = 7.23, $p < .001$. As shown in Table 4, univariate tests revealed differences between the two groups for learning goals, F (1, 193) = 5.55, MSE = 9.58, performance goals, F (1, 193) = 10.25, MSE = 75.18, and the following reasons for cheating: social, F (1, 193) = 72.14, MSE = 14.49; work avoidance, F (1, 193) = 55.87, MSE = 13.76; poor teaching, F (1, 193) = 9.64, MSE = 15.37; intrinsic, F (1, 193) = 49.03, MSE = 4.56; and extrinsic, F (1, 193) = 19.61, MSE = 17.33. As expected, noncheaters reported higher learning goals and lower performance goals than cheaters. Cheaters and noncheaters did not differ significantly in their future consequences, perceived ability, cognitive engagement (self-regulation, deep strategy use, persistence, and effort), perceptions of classroom goal structures (perceptions of task, autonomy, and social comparison/competition), or intrinsic motivation for cheating.

The results for the intrinsic motivation for cheating variable differed

from the results of Blackburn and Miller (1996) who found significant differences between cheaters' and noncheaters' intrinsic motivation for cheating scores. They described the difference as indicative that noncheaters did not perceive cheaters to experience intrinsic feelings when cheating to the

Table 4

Means and Standard Deviations of Motivational, Cognitive Engagement, and Reasons for Cheating Variables for Cheaters and Noncheaters

	Noncheaters (N = 58)		Cheaters (N = 137)	
Variable	Mean	SD	Mean	SD
Learning Goal	19.92 *	3.22	18.77 *	3.04
Performance Goal	20.50 ***	8.12	24.85 ***	8.89
Future Consequences	26.20	3.77	25.36	3.98
Perceived Ability	38.91	4.62	38.13	5.53
Self Regulation	25.79	5.57	25.92	4.78
Deep Strategy Use	26.88	5.03	26.74	4.58
Effort	3.45	0.71	3.30	0.86
Persistence	4.86	0.98	4.66	0.93
Task	88.43	15.03	83.96	15.99
Autonomy	19.29	6.23	19.47	6.51
Comparison/Competition	9.04	3.47	9.63	3.94
IMFC	36.12	11.54	38.44	9.35
Reasons for Cheating				
Social	12.14 ****	6.05	7.07 ****	2.29
Work Avoidance	10.62 ****	5.27	6.28 ****	2.81
Poor Teaching	9.07 ***	4.50	7.16 ***	3.65
Intrinsic	6.57 ****	3.47	4.23 ****	1.19
Extrinsic	9.98 ****	5.18	7.09 ****	3.66

*p < .05, **p < .01, ***p < .005, ****p < .001

IMFC = Intrinsic Motivation for Cheating

degree such feelings were reported by cheaters. In their study, participants reported their engagement in cheating behaviors for the previous two years, while in this study participants reported cheating behaviors in only one class for the current semester. It is possible that noncheaters in the current study did cheat in other classes during the current semester or during the previous two years and, therefore, described feelings they had experienced while engaging in cheating behaviors. In this way, noncheaters with recent cheating experience (who would have been identified as cheaters in the Blackburn and Miller study) could have obscured any real differences between cheaters and noncheaters in intrinsic motivation for cheating.

The means for all of the reasons for cheating were higher for noncheaters than for cheaters suggesting that noncheaters perceived cheaters to cheat more often for all reasons than cheaters actually reported. These findings were similar to those of Blackburn and Miller (1996) who found noncheaters to have higher means for all reasons for cheating except poor teaching reasons. It may be that cheaters have a more differentiated schema regarding times and reasons for cheating than do noncheaters. However, since it is likely that there were noncheaters in this study who would have been identified as cheaters in the Blackburn and Miller study, cheaters and noncheaters in the current study would be expected to have more similar means for all reasons for cheating. It is possible that in both studies noncheaters reported reasons they thought cheaters in general might have for cheating while each cheater reported only the reasons he or she had for cheating during the time specified in the survey instructions. If this is the case, there may be weaknesses in the measurement of the reasons for cheating subscale, at least for noncheaters responding to these items.

Relationships Among Cheating, Reasons for Cheating, Achievement Goals, Perceived Ability, Cognitive Engagement, and Perceptions of Classroom Goal Structures

Pearson Product Moment correlations between and among motivational, cognitive engagement, and reasons for cheating variables were computed for cheaters and noncheaters (see Table 5). Since correlations involving the various measures of cheating could not be computed separately for noncheaters (Noncheaters have scores of zero on all cheating measures.), intercorrelations among the cheating measures (see Tables 6 and 7) and correlations between the cheating variables and the motivational and cognitive engagement variables (see Tables 8 and 9) were computed for the group of cheaters and for the entire group of participants. Because the reasons for cheating measures and measures of intrinsic motivation for cheating and attitudes toward and beliefs about cheating held different meanings for cheaters and noncheaters, combining the measures of the two groups into one analysis for the entire sample would be virtually meaningless. Therefore, correlations between the cheating measures and reasons for cheating, intrinsic motivation for cheating, beliefs, and attitudes were computed for only the group of cheaters (see Table 8). In Table 5 correlations for cheaters and noncheaters reveal both similarities and differences between the two groups. Significant correlations for the groups are presented below followed by a discussion of the pairs of correlations for which significant differences were found between cheaters and noncheaters.

For noncheaters and cheaters, learning goals and future consequences were positively correlated ($\underline{r}s$ = .67 and .52, respectively), but neither were related to performance goals. Perceived ability was positively correlated with

Table 5

Correlations Among Motivational, Cognitive Engagement, and Reasons for Cheating Variables: Noncheaters (N = 59-60) and Cheaters (N = 139-141)*

VARIABLE	1	2	3	4	5	6	7	8	9
1. Learning Goal	–								
	–								
2. Performance Goal	-.06	–							
	.11	–							
3. Future Consequences	.67 d	.06	–						
	.52 d	.11	–						
4. Perceived Ability	.40 c	.13	.41 c	–					
	.43 d	.08	.37 d	–					
5. Self Regulation	.56 d	.05	.58 d	.40 c	–				
	.46 d	.15	.50 d	.42 d	–				
6. Deep Strategy Use	.48 d	.15	.59 d	.44 d	.76 d	–			
	.44 d	.03	.36 d	.40 d	.61 d	–			
7. Persistence	.53 d	.05	.53 d	.43 c	.73 d	.72 d	–		
	.29 d	.21 a	.45 d	.49 d	.59 d	.55 d	–		
8. Effort	.30 a	-.08	.30 a	.15	.18	.17	.14	–	
	.42 d	.14	.30 d	.08	.30 d	.14	.11	–	
9. Task	.56 d	.09	.32 a	.37 c	.18	.25	.25	.15	–
	.36 d	.18 a	.33 d	.21 a	.30 d	.27 c	.17 a	.22 b	–
10. Autonomy	.38 c	.12	.23	.24	.13	.11	.05	.11	.71 d
	.18 a	.14	.09	.12	.15	.16	.07	.22 a	.59 d
11. Competition	-.19	.09	.07	-.13	.11	.08	.04	.03	-.37 c
	-.15	.26 c	-.19 a	-.28 c	.01	-.13	-.12	.08	-.30 d
12. Match	.15	.07	.06	.31 a	.12	-.03	.01	-.36 b	.04
	.01	-.07	.02	.51 d	.09	.09	.19 a	-.27 c	.09
13. IMFC	-.14	-.05	-.17	-.19	-.22	**-.28** a	-.16	-.12	-.16
	-.07	-.09	-.10	.06	-.01	**.06**	-.04	-.06	-.18 a
Reasons for Cheating:									
14. Social	.06	.18	.16	-.01	.09	**.16**	.19	-.06	.04
	-.07	.25 c	.02	-.02	-.06	**-.15**	.03	.06	-.06
15. Work Avoidance	.03	.15	**.09**	.05	.01	.12	.11	.02	.03
	-.10	.04	**-.24** c	-.04	-.12	-.09	-.11	-.02	.03
16. Poor Teaching	.01	.14	.17	-.05	.01	.09	.10	.01	-.01
	-.12	.13	-.05	-.07	.03	-.11	.04	.04	-.02
17. Intrinsic	.14	.07	.07	-.03	.03	.06	.12	.00	.08
	.03	.18 a	.02	-.01	.00	.01	.04	.03	-.04
18. Extrinsic	.07	.16	.17	-.05	.04	.07	**.19**	.12	.02
	-.12	.00	-.11	-.19 a	-.07	-.14	**-.20** a	.03	-.03

NOTE: Letters a-d indicate significance as follows: (a) $p < .05$, (b) $p < .01$, (c) $p < .005$, (d) $p < .001$

The first row of correlations in each section is for noncheaters; the second row is for cheaters.

Bold print is used for correlations that are significantly different for cheaters and noncheaters ($p < .05$).

* Because of missing data, Ns range from 59 to 60 for noncheaters and from 139 to 141 for cheaters.

Table 5 (cont.)

VARIABLE	10	11	12	13	14	15	16	17	18
10. Autonomy	—								
	—								
11. Competition	-.34 [b]	—							
	-.25 [c]	—							
12. Match	.13	-.17	—						
	.10	-.33 [d]	—						
13. IMFC	-.34 [b]	-.00	-.02	—					
	-.12	.01	.12	—					
Reasons for Cheating:									
14. Social	-.19	.35 [b]	-.17	.29 [a]	—				
	.02	.01	-.01	-.08	—				
15. Work Avoidance	-.24	.35 [b]	-.09	.37 [c]	.84 [d]	—			
	.07	-.01	.11	-.09	.43 [d]	—			
16. Poor Teaching	-.18	.34 [b]	-.17	.31 [a]	.83 [d]	.82 [d]	—		
	.03	.06	-.03	-.15	.33 [d]	.47 [d]	—		
17. Intrinsic	-.15	.25 [a]	-.12	.25	.79 [d]	.75 [d]	.71 [d]	—	
	.00	-.03	-.02	-.13	.72 [d]	.49 [d]	.29 [d]	—	
18. Extrinsic	-.20	.32 [a]	-.16	.33 [a]	.90 [d]	.83 [d]	.82 [d]	.71 [d]	—
	-.05	.09	-.09	-.03	.34 [d]	.58 [d]	.53 [d]	.31 [d]	—

learning goals and future consequences among cheaters (rs = .43 and .37, respectively) and noncheaters (rs = .41 and .40, respectively) but was not related to performance goals. It is not surprising that, among university education students, the desire to learn and understand was closely related to viewing learning in courses as necessary for attaining future goals. Education students likely have clear career goals in mind, realize the future utility of the information presented in many of their courses, and want to understand material that may impact their success as teachers. It is encouraging that students' perceptions of ability were tied to learning and understanding for personal and future reasons rather than to concern with others judgments of their abilities.

Both learning goals and future consequences were positively correlated

with all of the cognitive engagement scores (self-regulation, deep strategy use, persistence, and effort) indicating that increases in learning goals and future consequences were associated with increases in the use of self-regulatory and deep processing strategies and increases in persistence and effort. Performance goals were not related to self-regulation, deep strategy use, or effort among cheaters or noncheaters or to persistence among noncheaters. However, for cheaters, performance goals were mildly related to persistence ($r = .21$) suggesting that as cheaters' concerns with outperforming others or avoiding the appearance of low ability increased they tended to exhibit somewhat greater persistence on academic tasks.

For both noncheaters and cheaters perceived ability was positively correlated with persistence ($rs = .43$ and $.49$) and the use of self-regulatory ($rs = .40$ and $.42$) and deep processing strategies ($rs = .44$ and $.40$, respectively) but was not correlated with effort. Although researchers have found positive correlations between perceived ability and effort and have found perceived ability to influence achievement through its effects on effort (e.g. Bandura, 1986, 1993; Miller et al., 1996; Schunk, 1984), others have pointed out that beyond the elementary years students are inclined to view high expenditure of effort on academic tasks as an indicator of low ability, especially when high effort is accompanied by failure (e.g. Covington, 1992; Nicholls, 1989). Given the mixed viewpoints regarding perceived ability and effort, the lack of a correlation between perceived ability and effort in this study, while not startling, was unanticipated.

The lack of a correlation between perceived ability and effort could be explained by the earlier finding in this study of a curvilinear relationship between effort and match scores and a linear relationship between perceived

ability and match scores. Logarithmic, square-root, and square transformations of effort scores did not result in any marked difference in the correlation. Initial scatterplots of effort and perceived ability for cheaters and noncheaters also served to confirm the lack of a relationship between the two variables. But, when the scatterplot for the entire sample (noncheaters and cheaters combined) was displayed with points identified by gender, it was found that the regression lines for males and females were quite different. Based on this information, correlations between perceived ability and effort were computed separately for males and females and were significantly different for the two gender groups, $t(1) = 2.23$, $p < .05$. For females, perceived ability was positively, although modestly, correlated with effort ($r = .19$, $n = 164$, $p < .05$) while for males the correlation between the two variables was negative and did not reach significance ($r = -.24$, $n = 34$, $p = .17$).

Effort was again found to exhibit unexpected relationships, or the lack thereof, when intercorrelations among the cognitive engagement scores were examined. As shown in Table 5, self-regulation, deep strategy use, and persistence were each positively correlated with the other two variables for both cheaters and noncheaters. Effort, however, was not correlated with the use of deep processing strategies or persistence and was positively correlated with the use of self-regulatory strategies among cheaters but not among noncheaters. Correlations between effort and the other cognitive engagement scores were computed separately for males and females. For females, effort was significantly positively correlated with self-regulation ($r = .31$, $p < .001$) and deep strategy use ($r = .24$, $p < .005$) but was not significantly correlated with persistence ($r = .12$). For males, effort was not significantly correlated with self-regulation ($r = .08$), deep strategy use ($r = -.19$), or persistence ($r = .10$).

A significant difference was found between correlations for males and females for only the correlation between effort and deep strategy use, t (1) = 2.26, $p < .05$).

Intercorrelations among the perceptions of classroom goal structure subscales revealed the expected relationships. Among cheaters and noncheaters, perceptions of task structure were positively correlated with perceptions of autonomy while both perceptions of task structure and autonomy were negatively correlated with perceptions of social comparison/ competition. Learning goals, future consequences, and perceived ability were positively related to perceptions of task structure for both cheaters (rs = .36, .33, and .21, respectively) and noncheaters (rs = .56, .32, and .37, respectively). The more target classes were perceived as mastery-oriented, the more students desired to understand concepts presented, saw learning information as important for attaining their future goals, and perceived themselves as able to perform well in the classes.

Performance goals were not correlated with perceptions of task structure among noncheaters, but were modestly correlated with perceptions of task structure among cheaters (r = .18). Since the correlations between cheaters' perceptions of task structure and both learning goals and future consequences were stronger than the correlation between performance goals and task structure, it is difficult to meaningfully interpret this correlation. Among cheaters, perceptions of the task structure as mastery-oriented were associated with increases in effort, persistence, and the use of self-regulatory and deep processing strategies. For noncheaters, perceptions of task structure were not related to any of the cognitive engagement scores. As can be seen in Table 5, the correlations between perceptions of task structure and the

cognitive engagement scores for noncheaters were not that different from those of cheaters, and the lack of significance is probably attributable in part to the smaller sample size for noncheaters.

For both noncheaters and cheaters, perceptions of autonomy were positively correlated with learning goals ($\underline{r}s$ = .38 and .18, respectively). The only other significant correlation for perceptions of autonomy was a modest correlation ($\underline{r}$ = .22) with effort for the group of cheaters. Allowing students to choose topics or projects to work on, providing opportunities for revising work, having flexible due dates, and providing needed, but noncontrolling, support was moderately associated with increased effort among cheaters and with increases for all students in the desire to pursue tasks that would improve skills and enhance understanding.

Perceptions of social comparison/competition were not related to achievement goals, perceived ability or cognitive engagement among noncheaters. For cheaters, perceptions of social comparison/competition were positively correlated with performance goals and negatively correlated with both future consequences and perceived ability. While noncheaters appeared to be unaffected by perceptions of social comparison and competition, the more cheaters perceived their target classes to be competitive environments in which social comparisons were salient, the more likely they were to be concerned about others' judgments of their abilities, the less likely they were to view learning in their target classes as important for achieving their future goals, and the lower they judged their own abilities to perform well in the classes.

Match scores, which were discussed more extensively in an earlier section, represent the match between students' perceived skill levels for

performing in their target classes and their perceptions of the challenge levels of the classes. Challenge levels and skill levels were rated by students on a five-point scale ranging from very easy/very low (1) to very difficult/ extremely high (5). Match scores were computed by subtracting the challenge rating from the skill rating for each student. Among both cheaters and noncheaters, match scores were positively correlated with perceived ability and negatively correlated with effort and perceptions of social comparison/ competition. A more thorough discussion of the relationships between match scores and students' effort and perceived ability can be found in an earlier section of this chapter.

The negative relationship between match scores and perceptions of social comparison/competition was not examined previously. The correlations, as shown in Table 5, indicate that students who viewed their skills as far below the challenge levels of their classes were most likely to perceive their target classes as emphasizing comparisons and competition among students. Students who rated their own skills as far above class challenge levels were least likely to view their classes as placing emphasis on social comparison and competition. Match scores were also modestly correlated with persistence among cheaters ($\underline{r} = .19$) but were not related to persistence among noncheaters. The correlation for cheaters suggests that the lowest levels of persistence occurred when skills were perceived to be below class challenge levels. Cheaters' persistence increased as perceived skill levels moved from far below to far above class challenge levels.

Examination of the correlations between intrinsic motivation for cheating (IMFC) and other variables revealed three significant, but moderate, relationships. For noncheaters, IMFC was negatively correlated with deep

strategy use (r = -.28) and perceptions of autonomy (r = -.34). Increases in the use of deep processing strategies among noncheaters were associated with decreases in the perception that cheaters would experience flow-like feelings while cheating. Similarly, the more noncheaters perceived their target classes as having a mastery-oriented autonomy or control structure, the less likely they were to report that cheaters would have intrinsic feelings during acts of cheating. Among cheaters, IMFC was negatively correlated with perceptions of classroom task structure (r = -.18). The less cheaters perceived the task structures of their target classes to be mastery-oriented, the more they reported experiencing intrinsic "flow" feelings when engaging in cheating behaviors.

Like IMFC scores, the reasons for cheating scores had to be interpreted differently for cheaters and noncheaters. Cheaters reported the reasons they actually had for engaging in cheating behaviors while noncheaters reported the reasons they thought someone would cheat in their target classes. For cheaters, performance goals were positively correlated with both social (r = .25) and intrinsic (r = .18) reasons for cheating, and perceived ability was negatively correlated with extrinsic reasons for cheating (r = -.19). Cheaters who were highly concerned with outperforming others and avoiding appearing unsuccessful were more likely to report social or intrinsic reasons for cheating than cheaters who were less concerned about judgments of their abilities. Cheaters with low perceptions of their abilities for performing in their target classes reported having more extrinsic reasons for cheating in those classes than did cheaters with higher perceptions of ability.

Intrinsic reasons for cheating were positively related to work avoidance reasons among both cheaters and noncheaters (rs = .72 and .79, respectively).

Increases in the number of work avoidance reasons for cheating reported by cheaters and noncheaters were accompanied by increases in the number of intrinsic reasons they reported. For cheaters, this implies that cheating in order to avoid studying or working on assignments was associated with cheating because cheating was fun and enjoyable. Perhaps, for those students, cheating was more enjoyable than studying. For noncheaters, the correlations suggest that, with respect to the association between intrinsic and work avoidance reasons for cheating, noncheaters perceptions of cheaters' reasons for cheating accurately reflected what was reported by cheaters.

Among noncheaters, all of the reasons for cheating scores were positively correlated with perceptions of social comparison/competition. The more noncheaters perceived their own target classes as being competitive and stressing comparisons among students, the more they thought cheaters would have each of the types of reasons for cheating. However, among cheaters, perceptions of social comparison/competition were not related to any of the reasons for cheating. Interestingly, noncheaters had significant positive correlations between intrinsic motivation for cheating and all of the reasons for cheating except intrinsic reasons. Apparently noncheaters who believed cheaters would experience intrinsic feelings while cheating also believed that the cheating was occurring for more external reasons.

Correlations for cheaters and noncheaters were converted to Z scores using Fisher's r-to-Z transformation. The Z scores were then used to test the hypotheses that correlations for cheaters and noncheaters were equal (Hays, 1994, p. 650-651). The pairs of correlations found to be significantly different for cheaters and noncheaters are highlighted in bold print in Table 5. Correlations between intrinsic motivation for cheating and deep strategy use

for cheaters (r = .06) and noncheaters (r = -.28) indicate that as noncheaters' own use of deep processing strategies increased, they expected cheaters to experience fewer intrinsic feelings while cheating. However, among cheaters, the use of deep processing strategies was not related to the kinds of feelings they had while cheating. The correlations between deep strategy use and social reasons for cheating, while not significant for either group, were significantly different for cheaters and noncheaters. As the use of deep processing strategies increased, noncheaters tended to report that others would cheat for social reasons while cheaters were less inclined than noncheaters to report social reasons for cheating.

Similar differences between cheaters and noncheaters were found for the correlations between work avoidance reasons for cheating and future consequences and between persistence and extrinsic reasons for cheating. As future consequences increased, noncheaters tended to report that cheaters would have more work avoidance reasons for cheating than were actually reported by cheaters with high future consequences. Higher persistence among cheaters was associated with fewer extrinsic reasons for cheating. Noncheaters with high persistence tended to expect cheaters to have extrinsic reasons for cheating more often than actually reported by cheaters with high persistence scores. The differences between cheaters and noncheaters were somewhat reversed for the relationship between perceptions of autonomy and work avoidance reasons for cheating. While the correlations between autonomy and work avoidance were not significant for either group, noncheaters with high perceptions of autonomy tended to expect cheaters to have fewer work avoidance reasons for cheating than were reported by cheaters with high perceptions of autonomy.

Correlations between perceptions of social comparison/competition and reasons for cheating and between intrinsic motivation for cheating and all of the reasons for cheating scores were previously discussed in regards to significant correlations for noncheaters. Since the correlations were found to be significantly different between cheaters and noncheaters, those differences will now be addressed. Noncheaters with high perceptions of social comparison/competition reported that cheaters would have more social and work avoidance reasons for cheating than were reported by cheaters with high perceptions of social comparison/competition. Increases among noncheaters in the belief that cheaters would experience intrinsic feelings when engaging in cheating behaviors were associated with increases in the use of all reasons for cheating while, for cheaters, experiencing more intrinsic feelings while cheating tended to be associated with decreases in the use of all reasons for cheating although the negative association was nonsignificant.

The remaining differences between correlations for cheaters and noncheaters occurred in the intercorrelations among the reasons for cheating subscales. With the exception of the correlations between social and intrinsic reasons, which were discussed earlier, intercorrelations between the reasons for cheating subscales were significantly stronger for noncheaters than for cheaters. As previously stated in the presentation of differences between means of cheaters and noncheaters, these differences may indicate either differences between cheaters and noncheaters in their schemas for cheating or a weakness in the measurement of reasons for cheating for noncheating participants.

Intercorrelations among the cheating measures used in the study were computed for the group of cheaters (see Table 6) and for all participants in the

Table 6

Intercorrelations Among the Cheating Measures Used in the Study: Cheaters (N = 139-141*)

VARIABLE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Cheating Frequencies:																		
1. Overall	--																	
2. On Tests	x	--																
3. On Assignments	x	.65 d	--															
4. For Self	x	x	x	--														
5. on tests	x	x	.63 d	x	--													
6. on assignments	x	.58 d	x	x	.58 d	--												
7. For Others	x	x	x	.76 d	.77 d	.56 d	--											
8. on tests	x	x	.61 d	.76 d	.79 d	.51 d	x	--										
9. on assignments	x	.56 d	x	.55 d	.50 d	.50 d	x	.57 d	--									
Cheating Behaviors:																		
10. Total	.93 d	.87 d	.81 d	.91 d	.86 d	.75 d	.81 d	.78 d	.65 d	--								
11. On Tests	.86 d	.90 d	.61 d	.84 d	.90 d	.54 d	.78 d	.80 d	.52 d	x	--							
12. On assignments	.79 d	.61 d	.92 d	.80 d	.60 d	.87 d	.67 d	.56 d	.68 d	x	.61 d	--						
13. For Self	.85 d	.79 d	.75 d	.93 d	.85 d	.79 d	.63 d	.62 d	.46 d	x	x	x	--					
14. on tests	.78 d	.82 d	.53 d	.83 d	.91 d	.51 d	.60 d	.62 d	.40 d	x	x	.56 d	x	--				
15. on assignments	.70 d	.54 d	.82 d	.79 d	.56 d	.91 d	.49 d	.46 d	.41 d	x	.54 d	x	x	.54 d	--			
16. For Others	.84 d	.80 d	.73 d	.70 d	.69 d	.53 d	.92 d	.83 d	.79 d	x	x	x	.66 d	.64 d	.50 d	--		
17. on tests	.82 d	.84 d	.59 d	.69 d	.72 d	.47 d	.87 d	.89 d	.59 d	x	x	.57 d	.66 d	.69 d	.45 d	x	--	
18. on assignments	.64 d	.51 d	.73 d	.51 d	.45 d	.47 d	.72 d	.51 d	.88 d	x	.50 d	x	.47 d	.40 d	.44 d	x	.55 d	--

NOTE: The letters a-d indicate significance as follows: (a) $p < .05$, (b) $p < .01$, (c) $p < .005$, (d) $p < .001$

* Because of missing data for two cases, Ns range from 139 to 141 (pairwise deletion used).

Correlations indicated by an "x" were not computed because a measure overlapped or was a direct subset of the other measure.

Table 7

Intercorrelations Among the Cheating Measures Used in the Study: Entire Sample (N = 199-201*)

VARIABLE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Cheating Frequencies:																		
1. Overall	--																	
2. On Tests	x	--																
3. On Assignments	x	.71 d	--															
4. For Self	x	x	x	--														
5. on tests	x	x	.69 d	x	--													
6. on assignments	x	.64 d	x	x	.64 d	--												
7. For Others	x	x	x	.81 d	.81 d	.63 d	--											
8. on tests	x	x	.67 d	.79 d	.83 d	.57 d	x	--										
9. on assignments	x	.63 d	x	.62 d	.57 d	.56 d	x	.63 d	--									
Cheating Behaviors:																		
10. Total	.94 d	.89 d	.84 d	.93 d	.89 d	.78 d	.85 d	.81 d	.70 d	--								
11. On Tests	.89 d	.92 d	.68 d	.87 d	.92 d	.61 d	.82 d	.83 d	.60 d	x	--							
12. On assignments	.84 d	.69 d	.93 d	.84 d	.68 d	.89 d	.73 d	.64 d	.73 d	x	.71 d	--						
13. For Self	.88 d	.83 d	.80 d	.94 d	.88 d	.82 d	.70 d	.69 d	.55 d	x	x	x	--					
14. on tests	.83 d	.85 d	.62 d	.86 d	.92 d	.59 d	.68 d	.68 d	.51 d	x	x	.66 d	x	--				
15. on assignments	.76 d	.62 d	.85 d	.83 d	.63 d	.93 d	.58 d	.54 d	.50 d	x	.64 d	x	x	.63 d	--			
16. For Others	.88 d	.84 d	.78 d	.76 d	.76 d	.61 d	.93 d	.86 d	.82 d	x	x	x	.75 d	.73 d	.60 d	--		
17. on tests	.85 d	.87 d	.67 d	.75 d	.78 d	.56 d	.89 d	.90 d	.65 d	x	x	.66 d	.74 d	.76 d	.55 d	x	--	
18. on assignments	.71 d	.60 d	.78 d	.61 d	.56 d	.55 d	.77 d	.59 d	.90 d	x	.62 d	x	.59 d	.53 d	.54 d	x	.65 d	--

NOTE: The letters a-d indicate significance as follows: (a) $p < .05$, (b) $p < .01$, (c) $p < .005$, (d) $p < .001$

* Because of missing data for two cases, Ns range from 199 to 201 (pairwise deletion used)

Correlations indicated by an "x" were not computed because a measure overlapped or was a direct subset of the other measure.

study (see Table 7). As can be seen in Tables 6 and 7, correlations between all of the cheating measures were significant and positive. Correlations were stronger between two measures when both measured test cheating or when both measured cheating on assignments than between two measures when one was a measure of test cheating and the other was a measure of assignment cheating. For example, the correlation between frequency of cheating for self on tests and frequency of cheating for others on tests was .79, while the correlation between frequency of cheating for self on tests and frequency of cheating for others on assignments was .50. However, all measures of test cheating and assignment cheating were positively correlated indicating that increases in test cheating were associated with increases in assignment cheating. Measures of cheating for self and cheating for others were also positively correlated suggesting that the more students cheated for their own academic benefit, the more likely they were to have also cheated for the possible academic benefit of others.

Measures of the frequency of cheating were positively correlated with measures of the number of different cheating behaviors in which students engaged. Correlations were particularly strong between frequency of cheating and number of cheating behaviors measures that were measuring the same type of cheating. For example, a correlation of .90 was found between the frequency of cheating on tests (based on the number of times students reported engaging in test cheating) and the number of different test cheating behaviors in which a student reported engaging. As the frequency of students' test cheating increased, so did the number of different types of test cheating used by students. However, there were individual cases in which students reported engaging in very few different types of cheating behaviors but

reported high frequencies of engagement in those behaviors. Because the two types of cheating measures (measures of the frequency of cheating and measures of the number of different types of behaviors in which students reported engaging) were so highly correlated, it was determined that inclusion of both types of measures in further analyses would provide essentially redundant information. Therefore, remaining analyses in the study involving measures of cheating used only measures of the frequency of cheating in each of the nine cheating categories: overall, on tests, on assignments, for self, for self on tests, for self on assignments, for others, for others on tests, and for others on assignments.

Relationships between cheating and achievement goals, perceived ability, cognitive engagement, and perceptions of classroom goal structures were explored by examining correlations between the various measures of cheating and the other variables included in the study. Correlations were computed for the group of cheaters (see Table 8) and for the entire sample (see Table 9). As stated earlier, correlations between the cheating measures and reasons for cheating, intrinsic motivation for cheating, beliefs, and attitudes were computed for only the group of cheaters. The numbers across the tops of the matrices in Tables 8 and 9 refer to the first nine criterion cheating variables as they were numbered in Tables 6 and 7. With the exception of correlations between the cheating measures and poor teaching reasons for cheating for the group of cheaters, significant correlations found in the analyses were all quite modest.

As shown in Table 8, poor teaching reasons for cheating were correlated positively with all of the cheating measures indicating that increases in the frequencies of all types of cheating were associated with

increases in students' attributing their cheating to poor teaching by their instructors. Significant positive correlations were found between extrinsic reasons for cheating and all cheating measures except the frequency of cheating for others on assignments. As frequency of cheating scores increased, use of extrinsic reasons for cheating increased (except when the form of cheating was assignment cheating for another student). Correlations between

Table 8

Correlations Between Cheating Measures and Other Variables Used in the Study: Cheaters (N = 136 - 141*)

VARIABLE	1	2	3	4	5	6	7	8	9
Learning Goal	-.07	-.05	-.06	-.07	-.03	-.09	-.05	-.06	.01
Performance Goal	-.02	.03	-.12	-.00	.03	-.06	-.04	.03	-.17 [a]
FutureConsequences	.04	.04	.05	-.02	-.03	-.00	.13	.10	.13
Perceived Ability	.01	.01	.02	-.01	-.04	.04	.04	.06	-.00
Self-regulation	.08	.08	.07	.01	.02	.01	.15	.13	.15
Deep Strategy Use	.15	.17 [a]	.11	.08	.11	.02	.23 [b]	.20 [a]	.22 [a]
Persistence	.12	.14	.07	.05	.08	.00	.19 [a]	.18 [a]	.17 [a]
Effort	-.05	-.05	-.03	-.03	-.02	-.03	-.05	-.08	.00
Task	.10	.13	.04	.17 [a]	.19 [a]	.12	.00	.06	-.09
Autonomy	.09	.07	.12	.16	.13	.18 [a]	-.01	-.02	.01
Competition	.02	.06	-.07	.00	.07	-.10	.03	.05	-.02
Match	.01	.02	-.00	-.02	-.05	.03	.05	.10	-.04
IMFC	-.08	-.05	-.11	-.13	-.11	-.12	-.01	.02	-.06
Attitude	-.02	.04	-.10	-.07	-.03	-.10	.06	.12	-.06
Belief	.02	.01	.03	.03	.03	.02	-.00	-.01	.02
Reasons for Cheating									
Social	.06	.10	-.00	.06	.09	.00	.06	.09	-.02
Work Avoidance	.23 [b]	.20 [a]	.24 [b]	.28 [c]	.24 [c]	.28 [c]	.13	.12	.11
Poor Teaching	.44 [d]	.38 [d]	.44 [d]	.45 [d]	.41 [d]	.41 [d]	.37 [d]	.30 [d]	.35 [d]
Intrinsic	.03	.04	.00	.04	.05	.01	.01	.02	-.01
Extrinsic	.26 [c]	.27 [c]	.20 [a]	.28 [c]	.30 [d]	.20 [a]	.20 [a]	.20 [a]	.14

NOTE: Letters a-d indicate significance as follows: (a) $p < .05$, (b) $p < .01$, (c) $p < .005$, (d) $p < .001$

Numbers across the top of the matrix correspond to cheating measures numbered 1 - 9 in Tables 6 and 7.

* Because of missing data for five cases, Ns range from 136 to 141 (pairwise deletion used).

IMFC = Intrinsic motivation for cheating; Competition = social comparison/competition

the cheating measures and work avoidance reasons for cheating revealed that work avoidance reasons for cheating were positively correlated with all measures that included measures of cheating for self, but were not correlated with measures that included only cheating for others behaviors. As students increased in the frequency with which they engaged in cheating for their own academic benefit, they also increased in the use of work avoidance reasons for cheating. It was not surprising that work avoidance reasons for cheating were not associated with cheating for others since letting another student copy test or homework answers or writing a paper for another student would not accomplish the purpose of avoiding studying or completing homework.

The reasons students reported for cheating were more strongly correlated with the measures of cheating than were the motivational and cognitive engagement measures. The correlation matrix for the cheaters (see Table 8) revealed eleven additional significant correlations; however, only four remained significant when correlational analyses were performed for the entire sample. As can be seen in Table 9, significant correlations for the entire sample were revealed in relationships between cheating and deep strategy use and between cheating and perceptions of autonomy.

The use of deep cognitive processing strategies was positively correlated with the frequency of cheating for others on tests, on assignments, and on tests and assignments combined, indicating that greater use of deep strategies was modestly associated with engaging more often in cheating behaviors to help other students. That students who process information at a deep level would engage in more cheating for others than students who use fewer deep cognitive processing strategies appears anomalous. This association makes sense, however, when one considers that students who are

Table 9

Correlations Between Cheating Measures and Other Variables Used in the Study: Entire Sample (N = 194-201*)

VARIABLE	1	2	3	4	5	6	7	8	9
Learning Goal	-.13	-.11	-.12	-.13	-.10	-.13	-.11	-.11	-.06
Performance Goal	.10	.13	.01	.11	.13	.04	.07	.12	-.04
FutureConsequences	-.01	-.01	.00	-.06	-.06	-.04	.06	.05	.07
Perceived Ability	-.03	-.02	-.01	-.04	-.06	.01	.00	.02	-.03
Self-regulation	.06	.07	.05	.01	.02	.01	.12	.10	.12
Deep Strategy Use	.10	.12	.07	.04	.07	.01	.17 [a]	.15 [a]	.16 [a]
Persistence	.05	.07	.02	.00	.03	-.03	.12	.11	.10
Effort	-.07	-.07	-.05	-.06	-.05	-.06	-.07	-.09	-.02
Task	.02	.05	-.03	.07	.09	.05	-.05	-.00	-.12
Autonomy	.07	.06	.10	.13	.11	.15 [a]	-.00	-.01	.01
Competition	.05	.08	-.03	.04	.08	-.05	.05	.07	.01
Match	-.01	.00	-.02	-.03	-.05	.01	.03	.07	-.05

NOTE: Letters a-d indicate significance as follows: (a) $p < .05$, (b) $p < .01$, (c) $p < .005$, (d) $p < .001$

Numbers across the top of the matrix correspond to the numbered cheating measures in Tables 6 and 7.

* Because of missing data for seven cases, Ns range from 194 to 201 (pairwise deletion used).

IMFC = Intrinsic motivation for cheating; Competition = social comparison/competition

looking for someone to let them copy test or homework answers are probably most likely to seek out a student who thoroughly understands the concepts.

Unlike the use of deep strategies, perceptions of autonomy were positively correlated with the frequency with which students cheated on assignments for their own benefit and were not related to cheating for others. The more students perceived their target classes to provide for student autonomy, the more they cheated on their own assignments. The items used to measure perceptions of autonomy included the following behaviors on the part of the target class instructor: allowing students to choose their own topics or projects, letting students redo work and correct mistakes, and providing noncontrolling support and assistance in managing work. Since the correlation between cheating and autonomy was quite modest ($r = .18$ for

cheaters; $\underline{r}$ = .15 for the entire sample) it may be that some students perceive provisions for student autonomy on the part of the instructor as an indication that the instructor does not care if they cheat. Another possible explanation is that students who have formed habits of cheating on assignments earlier in their school careers take advantage of opportunities to cheat when they present themselves. It is much easier to locate an unauthorized term paper when one has a choice of topic than it is to find one for which the instructor has assigned the topic and laid out explicit instructions for how the paper is to be written.

One correlation that shows up in the analysis for the group of cheaters, but does not appear in the analysis for the entire group, deserves mentioning because the intuitive interpretation of the relationship is somewhat amusing and because one focus of this study was the relationship between cheating and students' achievement goals. Among cheaters, cheating for others on assignments was negatively correlated with performance goals. Interestingly enough, the more students held goals associated with the desire to outperform others, the less likely they were to write someone's paper or let other students copy their homework. Other than the negative correlation between cheating for others on assignments and performance goals, achievement goals and perceptions of ability were not significantly correlated with measures of cheating. While it may be that cheating is not otherwise related to goals and perceived ability, it is also possible that interactions among goals and perceived ability not revealed in a correlational analyses offer an explanation for engagement in cheating behaviors. Exploration of interactions among achievement goals and perceived ability as predictors of the frequency of cheating was the major focus of the remainder of this study.

Motivational Model for Predicting Cheating Behaviors

Data regarding students achievement goals (learning goals, performance goals, and future consequences), perceived ability, cognitive engagement (self-regulation, deep strategy use, persistence, and effort), and perceptions of classroom goal structures (perceptions of task, autonomy, and social comparison/competition) were obtained early in the semester and measures of cheating were administered at the end of the semester in order to explore the efficacy of a motivational model for predicting cheating. The primary question to be addressed by the research was "What combination of achievement goals, perceived ability, and interactions among those variables will best predict engagement in cheating behaviors?" To answer this question, multiple regression analyses were performed to determine the relationships between cheating behaviors and students' achievement goals (learning goals, performance goals, future consequences) and perceived ability.

Using the procedures designed by L. S. Aiken and West (1991) for probing interactions in multiple regression, the four motivational variables were centered (the mean was subtracted from the value for each variable) and cross products of the centered variables were created to represent all two-, three-, and four-way interaction combinations. According to L. S. Aiken and West (1991), centering the predictor variables reduces multicollinearity between first order and higher order terms in the regression and facilitates the interpretation of higher order interactions. The criterion variables were not centered as centering would have no effect on the resulting regression equations and would change the scale of the criterion variables. Leaving the criterion variables in uncentered form also facilitates interpretation of results as the values of the variables remain in their original form as reported by

participants (Aiken, L. S., & West, 1991). The criterion variables used in the regressions were scores for the overall frequency of cheating and the frequencies of cheating on tests, cheating on assignments, cheating for self, cheating for self on tests, cheating for self on assignments, cheating for others, cheating for others on tests, and cheating for others on assignments. Each criterion variable was regressed on learning goals, performance goals, perceived ability, future consequences, and all possible interactions of those four motivational variables. In order to arrive at the best model for predicting each criterion variable, the procedures for testing models and effects of higher order interactions recommended by L. S. Aiken and West (1991) were employed. Higher order interactions that were not significant were deleted from the model and comparisons were made of all possible models. As specified by Aiken and West, all lower-order terms and interactions that were not scale free[1] were retained in the models regardless of the significance of their effects in order to maintain the hierarchy of variables in the models. The resulting regression models are presented in Table 10.

After the best achievement goal and perceived ability models for

[1] Transformation of the original variables by centering changes the scale of the variables such that only the highest-order interaction term in the full regression model is scale free. The lower-order terms and interactions that are included in the highest-order interaction term are scale dependent. When the highest-order interaction is removed from a model, the higher-order terms just below the highest-order interaction in the hierarchy become scale free. For example, in a full regression model containing a four-way learning goal (LG) by performance goal (PG) by future consequences (FC) by perceived ability (PA) interaction, only the four-way LG x PG x FC x PA interaction is scale free. If the four-way interaction is removed, the four three-way interactions (LG x PG x FC, LG x PG x PA, LG x FC x PA, and PG x FC x PA) become scale free, but the two-way interactions and first order variables remain scale dependent. If some, but not all, of the three-way interactions are removed from the model, identifying scale free terms become more complex. In the previous example, if three of the three-way interactions are removed, but the LG x FC x PA interaction is retained in the model, the LG x FC, LG x PA and FC x PA interactions and the LG, FC, and PA first-order variables are scale dependent, but the LG x PG, PG x PA, and PG x FC interactions are scale free. For a more in-depth discussion of scale free terms and methods for identifying scale free terms, see L. S. Aiken and West (1991).

predicting the various categories of cheating had been determined, two additional questions were addressed:

1) Will cognitive engagement variables add to the prediction of cheating beyond variance accounted for by the achievement goal and perceived ability regression models?

2) Will perceptions of classroom goal structures add to the prediction of cheating beyond variance accounted for by the achievement goal and perceived ability regression models and cognitive engagement variables?

In order to address these two questions, hierarchical multiple regression analyses were performed. First, the achievement goal and perceived ability models for each criterion variable were entered into the regression as a block. In the second step of each regression, all possible subsets of the four cognitive engagement variables were entered. Only the subset of cognitive engagement variables that best predicted additional variance in the criterion cheating variable was retained. The third step of each regression involved entering the achievement goal and perceived ability model as a block, entering the best subset of cognitive engagement variables as a second block, and entering all possible subsets of the three perceptions of classroom goal structures variables. Again, only the subset, if any, that best predicted additional variance in the criterion variable was retained. The resulting two-step hierarchical regression models are presented in Appendix F. (None of the regressions resulted in significant three-step models.)

After the models for predicting each cheating category had been determined, three additional questions were addressed in order to gain understanding of the relationships between and among the predictor

components of the models. A primary aim of this final exploratory analysis was to determine if the predictor components of the model would support the theoretical relationships upon which the proposed model (see Figure 1) was based. It should be stressed that these analyses were aimed at explanation and not at prediction or the establishment of causal paths. The fact that the measures of achievement goals, perceived ability, cognitive engagement, and perceptions of classroom goal structures were obtained at the same time precludes drawing predictive or causal inferences from the analyses. The analyses were undertaken with the goal of gaining insight into the relationships among variables in order to formulate a more precise model that could later be tested for predictive efficacy or as a causal model. With this purpose in mind, the following questions were explored:

1) Will achievement goals, perceived ability, and any possible interactions between goals and perceived ability explain variation in the cognitive engagement variables in the proposed model?

2) Will perceptions of classroom goal structures explain additional variation in cognitive engagement scores beyond that explained by achievement goals, perceived ability, and interactions between goals and perceived ability?

3) Will perceptions of classroom goal structures explain variation in scores for achievement goals and perceived ability?

To answer the first question, multiple regression analyses were performed to determine the relationships between cognitive engagement and students' achievement goals (learning goals, performance goals, future consequences) and perceived ability. The procedures designed by L. S. Aiken and West (1991) for testing models and effects of higher order interactions and

for probing interactions in multiple regression were again used to facilitate model selection and interpretation of results. The four motivational variables (learning goals, performance goals, future consequences, and perceived ability) were centered and cross products of the centered variables were created to represent all two-, three-, and four-way interaction combinations. The criterion variables used in the regressions were self-regulation, deep strategy use, persistence, and effort. Each criterion variable was regressed on learning goals, performance goals, perceived ability, future consequences, and all possible interactions of those four motivational variables. The resulting regression models are presented in Table 11.

To address the second question, hierarchical multiple regression analyses were performed. First, the achievement goal and perceived ability models for each criterion variable were entered into the regression as a block. In the second step of each regression, all possible subsets of the three perceptions of classroom goal structure variables (task, autonomy, and social comparison/competition) were entered. Only the subset of classroom goal structure variables that best explained additional variance in the criterion cognitive engagement variable was retained. The resulting significant two-step hierarchical regression models are presented in Appendix F.

Multiple regression analyses were also conducted to address the third question. However, since interaction terms were not included in the regressions, the classroom goal structure variables were not centered, but were left in their original scaled form as were the criterion variables. The criterion variables used in these regressions were learning goals, performance goals, future consequences, and perceived ability. Each criterion variable was regressed on all possible subsets of the task, autonomy, and social

comparison/competition variables. The resulting regression models are presented in Table 12.

Achievement Goals and Perceived Ability Models for Predicting the Frequency of Cheating.

Regression results for predicting the overall frequency of cheating. The best motivational model for predicting the overall frequency of cheating was learning goals, performance goals, perceived ability, a two-way learning goal by performance goal interaction, and a two-way performance goal by perceived ability interaction, $F(5, 193) = 2.77$, $MSE = 52.21$, $p < .05$. As shown in Table 10, the first-order effects were not significant, but both of the two-way interaction effects were significant. Together, the two-way interactions explained 3.9% of the variance in the overall frequency of cheating above that explained by other variables in the model. As can be seen in Figure 5, the two-way learning goal by performance goal interaction revealed that cheating was highest when learning goals and performance goals were both high and was lowest when performance goals were low and learning goals were high. Students with high and average performance goals did not differ significantly in frequency of cheating across the levels of learning goals. When learning goals were low, students did not differ significantly in frequency of cheating across the levels of performance goals. When learning goals were high, frequency of cheating varied as a function of performance goals with the frequency of cheating increasing as performance goals increased. When performance goals were low, cheating frequency varied as a function of learning goals with the frequency of cheating decreasing as learning goals increased.

The two-way performance goal by perceived ability interaction, as

Table 10

Summary of Regression Analyses for Achievement Goal and Perceived Ability Models Predicting the Frequency of Cheating (N = 201)

Criterion Variable / Predictor Variable	B	SE B	β	
Overall Frequency of Cheating (R Square = .067)				
Learning Goal (LG)	-.186	.191	-.078	
Performance Goal (PG)	.079	.059	.096	
Perceived Ability (PA)	-.001	.110	.000	
LG x PG	.055	.021	.211	*
PG x PA	-.029	.013	-.172	*
Frequency: Cheating on Tests (R Square = .060)				
Learning Goal (LG)	-.108	.130	-.067	
Performance Goal (PG)	.075	.040	.134	
Perceived Ability (PA)	.000	.074	.000	
LG x PG	.030	.014	.169	*
PG x PA	-.019	.009	-.169	*
Frequency: Cheating on Assignments (R Square = .149)				
Learning Goal (LG)	-.165	.080	-.174	*
Future Consequences (FC)	-.028	.072	-.037	
Perceived Ability (PA)	-.013	.047	-.023	
LG x FC	-.003	.014	-.018	
LG x PA	.031	.013	.198	*
FC x PA	-.020	.014	-.139	
LG x FC x PA	.008	.003	.286	***
Frequency: Cheating for Self on Assignments (R Square = .079)				
Learning Goal (LG)	-.109	.056	-.170	
Future Consequences (FC)	.002	.044	.004	
Perceived Ability (PA)	.036	.030	.094	
LG x PA	.018	.008	.168	*
FC x PA	-.026	.008	-.266	****

(table continues)

Table 10 (cont.)

Criterion Variable / Predictor Variable	B	SE B	β	
Frequency: Cheating for Others (R Square = .098)				
Learning Goal (LG)	-.229	.093	-.212	*
Future Consequences (FC)	.026	.084	.031	
Perceived Ability (PA)	-.031	.055	-.048	
LG x FC	-.014	.017	-.069	
LG x PA	.007	.015	.041	
FC x PA	.004	.016	.029	
LG x FC x PA	.010	.003	.297	***
Frequency: Cheating for Others on Tests (R Square = .065)				
Learning Goal (LG)	-.071	.061	-.094	
Performance Goal (PG)	.032	.019	.122	
Perceived Ability (PA)	.024	.035	.054	
LG x PG	.014	.007	.170	*
PG x PA	-.010	.004	-.185	*
Frequency: Cheating for Others on Assignments (R Square = .230)				
Learning Goal (LG)	-.052	.034	-.123	
Performance Goal (PG)	-.000	.010	-.001	
Future Consequences (FC)	.000	.031	.000	
Perceived Ability (PA)	-.029	.020	-.113	
LG x FC	-.001	.006	-.012	
LG x PA	.020	.006	.281	****
PG x PA	-.004	.002	-.139	*
FC x PA	-.002	.006	-.028	
LG x FC x PA	.006	.001	.421	****

*p < .05, **p < .01, ***p < .005, ****p < .001

depicted in Figure 5, revealed that the overall frequency of cheating was highest when perceived ability was low and performance goals were high. Cheating frequency was lowest when perceived ability and performance goals were both low. Students with average and high perceived ability did not differ in cheating frequency across the levels of performance goals. Students with low perceived ability varied in frequency of cheating as a function of performance goals with cheating frequency increasing with increases in performance goals. Cheating frequency did not vary significantly as a function of perceived ability.

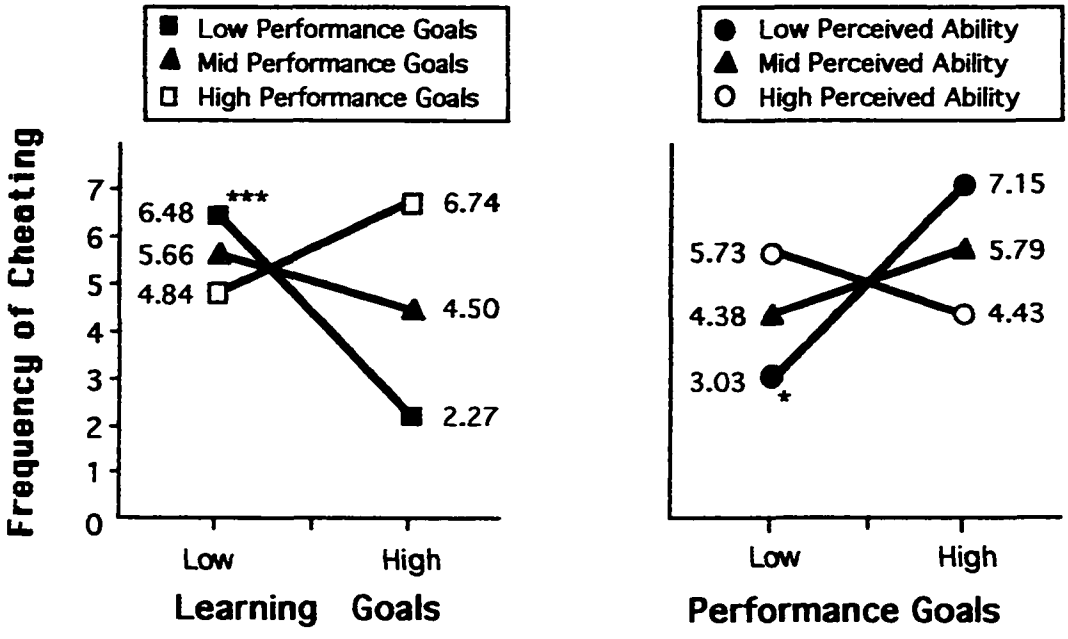


Figure 5. Variations in the overall frequency of cheating as a function of the learning goal by performance goal and performance goal by perceived ability interactions. Asterisks identify significant slopes: $^{*}p < .05$, $^{***}p < .005$.

Regression results for predicting the frequency of cheating on tests. The variables and interactions included in the model for the frequency of cheating on tests were the same as those for the model of the overall frequency of

cheating: learning goals, performance goals, perceived ability, and two-way learning goal by performance goal and performance goal by perceived ability interactions. The significant effects for this model were the two-way learning goal by performance goal and performance goal by perceived ability interactions, $F(5, 194) = 2.46$, $MSE = 24.07$, $p < .05$. The final model explained 6% of the variance in scores for the frequency of cheating on tests with the two-way interactions explaining 3% of the variance beyond that accounted for by first order variables. As shown in Figure 6, the frequency of test cheating was highest when both performance goals and learning goals were high and

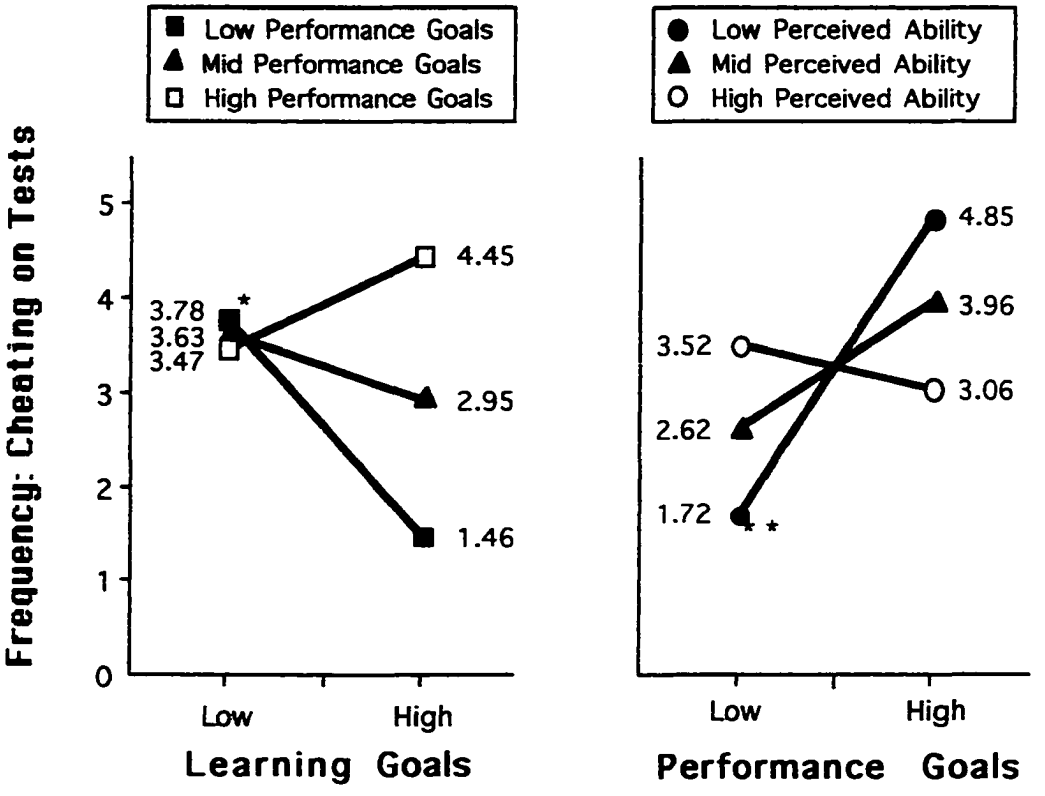


Figure 6. Variations in the frequency of cheating on tests as a function of the learning goal by performance goal and performance goal by perceived ability interactions. Asterisks identify significant slopes: $^{*}p < .05$, $^{**}p < .01$.

lowest when performance goals were low and learning goals were high. The frequency of cheating on tests for students with low performance goals differed significantly across the levels of learning goals with the frequency of test cheating decreasing as learning goals increased. Students with high and average performance goals did not differ significantly in frequency of cheating across the levels of learning goals. Similarly, students with low and mid-level learning goals did not differ significantly in frequency of cheating across the levels of performance goals. When learning goals were high, however, the frequency of cheating varied as a function of performance goals with test cheating increasing as performance goals increased.

The two-way performance goal by perceived ability interaction pictured in Figure 6 showed that the frequency of test cheating was highest when perceived ability was low and performance goals were high, and lowest when perceived ability and performance goals were both low. Frequency of cheating on tests did not vary significantly as a function of perceived ability, but did vary significantly as a function of performance goals among students with low perceived ability. When perceived ability was low the frequency of cheating on tests increased with increases in performance goals.

Regression results for predicting the frequency of cheating on assignments. The frequency with which students reported engaging in cheating on assignments was best explained by a model containing learning goals, future consequences, perceived ability, and all interactions between those variables, $F(7, 192) = 4.78$, $MSE = 7.61$, $p = .0001$. The resulting model accounted for 14.9% of the variance in the frequency of assignment cheating with the three-way interaction explaining 3.8% of the variance above that explained by other variables in the model. The three-way interaction was

significant as were the two-way learning goal by perceived ability interaction and first order learning goal effects. All significant effects are represented in Figure 7.

As can be seen in Figure 7, the three-way interaction revealed that, when future consequences were low, students with low, average, and high perceived ability did not differ significantly in the frequency of cheating on assignments across the levels of learning goals. When future consequences were high, students with low perceived ability engaged in assignment cheating more frequently when learning goals were low, but decreased in the number of types of cheating in which they engaged as learning goals increased; students with high and average perceived ability did not differ significantly in the frequency with which they engaged in assignment cheating behaviors across the levels of learning goals. In the presence of high future consequences, students with low learning goals engaged in assignment cheating significantly more often when perceived ability was low than when it was high, but students with high learning goals did not differ significantly in the frequency with which they engaged in assignment cheating across the levels of perceived ability.

The two-way learning goal by perceived ability interaction represents a conditional effect (Aiken, L. S., & West, 1991) when future consequences are held at the mean. This conditional effect is illustrated in the interaction for mid future consequences in Figure 7. When future consequences were average (mid), students with both low and average perceived ability cheated significantly more frequently when learning goals were low than when learning goals were high. Students with high perceived ability did not differ in assignment cheating frequency as a function of learning goals.

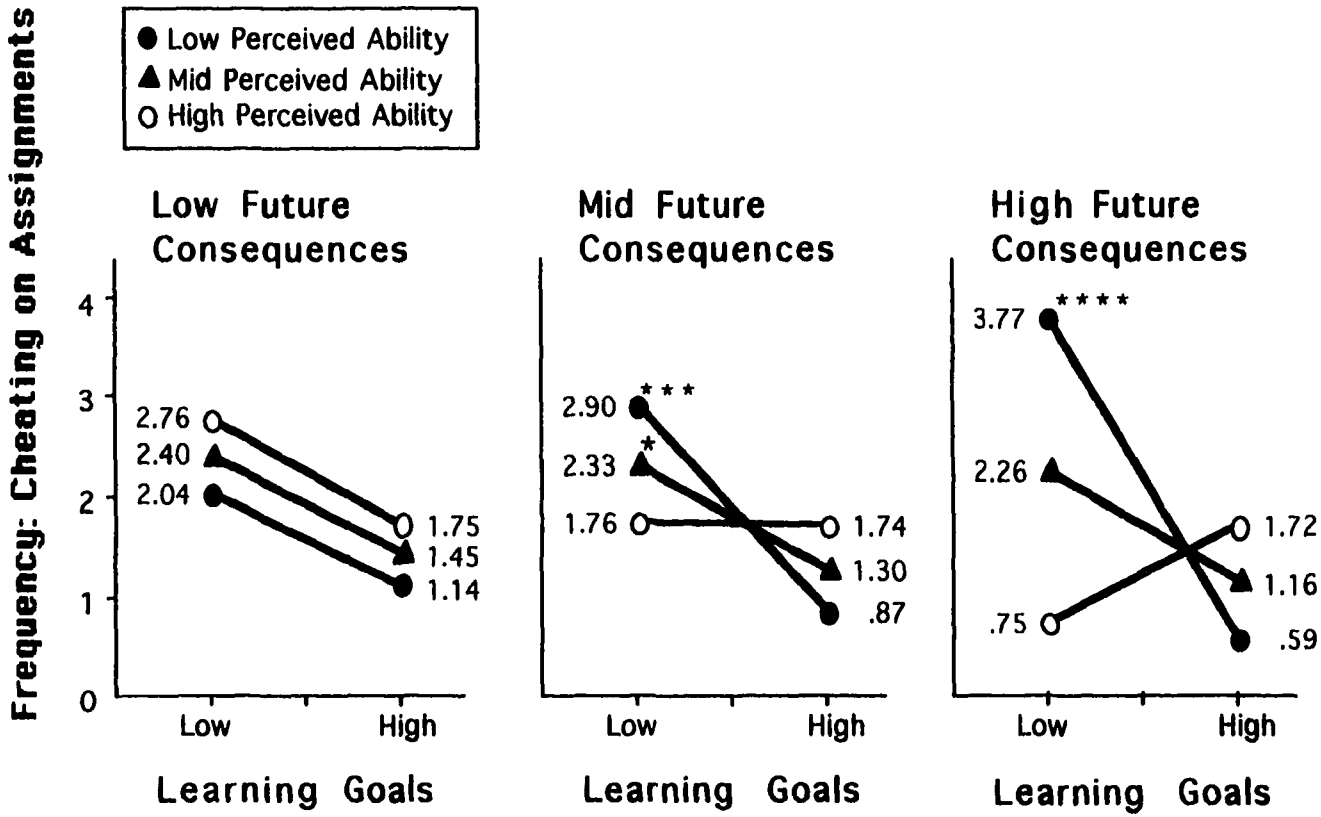


Figure 7. Variations in the frequency of cheating on assignments as a function of the learning goal by future consequences by perceived ability interaction. Asterisks identify significant slopes: *p < .05, ***p < .005, ****p < .001.

The significant first-order learning goal effect represents a conditional effect at the means of both perceived ability and future consequences. This effect is depicted by the regression line for mid perceived ability shown in the interaction for mid future consequences (see Figure 7). In the presence of average perceived ability and average future consequences, the frequency of cheating on assignments decreased as learning goals increased.

Regression results for predicting the frequency of cheating for self and the frequency of cheating for self on tests. None of the four motivational variables (learning goals, performance goals, future consequences, and perceived ability) or the interactions between those variables significantly predicted the frequencies with which students engaged in cheating (in general or on tests in particular) for their own academic benefit.

Regression results for predicting the frequency of cheating for self on assignments. The frequency with which students engaged in assignment cheating behaviors to benefit themselves was best predicted by a model containing learning goals, future consequences, perceived ability, a learning goal by performance goal interaction and a perceived ability by future consequences interaction, F (5, 194) = 3.32, MSE = 3.74, $p < .01$. The resulting model accounted for 7.9% of the variance in frequency scores for cheating for self on assignments with the two-way interactions explaining 5.6% of the variance above that explained by first order variables in the model. As shown in Table 10, none of the first order effects were significant, but both two-way interactions were significant.

The learning goal by perceived ability interaction, as shown in Figure 8, revealed that the frequency of cheating for self on assignments was highest when both perceived ability and learning goals were low and lowest when

perceived ability was low and learning goals were high. Among students with low perceived ability, the frequency of cheating varied as a function of learning goals. For students with average (mid-level) and high perceived ability, cheating frequency did not differ significantly across the levels of learning goals. However, the simple slope for students with average perceived ability did approach significance, $t = -1.95$, $p = .05$. When learning goals were low, the frequency of assignment cheating for self did not differ significantly across the levels of performance goals; but when learning goals were high, students with high perceived ability had a significantly higher frequency of cheating than did students with low perceived ability.

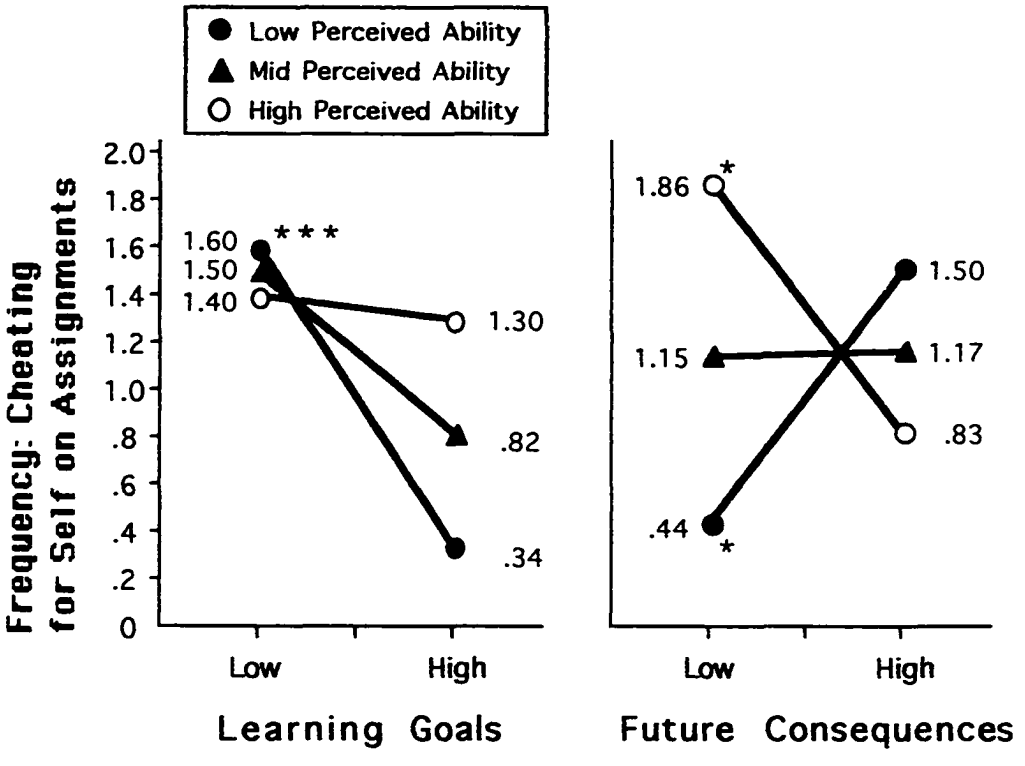


Figure 8. Variations in the frequency of cheating for self on assignments as a function of the learning goal by perceived ability and perceived ability by future consequences interactions. Asterisks identify significant slopes: *$p < .05$, ***$p < .005$.

The perceived ability by future consequences interaction, which is also displayed in Figure 8, showed that the frequency of cheating for self on assignments was highest when future consequences were low and perceived ability was high and lowest when both future consequences and perceived ability were low. Students with low perceived ability had the lowest assignment cheating frequency when future consequences were also low, but increased in the frequency of cheating for self on assignments as future consequences increased. Conversely, students with high perceived ability had the highest frequency of cheating when future consequences were low and the lowest frequency of cheating when future consequences were high. When future consequences were low, students with high perceived ability cheated significantly more often than did students with low perceived ability.

Regression results for predicting the frequency of cheating for others. The frequency with which students engaged in cheating behaviors for the possible academic benefit of others was best predicted by a model which included learning goals, future consequences, perceived ability, and all possible interactions among the three first order variables, F (7, 192) = 3.00, MSE = 10.46, $p < .01$. Only the first order learning goal effect and the three-way interaction were significant. The full model explained 9.8% of the variance in the frequency of cheating for others with the three-way interaction accounting for 4.1% of the variance beyond that explained by other variables and interactions in the model. The three-way interaction, which is displayed in Figure 9, revealed that the frequency of cheating was highest when future consequences were high and perceived ability and learning goals were both low and lowest when future consequences were high, learning goals were high, and perceived ability was low.

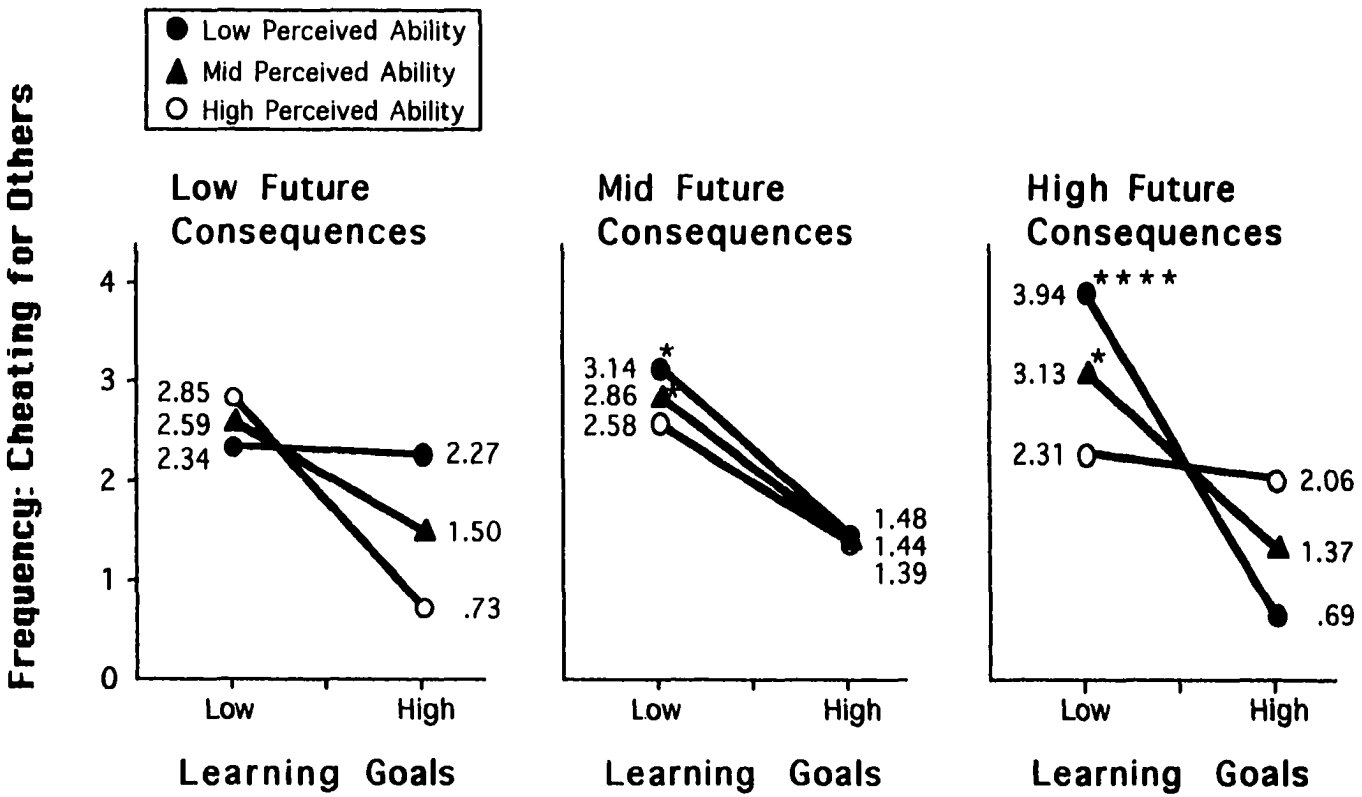


Figure 9. Variations in the frequency of cheating for others as a function of the learning goal by future consequences by perceived ability interaction. Asterisks identify significant slopes: *p < .05, ****p < .001.

When future consequences were low, students at all levels of perceived ability did not differ significantly in the frequency of cheating for others across the levels of learning goals although the slope of the regression line for students with high perceived ability did approach significance, $t = -1.93$, $p = .055$. When future consequences were average or high, the frequency with which students of low and average perceived ability cheated for others decreased significantly as learning goals increased. When future consequences were average or high, the frequency with which students of high perceived ability cheated for others did not vary as a function of learning goals. For each of the levels of learning goals (low, average, and high) the frequency of cheating for others did not vary significantly across the levels of perceived ability. The greatest difference in the frequency of cheating for others occurred among students of low perceived ability when future consequences were high; those with low learning goals cheated most often and those with high learning goals cheated least often.

Regression results for predicting the frequency of cheating for others on tests. The frequency with which students assisted others in cheating on tests was best predicted by learning goals, performance goals, perceived ability, and two-way learning goal by performance goal and performance goal by perceived ability interactions, $F(5, 194) = 2.71$, $MSE = 5.30$, $p < .05$. Only the two-way interactions were significant. The resulting model explained 6.5% of the variance in scores for cheating for others with the two-way interactions accounting for 3.3% of the variance beyond that explained by the first order variables in the model.

The two-way learning goal by performance goal interaction, as shown in Figure 10, revealed that the frequency of cheating for others on tests was

highest when learning goals and performance goals were both high and lowest when learning goals were high and performance goals were low. Students with high performance goals did not differ significantly in the frequency of test cheating for others across the levels of learning goals. However, the frequency of assisting others in cheating on tests did vary as a function of learning goals among students with low performance goals with the frequency of cheating decreasing with increases in learning goals.

Also shown in Figure 10, the two-way performance goal by perceived ability interaction indicated that the frequency of test cheating for others was highest when performance goals were high and perceived ability was low and

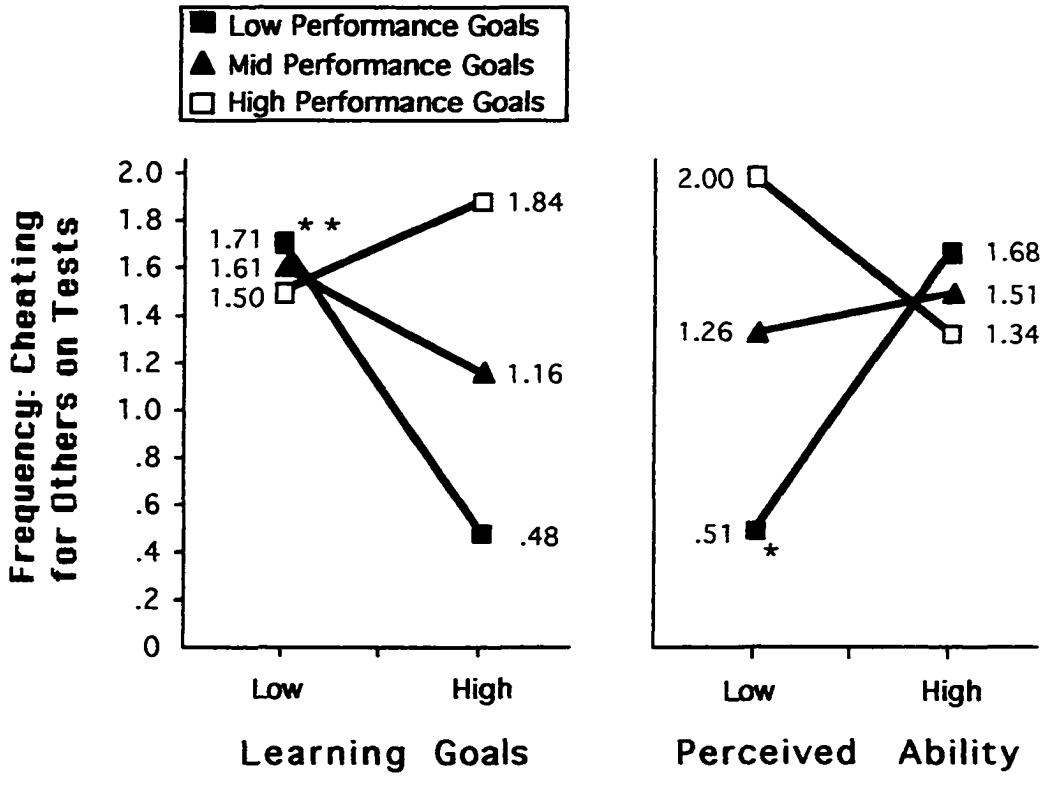


Figure 10. Variations in the frequency of cheating for others on tests as a function of the learning goal by performance goal and performance goal by perceived ability interactions. Asterisks identify significant slopes: *p < .05, **p < .01.

lowest when both performance goals and perceived ability were low. Students of high and average perceived ability did not differ significantly in the frequency of test cheating for others across levels of performance goals, but students of low perceived ability increased in the frequency of cheating as performance goals increased. When performance goals were low, students with high perceived ability participated in test cheating for others significantly more often than did students with low perceived ability. Frequency of test cheating for others did not differ significantly across levels of perceived ability when performance goals were high.

Regression results for predicting the frequency of cheating for others on assignments. The frequency with which students engaged in assignment cheating behaviors for the benefit of others was best predicted by a model which included learning goals, performance goals, future consequences, perceived ability, a two-way performance goal by perceived ability interaction and all possible interactions among learning goals, future consequences, and perceived ability, F (9, 191) = 6.33, MSE = 1.40, $p < .0001$. The significant effects for this model were two-way learning goal by perceived ability and performance goal by perceived ability interactions and the three-way learning goal by future consequences by perceived ability interaction. The full model explained 23% of the variance in frequency scores for cheating for others on assignments with the three-way interaction explaining 7.9% of the variance beyond that accounted for by other variables and interactions in the model.

The three-way learning goal by future consequences by perceived ability interaction and the conditional effect of the two-way learning goal by perceived ability interaction at the mean of future consequences can be seen in Figure 11. The interaction showed that when future consequences were

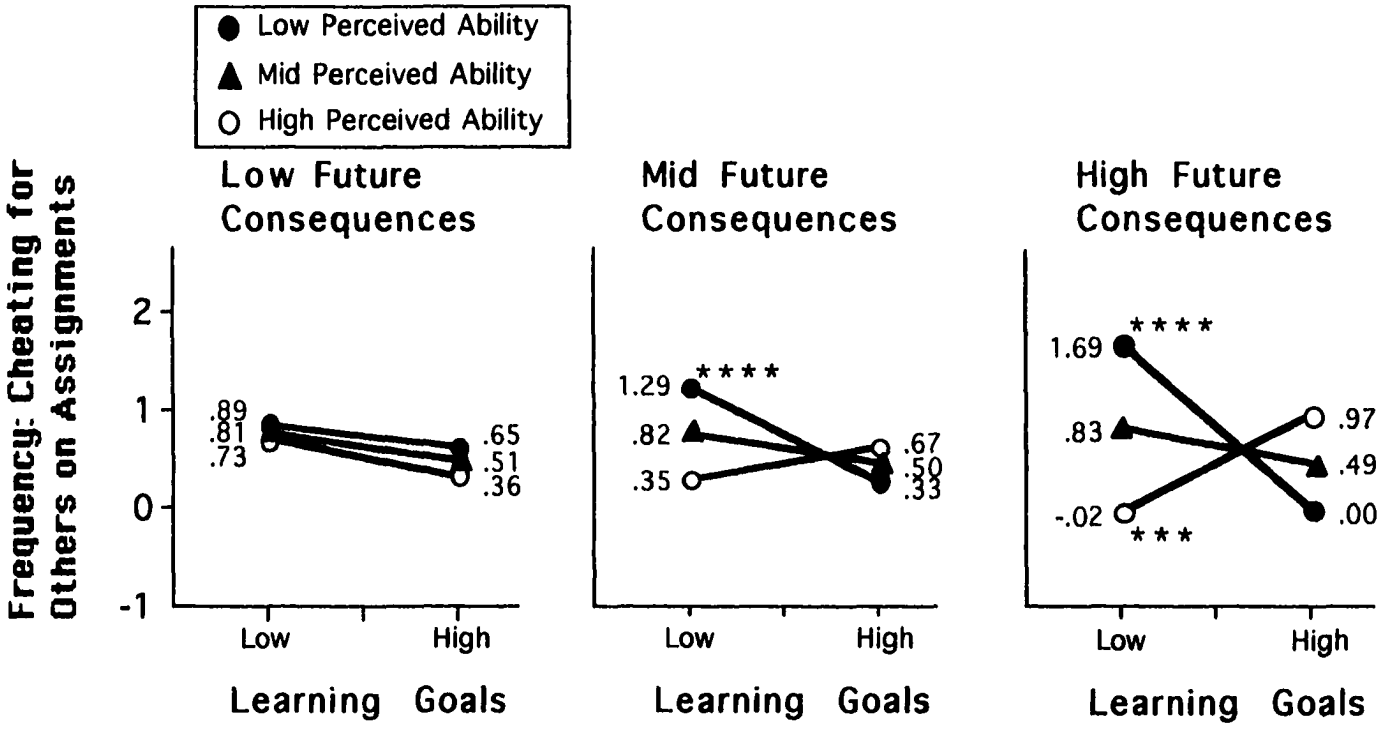


Figure 11. Variations in the frequency of cheating for others on assignments as a function of the learning goal by future consequences by perceived ability interaction. Asterisks identify significant slopes: ***p < .005, ****p < .001.

average or high, students with low perceived ability engaged in assignment cheating for others most frequently when learning goals were also low, but decreased in their frequency of cheating on assignments for others as learning goals increased. Conversely, when future consequences were high, students with high perceived ability engaged least frequently in assignment cheating for others when learning goals were low and most frequently when learning goals were high. When future consequences were low or average, students with high perceived ability did not differ significantly in the frequency of cheating for others on assignments across the levels of learning goals. Students with average perceived ability did not differ significantly in the frequency with which they cheated for others on assignments across levels of learning goals or future consequences. When future consequences were low, students did not differ in the frequency of assignment cheating for others over the levels of learning goals or perceived ability. When future consequences were high and learning goals were low, students with low perceived ability cheated on assignments for others significantly more frequently than did students with high perceived ability. However, when both learning goals and future consequences were high, students with high perceived ability cheated significantly more often than did students with low perceived ability.

The two-way learning goal by perceived ability interaction, conditional at the mean of future consequences, is shown in the interaction for mid future consequences in Figure 11. When future consequences were average, students with low perceived ability varied in frequency of cheating on assignments for others as a function of learning goals with the frequency of cheating decreasing with increases in learning goals. When future

consequences were average and learning goals were low, students with low perceived ability cheated on assignments for others significantly more often than did students with high perceived ability.

The two-way performance goal by perceived ability interaction, as displayed in Figure 12, revealed that the frequency with which students engaged in assignment cheating for the academic benefit of others was highest when performance goals were high and perceived ability was low and lowest when performance goals and perceived ability were both high. Students with high performance goals differed significantly in the frequency of assignment cheating for others across the levels of perceived ability. Those with low and average performance goals did not differ significantly in the frequency of

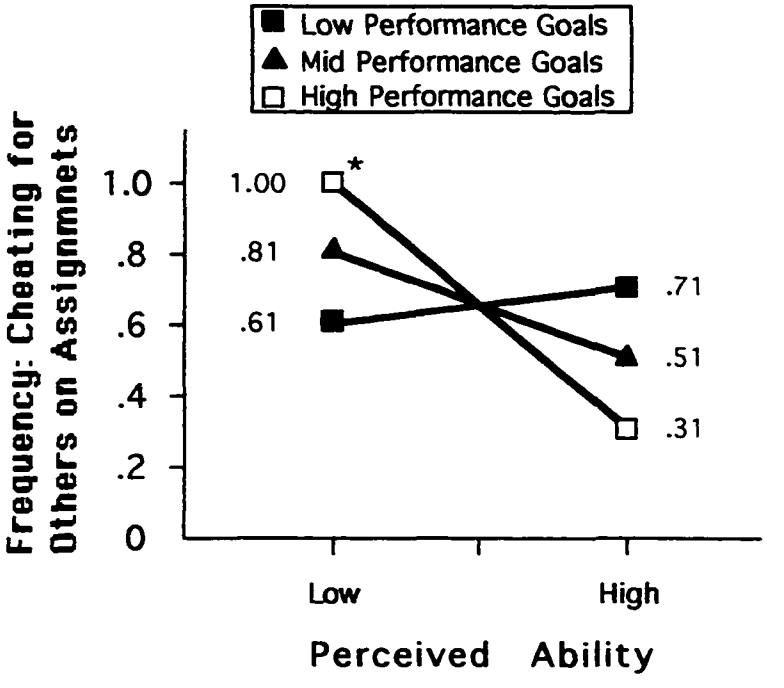


Figure 12. Variations in the frequency of cheating for others on assignments as a function of the performance goal by perceived ability interaction. Asterisk identifies significant slope: *p < .05.

cheating across the levels of perceived ability. When perceived ability was low and when perceived ability was high, students did not differ significantly in the frequency of assignment cheating for others across the levels of performance goals.

Hierarchical Regression Analyses for Predicting the Frequency of Cheating

Two of the research questions in this study were "do cognitive engagement variables add to the prediction of cheating beyond variance accounted for by achievement goals and perceived ability," and "do perceptions of classroom goal structures add to the prediction of cheating beyond variance accounted for by achievement goals, perceived ability, and cognitive engagement variables?" In order to address these questions, hierarchical regression analyses were conducted. For each of the criterion (cheating) variables, the achievement goal and perceived ability model that had been determined to best predict that variable (category of cheating) was forced into the regression equation as a block. In the second step of each regression, all possible subsets of the cognitive engagement variables (self-regulation, deep strategy use, persistence, and effort) were tested to determine which variable or combination of variables, if any, significantly added to the prediction of the criterion variable.

None of the cognitive engagement variables, either separately or in combination, significantly added to the prediction of the frequency of cheating on assignments (for self and others combined) or to any of the cheating for self frequencies (cheating for self on tests, assignments, or tests and assignments combined). For the remaining criterion variables (overall frequency of cheating, frequency of cheating on tests, and the three cheating for others frequencies) only deep strategy use significantly added to the

prediction of each criterion variable beyond the variance accounted for by the achievement goal and perceived ability model. The addition of deep strategy use to the models produced an R^2 change of .03 for the predictions of overall frequency of cheating, frequency of cheating on tests, and frequency of cheating for others on assignments, and an R^2 change of .04 for the predictions of the frequency of cheating for others and the frequency of cheating for others on tests.

To determine if perceptions of classroom goal structures added significantly to the prediction of cheating beyond variance accounted for by achievement goals, perceived ability, and cognitive engagement, the achievement goal and perceived ability model for each criterion variable was again forced into the regression as a block for the first step of the hierarchical regression. For each of the criterion variables for which deep strategy use was found to significantly add to prediction, deep strategy use was forced into the equation as the second step in the regression. Next, all possible subsets of the perceptions of classroom goal structures variables (task, autonomy, and social comparison/competition) were tested to determine which variable or combination of variables, if any, significantly added to the prediction of each criterion variable. Only the autonomy variable added significantly to the prediction of cheating, and it was significant for only one criterion variable, the frequency of cheating for self on assignments, resulting in an R^2 change of .03. A regression table, summarizing the hierarchical regression analyses for predicting the frequencies of the six categories of cheating for which deep strategy use or autonomy significantly added to prediction, is provided in Appendix F.

Achievement Goals and Perceived Ability Models for Explaining Cognitive Engagement.

In addition to determining the efficacy of the proposed motivational model (see Figure 1) for predicting engagement in cheating, this research sought to explore the relationships among the components of the model. The specific research question to be addressed at this point was "do achievement goals, perceived ability, and any possible interactions between goals and perceived ability explain variation in the cognitive engagement variables in the proposed model?" To address the question, each of the four cognitive engagement variables (self-regulation, deep strategy use, persistence, and effort) was regressed on learning goals, performance goals, future consequences, perceived ability, and all possible interactions among the four first-order variables. Using the approach suggested by L. S. Aiken and West (1991) for revising regressions containing higher-order terms, the scale free higher-order terms in the regressions were tested individually. Nonsignificant scale free terms were deleted from the model and the process was repeated until only significant scale free terms remained in the model. The results of the four regression analyses are presented in Table 11.

Regression results for explaining self-regulation. Self-regulation was regressed on the three achievement goals, perceived ability, and all possible interactions among the four variables. The four-way learning goal by performance goal by future consequences by perceived ability interaction was significant, $F(1, 185) = 3.94$, $p < .05$. However, the interaction explained only 1.2% of the variance in self-regulation above that explained by the other fourteen variables and interactions in the model. Removal of the interaction allowed additional nonsignificant higher-order terms, which were scale free

Table 11

Results of Regression Analyses of Achievement Goal and Perceived Ability Models for Explaining Cognitive Engagement

Criterion Variable / Predictor Variable	B	SE B	β	
Self-regulation (N = 201; R Square = .415)				
Learning Goals (LG)	.277	.118	.174	*
Performance Goals (PG)	.019	.033	.035	
Future Consequences (FC)	.450	.089	.351	****
Perceived Ability (PA)	.190	.060	.200	***
LG x PG	-.020	.011	-.115	
LG x PA	.048	.015	.181	***
PG x PA	-.001	.007	-.011	
LG x PG x PA	.005	.002	.205	***
Deep Strategy Use (N = 201; R Square = .320)				
Learning Goals (LG)	.405	.118	.268	****
Performance Goals (PG)	.019	.032	.036	
Future Consequences (FC)	.224	.089	.185	*
Perceived Ability (PA)	.212	.060	.236	****
LG x PG	.027	.012	.162	*
PG x FC	-.029	.010	-.211	***
Persistence (N = 201; R Square = .365)				
Performance Goals (PG)	.013	.006	.127	*
Future Consequences (FC)	.079	.015	.324	****
Perceived Ability (PA)	.064	.011	.351	****
PG x FC	-.005	.002	-.180	***
Effort (N = 198; R Square = .151)				
Learning Goals (LG)	.101	.017	.388	****

*p < .05, **p < .01, ***p < .005, ****p < .001

only after excluding the four-way interaction, to be removed from the model. Four possible models resulted: the fifteen-predictor model containing the four-way interaction (R^2 = .440); an eight-predictor model containing the three achievement goals, perceived ability, and all possible interactions among learning goals, performance goals, and perceived ability (R^2 = .428); a four-predictor model including learning goals, future consequences, perceived

ability, and a two-way learning goal by perceived ability interaction ($R^2 = .415$); and a three-predictor model made up of learning goals, future consequences, and perceived ability ($R^2 = .351$).

Model comparisons were conducted using the procedures and test for significance recommended by L. S. Aiken and West (1991). Comparison of the fifteen-predictor and eight-predictor models resulted in a nonsignificant test, F (7, 185) = 1.20, $p > .05$, indicating that the loss of variance explained by excluding seven variables was not significant. The eight-predictor model was then compared to the four-predictor model resulting in a significant loss in variance explained by excluding four predictors, F (4, 192) = 3.94, $p < .005$. Finally, the eight-predictor model was compared to the three-predictor model. When reducing the model by five explanatory (predictor) variables, the test again revealed a significant loss in prediction, F (5, 192) = 4.19, $p < .01$. The eight-predictor model was adopted as the best model for explaining variance in self-regulation as it was more parsimonious than the fifteen-predictor model but did not result in a significant loss of explanatory power as did the three- and four-predictor models.

The full eight-predictor model, F (8, 192) = 17.00, MSE = 15.00, $p < .0001$, included learning goals, performance goals, future consequences, perceived ability, and all possible interactions among learning goals, performance goals, and perceived ability. Variables with significant effects were learning goals, perceived ability, future consequences, the two-way learning goal by perceived ability interaction and the three-way learning goal by performance goal by perceived ability interaction. The full model explained 41.5% of the variance in self-regulation with the three-way interaction accounting for 3.4% of the variance in self-regulation above that explained by other variables and

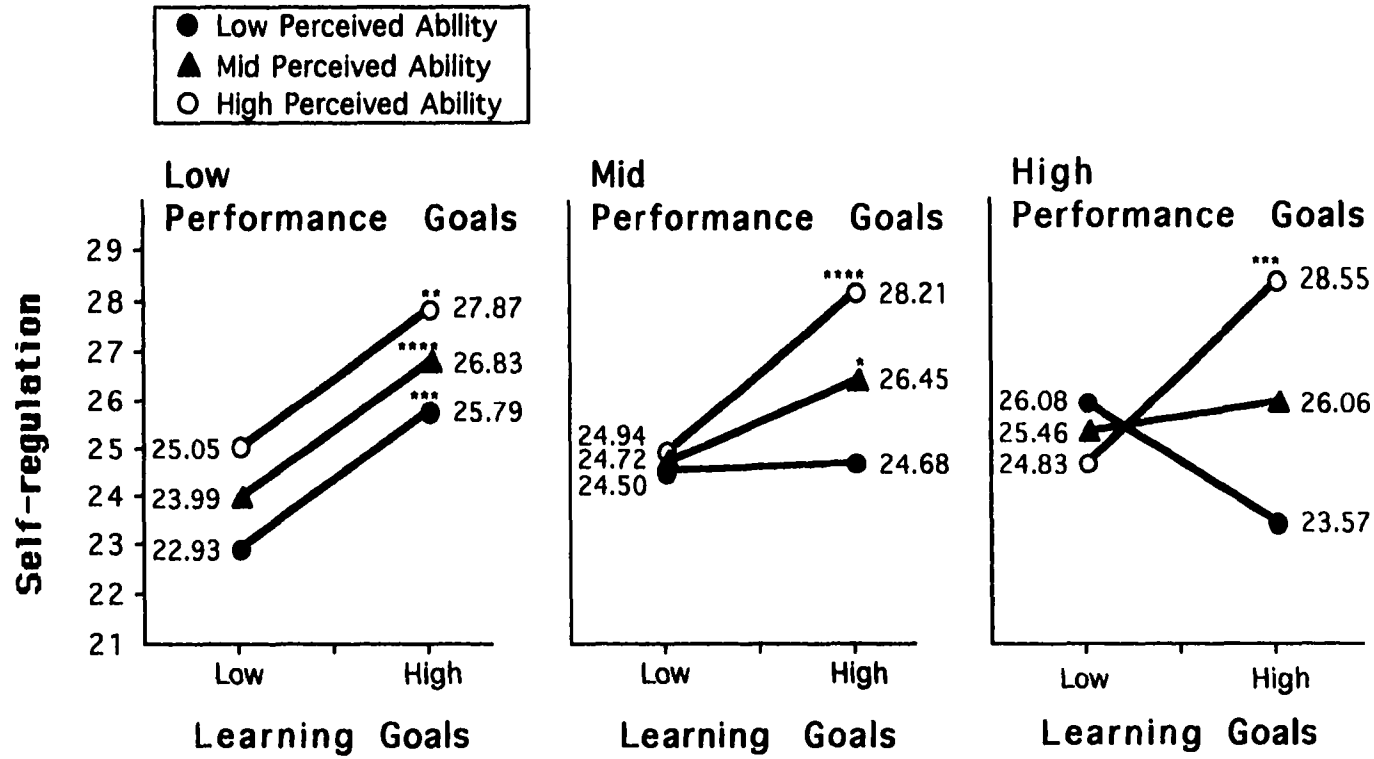


Figure 13. Variations in self-regulation as a function of the learning goal by performance goal by perceived ability interaction. Asterisks identify significant slopes: *p < .05, **p < .01, ***p < .005, ****p < .001.

interactions in the model.

As shown in Figure 13, the three-way interaction revealed that self-regulation was highest when learning goals, performance goals, and perceived ability were all high and lowest when learning goals, performance goals, and perceived ability were all low. When performance goals were low, self regulation scores at all levels of perceived ability increased significantly with increases in learning goals. In the presence of low performance goals, when learning goals were high, self-regulation scores did not differ significantly across the levels of perceived ability, but when learning goals were low, self-regulation scores did differ significantly across levels of perceived ability. When performance goals were high and learning goals were low, self-regulation scores were not significantly different across levels of perceived ability. However, when both performance goals and learning goals were high, students with high perceived ability had significantly higher self-regulation scores than did students with low perceived ability. As can be seen in Figure 13, when performance goals were high, only those with high perceived ability increased significantly in the use of self-regulatory strategies with increases in learning goals.

The conditional learning goal by perceived ability interaction is depicted in the regression for mid performance goals in Figure 13. When performance goals were average, self-regulation scores were approximately the same at all levels of perceived ability when learning goals were low. When learning goals were high and performance goals were average, self regulation scores increased significantly as perceived ability moved from low to high. Students with low perceived ability did not differ in the use of self-regulatory strategies across the levels of learning goals, but self-regulation

scores of students with both high and average perceived ability increased with increases in learning goals.

The first order learning goal effect is a conditional effect at the mean of both performance goals and perceived ability. The mid perceived ability regression line in the interaction for mid performance goals in Figure 13 shows the first order learning goal effect. When both performance goals and perceived ability were average, the use of self-regulatory strategies increased with increases in learning goals. The first order perceived ability effect, conditional at the mean of both performance goals and learning goals, revealed that when learning goals and performance goals were both average, increases in perceived ability were associated with increases in self-regulation scores. The first order future consequences effect is not interpreted as a conditional effect since it is not included in the interactions in the model. The positive future consequences effect (beta = .35) reveals increases in the use of self-regulatory strategies with increases in future consequences.

Regression results for explaining deep strategy use. The use of deep cognitive processing strategies was best explained by learning goals, performance goals, future consequences, a two-way learning goal by performance goal interaction and a two-way performance goal by future consequences interaction, F (6, 194) = 15.24, MSE = 15.45, $p < .0001$. The six-predictor model explained 32% of the variance in scores for deep strategy use. Model comparison tests were conducted comparing the six-predictor model to competing five-predictor (containing the same variables as the six-predictor model with the exception of the learning goal by performance goal interaction) and three-predictor (learning goals, future consequences, and perceived ability) models. Both tests revealed that a significant loss in the

explanation of variance in deep strategy use would result from deleting predictors from the six-predictor model as compared to the five-predictor and three-predictor models, Fs (1, 194) = 4.72, $p < .05$ and (3, 194) = 3.08, $p < .05$, respectively. Therefore, the six-predictor model was retained. The variables producing significant effects in the model were learning goals, future consequences, perceived ability, and two-way learning goal by performance goal and performance goal by future consequences interactions.

The two-way learning goal by performance goal interaction, as displayed in Figure 14, showed that the use of deep cognitive processing strategies was greatest when learning goals and performance goals were both high and lowest when performance goals were high and learning goals were low. Students with both average and high performance goals increased significantly in the use of deep processing strategies as learning goals

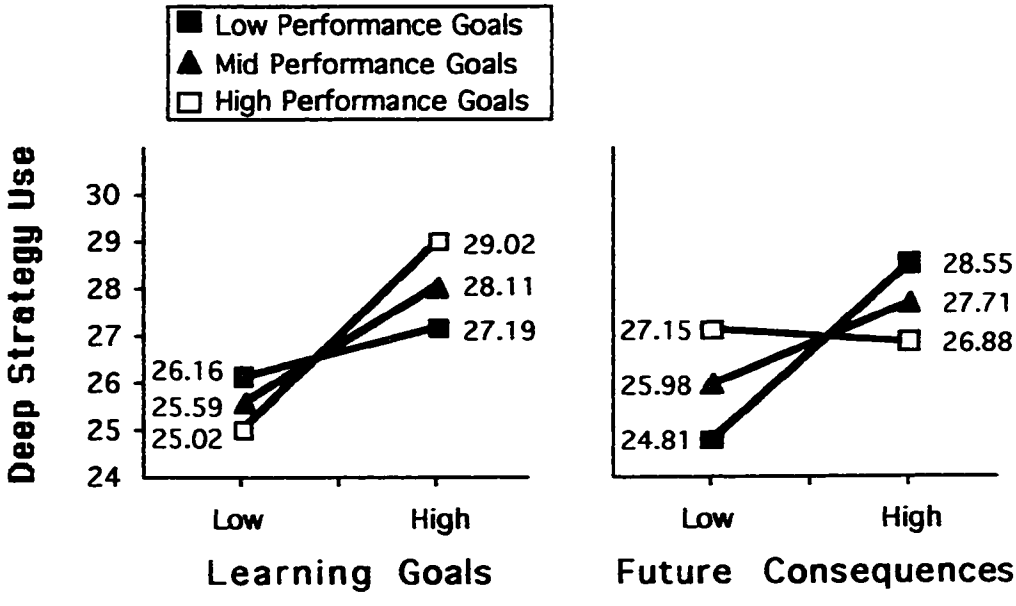


Figure 14. Variations in deep strategy use as a function of the learning goal by performance goal and performance goal by future consequences interactions.

increased. The use of deep strategies by those with low performance goals did not differ significantly across the levels of learning goals. When learning goals were low, students did not differ significantly in the use of deep strategies across the levels of performance goals, but when learning goals were high, deep strategy use increased significantly with increases in performance goals. The first-order learning goal effect, conditional at the mean of performance goals is shown in the regression line for mid performance goals (in the learning goal by performance goal interaction). When performance goals were average, increases in learning goals were associated with increases in students' use of deep cognitive processing strategies.

The first-order future consequences effect is illustrated by the regression for mid performance goals in the two-way performance goal by future consequences interaction in Figure 14. When performance goals were mid-level (average), the higher the future consequences, the higher the scores for deep strategy use. In addition to the first-order future consequences effect, the two-way interaction revealed that scores for deep strategy use were highest when performance goals were low and future consequences were high and lowest when both performance goals and future consequences were low. As can be seen in Figure 14, those with high performance goals did not differ in their use of deep strategies across the levels of future consequences, but deep strategy use among those with both average and low performance goals varied significantly as a function of future consequences. At both high and low levels of future consequences, the use of deep processing strategies differed significantly as a function of performance goals. Not shown in either of the interactions in Figure 14, the first order perceived ability effect indicated

that deep strategy use increased with increases in perceived ability.

Regression results for explaining persistence. The regression of persistence on the three achievement goals and perceived ability revealed a significant three-way learning goal by performance goal by future consequences interaction within an eight-predictor model ($R^2 = .39$). However, the three-way interaction accounted for only 1.9% of the variance in persistence beyond that already explained by the other variables in the model. Other possible models under consideration were a four-predictor model made up of performance goals, future consequences, perceived ability, and a two-way performance goal by perceived ability interaction ($R^2 = .36$), and a three-predictor model containing only the first order variables from the four-predictor model ($R^2 = .33$). Comparison of the eight-predictor and four-predictor models showed that the amount of variance explained by four additional variables in the eight-predictor model was not significant, F (4, 192) = 1.90, $p > .05$. The four-predictor model was then compared to the three-predictor model. The model comparison test revealed that removal of the two-way interaction did result in a significant loss of explained variance, F (1, 196) = 9.51. $p < .005$. The four-predictor model, F (4, 196) = 28.15, MSE = .58, $p <$ .0001, was selected as it was a more parsimonious model than the eight-predictor model and did not sacrifice significant explanatory power as did the three-predictor model. Significant effects were revealed for all three first order variables and for the two-way performance goal by future consequences interaction.

The two-way performance goal by future consequences interaction is portrayed in Figure 15. The interaction revealed that persistence was lowest when both performance goals and future consequences were low. When

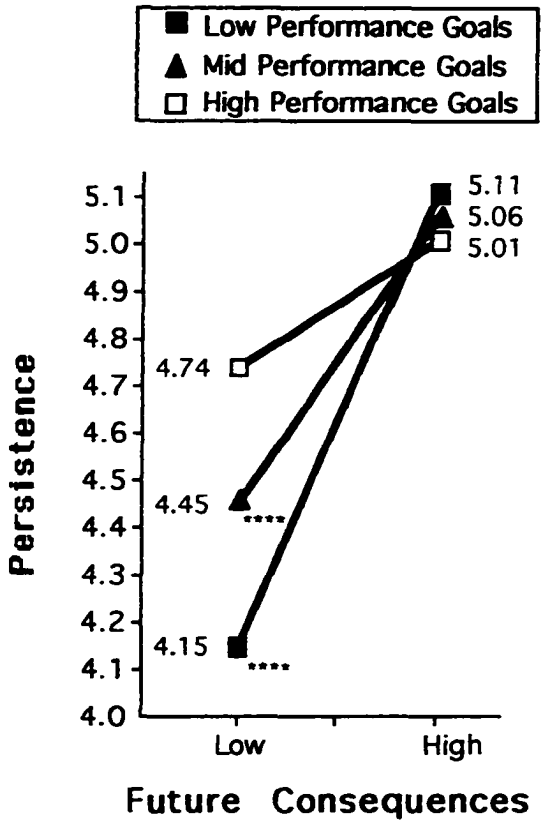


Figure 15. Variations in persistence as a function of the performance goal by future consequences interaction. Asterisks identify significant slopes: ****$p < .001$.

future consequences were high, persistence was also high and did not differ significantly over the levels of performance goals. When future consequences were low, persistence was greatest when performance goals were high and lowest when performance goals were low. For those with low and average performance goals, persistence varied significantly as a function of future consequences; but, those with high performance goals did not differ significantly in the amount of persistence reported across the levels of future consequences.

The conditional first order future consequences effect (beta = .32) is

shown by the regression line for mid performance goals in Figure 15. When performance goals were average, increases in future consequences were associated with increases in persistence. The first order performance goal effect (beta = .13), conditional at the mean of future consequences, revealed that, when future consequences were average, persistence increased with increases in performance goals. Similarly, the positive first order perceived ability effect (beta = .35) revealed that, as perceived ability increased, persistence increased.

Regression results for explaining effort. Only learning goals significantly explained variance in the amount of effort students reported expending in their target classes relative to the amount of effort exerted in other classes. None of the other achievement goals, perceived ability, or interactions included in the regression significantly explained variance in scores for effort. Learning goals alone explained 15% of the variance in effort scores. The effect indicated that increases in learning goals were associated with increases in effort.

Hierarchical Regression Analyses for Explaining Cognitive Engagement.

While research has previously established the influences of both achievement goals and perceived ability on cognitive engagement (Ames & Archer, 1988; Anderman et al., 1998; Bandura, 1986, 1993; Elliott & Dweck, 1988; Greene & Miller, 1993, 1996; Meece et al., 1988; Miller et al., 1996; Pintrich & DeGroot, 1990; Zimmerman & Martinez-Pons, 1990), the links between perceptions of classroom goal structures and cognitive engagement are not as clear. Since studies finding direct effects of perceptions of classroom structures on cognitive engagement did not take into account the effects of both perceived ability and achievement goals (Ames & Archer, 1988; Ryan et al.,

1985; Skinner et al., 1990), this study sought to determine if perceptions of classroom goal structures would explain additional variance in cognitive engagement beyond that accounted for by achievement goals and perceived ability. The specific research question to be addressed was "do perceptions of classroom goal structures explain additional variation in cognitive engagement scores beyond that explained by achievement goals, perceived ability, and interactions between goals and perceived ability?"

Hierarchical regression analyses were employed to address the question. The achievement goal and perceived ability models adopted in the earlier regressions were entered into the regression equations as a block to complete the first step of each hierarchical regression. The three perceptions of goal structures variables (task, autonomy, and social comparison/ competition) were entered as a block in the second step of the regression. If all three variables did not significantly ($p < .05$) explain additional variation in the cognitive engagement variable, each possible subset of the three variables was tested separately to determine which, if any, combination of the three variables significantly added to the explanatory power of the model. The hierarchical regressions were then repeated including only significant perceptions of classroom goal structures variables in the second steps of the regressions. A table summarizing the results of the final hierarchical regression analyses is presented in Appendix F.

Perceptions of classroom goal structures did not significantly contribute to the explanation of variations in either deep strategy use or persistence beyond the variance accounted for by goals and perceived ability. When the variance in effort and self-regulation explained by goals and perceived ability was first taken into account, perceptions of autonomy (beta =

.15) and social comparison/competition (beta = .17) together explained an additional 3.6% of the variance in scores for effort, and perceptions of social comparison/competition (beta = .16) explained an additional 2.3% of the variance in self-regulation scores.

The findings that perceptions of classroom goal structures did not explain additional variance in deep strategy use or persistence and explained very little additional variance in self-regulation and effort was not surprising, given that variance in the cognitive engagement scores accounted for by models of goals and perceived ability were first taken into account. Since evidence has shown perceptions of classroom goal structures to influence both perceived ability (Ames, 1992a, 1992b; Rosenholtz & Simpson, 1984; Ryan et al., 1985) and achievement goals (Ames, 1992a, 1992b; Nicholls, 1989; Ryan et al., 1985), it was expected that perceptions of classroom goal structures would exert influence on cognitive engagement primarily through their effects on goals and perceived ability.

Perceptions of Classroom Goal Structures Models for Explaining Achievement Goals and Perceived Ability.

In order to determine whether perceptions of classroom goal structures did, indeed, explain variance in achievement goals and perceived ability in this sample, regression analyses were conducted. Learning goals, performance goals, future consequences, and perceived ability were each separately regressed on all possible subsets of the three perceptions of classroom goal structures variables: task, autonomy, and social comparison/competition. Only subsets in which all predictor variables significantly ($p < .05$) contributed to the explanation of variance are presented in the summary of the regression analyses (see Table 12) and in the following discussions of results for each of

the goal and perceived ability variables. In some cases, more than one subset of the three perceptions of classroom goal structures variables emerged as a viable model for the explanation of variance. In those cases the regression

Table 12

Results of Regression Analyses of Perceptions of Classroom Goal Structures Models for Explaining Achievement Goals and Perceived Ability

CRITERION VARIABLE	Predictor Variable	B	SE B	β
LEARNING GOALS				
Model 1 (R Square = .189)	Task	.086	.013	.434 ****
Model 2 (R Square = .055)	Autonomy	.114	.033	.234 ****
Model 3 (R Square = .030)	Competition	-.140	.057	-.173 *
PERFORMANCE GOALS				
Model 1 (R Square = .093)	Task	.123	.041	.216 ***
	Competition	.691	.167	.297 ****
Model 2 (R Square = .094)	Autonomy	.299	.098	.215 ***
	Competition	.664	.164	.285 ****
Model 3 (R Square = .051)	Competition	.528	.161	.226 ***
FUTURE CONSEQUENCES				
Model 1 (R Square = .111)	Task	.082	.017	.333 ****
PERCEIVED ABILITY				
Model 1 (R Square = .097)	Task	.065	.024	.194 **
	Competition	-.258	.097	-.189 **
Model 2 (R Square = .065)	Task	.085	.023	.256 ****
Model 3 (R Square = .022)	Autonomy	.120	.057	.148 *
Model 4 (R Square = .063)	Competition	-.344	.094	-.252 ****

*p < .05, **p < .01, ***p < .005, ****p < .001

NOTE: Competition = social comparison/competition

results for all possible models (containing only significant predictors) are presented and discussed. For display purposes, perceptions of social comparison/competition are shown as "competition" in Table 12.

Regression results for explaining learning goals. As shown in Table 12, perceptions of task emerged as the model explaining the greatest amount of variance in learning goals, F (1, 199) = 46.31, MSE = 7.88, $p < .0001$. Increases in students' perceptions of classroom instruction, procedures, and overall climate in target classes as being mastery-oriented were associated with increases in adoption of learning goals in target classes. While both perceptions of autonomy and social comparison/competition significantly explained variations in learning goals when other goal structure perceptions were not included in the model, when they were included in regressions together and with the task variable, they were no longer significant predictors.

Regression results for explaining performance goals. Perceptions of social comparison/competition explained the greatest amount of variance in performance goals, both as a single predictor and in combination with perceptions of task or autonomy. Two models, task and social comparison/ competition, and autonomy and social comparison/competition, explained essentially equal amounts of variation in performance goals, Fs (2, 198) = 10.14 and 10.27 respectively, MSEs = 72.70 and 72.61, respectively, ps = .0001. The two-predictor subset that included task and autonomy explained only 2% of the variance in performance goals with neither predictor even approaching significance, ps > .25. However, when either task or autonomy perceptions were combined with perceptions of social comparison/competition, just over 9% of the variance in performance goals was explained. As perceptions of target classes as either mastery-oriented or autonomy-oriented increased, the

adoption of performance goals for learning in the classes also increased. Increases in perceptions of target classes as being competitive and making social comparison among students salient were also accompanied by increases in performance goals.

Regression results for explaining future consequences. Variations in future consequences were significantly explained by only perceptions of task, F (1, 199) = 24.83, MSE = 13.42, $p < .0001$. Perceptions of task explained 11.1% of the variance in future consequences with increases in perceptions of target classes as mastery-oriented associated with increases in viewing learning in the classes as important for achieving future goals.

Regression results for explaining perceived ability. Perceptions of task and social comparison/competition in combination offered the best explanation of variations in perceived ability, F (2, 198) = 10.66, MSE = 24.83, $p < .0001$. Model comparison tests of the two-predictor model with the single predictor models of task, F (1, 198) = 6.99, $p < .01$, and social comparison/competition, F (1, 198) = 7.40, $p < .01$, revealed a significant loss in variance accounted for by excluding either variable from the model. As can be seen in Table 12, perceptions of autonomy also emerged as a significant predictor. However, the 2% of variance explained by autonomy perceptions, while statistically significant, was certainly negligible and did not intuitively compete with the two-predictor model. The two-predictor model of task and social comparison/competition revealed that increases in perceptions of target classes as mastery-oriented were associated with increases in perceived ability while increases in perceptions of the classes as competitive and involving the use of social comparisons were associated with decreases in perceived ability.

CHAPTER 5

DISCUSSION AND CONCLUSIONS

Incidence of Cheating

The finding in this study that 70% of the students cheated in their university courses is consistent with findings in other survey studies of cheating among university students (Franklyn-Stokes & Newstead, 1995; McCabe & Trevino, 1996). While many recent studies have yielded lower percentages (ranging from 40% to 64%) of students reporting cheating in their college courses (Davis et al., 1992; Davis et al., 1994; Davis & Ludvigson, 1995; Davis et al., 1995; Diekhoff et al., 1996; Haines et al., 1986; Huss et al., 1993; May & Loyd, 1993), others resulted in 79% to 91% of the students surveyed admitting engagement in cheating behaviors (Genereux & McLeod, 1995; McCabe & Bowers, 1994; Newstead et al., 1996; Sierles et al., 1980; Sierles et al., 1988; Sims, 1993; Stern & Havlicek, 1986). Studies which found lower percentages of students cheating either simply asked students if they cheated in college or asked students if they engaged in major categories of cheating in college, such as cheating on exams, quizzes, or assignments. In such studies, the operational definition of cheating was left up to each individual student and may have varied widely among participants. The higher rates of cheating were found in studies that used methods, similar to those of the present study, in which behaviors were listed and participants reported the frequency of engagement in each separate behavior. In all of the studies cited, students were asked to report engagement in cheating behaviors during their entire college career or during the previous or present academic year. What is particularly surprising about the percentage of students reporting cheating in the current study is that students were asked to report engagement in

cheating behaviors in only one class (the first class attended each week) during one semester. Had students been asked to report cheating behaviors for all classes, it is likely the percentages would have been comparable to those found by others using similar methods.

Gender differences have been found in a number of studies, with a greater percentage of males than females reporting cheating in college courses (Aiken, L. R., 1991; Davis et al., 1992; Davis et al., 1994; Davis & Ludvigson, 1995; Newstead, 1996). In contrast to such findings, but consistent with the findings of other researchers (Diekhoff et al., 1996; Franklyn-Stokes & Newstead, 1995; Genereux & McLeod, 1995; Haines et al., 1986; Huss et al., 1993; May & Loyd, 1993; McCabe & Trevino, 1996; Sierles et al., 1988), the current study found no differences in the percentages of males and females reporting engagement in cheating behaviors. Most studies of cheating have consistently found a greater percentage of students reporting cheating on assignments than reporting cheating on tests (Diekhoff et al., 1996; Franklyn-Stokes & Newstead, 1995; Genereux & McLeod, 1995; Haines et al., 1986; May & Loyd, 1993; McCabe & Bowers, 1994; McCabe & Trevino, 1996; Newstead et al., 1996; Partello, 1993). In the present study, however, a somewhat greater percentage of students reported cheating on tests than reported cheating on assignments. In addition, more students reported cheating for their own academic benefit than reported cheating for the academic benefit of others.

The most frequent test cheating behaviors reported by students were giving and receiving questions and answers to tests, using copies of previous tests, compiling and utilizing test files, and copying answers from others' tests. The classes most susceptible to these forms of cheating would be those in which the same tests are given semester after semester and tests are placed

in the students' possession after they are graded. Instructors could easily circumvent these methods of cheating by using different forms of tests both within and between classes, taking up tests after reviewing them with students, and revising items when the same material is tested in later semesters. However, if preventive measures are not accompanied by meaningful, relevant instructional and assessment practices, and students are not informed, prior to testing, of the skills and understandings they will be required to demonstrate, it is unlikely such measures will result in increased learning among students. It is more likely that, in the absence of quality instruction and sound assessment procedures, preventive measures may be perceived as controlling, resulting in even less learning and the use of more severe cheating techniques.

The most prevalent methods of assignment cheating were creating fictitious observations and copying homework. A reflective, professional response to these behaviors calls for examination of the instructional procedures preceding the assignments and the design of the assignments themselves. For education students, field observations are deemed an important part of becoming familiar with life in schools, the characteristics of students, and the methods and techniques used by master teachers. If students are able to invent observations and their fictitious accounts go undetected, this is a strong indicator that they already possessed the knowledge expected to be gained from the observation. If their accounts are identified as fictitious, a lack of understanding is apparent. The number of students engaging in this cheating endeavor and frequencies that show several have engaged in the behavior on more than one occasion lend credence to the probability that, for the most part, these behaviors have gone undetected. Although this may

suggest that students are lazy and choose to complete requirements with as little effort as possible, it more strongly indicates that the tasks were not at the appropriate level of complexity for providing the challenges necessary to engage students' interest and involvement (Csikszentmihalyi et al., 1993). Examination of the reasons students give for engaging in such acts of cheating provide evidence that much cheating is associated with the pursuit of extrinsic rewards that have little to do with fostering an intrinsic desire for learning.

Reasons for Cheating

The most prevalent reasons given for cheating were extrinsic reasons associated with obtaining higher grades, work avoidance reasons related to assignments, and all reasons on the survey that were associated with poor teaching. Reasons related to grades are commonly reported in studies of cheating and are usually the primary reason students give for engaging in cheating behaviors (Adams, 1960; Baird, 1980; Barnett & Dalton, 1981; Davis et al., 1992; Davis & Ludvigson, 1995; LaBeff, et al., 1990; Oaks, 1975; Payne & Nantz, 1994; Rigano & Ritchie, 1995; Zastrow, 1970). Extrinsic reasons for cheating were negatively associated with both perceived ability and persistence indicating that cheating to receive higher grades is more prevalent among students who do not believe they are capable of achieving high grades on their own and who are less persistent in their attempts to understand concepts or skills presented in their classes.

Similar to the finding of Anderman et al. (1998), that cheating was associated with a class extrinsic orientation in which the classroom reward structure allowed students to avoid completing additional assignments, not wanting to do an assignment was a frequently reported reason for cheating in

the current study. Work avoidance reasons for cheating were negatively correlated with future consequences suggesting that when students view learning in their classes as important for attaining future goals they are less likely to want to avoid studying or completing assignments. It may even be that students want the opportunity to practice skills on assignments that are similar to the actual work they will encounter in their future careers.

Of all the reasons given for cheating, poor teaching reasons were correlated most strongly with all measures of cheating. When students viewed their instruction to be of poor quality or assignments to be ambiguous, not only were students more likely to cheat for their own benefit, they were also more likely to engage in cheating behaviors for the possible academic benefit of others. That poor teaching reasons for cheating were significantly positively correlated with all cheating measures indicates that much of the cheating that occurs is perceived by students to be due to the quality of instruction they receive. Blaming others for one's own behaviors has been shown to be a technique by which individuals can neutralize engagement in illicit behaviors and thereby free themselves to engage in the behaviors without feeling guilt or remorse; in fact, they may even feel justified (Bandura, 1986, 1991; Sykes & Matza, 1957). While it is probable that blaming poor instruction may be more a way of justifying one's own behavior than a true reflection of instructional quality, it is equally probable that the instruction in some classes is so poor students do feel justified in cheating. The correlations between poor teaching reasons and all measures of cheating suggest that instructional quality may be decidedly lacking in classes where the most cheating occurs.

In addition to the reasons for cheating listed on the survey, an open-

ended item was included asking students to indicate any other reasons they had for cheating. For the most part, responses to the open-ended question could be classified into the five major categories of reasons used in this study: social, work avoidance, poor teaching, intrinsic, and extrinsic. One of the most frequently mentioned reasons for cheating involved time pressures. Time pressures have been found to be a predominant reason students give for cheating in their classes (Baird, 1980; Daniel et al., 1991; Davis & Ludvigson, 1995; Franklyn-Stokes & Newstead, 1995; LaBeff et al., 1990; Newstead et al., 1996; Rigano & Ritchie, 1995). The frequency with which time pressures were listed as a reason for cheating indicates that, in future studies, an item reflecting time pressure should be added to the Survey of Cheating Behaviors.

Another extrinsic reason for cheating that did not appear on the survey, but that was provided in response to the open-ended item, was receiving monetary remuneration in exchange for cheating. One cheating entrepreneur explained that she is paid for writing papers for other students. Since she reported engaging in this behavior nine or more times, it appears that her "business" is not lacking customers. Several participants mentioned helping others and tests that did not match instruction as reasons they had for cheating; these responses can be classified, respectively, as social and poor teaching reasons. The following responses to the open-ended item, although few in number, could not be readily classified into the five categories of reasons included in the study: being given unsolicited answers from other students during a test, the difficulty of a course or test, not putting enough effort into studying, and lack of ability.

While the reasons students give for cheating may be considered to be

rationalizations (Daniel, et al., 1991), neutralization techniques (Diekhoff et al., 1996; Haines, et al., 1986; LaBeff, 1990; Sykes & Matza, 1957), or means for circumventing moral self-regulatory processes (Bandura, 1986, 1991), the reasons contributed by students in response to the open-ended item, particularly those related to ability, effort, and task difficulty, provided evidence that reasons for cheating may be considered to be attributions. If reasons for cheating are actually techniques of neutralization or means for disengaging self-regulatory processes, the reasons must precede acts of cheating. In the current study, the reasons for cheating were solicited following engagement in cheating behaviors and, therefore, would more appropriately be classified as either rationalizations or attributions for cheating. Future research should examine reasons for cheating within the context of Weiner's (1984, 1986) attribution theory of motivation. Of particular interest would be studies examining whether different attributions for cheating are related to different patterns of subsequent cheating. It may be that when a student attributes cheating to lack of ability and views ability as stable, the likelihood of cheating in the future is greater than when a student attributes cheating to low effort and knows he or she is capable of exerting greater effort in the future. Some reasons or attributions for cheating may be associated with decreases in future cheating, while others may be associated with increases in the frequency of cheating. The attributions a student makes for cheating may also exert an influence on perceived ability, which in turn may influence, not only engagement in cheating behaviors, but also cognitive engagement in future classes.

Students in the current study rarely attributed their cheating to social or intrinsic reasons. Since both social and intrinsic reasons were modestly

correlated with performance goals, it appears that cheating in order to be accepted as part of the group or to be liked by friends and cheating because it is enjoyable and fun, when such instances do occur, are associated with seeking out favorable judgments or avoiding unfavorable judgments of one's abilities. Of all the reasons for cheating, intrinsic reasons were reported the least often. It appears that students, when asked directly, do not readily admit that they may see cheating as fun, that they derive enjoyment from acts of cheating, or that engagement in cheating behaviors provides challenge or excitement. It may be that the responses to the reasons for cheating scale were an artifact of the sample in the current study. It is also possible that students are unaware of their intrinsic reasons for cheating, necessitating more indirect measures of the reasons they have for cheating.When intrinsic feelings occurring during acts of cheating were measured, some students did report having feelings associated with intrinsic motivation while engaging in cheating behaviors.

Intrinsic Motivation for Cheating

One of the aims of the current study was to determine if the findings of Blackburn and Miller (1996), that approximately one-fifth of the students who cheated were intrinsically motivated to do so, would be replicated. The results of this study were consistent with those of Blackburn and Miller, establishing intrinsic motivation for cheating as a unique construct related to students' cheating behaviors. Intrinsic motivation for cheating refers to flow-like feelings occurring during engagement in cheating activities. Csikszentmihalyi and Larson (1978) found that students who were bored or frustrated in the school environment were more likely to engage in antisocial behaviors such as school vandalism, disruption of classes, and acts of violence than were

students whose skills were more in line with the challenges offered by the school. Their findings, that students were attaining flow experiences through engagement in delinquent acts more often than they were achieving flow from the activities offered in the school, led them to propose that schools move away from reliance on extrinsic motivation and toward a more intrinsically motivated, less controlling system. The proposals made by Csikszentmihalyi and Larson are further supported by the results of the current study.

Among students who reported cheating in their classes, intrinsic motivation for cheating was inversely associated with perceptions of classroom task structures. Cheaters who perceived their classes as highly mastery-oriented were less likely to experience flow during engagement in cheating behaviors than were cheaters who perceived their classes as being low in mastery orientation. Male cheaters were more likely to achieve feelings of flow during cheating acts when they perceived their classes as noncompetitive and low in social comparison than when they perceived their classes as stressing social comparison and being highly competitive. For some males, competition may be the ingredient that provides the challenges necessary for achieving flow. When competitive challenges are absent in the classroom environment, such students may view cheating as a competition between themselves and the instructor, and cheating may offer the challenges of a flow experience. As cheating skills are honed, greater risks (or challenges) would need to be taken to maintain the match between skill and challenge required to achieve flow.

Also consistent with the findings of Blackburn and Miller (1996), the percentage of males experiencing intrinsic motivation for cheating was

greater than the percentage of females experiencing intrinsic feelings while engaging in cheating behaviors. In both the current study and the study conducted by Blackburn and Miller, university education students served as participants with males making up 18% and 30% of the samples, respectively. Since education majors are predominantly female students, it is possible that the findings in both studies are representative of males and females who have elected a predominantly female major. Future research should test the replicability of the findings with samples in which both genders are more equally represented and samples from majors which are predominantly male.

Cheating and Optimal Challenge

In addition to establishing intrinsic motivation for cheating as a construct, the present study sought to determine if cheating was motivated by mismatches between student skill levels and class challenge levels. Since Csikszentmihalyi and Larson (1978) found delinquent behaviors in schools to occur more frequently among students whose skills either exceeded or were below the challenge levels of their school classes, I wished to test the generalizability of their findings to engagement in cheating behaviors. The curvilinear relationships found between measures of cheating and the match between students' skill levels and class challenge levels indicate that the students cheating most frequently are, indeed, those whose skills are either well above or well below class challenge levels. Not only do these results extend the generalizability of Csikszentmihalyi's theory of optimal challenge to the arena of student cheating, they also offer a possible explanation for differing results in studies which have examined relationships between cheating and students' ability or achievement.

Although some researchers have found low ability students to cheat

more than high ability students (Antion & Michael, 1983; Bronzaft et al., 1973; Campbell, 1931; Drake, 1941; Gardner et al., 1988; Hawley, 1984; Parr, 1936), others have found no relationships between rates of cheating and students' ability or achievement (Bonjean & McGee, 1965; Franklyn-Stokes & Newstead, 1995; Houston, 1977a, 1983b; Johnson, C. D., & Gormly, 1971; Smith et al., 1972). Some studies have resulted in mixed findings with lower ability students cheating more, higher ability students cheating more, or high and low ability students having similar rates of cheating depending on the experimental condition or grade level of the sample (Fisher, 1970; Johnson, C. D., & Gormly, 1972; Leming, 1980b; Steiner, 1930). Black (1962) found no differences in the amount of cheating for students in the upper and lower thirds of their classes but found that both the upper and lower third cheated significantly more than did the middle third. Although a curvilinear relationship between class grades and cheating was suggested by Black's results, no mention was made of such a relationship.

While the present study did not use actual ability measures, but rather students' perceptions of their abilities in relation to class challenge levels (termed "match scores"), the finding of a curvilinear relationship adds new information to the research on cheating. Students are cheating more when the demands of classes are perceived to be beyond their skills or when classes are failing to challenge them. These findings indicate that it is the match (or mismatch) between class challenge and student ability, rather than student ability level alone, that sets the stage for cheating to occur. The findings of relationships between cheating frequencies and mismatches between students' skills and class challenges were supported and extended by additional findings regarding the relationships between match scores and

perceived ability, perceptions of classroom use of social comparison and competition, effort, and learning goals.

As previously stated, match scores were not a direct measure of either ability or perceived ability, but were a measure of students' perceived skill levels in relation to students' perceptions of class challenge levels. Therefore, a student who rated the challenge of a class as extremely difficult (challenge = 5) and rated her own skills as very high (skill = 5) would have a match score of zero (challenge - skill) as would another student who rated the class challenge as average (challenge = 3) and his own skills as average (skill = 3). The positive correlation between perceived ability and match scores suggests that students' judgments of their skills in relation to class challenges are one, but not all, of the factors that make up students' perceptions of ability for learning and performing in a class.

The correlational evidence revealed that cheaters who perceive their skills as inadequate for meeting class challenges are not only more likely to have low perceptions of ability, they are also more likely to perceive their classes as being competitive and making ability comparisons among students more salient. Among cheaters, those with low match scores seem to be the most sensitive to social comparison and competition in the classroom environment. This is not surprising since students who do not have sufficient skills for meeting class requirements are the ones most likely to lose in class competitions, to come out on the short end of the stick when comparisons are based on ability, to suffer debilitating and even humiliating effects when comparisons are made public, and to believe there is nothing they can do to keep up with others. These are the kinds of failure experiences that, for far too many students, lead to the use of maladaptive strategies in

academic learning situations as a means of protecting their already low perceptions of ability and feelings of self-worth (Ames, 1992b; Covington, 1992; Diener & Dweck, 1978; Dweck, 1986; Elliott & Dweck, 1988; Nicholls, 1989; Ryan et al., 1985). The current evidence suggests that, among university students who perceive their skills as inadequate for meeting class challenges, those who cheat may be even more likely to adopt maladaptive strategies than their noncheating counterparts.

The relationships found between both effort and match scores and learning goals and match scores indicate that students who perceive class challenges to be beyond the reach of their skills are not the only ones at risk in academic environments. Students who perceive their skills to be higher than the challenges offered by their classes are also less likely to exert effort and adopt learning goals than those whose skills are more closely matched to challenges encountered in the classroom. The curvilinear relationship found between effort and match scores indicates that the students expending the least amount of effort are those who believe they possess the necessary skills for meeting class demands, but who are not being challenged academically. Students with the lowest match scores put forth less effort than those whose skills more closely matched class challenges, but even they put forth more effort than those with high match scores. Effort was shown to be greatest when students perceived their abilities to be slightly below the challenge levels of their classes. These findings are consistent with the theory of optimal challenge (Csikszentmihalyi et al., 1993). Csikszentmihalyi's theory stipulates that, for students to experience flow in learning situations, challenges must require students to move beyond the skills they currently possess and must be attainable through effort. Therefore, the students most

likely to experience flow in the classroom and to expend the most effort are those whose skills are being optimally extended with challenges that are slightly above current skill levels.

It is not surprising that the students who perceived themselves as most capable of performing well were those putting forth the least amount of effort in their classes. According to self worth theory (Covington, 1992), among older students, high expenditure of effort is associated with having low ability. When students focus on demonstrating ability and are concerned with how their ability may be judged by others, they may conceal the effort they put forth in order to appear smarter to others. Accordingly, an alternative explanation for the finding could be that students who perceived their skills to be higher than class challenges underreported the amount of effort they actually put into their target classes. However, when the relationship between effort and match scores is considered in concert with the relationships found between match scores and cheating, perceived ability, and learning goals, the interpretation based on flow theory seems more plausible than does an attempt by students to conceal effort when reporting on an anonymous survey.

The curvilinear relationship between learning goals and match scores revealed disturbing motivational patterns for students at both ends of the match score spectrum. When students perceived large discrepancies between the challenge levels of their target classes and the skills they had for learning and performing in those classes, they were less likely to adopt learning goals. According to Csikszentmihalyi and his colleagues (Csikszentmihalyi & Larson, 1978; Csikszentmihalyi & Nakamura, 1989; Csikszentmihalyi et al., 1993), students who perceive their skills to be well below the challenge level

of a class are likely to experience frustration and anxiety while those who perceive their skills to be higher than the challenges offered are likely to experience boredom. Neither of these mismatches in skill level and challenge are conducive to the adoption of learning goals, and both point to instructional problems.

Apparently, even in university courses (where we would expect far less variability in achievement levels than in a typical public school classroom) most instruction is directed at the average learner, and the academic needs of students whose skill levels fall below or above that level of instruction are not being met. The characteristics of learners must be taken into account in order for the instruction provided to be of high quality for all learners (Smith & Ragan, 1993). This should certainly not be interpreted as advocating ability grouping within university classrooms and does not mean that students with different skill levels should receive entirely separate instruction. What this does indicate is that, within each unit of instruction, adequate provisions need to be made for students who may be missing prerequisite skills and additional challenges need to be provided for those who may be bored otherwise. The evidence also strongly suggests that, even at the university level, we need to restructure the way we think about school and the delivery of instruction.

It is understandable that students would not seek out challenges and pursue learning for its own sake when they do not feel their skills are adequate for achieving even the minimum class requirements. It is equally understandable that students would not adopt learning goals or exert effort when they feel the class will not offer information or skills beyond those they already possess; but I would venture that most of these students are far from

masters in their fields of study. All students should be challenged to extend their skills, to move beyond the levels of knowledge and skill they have upon entering a class (Csikszentmihalyi et al., 1993). The students, the university, and future employers (and in the case of education students, their own future students) are not well served when students barely pass a course and emerge with inadequate skills and understanding. Nor are they well served when students with high ability coast through a course acquiring few new skills or attaining no greater depth of conceptual understanding in the interim. Certainly no one should be satisfied at the end of a course if students have not added to their knowledge and improved their skills. Unfortunately, this may well be the result for students at both ends of the skill level continuum if motivational concerns are not addressed.

Motivational Model of Cheating

In order to gain a better understanding of the relationships between motivation, learning, and cheating in university classrooms, the relationships among variables in a motivational model of cheating were examined (see Figure 1). The primary research purposes of this portion of the study were to explore relationships among the components of the model and to test the efficacy of the model for predicting engagement in cheating behaviors. The results of the research showed that students' perceived ability and achievement goals (learning goals, performance goals, and future consequences) were significant predictors of the frequency of cheating in targeted classes. However, the multiple regression results consistently revealed that interactions among goals and perceived ability, rather than the first-order variables themselves, were the most significant predictors of cheating. The correlational analyses supported these findings in that the goal

and perceived ability variables were not significantly correlated with measures of the frequency of cheating with the exception of a modest negative correlation (significant only for the group of cheaters) between performance goals and the frequency of cheating for others on assignments.

Several major patterns emerged when the interactions predicting different categories of cheating were compared. Learning goals were present in interactions predicting all forms of cheating. First-order learning goal effects were negative and were significant only in models predicting the frequencies of cheating on assignments and cheating for others. These results differ from those of Anderman et al. (1998) in that they found personal mastery goals (learning goals) to be negatively correlated with cheating while the correlations between learning goals and cheating were not significant in this study. Anderman et al. did not find learning goals to be a significant predictor of cheating, but interactions between learning goals and other variables were not included in their regression models.

Like learning goals, perceived ability was also present in interactions predicting all categories of cheating. However, future consequences interacted with other variables in predicting only categories of cheating that included assignment cheating behaviors, and performance goals interacted with other variables in predicting only those categories of cheating that included engagement in cheating for the benefit of others. Performance goals interacted separately with learning goals and with perceived ability in predicting the overall frequency of cheating, the frequency of cheating on tests (for self and others), and the frequency of cheating for others on tests. The interactions for these three categories of cheating were remarkably similar in both appearance and significance of effects indicating that the models of overall frequency of

cheating and the frequency of cheating on tests were reflecting primarily the effects of the model for the frequency of cheating for others on tests. Therefore, only the latter model is discussed in detail.

In the model of cheating for others on tests, the two-way performance goal by perceived ability interaction revealed that students with low perceived ability were more affected by differences in performance goals than were students of average or high perceived ability. Students with average and high perceived ability cheated at about the same rates regardless of the level of performance goals while those with low perceived ability increased in their rates of cheating with increases in performance goals. Achievement goal theories (Dweck, 1986; Dweck & Leggett, 1988; Elliott & Dweck, 1988; Nicholls, 1989) predict that students with dominant performance goals will exhibit different approaches to learning depending on their perceived ability. Although these predictions could be translated into expectations about cheating for one's own benefit, there is no apparent connection between students' approaches toward their own learning and their willingness to engage in cheating behaviors for the academic benefit of others. It is interesting, however, that students with high performance goals differed in rates of cheating for others on tests depending on their perceived ability much as achievement goal theories would predict they would differ in their approaches to learning.

The learning goal by performance goal interaction revealed similar and fairly high rates of cheating across the levels of performance goals when learning goals were low. When learning goals were high, cheating decreased significantly only when performance goals were low. It appears that high learning goals were overridden by high performance goals and, to a lesser

extent, by average performance goals when the situation called for decisions to engage or not engage in cheating behaviors. In terms of achievement goal theories (Dweck, 1986; Dweck & Leggett, 1988; Elliott & Dweck, 1988; Nicholls, 1989), the interaction implies that learning goals were dominant only when performance goals were low. It may be that in situations where cheating is possible, performance goals override learning goals except in the case of a high learning goal, low performance goal combination.

Perhaps the most puzzling aspect of the two interactions (learning goal by performance goal and performance goal by perceived ability) is why high performance goals would be associated with higher rates of cheating for others on tests. It would seem that students who hold a goal of outperforming others, appearing smart to others, or avoiding the appearance of having low ability would be less likely to assist others in cheating on tests. However, it is possible that being able to provide another student with an answer he or she does not know is interpreted as evidence of being smarter than that student. It is also possible that cheating for others on a test is many times a cooperative activity between friends, and with each helping the other, both are able to attain higher scores resulting in more favorable judgments of both students' abilities.

It may be that cheating, particularly cheating for the benefit of others, is a response to other goals, such as social goals. Urdan and Maehr (1995) have recommended that social goals be examined in concert with achievement goals in studies of student motivation. Unfortunately, the present study did not include measures of social goals. Further research is needed to determine the circumstances for which cheating may be instrumental in attaining achievement goals and those for which cheating may enable students to

attain important social goals.

While performance goals interacted with learning goals and perceived ability in explaining measures of cheating involving cheating for others and test cheating, interactions among learning goals, future consequences, and perceived ability were the best predictors of frequencies of cheating related to cheating on assignments. Since the model for cheating for others included behaviors related to both test and assignment cheating, the separate models for cheating for others on assignments and cheating for others on tests present more accurately the interactions involved in each category of cheating behavior. Also, since the model for cheating on assignments included assignment cheating behaviors for self and for others, the separate models for cheating for others on assignments and cheating for self on assignments are a more accurate representation of each category of assignment cheating than is the combined model. Therefore, the discussion that follows will focus on two models: the frequency of cheating for others on assignments and the frequency of cheating for self on assignments.

The best predictor model for cheating for others on assignments included a three-way learning goal by future consequences by perceived ability interaction and a two-way performance goal by perceived ability interaction. Although the cheating behaviors were engaged in for the benefit of others, the achievement goal and perceived ability model successfully predicted 23% of the variance in those cheating behaviors indicating that engagement in assignment cheating for others is tied to students' goals for their own learning and perceptions of their own abilities. Lower cheating was exhibited among students with high learning goals at all levels of perceived ability only when future consequences were low or average. When future consequences were

high, high learning goals were associated with lower cheating among students of low perceived ability and higher rates of cheating among students of high perceived ability. When future consequences were average or high and learning goals were low, higher rates of cheating were shown for those of low perceived ability and lower rates for those of high perceived ability. That the highest rates of cheating were found among students with low perceived ability and low learning goals suggests that the "friends" who copied their homework or for whom they wrote papers may not have benefited greatly (in terms of grades) from the assistance they received. In the presence of high future consequences, the increase in cheating among those of high perceived ability may indicate that, when an assignment is perceived as important for attaining future goals, those seeking someone to write their papers or someone who will allow them to copy a homework assignment become more selective. It could be expected that they would seek "help" from someone perceived as highly capable.

The performance goal by perceived ability interaction also revealed that those most likely to engage in assignment cheating for others were those with low perceived ability and high performance goals, while those least likely to offer "assistance" were students with high perceived ability and high performance goals. These findings indicate that performance goals are interpreted differently depending on perceived ability. It appears that students with high perceived ability and high performance goals may be most concerned with outperforming others and, therefore, would not be likely to write papers for other students or allow them to copy their homework. Students with low perceived ability and high performance goals are not likely to expect that they will outperform others and may view cheating to help

others as an indicator that they are smarter than those who benefit from their cheating.

Cheating for self on assignments was predicted by a two-way learning goal by perceived ability interaction and a two-way future consequences by perceived ability interaction. Achievement goal theories (Dweck, 1986; Dweck & Leggett, 1988; Elliott & Dweck, 1988; Nicholls, 1989) predict that students with dominant learning goals will exhibit a mastery-oriented approach to learning that will not vary across differing levels of perceived ability. Cheating could hardly be interpreted as an adaptive or mastery approach to learning. However, if cheating is considered to be a maladaptive approach to learning, similar low rates of cheating would be expected among students who have high learning goals. The results were not consistent with predictions based on achievement goal theories. The frequency of cheating for self on assignments among students with high learning goals varied as a function of perceived ability with increases in perceived ability accompanied by increases in the frequency of cheating. When learning goals were low, students did not differ in the frequency of cheating across levels of perceived ability. It may be that the separate measures of learning and performance goals used in this study do not provide the information necessary for interpreting the learning goal by perceived ability interaction within the context of achievement goal theories (Miller et al., 1996). As indicated by Miller et al., when learning and performance goals have been measured separately there is no evidence to indicate which goal is dominant in a given situation.

Students of low and high perceived ability also differed in their engagement in assignment cheating behaviors as a function of future

consequences. Students with high perceived ability had the highest rates of cheating when future consequences were low and the lowest rates of cheating when future consequences were high. Similar findings were indicated by Smith et al. (1972) who found that students reported more cheating on less important quizzes and assignments than on examinations they viewed as more important. Conversely, students with low perceived ability had the lowest rates of cheating when future consequences were low and the highest rates of cheating when future consequences were high. These findings are consistent with those of C. D. Johnson and Gormly (1971) who found university ROTC students who viewed a test as important to their future careers cheated more than those for whom the test was not important for attaining future goals. It may also be that students of high perceived ability do not see value in completing assignments perceived as irrelevant to their future goals, but put forth their greatest effort on tasks that are meaningful and closely linked to their future careers. Since they view themselves as capable of performing well, they do not cheat on assignments they perceive as important. Those with low perceived ability may also feel the greatest pressure to perform well when a task is viewed as important for attaining future goals, but may feel incapable of meeting the challenges of the task. When one has low perceptions of ability, cheating may be worth the risk for an assignment of importance to one's future but may not be worth the risk otherwise.

In addition to new findings that interactions among achievement goals and perceived ability were significant predictors of engagement in cheating behaviors, this study also found that the use of deep processing strategies and perceptions of student autonomy in the classroom added significantly to the

prediction of engagement in certain categories of cheating behaviors above the variance accounted for by achievement goals and perceived ability. The use of deep strategies was a significant predictor of additional variance in the following frequency of cheating categories: overall cheating, cheating on tests, cheating for others, cheating for others on tests, and cheating for others on assignments. In all categories for which deep strategy use was a significant predictor, higher levels of deep strategy use were associated with increases in the frequency of cheating. These results were contrary to the findings of Anderman et al. (1998) that deep processing strategies significantly predicted cheating behaviors with lower levels of deep strategy use associated with increases in cheating.

The differences in results can be partially explained by the measures of cheating used in each study. In the Anderman et al. (1998) study, the measure of cheating did not include cheating behaviors engaged in for the benefit of others. In the present study, deep strategy use was a significant predictor of only measures of cheating that included behaviors engaged in for the academic benefit of others. The finding of a positive relationship between cheating and deep strategy use is likely due to students seeking out those who understand the concepts and skills when they wish to copy assignments or answers on a test, or obtain other illicit assistance in completing course work or taking examinations. Also inconsistent with the findings of Anderman et al. (1998), for the measures of cheating for self, deep strategy use was not found to predict variance beyond that accounted for by perceived ability and achievement goals in this study. The differences in these results are likely attributable to differences in the variables tested as predictors, the measures of cheating and the participant samples. While deep processing was tested as a

predictor of cheating in this study and the Anderman et al. study, the inclusion of perceptions of autonomy as a predictor of engagement in cheating was unique to the present study.

Perceptions of autonomy were found to predict an additional 3.1% of the variance in the frequency of cheating for self on assignments beyond variance accounted for by the perceived ability and achievement goal (learning goals and future consequences) model. That autonomy was positively related to engagement in cheating behaviors was unexpected given research showing autonomy to be positively related to mastery motivation and adoption of learning goals (Ames, 1992a; Csikszentmihalyi et al., 1993; Ryan et al., 1985). It may be that provisions for autonomy make it easier for students to cheat, and those who have established patterns of cheating readily take advantage of such opportunities when they are available. It could also be that when autonomy is provided within a classroom structure otherwise low in mastery orientation, the necessary supports and guidance that should accompany delegation of responsibility and choice to students have not been provided. Additional research is necessary to determine if autonomy has different effects on cheating, cognitive engagement, achievement goals, and perceived ability depending on the perceived degree of mastery-orientation of other classroom structures.

In addition to the findings related to the prediction of engagement in cheating behaviors, the current study examined relationships among the other components of the motivational model of cheating. Students' achievement goals and perceived ability were found to significantly explain variations in their cognitive engagement. Consistent with findings in other studies (Anderman et al., 1998; Greene & Miller, 1996; Miller et al., 1996;

Pintrich & DeGroot, 1990; Pintrich & Garcia, 1991) and with achievement goal theories (Dweck, 1986; Dweck & Leggett, 1988; Elliott & Dweck, 1988; Nicholls, 1989), learning goals were found to significantly explain variations in self-regulation, the use of deep cognitive processing strategies, and effort. The results showing future consequences to be a significant variable in explaining students' use of self-regulatory and deep processing strategies confirmed the work of Miller et. al. and suggested that future consequences may be particularly important in explaining variations in cognitive engagement among university students. These results are also consistent with the work of Csikszentmihalyi et al. (1993) who found that talented high school students were most committed to development of their talents when their current intrinsic motivation (similar to learning goals) and future goals were working in concert.

Findings in this study diverged from those of other researchers in that performance goals were found to interact with other achievement goals (learning goals and future consequences) and perceived ability in explaining variations in cognitive engagement. The finding that students with high learning goals differed in their self-regulation as a function of perceived ability is inconsistent with predictions derived from achievement goal theories (Dweck, 1986; Dweck & Leggett, 1988; Elliott & Dweck, 1988; Nicholls, 1989). However, consistent with achievement goal theories, students with high perceived ability did not differ in self-regulation as a function of performance goals. In contrast to achievement goal theories and the findings of Miller et al. (1996) that learning goals significantly predict students' persistence in achievement situations, the results of this study revealed that performance goals, future consequences, perceived ability, and an interaction

between performance goals and future consequences all contributed significantly to the explanation of persistence. The interaction indicated that, when future consequences were high, persistence was high regardless of the level of performance goals; but when future consequences were low, persistence varied as a function of performance goals with increases in persistence accompanying increases in performance goals. This points to the importance, as recommended by others (Csikszentmihalyi, 1993; Miller et al., 1996), of helping students make connections between what they are learning in their classes and the future goals they hope to attain.

Consistent with the work of Ames (1992a, 1992b; Ames & Archer, 1988), students' perceptions of classroom goal structures, specifically those perceptions related to task structures, social comparison/competition, and autonomy were shown to significantly explain variations in students' achievement goals and perceived ability. Perceptions of task structure significantly explained variations in the three achievement goals (learning goals, performance goals, and future consequences) and perceived ability. As expected, and in agreement with the work of Ames, perceptions of high levels of social comparison and competition were associated with increases in the adoption of performance goals and decreases in perceived ability.

Perceptions of social comparison/competition and autonomy made significant, but small, positive contributions to explanations of variance in effort beyond variance accounted for by learning goals. Perceptions of social comparison/competition also explained 2.3% of the variance in self-regulation above that explained by the achievement goal and perceived ability model. While the finding that perceptions of autonomy were positively related to expenditure of effort is in accord with the findings of other

researchers (Ames, 1992a, 1992b; deCharms, 1976; Deci & Ryan, 1987; Rosenholtz & Simpson, 1984; Ryan et al., 1985; Skinner et al., 1990), the findings that perceptions of social comparison/competition made positive contributions to effort and self-regulation are not.

The findings in this study, particularly those resulting from the exploratory examination of relationships among components in the motivational model of cheating, should be considered tentative in that the only relationships in the model tested in a truly predictive manner were those related to cheating behaviors. Measures of achievement goals, perceived ability, cognitive engagement, and perceptions of classroom goal structures were obtained concurrently. Additional research will be necessary to establish which of these relationships remain stable when tested in a predictive model. Assumptions regarding causality should not be made based on the results of this correlational study. The motivational model of cheating will have to undergo further testing before the nature of the relationships among the components are fully understood. Also, the findings in this study should not be generalized to university students other than education majors, to pre-college students, or to students in other areas of the country. Further testing of the findings with samples representative of a wide variety college majors, age groups, and regions will be necessary to determine their generalizability to other populations.

This study did, however, reveal important relationships among academic cheating and the motivational and cognitive variables that are likely to influence cheating in actual classroom settings. Much more research is needed to determine when, how, and even why engagement in cheating begins. Research is also needed to determine how current engagement in

cheating and the attributions students make about their engagement in cheating behaviors may influence, not only later engagement in cheating, but also cognitive engagement, adoption of achievement goals and perceptions of ability. Of particular interest and import would be research examining the impact cheating at the university level may have on future performance in career settings. While studies have shown that cheating at the university level is associated with engagement in cheating behaviors in later job settings (Sims, 1993; Stevens & Stevens, 1987), no research has examined the impact cheating among education students may have on the quality of teaching performance. This study has primarily provided an initial examination of the relationships between cheating and learning in a small sample of students from two colleges of education and evidence that the incidence and frequency of cheating in those settings is widespread.

Educational Implications

It is alarming that 70.1% of the education students sampled reported cheating in the first class they attended each week, especially considering that they were reporting about behaviors in only one class. If they had been asked to report engagement in cheating behaviors in all their classes, in all probability the percentage of students cheating would have been much higher. That the rate of cheating in all classes was actually higher than 70.1% is supported by the fact that several of the students who reported they had not cheated in their target classes had initially indicated engagement in cheating behaviors but had marked these reports out and written notes that these behaviors did not occur in their target classes, but in other classes they were taking.

Cheating among teacher education students is particularly disturbing as

one might expect that students planning to be teachers would be less inclined to cheat. In a study conducted by Blackburn and Miller (1996) to examine cheating behaviors of graduate and upper-level undergraduate education students, 51.6% of the students reported having cheated in their education courses within the previous two years. Coupled with the findings from this study, that at least 70.1% of freshmen through graduate education students cheated during only one semester, it is obvious that our future classroom teachers will engage in cheating to obtain their credentials. The implications of preservice teachers and graduate students in the field of education engaging in cheating behaviors are far-reaching. Preservice teachers who have cheated in classes designed to enable them to provide quality instruction to students may be ill-prepared for the demands of the classroom; and, it is doubtful that graduate students in education are adequately updating and increasing their knowledge bases and skills if they have cheated in their classes. When one considers that undergraduate education students who cheat become the teachers of children and youth in our schools and cheating graduate students become reading specialists, counselors, and principals, the situation becomes even more unsettling.

However, looking at only the students without considering the quality of the programs that prepare them for teaching and the caliber and substance of the education they receive prior to entering our universities will do little to solve the problem of cheating. Institution of controls, sanctions, and negatively administered preventive methods may limit cheating in some instances, but is it worth the limited learning that accompanies a controlled learning environment (Ryan et al., 1985)? I think not. The cost to student learning is too dear a price to pay to gain the absence of cheating through such

means.

In examining student cheating, it is essential that educators focus on the purposes they wish to achieve. One would hope that the primary purposes of schooling at any level are the improvement of students' skills and understandings and activation of the desire to learn. It is when such purposes are not kept firmly in mind that responses to cheating take the form of punishments, stricter controls, and diminished rapport with students. Unfortunately, such responses are not likely to achieve, and may even undermine, the aforementioned purposes of schooling. Cheating should be responded to professionally (with an educational purpose in mind) rather than emotionally (without an educational purpose). When educators in a university respond to cheating emotionally it is likely that the perpetrators will be given failing grades for the assignment, test, or course, or, in extreme cases, be expelled from the university. Although such punitive measures might "teach them a lesson" and serve as an example to others, would those measures or the example achieve an educational purpose? Specifically, would failing grades or expulsion result in improvement of student skills and understanding? Would the offenders be instilled with a desire to learn? Would other students improve skills and understandings or cultivate a desire to learn as a result of observing the punishments meted out to their classmates? The answer to all of these questions is a resounding, "No."

So, what might be done to eradicate cheating? I suggest that the quality of instruction and the quality of those who deliver that instruction are the keys to eliminating much of the cheating in classrooms. In particular, the evidence indicates that educators must be more effective in conveying the instrumentality of their course material and in matching challenging

instruction to the skill levels of their students. If students are engaged in learning that is challenging and relevant and such learning takes place in environments that are responsive to individual student needs, cheating may become a rare occurrence rather than the widespread phenomenon it is now. Indeed, if students are able to derive intrinsic pleasure from acts of learning, to become involved in the wonder of discovering new knowledge and formulating new ideas, it is unlikely they will consider cheating as an option. That this should be a rare occurrence in classrooms is unconscionable.

From their interviews with students, Csikszentmihalyi et al. (1993) derived characteristics of teachers who were able to create, what they termed "flow classrooms." Three primary characteristics emerged from their interviews: enthusiasm and interest in the subjects they were teaching, the talent of balancing timely intervention with prudent restraint, and a true caring for their students. The teachers who were able to transform these characteristics into flow experiences for students in their classrooms were those who conveyed their enthusiasm to their students, modeled interest for their subject in their own lives, downplayed manipulative reward systems and policies, provided timely and appropriate feedback focused on improvement of skills and understanding, knew their students well, and provided caring emotional support and encouragement when it was needed (Csikszentmihalyi et al., 1993). What is inconceivable is that, even in districts where prospective teachers who exemplify these characteristics are available for employment, teachers who personify the antithesis of such qualities are allowed to remain in our classrooms providing our children and youth with the kind of education that ensures the continuation of cheating.

BIBLIOGRAPHY

Ackerman, P. D. (1971). The effects of honor-grading on students' test scores. American Educational Research Journal, 8, (2), 321-333.

Adams, H. R. (1960). Cheating: Situation or problem. Clearing House, 35, 233-235.

Adelman, H. S., & Taylor, L. (1990). Intrinsic motivation and school misbehavior: Some intervention implications. Journal of Learning Disabilities, 23, 541-550.

Aiken, L. R. (1991). Detecting, understanding, and controlling for cheating on tests. Research in Higher Education, 32, (6), 725-736.

Aiken, L. S., & West, S. G. (1991). Multiple regression: Testing and interpreting interactions. Newbury Park, CA: Sage.

Ames, C. (1992a). Achievement goals and the classroom motivational climate. In D. H. Schunk & J. Meece (Eds.), Student perceptions in the classroom (pp. 327-348). Hillsdale, NJ: Erlbaum.

Ames, C. (1992b). Classrooms: Goals, structures, and student motivation. Journal of Educational Psychology, 84, (3), 261-271.

Ames, C., & Archer, J. (1988). Achievement goals in the classroom: Students' learning strategies and motivation processes. Journal of Educational Psychology, 80, 260-267.

Anderman, E. M., Griesinger, T., & Westerfield, G. (1998). Motivation and cheating during early adolescence. Journal of Educational Psychology, 90, 84-93.

Antion, D. L., & Michael, W. B. (1983). Short-term predictive validity of demographic, affective, personal, and cognitive variables in relation to two criterion measures of cheating behaviors. Educational and Psychological

Measurement, 43, (2), 467-482.

Asendorpf, J. B., & Nunner-Winkler, G. (1992). Children's moral motive strength and temperamental inhibition reduce their immoral behavior in real moral conflicts. Child Development, 63, 1223-1235.

Atkins, B. E., & Atkins, R. E. (1936). A study of the honesty of prospective teachers. Elementary School Journal, 36, 595-603.

Baird, J. S., Jr. (1980). Current trends in college cheating. Psychology in the Schools, 17, (4), 515-522.

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1991). Social cognitive theory of moral thought and action. In W. M. Kurtines & J. L. Gewirtz (Eds.), Handbook of moral behavior and development: Vol. 1. Theory (pp. 45-103). Hillsdale, NJ: Erlbaum.

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. Educational Psychologist, 28, (2), 117-148.

Bandura, A., & Wood, R. (1989). Effect of perceived controllability and performance standards on self-regulation of complex decision-making. Journal of Personality and Social Psychology, 56, 805-814.

Barlow, J. A. (1967). Note: Student cheating in studying programmed material. The Psychological Record, 17, (4), 515-516.

Barnett, D. C., & Dalton, J. C. (1981). Why college students cheat. Journal of College Student Personnel, 22, (6), 545-551.

Bellezza, F. S. & Bellezza, S. F. (1989). Detection of cheating on multiple-choice tests by using error-similarity analysis. Teaching of Psychology, 16, (3), 151-155.

Berger, S. E., Levin, P., Jacobson, L. I., & Millham, J. (1977). Gain

approval or avoid disapproval: Comparison of motive strengths in high need for approval scorers. Journal of Personality, 45, (3), 458-468.

Berndt, T. J., & Keefe, K. (1996). Friends' influence on school adjustment: A motivational analysis. In J. Juvonen & K. R. Wentzel (Eds.), Social motivation: Understanding children's school adjustment (pp. 248-278). New York: Cambridge University Press.

Black, D. B. (1962). The falsification of reported examination marks in a senior university education course. Journal of Educational Sociology, 35, 346-354.

Blackburn, M. A. (1996). Cheating: Meeting motivational needs. Unpublished manuscript.

Blackburn, M. A., & Miller, R. B. (1996, April). Cheating and motivation: A possible relationship. Poster session presented at the annual meeting of the American Educational Research Association, New York.

Bonjean, C. M., & McGee, R. (1965). Scholastic dishonesty among undergraduates in differing systems of social control. Sociology of Education, 38, (2), 127-137.

Bronzaft, A. L., Stuart, I. R., & Blum, B. (1973). Test anxiety and cheating on college examinations. Psychological Reports, 32, 149-150.

Brophy, J. (1998). Motivating students to learn. Boston: McGraw Hill.

Brownell, H. C. (1928). Mental test traits of college cribbers. School and Society, 27, (704), 764.

Bunn, D. N., Caudill, S. B., & Gropper, D. M. (1992). Crime in the classroom: An economic analysis of undergraduate student cheating behavior. Journal of Economic Education, 23, 197-207.

Bushway, A., & Nash, W. R. (1977). School cheating behavior. Review

of Educational Research, 47, (4), 623-632.

Calabrese, R. L., & Cochran, J. T. (1990). The relationship of alienation to cheating among a sample of American adolescents. Journal of Research and Development in Education, 23, (2), 65-72.

Campbell, W. G. (1931). Student honesty as revealed by reporting of teacher's errors in grading. School and Society, 33, 97-100.

Campbell, W. G. (1933). Measurement in determining the personality and behavior of the college cribber. Education, 53, 403-408.

Cloninger, D. O., & Hodgin, R. (1986). An economic analysis of student-reported grading errors. Journal of Economic Education, 17, 25-33.

Covington, M. V. (1992). Making the grade: A self-worth perspective on motivation and school reform. New York: Cambridge University Press.

Csikszentmihalyi, M., & Larson, R. (1978). Intrinsic rewards in school crime. Crime and Delinquency, 322-335.

Csikszentmihalyi, M., & Nakamura, J. (1989). The dynamics of intrinsic motivation: A study of adolescents. In C. Ames & R. Ames (Eds.), Research on motivation in education: Goals and cognitions: Vol. 3. (pp. 45-71). New York: Academic.

Csikszentmihalyi, M., Rathunde, K., & Whalen, S. (1993). Talented teenagers: The roots of success and failure. New York: Cambridge University Press.

Daniel, L. G., Adams, B. N., & Smith, N. M. (1994). Academic misconduct among nursing students: A multivariate investigation. Journal of Professional Nursing, 10, (5), 278-288.

Daniel, L. G., Blount, K. D., & Ferrell, C. M. (1991). Academic misconduct among teacher education students: A descriptive-correlational

study. Research in Higher Education, 32, (6), 703-724.

Davis, S. F., Grover, C. A., Becker, A. H., & McGregor, L. N. (1992). Academic dishonesty: Prevalence, determinants, techniques, and punishments. Teaching of Psychology, 19, (1), 16-20.

Davis, S. F., & Ludvigson, H. W. (1995). Additional data on academic dishonesty and a proposal for remediation. Teaching of Psychology, 22, (2), 119-121.

Davis, S. F., Noble, L. M., Zak, E. N., & Dreyer, K. K. (1994). A comparison of cheating and learning/grade orientation in American and Australian college students. College Student Journal, 28, 353-356.

Davis, S. F., Pierce, M. C., Yandell, L. R., Arnow, P. S., & Loree, A. (1995). Cheating in college and the Type A personality: A reevaluation. College Student Journal, 29, (4), 493-497.

deCharms, R. (1968). Personal causation: The internal affective determinants of behavior. New York: Academic Press.

deCharms, R. (1976). Enhancing motivation: Change in the classroom. New York: Irvington.

Deci, E. L., & Ryan, R. M. (1987). The support of autonomy and the control of behavior. Journal of Personality and Social Psychology, 53, 1024-1037.

Dickstein, L. S., Montoya, R., & Neitlich, A. (1977). Cheating and fear of negative evaluation. Bulletin of the Psychonomic Society, 10, (4), 319-320.

Diekhoff, G. M., LaBeff, E. E., Clark, R. E., Williams, L. E., Francis, B., & Haines, V. J. (1996). College cheating: Ten years later. Research in Higher Education, 37, (4), 487-502.

Diener, C. I., & Dweck, C. S. (1978). An analysis of learned helplessness:

continuous changes in performance, strategy, and achievement cognitions following failure. Journal of Personality and Social Psychology, 36, (5), 451-462.

Dienstbier, R. A., & Munter, P. O. (1971). Cheating as a function of the labeling of natural arousal. Journal of Personality and Social Psychology, 17, (2), 208-213.

Dmitruk, V. M. (1971). Incentive preference and resistance to temptation. Child Development, 42, 625-628.

Dmitruk, V. M. (1973). Intangible motivation and resistance to temptation. The Journal of Genetic Psychology, 123, 47-53.

Drake, C. A. (1941). Why students cheat. Journal of Higher Education, 12, (8), 418-420.

Dweck, C. S. (1986). Motivational processes affecting learning. American Psychologist, 41, 1040-1048.

Dweck, C. S. (1991). Self-theories and goals: Their role in motivation, personality, and development. In R. Dienstbier (Ed.), Perspectives on motivation: Nebraska symposium on motivation, 1990. Vol. 38 (pp. 199-235). Lincoln, NE: University of Nebraska.

Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. Psychological Review, 95, (2), 256-273.

Eisenberger, R., & Masterson, F. A. (1983). Required high effort increases subsequent persistence and reduces cheating. Journal of Personality and Social Psychology, 44, (3), 593-599.

Eisenberger, R., & Shank, D. M. (1985). Personal work ethic and effort training affect cheating. Journal of Personality and Social Psychology, 49, (2), 520-528.

Ellenburg, F. C. (1973). Cheating on tests: Are high achievers greater

offenders than low achievers? Clearing House, 47, (7), 427-429.

Elliott, E. S., & Dweck, C. S. (1988). Goals: An approach to motivation and achievement. Journal of Personality and Social Psychology, 54, (1), 5-12.

Erickson, M. L., & Smith, W. B., Jr. (1974). On the relationship between self-reported and actual deviance: An empirical test. Humbolt Journal of Social Relations, 2, 106-113.

Eve, R. A., & Bromley, D. G. (1981). Scholastic dishonesty among college undergraduates: Parallel tests of two sociological explanations. Youth and Society, 13, (1), 3-22.

Fakouri, M. E. (1972). Achievement motivation and cheating. Psychological Reports, 31, 629-630.

Fass, R. A. (1986). By honor bound: Encouraging academic honesty. Educational Record, 67, 32-35.

Feldman, S. E., & Feldman, M. T. (1967). Transition of sex differences in cheating. Psychological Reports, 20, (1), 957-958.

Ferrell, C. M., & Daniel, L. G. (1995). A frame of reference for understanding behaviors related to the academic misconduct of undergraduate teacher education students. Research in Higher Education, 36, (3), 345-375.

Fischer, C. T. (1970). Levels of cheating under conditions of informative appeal to honesty, public affirmation of value, and threats of punishment. Journal of Educational Research, 64, (1), 12-16.

Flynn, S., Reichard, M., & Slane, S. (1987). Cheating as a function of task outcome and Machiavellianism. Journal of Psychology, 121, (5), 423-427.

Fodor, E. M. (1972). Resistance to temptation, moral development, and perceptions of parental behavior among adolescent boys. Journal of Social

Psychology, 88, 155-156.

Forsyth, D. R., Pope, W. R., & McMillan, J. H. (1985). Students' reactions after cheating: An attributional analysis. Contemporary Educational Psychology, 10, 72-82.

Franklyn-Stokes, A., & Newstead, S. E. (1995). Undergraduate cheating: Who does what and why? Studies in Higher Education, 20, (2), 159-172.

Frary, R. B. (1993). Statistical detection of multiple-choice answer copying: Review and commentary. Applied Measurement in Education, 6, (2), 153-165.

Gall, M. D., Borg, W. R., & Gall, J. P. (1996). Educational research: An introduction (6th ed.). White Plains, NY: Longman.

Gardner, W. M, Roper, J. T., Gonzalez, C. C., & Simpson, R. G. (1988). Analysis of cheating on academic assignments. The Psychological Record, 38, 543-555.

Genereux, R. L., & McLeod, B. A. (1995). Circumstances surrounding cheating: A questionnaire study of college students. Research in Higher Education, 36, (6), 687-704.

Gottfried, A. E. (1982). Relationships between academic intrinsic motivation and anxiety in children and young adolescents. Journal of School Psychology, 20, 205-215.

Gottfried, A. E. (1985). Academic intrinsic motivation in elementary and junior high school students. Journal of Educational Psychology, 77, 631-645.

Greene, B. A., & Miller, R. B. (1993, April). Influences on course performance: Goals, perceived ability, and self-regulation. Paper presented at the Annual Meeting of the American Educational Research Association,

Atlanta, GA.

Greene, B. A., & Miller, R. B. (1996). Influences on achievement: Goals, perceived ability, and cognitive engagement. Contemporary Educational Psychology, 21, 181-192.

Haines, V. J., Diekhoff, G. M., LaBeff, E. E., & Clark, R. E. (1986). College cheating: Immaturity, lack of commitment, and the neutralizing attitude. Research in Higher Education, 25, (4), 342-355.

Harp, J., & Taietz, P. (1966). Academic integrity and social structure: A study of cheating among college students. Social Problems, 13, 365-373.

Hartshorne, H., & May, M. A. (1928). Studies in the nature of character: Vol. 1. Studies in deceit. New York: Macmillan.

Hawley, C. S. (1984). The thieves of academe: Plagiarism in the university system. Improving College and University Teaching, 32, (1), 35-39.

Hetherington, E. M., & Feldman, S. E. (1964). College cheating as a function of subject and situational variables. Journal of Educational Psychology, 55, (4), 212-218.

Hill, J. P., & Kochendorfer, R. A. (1969). Knowledge of peer success and risk of detection as determinants of cheating. Developmental Psychology, 1, (3), 231-238.

Hill, K. T., & Eaton, W. O. (1977). The interaction of test anxiety and success-failure experiences in determining children's arithmetic performance. Developmental Psychology, 13, (3), 205-211.

Hinshaw, S. P., Heller, T., & McHale, J. P. (1992). Covert antisocial behavior in boys with attention-deficit hyperactivity disorder: External validation and effects of methylphenidate. Journal of Consulting and Clinical Psychology, 60, (2), 274-281.

Hoff, A. G. (1940). A study of the honesty and accuracy found in pupil checking of examination papers. Journal of Educational Research, 34, (2), 127-129.

Houser, B. B. (1982). Student cheating and attitude: A function of classroom control technique. Contemporary Educational Psychology, 7, 113-123.

Houston, J. P. (1976a). Amount and loci of classroom answer copying, spaced seating, and alternate test forms. Journal of Educational Psychology, 68, (6), 729-735.

Houston, J. P. (1976b). The assessment and prevention of answer copying on undergraduate multiple-choice examinations. Research in Higher Education, 5, (4), 301-311.

Houston, J. P. (1976c). Learning and cheating as a function of study phase distraction. Journal of Educational Research, 69, 247-249.

Houston, J. P. (1977a). Cheating behavior, anticipated success-failure, confidence, and test importance. Journal of Educational Psychology, 69, (1), 55-60.

Houston, J. P. (1977b). Cheating: The illusory edge. Contemporary Educational Psychology, 2, 364-372.

Houston, J. P. (1977c). Four components of Rotter's internal-external scale and cheating behavior. Contemporary Educational Psychology, 2, 275-283.

Houston, J. P. (1977d). Learning, opportunity to cheat, and amount of reward. Journal of Experimental Education, 45, (3), 30-35.

Houston, J. P. (1978). Curvilinear relationships among anticipated success, cheating behavior, temptation to cheat, and perceived

instrumentality of cheating. Journal of Educational Psychology, 70, (5), 758-762.

Houston, J. P. (1983a). Alternate test forms as a means of reducing multiple-choice answer copying in the classroom. Journal of Educational Psychology, 75, (4), 572-575.

Houston, J. P. (1983b). College classroom cheating, threat, sex and prior performance. College Student Journal, 17, (Fall), 229-235.

Houston, J. P. (1986a). Classroom answer copying: Roles of acquaintanceship and free versus assigned seating. Journal of Educational Psychology, 78, (3), 230-32.

Houston, J. P. (1986b). Survey corroboration of experimental findings on classroom cheating behavior. College Student Journal, 20, 168-173.

Houston, J. P., & Ziff, T. (1976). Effects of success and failure on cheating behavior. Journal of Educational Psychology, 68, (3), 371-376.

Howard-Rose, D., & Winne, P. H. (1993). Measuring component and sets of cognitive processes in self-regulated learning. Journal of Educational Psychology, 85, (4), 591-604.

Huss, M. T., Curnyn, J. P., Roberts, S. L., Davis, S. F., Yandell, L., & Giordano, P. (1993). Hard driven but not dishonest: Cheating and the Type A personality. Bulletin of the Psychonomic Society, 31, (5), 429-430.

Jacobson, L. I., Berger, S. E., & Millham, J. (1970). Individual differences in cheating during a temptation period when confronting failure. Journal of Personality and Social Psychology, 15, (1), 48-56.

Johnson, C. D., & Gormly, J. (1971). Achievement, sociability, and task importance in relation to academic cheating. Psychological Reports, 28, 302.

Johnson, C. D., & Gormly, J. (1972). Academic cheating: The

contribution of sex, personality, and situational variables. Developmental Psychology, 6, (2), 320-325.

Johnson, L. H. (1943). Pupil cheating: Report on dishonesty among 241 junior-high pupils-reasons, facts, and 3 recommendations. Clearing House, 18, 72-74.

Johnson, P. B. (1981). Achievement motivation and success: Does the end justify the means? Journal of Personality and Social Psychology, 40, (2), 374-375.

Karlins, M., Michaels, C., & Podlogar, S. (1988). An empirical investigation of actual cheating in a large sample of undergraduates. Research in Higher Education, 29, (4), 359-364.

Kibler, W. L. (1993). Academic dishonesty: A student development dilemma. NASPA Journal, 30, (4), 252-267.

Kirk, R. E. (1995). Experimental design: Procedures for the behavioral sciences (3rd ed.). Pacific Grove, CA: Brooks Cole.

Knowlton, J. Q., & Hamerlynck, L. A. (1967). Perception of deviant behavior: A study of cheating. Journal of Educational Psychology, 58, (6), 379-385.

Krueger, W. C. F. (1947). Students' honesty in correcting grading errors. Journal of Applied Psychology, 31, (5), 533-535.

Kurre, J. A., & Tauber, R. T. (1987). An alternative to multiple exam versions for deterring cheating. Journal of Education for Business, 62, 297-299.

LaBeff, E. E., Clark, R. E., Haines, V. J., & Diekhoff, G. M. (1990). Situational ethics and college student cheating. Sociological Inquiry, 60, (2), 190-198.

Leming, J. S. (1980a). Cheating behavior, situational influence, and

moral development. Journal of Educational Research, 71, 214-217.

Leming, J. S. (1980b). Cheating behavior, subject variables, and components of the internal-external scale under high and low risk conditions. Journal of Educational Research, 74, 83-87.

Link, S. W. & Day, R. B. (1992). A theory of cheating. Behavior Research Methods, Instruments, & Computers, 24, (2), 311-316.

Liska, A. E. (1978). Deviant involvement, associations, and attitudes: Specifying the underlying causal structures. Sociology and Social Research, 63, (1), 73-88.

Livosky, M., & Tauber, R. T. (1994). Views of cheating among college students and faculty. Psychology in the Schools, 31, 72-82.

Lobel, T. E. (1993). Gender differences in adolescents' cheating behavior: An interactional model. Personality and Individual Differences, 14, (1), 275-277.

Ludeman, R. B. (1988). A survey of academic integrity practices in U. S. higher education. Journal of College Student Development, 29, (March), 172-173.

Ludeman, W. W. (1938). A study of cheating in public schools. American School Board Journal, 96, 45.

Lueger, R. J. (1980). Person and situation factors influencing transgression in behavior-problem adolescents. Journal of Abnormal Psychology, 89, (3), 453-458.

Malinowski, C. I., & Smith, C. P. (1985). Moral reasoning and moral conduct: An investigation prompted by Kohlberg's theory. Journal of Personality and Social Psychology, 49, (4), 1016-1027.

May, K. M., & Loyd, B. H. (1993). Academic dishonesty: The honor

system and students' attitudes. Journal of College Student Development, 34, (2), 125-129.

McCabe, D. L. (1992). The influence of situational ethics on cheating among college students. Sociological Inquiry, 62, (3), 365-374.

McCabe, D. L., & Bowers, W. J. (1994). Academic dishonesty among males in college: A thirty year perspective. Journal of College Student Development, 35, (1), 5-10.

McCabe, D. L., & Trevino, L. K. (1993). Academic dishonesty: Honor codes and other contextual influences. Journal of Higher Education, 64, (5), 522-538.

McCabe, D. L., & Trevino, L. K. (1996). What we know about cheating in college: Longitudinal trends and recent developments. Change, 28, (1), 28-33.

McNally, J. (1950). A study in classroom cheating in arithmetic and spelling. British Journal of Educational Psychology, 20, 137-139.

McQueen, R. (1957). Examination deception as a function of residual, background, and immediate stimulus factors. Journal of Personality, 25, 643-650.

Meece, J. L., Blumenfeld, P. C., & Hoyle, R. H. (1988). Students' goal orientations and cognitive engagement in classroom activities. Journal of Educational Psychology, 80, (4), 514-523.

Meece, J. L., & Holt, K. (1993). A pattern analysis of students' achievement goals. Journal of Educational Psychology, 85, (4), 582-590.

Michaels, J. W., & Miethe, T. D. (1989). Applying theories of deviance to academic cheating. Social Science Quarterly, 70, (4), 870-885.

Miller, R. B., Greene, B. A., Montalvo, G. P., Ravindran, B., & Nichols, J. D. (1996). Engagement in academic work: The role of learning goals, future

consequences, pleasing others, and perceived ability. Contemporary Educational Psychology, 21, 388-422.

Millham, J. (1974). Two components of need for approval score and their relationship to cheating following success and failure. Journal of Research in Personality, 8, (4), 378-392.

Mischel, W., & Gilligan, C. (1964). Delay of gratification, motivation for the prohibited gratification, and responses to temptation. Journal of Abnormal and Social Psychology, 69, (4), 411-417.

Nelson, T. D., & Schaefer, N. (1986). Cheating among college students estimated with the randomized-response technique. College Student Journal, 20, 321-325.

Newstead, S. E., Franklyn-Stokes, A., & Armstead, P. (1996). Individual differences in student cheating. Journal of Educational Psychology, 88, (2), 229-241.

Nicholls, J. G. (1989). The competitive ethos and democratic education. Cambridge, MA: Harvard University Press.

Nicholls, J. S. (1992). Students as educational theorists. In D. H. Schunk & J. L. Meece (Eds.), Student perceptions in the classroom (pp. 267-286). Hillsdale, NJ: Erlbaum.

Nuss, E. M. (1984). Academic integrity: Comparing faculty and student attitudes. Improving College and University Teaching, 32, 140-144.

Oaks, H. R. (1975). Cheating attitudes and practices at two state colleges. Improving College and University Teaching, 23, 232-235.

Pactor, H. S., McKeen, W., & Morris, J. (1990). Students' ethics require new ways to cope with cheating. Journalism Educator, 44, (4), 57-59.

Pajares, F. (1996). Self-efficacy beliefs in academic settings. Review of

Educational Research, 66, (4), 543-578.

Parr, F. W. (1936). The problem of student dishonesty. Journal of Higher Education, 7, (6), 318-326.

Partello, P. (1993). First-year students and cheating: A study at Keene State College. Research Strategies, 11, (3), 174-179.

Payne, S. L., & Nantz, K. S. (1994). Social accounts and metaphors about cheating. College Teaching, 42, (3), 90-96.

Pearlin, L. I., Yarrow, M. R., & Scarr, H. A. (1967). Unintended effects of parental aspirations: The case of children's cheating. American Journal of Sociology, 73, (1), 73-83.

Perry, A. R., Kane, K. M., Bernesser, K. J., & Spicker, P. T. (1990). Type A behavior, competitive achievement-striving, and cheating among college students. Psychological Reports, 66, 459-465.

Peterson, L. (1988). Teaching academic integrity: Opportunities in bibliographic instruction. Research Strategies, 6, (4), 168-176.

Pintrich, P. R., & DeGroot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. Journal of Educational Psychology, 82, (1), 33-40.

Pintrich, P. R., & Garcia, T. (1991). Student goal-orientation and self-regulation in the college classroom. In M. L. Maehr & P. R. Pintrich, (Eds.), Advances in motivation and achievement: Vol. 7 (pp. 371-401). Greenwich, CT: JAI Press.

Pintrich, P. R., & Schrauben, B. (1992). Students' motivational beliefs and their cognitive engagement in classroom academic tasks. In D. H. Schunk & J. L. Meece (Eds.), Student perceptions in the classroom (pp. 149-183). Hillsdale, NJ: Erlbaum.

Pressley, M., & McCormick, C. (1995a). Advanced educational psychology for educators, researchers, and policymakers. New York: Harper Collins.

Pressley, M., & McCormick, C. (1995b). Cognition, teaching, and assessment. New York: Harper Collins.

Raymond, M. R. (1986). Missing data in evalaution research. Evaluation and the Health Professions, 9, (4), 395-420.

Raymond, M. R. (1987, April). An interactive approach to analyzing incomplete multivariate data. Paper presented at the annual meeting of the American Educational Research Association, Washington, D. C. (ERIC Document Reproduction Service No. ED 281 854).

Reeve, J. M. (1992). Understanding motivation and emotion. Fort Worth, TX: Harcourt Brace Jovanovich.

Rettig, S., & Pasamanick, B. (1964). Differential judgment of ethical risk by cheaters and noncheaters. Journal of Abnormal and Social Psychology, 69, (1), 109-113.

Rigano, D. L., & Ritchie, S. M. (1995). Student disclosures of fraudulent practice in school laboratories. Research in Science Education, 25, (4), 353-363.

Roberts, D. M. (1987). Limitations of the score-difference method in detecting cheating in recognition test situations. Journal of Educational Measurement, 24, (1), 77-81.

Rosenholtz, S. J., & Simpson, C. (1984). Classroom organization and student stratification. The Elementary School Journal, 85, (1), 21-37.

Roskens, R. W., & Dizney, H. F. (1966). A study of unethical academic behavior in high school and college. Journal of Educational Research, 59, (5), 231-234.

Roth, N. L., & McCabe, D. L. (1995). Communication strategies for addressing academic dishonesty. Journal of College Student Development, 36, (6), 531-541.

Ryan, A. M., & Pintrich, P. R. (1997). "Should I ask for help?" The role of motivation and attitudes in adolescents' help seeking in math class. Journal of Educational Psychology, 89, (2), 329-341.

Ryan, R. M., Connell, J. P., & Deci, E. L. (1985). A motivational analysis of self-determination and self-regulation in education. In C. Ames & R. Ames (Eds.), Research on motivation in education: Vol. 2. The classroom milieu (pp. 13-51). San Diego, CA: Academic Press.

Sansone, C., & Morgan, C. (1992). Intrinsic motivation and education: Competence in context. Motivation and Emotion, 16, 249-267.

Schab, F. (1980). Cheating among college and non-college bound pupils, 1969-1979. Clearing House, 53, (8), 379-380.

Schab, F. (1991). Schooling without learning: Thirty years of cheating in high school. Adolescence, 26, (104), 839-847.

Scheers, N. J., & Dayton, C. M. (1987). Improved estimation of academic cheating behavior using the randomized response technique. Research in Higher Education, 26, (1), 61-69.

Schunk, D. H. (1984). Self-efficacy perspective on achievement behavior. Educational Psychologist, 19, 48-58.

Schunk, D. H. (1991). Self-efficacy and academic motivation. Educational Psychologist, 26, (3 & 4), 207-231.

Shelton, J., & Hill, J. P. (1969). Effects on cheating of achievement anxiety and knowledge of peer performance. Developmental Psychology, 1, (5), 449-455.

Sherrill, D., Salisbury, J. L., Horowitz, B., & Friedman, S. T. (1971). Classroom cheating: Consistent attitude, perceptions, and behavior. American Educational Research Journal, 8, (3), 503-510.

Sierles, F., Hendrickx, I., & Circle, S. (1980). Cheating in medical school. Journal of Medical Education, 55, 124-125.

Sierles, F. S., Kushner, B. D., & Krause, P. B. (1988). A controlled experiment with a medical student honor system. Journal of Medical Education, 63, 705-712.

Sims, R. L. (1993). The relationship between academic dishonesty and unethical business practices. Journal of Education for Business, 68, 207-211.

Skinner, E. A., Wellborn, J. G., & Connell, J. P. (1990). What it takes to do well in school and whether I've got it: A process model of perceived control and children's engagement and achievement in school. Journal of Educational Psychology, 82, (1), 22-32.

Smith, C. P., Ryan, E. R., & Diggins, D. R. (1972). Moral decision making: Cheating on examinations. Journal of Personality, 40, (4), 640-660.

Smith, P. L., & Ragan, T. J. (1993). Instructional design. Upper Saddle River, NJ: Prentice Hall.

Steiner, M. A. (1930). Does the school strengthen or weaken the tendency to cheat? Journal of Educational Research, 22, (5), 388-395.

Steiner, M. A. (1932). Cheating in school. School Review, 40, (7), 535-546.

Stern, E. B., & Havlicek, L. (1986). Academic misconduct: Results of faculty and undergraduate student surveys. Journal of Allied Health, 15, (2), 129-142.

Stevens, G. E., & Stevens, F. W. (1987). Ethical inclinations of

tomorrow's managers revisited: How and why students cheat. Journal of Education for Business, 63, (October), 24-29.

Sykes, G. M., & Matza, D. (1957). Techniques of neutralization: A theory of delinquency. American Sociological Review, 22, 664-670.

Taylor, S. P., & Lewit, D. W. (1966). Social comparison and deception regarding ability. Journal of Personality, 34, (1), 94-104.

Tittle, C. R., & Rowe, A. R. (1973). Moral appeal, sanction threat, and deviance: An experimental test. Social Problems, 20, (4), 488-498.

Tom, G., & Borin, N. (1988). Cheating in academe. Journal of Education for Business, 63, 153-157.

Uhlig, G. E., & Howes, B. (1967). Attitudes toward cheating and opportunistic behavior. Journal of Educational Research, 60, (9), 411-412.

Urdan, T. C., & Maehr, M. L. (1995). Beyond a two-goal theory of motivation and achievement: A case for social goals. Review of Educational Research, 65, (3), 213-243.

Vandewiele, M. (1980). Perception of causes of and attitudes toward cheating at school by Sengalese secondary school children. Psychological Reports, 46, (1), 207-210.

Vitro, F. T. (1971). The relationship of classroom dishonesty to perceived parental discipline. Journal of College Student Personnel, 12, 427-429.

Vitro, F. T., & Schoer, L. A. (1972). The effects of probability of test success, test importance, and risk of detection on the incidence of cheating. Journal of School Psychology, 10, (3), 269-277.

Walsh, R. P. (1967). Sex, age, and temptation. Psychological Reports, 21, (2), 625-629.

Ward, D. A. (1986). Self-esteem and dishonest behavior revisited. Journal of Social Psychology, 126, (6), 709-713.

Ward, D. A., & Beck, W. L. (1990). Gender and dishonesty. Journal of Social Psychology, 130, (3), 333-339.

Weiner, B. (1984). Principles for a theory of student motivation and their application within an attributional framework. In R. Ames & C. Ames (Eds.), Research on motivation in education Vol. 1. Student motivation (pp. 15 - 38). New York: Academic Press.

Weiner, B. (1986). An attribution theory of motivation. New York: Springer-Verlag.

Weinland, J. D. (1947). An attempt to measure "cribbing" in objective examinations. Journal of Educational Sociology, 21, (2), 97-100.

Weiss, J., Gilbert, K., Giordano, P., & Davis, S. F. (1993). Academic dishonesty, Type A behavior, and classroom orientation. Bulletin of the Psychonomic Society, 31, (2), 101-102.

Weldon, L. L. (1966). Cheating in school: Teachers are partners in crime. Clearing House, 40, 462-463.

White, W. F., Zielonka, A. W., & Gaier, E. L. (1967). Personality correlates of cheating among college women under stress of independent-opportunistic behavior. Journal of Educational Research, 61, (2), 68-70.

Williams, F. N. (1969). Cheating in the classroom. Improving College and University Teaching, 17, 183-184.

Witta, L. (1994, November). Are values missing randomly in survey research? Paper presented at the annual meeting of the Mid-South Educational Research Association, Nashville, TN. (ERIC Document Reproduction Service No. ED 389 727).

Witta, L., & Kaiser, J. (1991,). Four methods of handling missing data with the 1984 General Social Survey. Paper presented at the annual meeting of the Mid-South Educational Research Association, Lexington, KY. (ERIC Document Reproduction Service No. ED 339 755).

Wright, J. C., & Kelly, R. (1974). Cheating: Student/faculty views and responsibilities. Improving College and University Teaching, 22, 31, 34.

Yepsen, L. N. (1927). The reliability of self-scored measures. School and Society, 26, (673), 657-660.

Zastrow, C. H. (1970). Cheating among college graduate students. Journal of Educational Research, 64, (4), 157-160.

Zimmerman, B. J., Bandura, A., & Martinez-Pons, M. (1992). Self-motivation for academic attainment: The role of self-efficacy beliefs and personal goal-setting. American Educational Research Journal, 29, 663-676.

Zimmerman, B. J., & Martinez-Pons, M. (1990). Student differences in self-regulated learning: Relating grade, sex, and giftedness to self-efficacy and strategy use. Journal of Educational Psychology, 82, (1), 51-59.

Appendix A

Survey on Approaches to Learning

INTRODUCTION TO THE SURVEY ON APPROACHES TO LEARNING AND THE SURVEY OF CLASSROOM GOAL STRUCTURES

You will be completing two surveys today. The purpose of each survey is explained briefly in the following paragraphs. Your responses to these surveys and to the survey you will be completing at the end of the semester require that you respond to all items as they reflect your behaviors and beliefs in one particular class which will be called your TARGET CLASS.

Select the first academic class you normally attend each week. This class will be your TARGET CLASS. Your target class should not be an activity class such as PE, Art, Music, or Field Experience. It should be the first class of the week in which you are required to read textbooks, take tests, and complete assignments/projects. RESPOND TO ALL ITEMS AS THEY REFLECT YOUR BELIEFS AND BEHAVIORS IN **YOUR TARGET CLASS.**

The Survey on Approaches to Learning is intended to provide an overview of your approach to learning the subject matter in YOUR TARGET CLASS. It will sample your reasons for learning and approaches to studying.

The Survey of Classroom Goal Structures is intended to provide an overview of your perceptions of the teacher, students, and classroom structure in YOUR TARGET CLASS. It will sample your beliefs about learning and student-teacher interactions.

Answer the items on each survey as honestly as you can. Your responses will not influence your grade in any way and will be completely confidential.

Directions: Before beginning the surveys, please provide the following information:

1. **ID NUMBER**_____ **CODE NAME**_____

2. I am a:

   ( ) male
   ( ) female

3. My age is _____ years.

4. My current grade point average is _____.

Survey on Approaches to Learning

Directions-Part I: The following statements represent beliefs students may have about their ability to learn and the reasons they might have for doing school work. Read each statement and indicate how much you agree that the statement is true of you in YOUR TARGET CLASS. Circle the number of your response on the scale to the right of each item. Respond to the statements using the following 6-point scale:

Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6

1	I do the work assigned in my target class because I want to improve my understanding of the material.	1	2	3	4	5	6
2	I do the work assigned in my target class because I don't want others to think I'm not smart.	1	2	3	4	5	6
3	I do the work assigned in my target class because I don't want to be embarrassed about not being able to do the work.	1	2	3	4	5	6
4	I do the work assigned in my target class because I want to look smart to my friends.	1	2	3	4	5	6
5	Compared to others in my target class, I think I am good at learning this material.	1	2	3	4	5	6
6	I do the work assigned in my target class because I can show people that I am smart.	1	2	3	4	5	6
7	I am certain I can understand the material presented in my target class.	1	2	3	4	5	6
8	I do the work assigned in my target class because I like to score higher than other students.	1	2	3	4	5	6
9	I am confident I can do as well or better than other students in my target class on exams.	1	2	3	4	5	6
10	I do the work assigned in my target class because understanding this content is important for becoming the person I want to be.	1	2	3	4	5	6
11	I am confident I can perform as well or better than others in my target class.	1	2	3	4	5	6
12	I do the work assigned in my target class because I like to understand the material I study.	1	2	3	4	5	6
13	I am confident I have the ability to understand the ideas taught in my target course.	1	2	3	4	5	6
14	I do the work assigned in my target class because I don't want to be the only one who cannot do the work well.	1	2	3	4	5	6
15	I do the work assigned in my target class because my achievement is important for attaining my dreams.	1	2	3	4	5	6

Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6

16	I do the work assigned in my target class because I want to learn new things.	1	2	3	4	5	6
17	I do the work assigned in my target class because I like to perform better than other students.	1	2	3	4	5	6
18	I do the work assigned in my target class because learning this material is important for attaining my dreams.	1	2	3	4	5	6
19	I do the work assigned in my target class because I like the challenge of learning new ideas.	1	2	3	4	5	6
20	Compared with other students in my target class, my learning and study skills are strong.	1	2	3	4	5	6
21	I do the work assigned in my target class because my performance is important for becoming the person I want to be.	1	2	3	4	5	6
22	I am certain I can learn the concepts taught in my target class.	1	2	3	4	5	6
23	I do the work assigned in my target class because I don't want to look foolish or stupid to my friends, family, or teachers.	1	2	3	4	5	6
24	I do the work assigned in my target class because my achievement plays a role in reaching my future goals.	1	2	3	4	5	6
25	I am confident about my ability to do the assignments in my target class.	1	2	3	4	5	6
26	I do the work assigned in my target class because learning the content plays a role in reaching my future goals.	1	2	3	4	5	6

GO ON TO THE NEXT PAGE

Directions-Part II: The following statements ask about some of your specific behaviors as you study for YOUR TARGET CLASS. Circle the number of your response on the scale to the right of each item. Respond to the statements using the following 6-point scale:

Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6

27	Before a quiz or exam in my target class, I plan out how I will study the material.	1	2	3	4	5	6
28	When I finish working practice problems or homework for my target class, I check my work for errors.	1	2	3	4	5	6
29	I organize my study time well for my target class.	1	2	3	4	5	6
30	I have a clear idea of what I am trying to accomplish in my target class.	1	2	3	4	5	6
31	If I have trouble understanding something in my target class, I go over it again until I understand it.	1	2	3	4	5	6
32	When I study for my target class, I compare and contrast different concepts.	1	2	3	4	5	6
33	I try to organize an approach in my mind before I actually start homework or studying for my target class.	1	2	3	4	5	6
34	When learning new material in my target class, I summarize it in my own words.	1	2	3	4	5	6
35	When doing an assignment for my target class, I make sure I know what I am asked to do before I begin.	1	2	3	4	5	6
36	While learning new concepts in my target class, I try to think of practical applications.	1	2	3	4	5	6
37	When studying for my target class, I try to combine different pieces of information from course material in new ways.	1	2	3	4	5	6
38	When I study for my target class, I take note of the material I have or have not mastered.	1	2	3	4	5	6
39	I mentally combine different pieces of information from my target course materials into some order that makes sense to me.	1	2	3	4	5	6
40	It is easy for me to establish goals for learning in my target class.	1	2	3	4	5	6
41	I answer practice problems to check my understanding of my target course objectives.	1	2	3	4	5	6
42	I find reviewing examples provided in the book or in class to be a good way to study for a test in my target class.	1	2	3	4	5	6
43	I learn new material in my target class by mentally relating new ideas with similar ideas that I already know.	1	2	3	4	5	6
44	I make sure I understand the material that I study in my target class.	1	2	3	4	5	6

GO ON TO THE NEXT PAGE

45. This is a multiple choice item. Read the question and select the **one answer** that best represents your view. Circle the letter beside your answer.

How would you rate your effort in your target class compared to your typical amount of effort for school work?

a. Extremely low (probably the least amount of effort I've ever put into a class)
b. Fairly low (less effort than usual, but I have put in less effort in other classes)
c. About average
d. Fairly high (more effort than usual, but I have worked harder in other classes)
e. Extremely high (probably as much effort as I've ever put into a class)

46. Rate the challenge level of your target class from 1 to 5, with 1 meaning not challenging at all (very easy) and 5 meaning extremely challenging (very difficult). Circle the number that reflects your rating.

Not challenging at all (Very easy)				**Extremely challenging (Very difficult)**
1	**2**	**3**	**4**	**5**

47. Rate your skill/ability level in your target class from 1 to 5, with 1 meaning a very low skill/ability level and 5 meaning an extremely high skill level. Circle the number that reflects your rating.

Very low skill/ability level				**Extremely high skill/ability level**
1	**2**	**3**	**4**	**5**

Table 1. Key for Items from the Survey on Approaches to Learning
Learning Goal Items: 1, 12, 16, 19
Performance Goal (Approach) Items: 4, 6, 8, 17
Performance Goal (Avoidance) Items 2, 3, 14, 23
Future Consequences Items: 10*, 15, 18, 21, 24, 26
Perceived Ability (Self-referent) Items: 7, 13, 22, 25
Perceived Ability (Other-referent): Items: 5, 9, 11, 20
Self-regulation: Items: 27, 28, 29, 30, 33, 35*, 38*, 40, 44*
Deep Strategy Use: Items: 32, 34, 36, 37, 39, 41*, 43
Persistence: Item: 31
Effort: Item: 45
* Item was removed from the scale based on results of the factor analysis

Appendix B

Survey of Classroom Goal Structures

Survey of Classroom Goal Structures

Directions: The following statements ask about some of your beliefs and perceptions about the teacher, students, and learning in YOUR TARGET CLASS. Circle the number of your response on the scale to the right of each item. Respond to the statements using the following 6-point scale:

Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6

1	Students can work together on assignments in my target class.	1	2	3	4	5	6
2	In my target class only a few students can get top marks.	1	2	3	4	5	6
3	In my target class making mistakes is a part of learning.	1	2	3	4	5	6
4	The teacher explains material in my target class in ways that make the information meaningful to students.	1	2	3	4	5	6
5	The teacher in my target class uses more than one mode of evaluation (tests, projects, presentations, journals, etc.) to determine grades.	1	2	3	4	5	6
6	In my target class, the teacher recognizes students for genuine effort, progress, or accomplishment.	1	2	3	4	5	6
7	The assessments in my target class match the instruction and objectives.	1	2	3	4	5	6
8	In my target class, the teacher emphasizes learning the material to pass tests.	1	2	3	4	5	6
9	Due dates for projects/assignments are flexible in my target class.	1	2	3	4	5	6
10	In my target class, the teacher wants us to learn how to solve problems on our own.	1	2	3	4	5	6
11	Students have to compete against each other to get high grades in my target class.	1	2	3	4	5	6
12	The teacher lets us know who does the best work on projects/assessments in my target class.	1	2	3	4	5	6
13	Students learn in my target class by participating in class activities and discussions.	1	2	3	4	5	6
14	In my target class, assignments and tests are returned in a way that keeps individual student grades confidential.	1	2	3	4	5	6
15	In my target class, activities and assignments are challenging.	1	2	3	4	5	6
16	In my target class, the teacher favors some students more than others.	1	2	3	4	5	6
17	The teacher in my target class values creative thinking and original ideas.	1	2	3	4	5	6
18	In my target class the teacher adapts the pace of instruction to meet the needs of the students.	1	2	3	4	5	6
19	The teacher tells us the highest and lowest grades made on tests/ assessments in my target class.	1	2	3	4	5	6

Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6

20	Students get to choose projects/topics they want to work on in my target class.	1	2	3	4	5	6
21	In my target class the teacher emphasizes learning the material to gain understanding.	1	2	3	4	5	6
22	In my target class, the teacher introduces material in ways that are relevant, interesting, and familiar to students.	1	2	3	4	5	6
23	Students can redo work to improve their grades in my target class.	1	2	3	4	5	6
24	The teacher shows how the tasks in my target class are related to students' everyday lives or future careers.	1	2	3	4	5	6
25	The teacher curves the grades in my target class.	1	2	3	4	5	6
26	In my target class, students learn mainly by listening to the teacher and taking notes.	1	2	3	4	5	6
27	In my target class, students are encouraged to find answers to their questions on their own.	1	2	3	4	5	6
28	In my target class, the teacher tries to find out what each student wants to learn about.	1	2	3	4	5	6
29	The teacher provides suggestions and guidance for organizing and managing the workload in my target class.	1	2	3	4	5	6
30	Students are given a chance to correct their mistakes in my target class.	1	2	3	4	5	6
31	Individual thinking and students' ideas are accepted in my target class.	1	2	3	4	5	6
32	In my target class, the teacher pays attention to whether I am improving.	1	2	3	4	5	6
33	Students are not condemned for making mistakes in my target class.	1	2	3	4	5	6
34	Students' responses are treated with respect in my target class.	1	2	3	4	5	6
35	Only students with the highest grades can keep up with the pace of instruction in my target class.	1	2	3	4	5	6
36	The amount of work required in my target class is appropriate for the amount of useful knowledge gained.	1	2	3	4	5	6
37	Students are encouraged to use different methods for completing tasks in my target class.	1	2	3	4	5	6
38	When students make mistakes they are treated with respect in my target class.	1	2	3	4	5	6
39	Students in my target class can use different methods to solve problems or complete tasks.	1	2	3	4	5	6
40	Students are provided with the objectives that will be tested on exams, quizzes or other assessments in my target class.	1	2	3	4	5	6

Table 1.

Key for Items from the Survey of Classroom Goal Structures

Perceptions of Task
Items: 4, 5, 6, 7, 13, 15, 17, 18, 21, 22, 24, 31, 32, 33, 34, 36, 37, 38, 39
Perceptions of Autonomy
Items: 9, 20, 23, 28, 29, 30
Perceptions of Social Comparison/Competition
Items 2, 11, 12*, 16, 35
NOTE: Items 2, 3, 10, 16, 27, 28, 30, and 33 were from, and items 11, 13, and 20 were adapted from, Ames' Classroom Achievement Goals Questionnaire (Ames and Archer, 1988). Items 1, 3, 8, 10, 14, 19, 25, 26, 27, and 40 were removed from the scale based on the results of the factor analysis. * Item 12 was removed from the scale based on results of the reliability analysis

Appendix C

Survey of Cheating Behaviors

ID NUMBER_____ **CODE NAME**

I am a: ( ) freshman ( ) sophomore ( ) junior ( ) senior ( ) graduate

Survey of Cheating Behaviors

Directions: When you completed the Survey on Approaches to Learning and the Classroom Achievement Goals Questionnaire, you were asked to answer all items as they related to YOUR TARGET CLASS. You will answer all items on this survey as they relate to YOUR TARGET CLASS ONLY. IT IS IMPORTANT THAT YOU ANSWER ALL ITEMS ABOUT THE SAME CLASS YOU USED IN COMPLETING THE FIRST TWO SURVEYS.

Directions-PART I: To the right of each of the behaviors listed, circle the number of times you engaged in that behavior in YOUR TARGET CLASS. ANSWER ALL ITEMS AS THEY PERTAIN TO YOUR TARGET CLASS ONLY.

1	copying answers from another student during a test or quiz	0 1-2 3-5 6-8 9+
2	knowingly letting another student look at your answers during a test or quiz	0 1-2 3-5 6-8 9+
3	obtaining answers from another student during a test through the use of any type of "signals"	0 1-2 3-5 6-8 9+
4	using "signals" to give answers to another student during a test	0 1-2 3-5 6-8 9+
5	using a "cheat sheet" (including writing on yourself) during a test	0 1-2 3-5 6-8 9+
6	looking up answers in a book during a "closed-book" test	0 1-2 3-5 6-8 9+
7	using a "test file" compiled by previous students to study for a test that will contain the same items	0 1-2 3-5 6-8 9+
8	participating in compiling a "test file" for other students to use to study for a test that will contain the same items	0 1-2 3-5 6-8 9+
9	obtaining a copy of a test before it is given	0 1-2 3-5 6-8 9+
10	using copies of previous students' tests to study for a test that will contain the same items	0 1-2 3-5 6-8 9+
11	giving a copy of a test you took to another student to use in studying for a test that will contain the same items	0 1-2 3-5 6-8 9+
12	asking another student who has already taken a test for the questions or answers prior to taking the test	0 1-2 3-5 6-8 9+
13	giving questions or answers to a test you have already taken to another student prior to him/her taking the test	0 1-2 3-5 6-8 9+
14	delaying taking a test due to a false excuse	0 1-2 3-5 6-8 9+
15	giving a false excuse for another student to delay taking a test	0 1-2 3-5 6-8 9+
16	changing a response after an exam is returned to you and reporting to the instructor that there has been an error in scoring	0 1-2 3-5 6-8 9+

17	having another person write a paper or assignment which you present as your own	0	1-2	3-5	6-8	9+	
18	writing a paper or assignment for another student to present as his/her own	0	1-2	3-5	6-8	9+	
19	presenting a paper obtained from a "term paper file or company" as your own (including internet papers)	0	1-2	3-5	6-8	9+	
20	making up fictitious observations for assignments without completing required observations	0	1-2	3-5	6-8	9+	
21	"padding" a bibliography with sources which you have not read	0	1-2	3-5	6-8	9+	
22	making up sources for bibliographic citation in a paper	0	1-2	3-5	6-8	9+	
23	directly copying large sections of a published work without giving credit to the author	0	1-2	3-5	6-8	9+	
24	claiming to have turned in an assignment when you have not	0	1-2	3-5	6-8	9+	
25	claiming authorship or participation in a group project when you have made no contribution	0	1-2	3-5	6-8	9+	
26	giving credit for authorship or participation in a group project to a group member who made no contribution	0	1-2	3-5	6-8	9+	
27	letting another student copy your homework	0	1-2	3-5	6-8	9+	

READ THE FOLLOWING DIRECTIONS BEFORE GOING ON TO THE NEXT PAGE

Directions-PART II: For the purposes of this survey, "cheating" is defined as engaging in any of the 28 behaviors listed on the first two pages of this survey. On the next page, you are asked to identify the reasons you had for cheating in your target class.

Look over the 28 items your just answered. If you marked higher than zero for <u>even one</u> of those behaviors, you must have had a reason for engaging in that behavior. In Part II, the numbers do NOT indicate the number of times you cheated, but should reflect why you engaged in the cheating behaviors. For example, if you cheated four times and three of the times you cheated to be a part of the group and once you cheated when you did not want to do an assignment, you might mark "most of the time" for item 1 and "sometimes" or "rarely" for item 2. It is also possible that you had more than one reason for cheating each time you engaged in a cheating behavior.

If you marked zero for <u>all</u> of the 28 behaviors in Part I, <u>your responses to Part II should indicate the reasons you think a person would have for cheating IN YOUR TARGET CLASS.</u>

Never	Rarely	Sometimes	Often	Most of the time
1	2	3	4	5

Read each statement carefully. Circle the number of your response on the scale to the right of each item. Respond to the statements using the following 5-point scale:

1	I cheated to be a part of the group.	1	2	3	4	5
2	I cheated when I didn't want to do an assignment.	1	2	3	4	5
3	I cheated because I like the feeling of control over a test or assignment.	1	2	3	4	5
4	I cheated to keep up with other students who were cheating.	1	2	3	4	5
5	I cheated because of poor teaching by my instructors.	1	2	3	4	5
6	I cheated so that others would think I was smart.	1	2	3	4	5
7	I cheated because it was a challenge to see if I could get by with it.	1	2	3	4	5
8	I cheated because of pressures to receive high grades.	1	2	3	4	5
9	I cheated when tests did not match the instruction in a class.	1	2	3	4	5
10	I cheated so that I would be able to get the job I want.	1	2	3	4	5
11	I cheated because I enjoy cheating.	1	2	3	4	5
12	I cheated so that I would not have to study.	1	2	3	4	5
13	I cheated because I find cheating exciting.	1	2	3	4	5
14	I cheated when I felt an assignment was unreasonable.	1	2	3	4	5
15	I cheated by helping others so that they would like me.	1	2	3	4	5
16	I cheated because I don't like doing assignments.	1	2	3	4	5
17	I cheated to avoid test anxiety.	1	2	3	4	5
18	I cheated because it is fun to cheat.	1	2	3	4	5
19	I cheated because others were cheating.	1	2	3	4	5
20	I cheated to get higher grades.	1	2	3	4	5
21	I cheated because I don't like to study.	1	2	3	4	5
22	I cheated when an instructor's instructions were unclear.	1	2	3	4	5
23	I cheated so I would have the grades I need to be admitted to a graduate program.	1	2	3	4	5
24	I cheated so that my friends would think I was smart.	1	2	3	4	5
25	I cheated for a reason not listed. (Please write you reason in the space below.)	1	2	3	4	5

GO ON TO THE NEXT PAGE

Directions- PART III: Remember, for the purposes of this survey, "cheating" is defined as engaging in any of the behaviors listed on the first two pages of this survey.

If you engaged in <u>even one</u> of the 28 cheating behaviors in Part I, complete Part III of this survey as the items describe your feelings when you were cheating.

Very much like the feeling on the left	Somewhat like the feeling on the left	Neither	Somewhat like the feeling on the right	Very much like the feeling on the right
1	2	3	4	5

If you did not engage in <u>any</u> of the 28 behaviors in Part I, your responses to Part III should indicate how you think a person who did cheat would have felt when cheating IN YOUR TARGET CLASS.

<u>WHEN I CHEATED IN MY TARGET CLASS I FELT:</u>

1.	ashamed	1	2	3	4	5	proud
2.	low	1	2	3	4	5	high
3.	worried	1	2	3	4	5	calm
4.	strong	1	2	3	4	5	weak
5.	passive	1	2	3	4	5	active
6.	competent	1	2	3	4	5	incompetent
7.	sad	1	2	3	4	5	happy
8.	justified	1	2	3	4	5	inexcusable
9.	powerless	1	2	3	4	5	powerful
10.	deprived	1	2	3	4	5	rewarded
11.	confident	1	2	3	4	5	stupid
12.	detached	1	2	3	4	5	involved
13.	successful	1	2	3	4	5	unsuccessful
14.	alert	1	2	3	4	5	drowsy
15.	in control	1	2	3	4	5	not in control

<u>I THINK CHEATING IS:</u>

16.	exciting	1	2	3	4	5	boring
17.	challenging	1	2	3	4	5	unchallenging
18.	bad	1	2	3	4	5	good

Table 1. Key for Items from the Occurrence of Cheating Behaviors Scale: Part I of the Survey of Cheating Behaviors
Overall Frequency of Cheating Items: 1 - 27
Frequency of Cheating on Tests Items: 1 - 16
Frequency of Cheating on Assignments Items 17 - 27
Frequency of Cheating for Self Items: 1, 3, 5, 6, 7, 9, 10, 12, 14, 16, 17, 19, 20, 21, 22, 23, 24, 25
Frequency of Cheating for Self on Tests Items: 1, 3, 5, 6, 7, 9, 10, 12, 14, 16
Frequency of Cheating for Self on Assignments Items: 17, 19, 20, 21, 22, 23, 24, 25
Frequency of Cheating for Others Items: 2, 4, 8, 11, 13, 15, 18, 26, 27
Frequency of Cheating for Others on Tests Items: 2, 4, 8, 11, 13, 15
Frequency of Cheating for Others on Assignments Items: 18, 26, 27

Table 2.
Key for Items from the Reasons for Cheating and Intrinsic Motivation for Cheating Scales: Parts II and III of the Survey of Cheating Behaviors
Social Reasons
Part II, Items: 1, 4, 6, 15, 19, 24
Work Avoidance Reasons
Part II, Items: 2, 12, 16, 21
Poor Teaching Reasons
Part II, Items 5, 9, 14, 22
Intrinsic Reasons
Part II, Items: 3*, 7, 11, 13, 18
Extrinsic Reasons
Part II, Items: 8, 10, 20, 23
Intrinsic Motivation for Cheating
Part III, Items: 1 - 15 (Items 4, 6, 8, 11, 13, 14, and 15 are reverse scored.)
Attitudes Toward Cheating
Part III, Items: 16, 17 (Items 16 and 17 are reverse scored.)
Belief about Cheating
Part III, Item: 18
* Item was removed from the scale based on results of the factor analysis

Appendix D

Survey of Classroom Goal Structures

Pilot Instrument

INTRODUCTION TO THE SURVEY OF CLASSROOM GOAL STRUCTURES

You will be completing one survey today. The purpose of the survey is explained briefly in the following paragraph. The class in which you are completing the survey is **YOUR TARGET CLASS**. RESPOND TO ALL ITEMS AS THEY REFLECT YOUR BELIEFS AND BEHAVIORS IN **YOUR TARGET CLASS.**

The Survey of Classroom Goal Structures is intended to provide an overview of your perceptions of the teacher, students, and classroom structure in YOUR TARGET CLASS. It will sample your beliefs about learning and student-teacher interactions.

Answer the items on each survey as honestly as you can. Your responses will not influence your grade in any way and will be completely confidential.

ID NUMBER_____

Survey of Classroom Goal Structures

Directions: The following statements ask about some of your beliefs and perceptions about the teacher, students, and learning in YOUR TARGET CLASS. Circle the number of your response on the scale to the right of each item. Respond to the statements using the following 6-point scale:

Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6

1	Due dates for projects/assignments are flexible in my target class.	1	2	3	4	5	6
2	In my target class only a few students can get top marks.	1	2	3	4	5	6
3	In my target class making mistakes is a part of learning.	1	2	3	4	5	6
4	In my target class, other students do not know my grades on tests or assignments unless I choose to tell them.	1	2	3	4	5	6
5	The teacher in my target class uses more than one mode of evaluation (tests, projects, presentations, journals, etc.) to determine grades.	1	2	3	4	5	6
6	In my target class, the teacher recognizes students for genuine effort, progress, or accomplishment.	1	2	3	4	5	6
7	The tests in my target class match the instruction and objectives.	1	2	3	4	5	6
8	In my target class, the teacher emphasizes learning the material to pass tests.	1	2	3	4	5	6
9	In my target class all students work on the same thing at the same time.	1	2	3	4	5	6
10	In my target class, the teacher wants us to learn how to solve problems on our own.	1	2	3	4	5	6
11	Students have to compete against each other to get high grades in my target class.	1	2	3	4	5	6
12	The teacher lets us know who does the best work on projects in my target class.	1	2	3	4	5	6
13	Students learn in my target class by participating in class activities and discussions..	1	2	3	4	5	6
14	In my target class, assignments and tests are returned in a way that keeps individual student grades confidential.	1	2	3	4	5	6
15	In my target class, activities and assignments are challenging.	1	2	3	4	5	6
16	In my target class, the teacher favors some students more than others.	1	2	3	4	5	6

Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6

17	In my target class the teacher emphasizes learning the material to gain understanding.	1	2	3	4	5	6
18	I get to work on challenging projects in my target class.	1	2	3	4	5	6
19	The teacher tells us the highest and lowest grades made on tests in my target class.	1	2	3	4	5	6
20	Students get to choose projects/topics they want to work on in my target class.	1	2	3	4	5	6
21	The teacher in my target class values creative thinking and original ideas.	1	2	3	4	5	6
22	In my target class, the teacher introduces material in ways that are relevant, interesting, and familiar to students.	1	2	3	4	5	6
23	Students can redo work to improve their grades in my target class.	1	2	3	4	5	6
24	The teacher shows how the tasks in my target class are related to students' everyday lives or future careers.	1	2	3	4	5	6
25	There are an adequate number and variety of evaluations in my target class.	1	2	3	4	5	6
26	In my target class, students learn mainly by listening to the teacher and taking notes.	1	2	3	4	5	6
27	In my target class, students are encouraged to find answers to their questions on their own.	1	2	3	4	5	6
28	In my target class, the teacher tries to find out what each student wants to learn about.	1	2	3	4	5	6
29	The teacher provides private feedback about students' individual gains or improvement in my target class.	1	2	3	4	5	6
30	Students are given a chance to correct their mistakes in my target class.	1	2	3	4	5	6
31	Individual thinking and students' ideas are accepted in my target class.	1	2	3	4	5	6
32	Students can work together on assignments in my target class.	1	2	3	4	5	6
33	In my target class, the teacher pays attention to whether I am improving.	1	2	3	4	5	6
34	Students are not condemned for making mistakes in my target class.	1	2	3	4	5	6
35	In my target class, the teacher lets us know how others scored on projects/tests.	1	2	3	4	5	6
36	Students' responses are treated with respect in my target class.	1	2	3	4	5	6
37	Students are encouraged to use different methods for completing tasks in my target class.	1	2	3	4	5	6

Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6

38	The amount of work required in my target class is appropriate for the amount of useful knowledge gained.	1	2	3	4	5	6
39	In my target class the teacher adapts the pace of instruction to meet the needs of the students.	1	2	3	4	5	6
40	In my target class students can choose the order in which assignments or projects are completed.	1	2	3	4	5	6
41	Students can tell how others scored on tests/assignments in my target class because papers are returned in order from the highest to the lowest grade.	1	2	3	4	5	6
42	The teacher curves the grades in my target class.	1	2	3	4	5	6
43	The teacher explains material in my target class in ways that make the information meaningful to students.	1	2	3	4	5	6
44	When students make mistakes they are treated with respect in my target class.	1	2	3	4	5	6
45	Only students with the highest grades can keep up with the pace of instruction in my target class.	1	2	3	4	5	6
46	The teacher provides suggestions and guidance for organizing and managing the workload in my target class.	1	2	3	4	5	6
47	Students in my target class can use different methods to solve problems or complete tasks.	1	2	3	4	5	6
48	Students are provided with the objectives that will be tested on exams and quizzes in my target class.	1	2	3	4	5	6

Table 1.

Key for Items from the Pilot of the Survey of Classroom Goal Structures

Perceptions of Mastery Orientation

Items: 1, 3, 5, 6, 7, 9*, 10, 13, 15, 17, 18*, 20, 21, 22, 23, 24, 25*, 26, 27, 28, 30, 31, 32, 33, 34, 36, 37, 38, 39, 40*, 43, 44, 46, 47, 48,

Perceptions of Social Comparison/Competition

Items 2, 4*, 8, 11, 12, 14, 16, 19, 29*, 35*, 41*, 42, 45,

NOTE: Items 2, 3, 10, 16, 18, 27, 28, 30, 33 were from, and items 11, 13, and 22 were adapted from, Ames' Classroom Achievement Goals Questionnaire (Ames & Archer, 1988).

* Item was removed from the scale based on pilot results.

Appendix E

ANOVA Tables for the Curvilinear Regressions of Cheating Measures, Achievement Goals, Perceived Ability, and Effort on Match Scores

Table 1

ANOVA Table for the Curvilinear Regression of the Overall Frequency of Cheating on Match Scores

Dependent variable.. FREQCHT Method.. QUADRATI

Multiple R	.26763
R Square	.07163
Adjusted R Square	.06211
Standard Error	6.88448

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	713.0738	356.53690
Residuals	195	9242.2444	47.39613

F = 7.52249 Signif F = .0007

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
MATCH	-.563871	.400653	-.103265	-1.407	.1609
MATCH**2	.688458	.177545	.284516	3.878	.0001
(Constant)	3.812725	.573606		6.647	.0000

Table 2

ANOVA Table for the Curvilinear Regression of the Frequency of Cheating on Tests on Match Scores

Dependent variable.. FREQCOT Method.. QUADRATI

Multiple R	.23052
R Square	.05314
Adjusted R Square	.04348
Standard Error	4.78871

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	252.2356	126.11778
Residuals	196	4494.6187	22.93173

F = 5.49971 Signif F = .0047

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
MATCH	-.296209	.278388	-.078613	-1.064	.2886
MATCH**2	.409273	.123427	.244989	3.316	.0011
(Constant)	2.526187	.398047		6.346	.0000

Table 3

ANOVA Table for the Curvilinear Regression of the Frequency of Cheating on Assignments on Match Scores

Dependent variable.. FREQCOA Method.. QUADRATI

Multiple R	.26972
R Square	.07275
Adjusted R Square	.06329
Standard Error	2.67571

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	110.0983	55.049161
Residuals	196	1403.2484	7.159431

F = 7.68904 Signif F = .0006

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
MATCH	-.233752	.153907	-.110673	-1.519	.1304
MATCH**2	.268704	.068649	.285221	3.914	.0001
(Constant)	1.317149	.222779		5.912	.0000

Table 4

ANOVA Table for the Curvilinear Regression of the Frequency of Cheating for Self on Match Scores

Dependent variable.. FREQCFS Method.. QUADRATI

Multiple R	.24627
R Square	.06065
Adjusted R Square	.05106
Standard Error	4.08084

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	210.7376	105.36880
Residuals	196	3264.0363	16.65325

F = 6.32722 Signif F = .0022

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
MATCH	-.380860	.234729	-.119003	-1.623	.1063
MATCH**2	.368955	.104700	.258457	3.524	.0005
(Constant)	2.307762	.339770		6.792	.0000

Table 5

ANOVA Table for the Curvilinear Regression of the Frequency of Cheating for Self on Tests on Match Scores

Dependent variable.. FREQCFST Method.. QUADRATI

Multiple R	.21849
R Square	.04774
Adjusted R Square	.03807
Standard Error	2.74973

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	74.6735	37.336750
Residuals	197	1489.5215	7.561023

F = 4.93806 Signif F = .0081

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
MATCH	-.275464	.157994	-.128375	-1.744	.0828
MATCH**2	.214548	.070509	.224047	3.043	.0027
(Constant)	1.545700	.228399		6.768	.0000

Table 6

ANOVA Table for the Curvilinear Regression of the Frequency of Cheating for Self on Assignments on Match Scores

Dependent variable.. FREQCFSA Method.. QUADRATI

Multiple R	.22737
R Square	.05170
Adjusted R Square	.04202
Standard Error	1.79752

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	34.52481	17.262406
Residuals	196	633.29428	3.231093

F = 5.34259 Signif F = .0055

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
MATCH	-.093313	.103393	-.066507	-.903	.3679
MATCH**2	.150508	.046118	.240496	3.264	.0013
(Constant)	.788036	.149661		5.265	.0000

Table 7

ANOVA Table for the Curvilinear Regression of the Frequency of Cheating for Others on Match Scores

Dependent variable.. FREQCFO Method.. QUADRATI

Multiple R	.26665
R Square	.07110
Adjusted R Square	.06162
Standard Error	3.19036

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	152.7067	76.353336
Residuals	196	1994.9717	10.178427

F = 7.50149 Signif F = .0007

Variables in the Equation

Variable	B	SE B	Beta	T	Sig T
MATCH	-.175400	.185469	-.069206	-.946	.3455
MATCH**2	.316938	.082230	.282051	3.854	.0002
(Constant)	1.531261	.265190		5.774	.0000

Table 8

ANOVA Table for the Curvilinear Regression of the Frequency of Cheating for Others on Tests on Match Scores

Dependent variable.. FREQCFOT Method.. QUADRATI

Multiple R	.24406
R Square	.05957
Adjusted R Square	.04997
Standard Error	2.26347

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	63.6030	31.801519
Residuals	196	1004.1658	5.123295

F = 6.20724 Signif F = .0024

Variables in the Equation

Variable	B	SE B	Beta	T	Sig T
MATCH	-.030131	.131585	-.016860	-.229	.8191
MATCH**2	.197497	.058340	.249264	3.385	.0009
(Constant)	.983832	.188144		5.229	.0000

Table 9

ANOVA Table for the Curvilinear Regression of the Frequency of Cheating for Others on Assignments on Match Scores

Dependent variable.. FREQCFOA Method.. QUADRATI

Multiple R	.25119
R Square	.06310
Adjusted R Square	.05359
Standard Error	1.26632

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	21.27511	10.637557
Residuals	197	315.90489	1.603578

F = 6.63364 Signif F = .0016

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
MATCH	-.133818	.072761	-.134321	-1.839	.0674
MATCH**2	.116059	.032471	.261040	3.574	.0004
(Constant)	.543347	.105184		5.166	.0000

Table 10

ANOVA Table for the Curvilinear Regression of Total Cheating Behaviors on Match Scores

Dependent variable.. TOTCHEAT Method.. QUADRATI

Multiple R	.23347
R Square	.05451
Adjusted R Square	.04481
Standard Error	4.29779

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	207.6420	103.82099
Residuals	195	3601.8378	18.47096

F = 5.62077 Signif F = .0042

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
MATCH	-.334563	.250116	-.099047	-1.338	.1826
MATCH**2	.370872	.110837	.247770	3.346	.0010
(Constant)	3.044764	.358086		8.503	.0000

Table 11

ANOVA Table for the Curvilinear Regression of the Number of Cheating on Test Behaviors on Match Scores

Dependent variable.. COT Method.. QUADRATI

Multiple R	.21636
R Square	.04681
Adjusted R Square	.03708
Standard Error	2.78717

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	74.7748	37.387398
Residuals	196	1522.5920	7.768327

F = 4.81280 Signif F = .0091

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
MATCH	-.218634	.162030	-.100026	-1.349	.1788
MATCH**2	.221676	.071838	.228745	3.086	.0023
(Constant)	1.906289	.231675		8.228	.0000

Table 12

ANOVA Table for the Curvilinear Regression of the Number of Cheating on Assignment Behaviors on Match Scores

Dependent variable.. COA Method.. QUADRATI

Multiple R	.20733
R Square	.04298
Adjusted R Square	.03322
Standard Error	1.88175

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	31.17222	15.586108
Residuals	196	694.03381	3.540989

F = 4.40163 Signif F = .0135

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
MATCH	-.096557	.108238	-.066040	-.892	.3734
MATCH**2	.143176	.048279	.219541	2.966	.0034
(Constant)	1.159023	.156674		7.398	.0000

Table 13
ANOVA Table for the Curvilinear Regression of the Number of Cheating for Self Behaviors on Match Scores

Dependent variable.. CFS Method.. QUADRATI

Multiple R	.22374
R Square	.05006
Adjusted R Square	.04037
Standard Error	2.74221

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	77.6685	38.834256
Residuals	196	1473.8591	7.519689

F = 5.16434 Signif F = .0065

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
MATCH	-.249359	.157731	-.116601	-1.581	.1155
MATCH**2	.222547	.070355	.233303	3.163	.0018
(Constant)	1.842251	.228315		8.069	.0000

Table 14
ANOVA Table for the Curvilinear Regression of the Number of Cheating for Self on Test Behaviors on Match Scores

Dependent variable.. CFST Method.. QUADRATI

Multiple R	.19595
R Square	.03840
Adjusted R Square	.02863
Standard Error	1.73245

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	23.60862	11.804311
Residuals	197	591.27138	3.001378

F = 3.93296 Signif F = .0211

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
MATCH	-.166456	.099543	-.123727	-1.672	.0961
MATCH**2	.118903	.044423	.198042	2.677	.0081
(Constant)	1.178437	.143901		8.189	.0000

Table 15

ANOVA Table for the Curvilinear Regression of the Number of Cheating for Self on Assignment Behaviors on Match Scores

Dependent variable.. CFSA Method.. QUADRATI

Multiple R	.20700
R Square	.04285
Adjusted R Square	.03308
Standard Error	1.33115

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	15.54832	7.7741597
Residuals	196	347.30595	1.7719691

F = 4.38730 Signif F = .0137

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
MATCH	-.075225	.076568	-.072736	-.982	.3271
MATCH**2	.101167	.034153	.219305	2.962	.0034
(Constant)	.680319	.110831		6.138	.0000

Table 16

ANOVA Table for the Curvilinear Regression of the Number of Cheating for Others Behaviors on Match Scores

Dependent variable.. CFO Method.. QUADRATI

Multiple R	.21253
R Square	.04517
Adjusted R Square	.03542
Standard Error	1.86411

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	32.21830	16.109151
Residuals	196	681.07818	3.474889

F = 4.63588 Signif F = .0108

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
MATCH	-.075791	.108368	-.051890	-.699	.4851
MATCH**2	.145346	.048047	.224443	3.025	.0028
(Constant)	1.217358	.154948		7.857	.0000

Table 17

ANOVA Table for the Curvilinear Regression of the Number Cheating for Others on Test Behaviors on Match Scores

Dependent variable.. CFOT Method.. QUADRATI

Multiple R	.22573
R Square	.05095
Adjusted R Square	.04127
Standard Error	1.23850

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	16.14162	8.0708078
Residuals	196	300.64230	1.5338893

F = 5.26166 Signif F = .0059

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
MATCH	-.052295	.071999	-.053724	-.726	.4685
MATCH**2	.102807	.031922	.238220	3.221	.0015
(Constant)	.727894	.102947		7.071	.0000

Table 18

ANOVA Table for the Curvilinear Regression of Learning Goals on Match Scores

Dependent variable.. LG Method.. QUADRATI

Multiple R	.25359
R Square	.06431
Adjusted R Square	.05481
Standard Error	3.01923

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	123.4195	61.709764
Residuals	197	1795.8022	9.115747

F = 6.76958 Signif F = .0014

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
MATCH	.319767	.173479	.134533	1.843	.0668
MATCH**2	-.279783	.077419	-.263766	-3.614	.0004
(Constant)	19.526884	.250784		77.863	.0000

Table 19

ANOVA Table for the Curvilinear Regression of Performance Goals on Match Scores

Dependent variable.. PG Method.. QUADRATI

Multiple R	.16501
R Square	.02723
Adjusted R Square	.01735
Standard Error	8.82182

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	429.126	214.56281
Residuals	197	15331.437	77.82455

F = 2.75701 Signif F = .0659

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
MATCH	.062552	.506885	.009184	.123	.9019
MATCH**2	-.510069	.226209	-.167804	-2.255	.0252
(Constant)	24.457914	.732760		33.378	.0000

Table 20

ANOVA Table for the Curvilinear Regression of Future Consequences on Match Scores

Dependent variable.. FC Method.. QUADRATI

Multiple R	.07037
R Square	.00495
Adjusted R Square	-.00515
Standard Error	3.88273

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	14.7798	7.389912
Residuals	197	2969.8969	15.075619

F = .49019 Signif F = .6133

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
MATCH	.170579	.223094	.057549	.765	.4454
MATCH**2	-.084203	.099561	-.063656	-.846	.3987
(Constant)	25.690794	.322509		79.659	.0000

Table 21

ANOVA Tables for the Linear and Curvilinear Regressions of Perceived Ability on Match Scores

Dependent variable.. PA Method.. LINEAR

Multiple R	.46535
R Square	.21655
Adjusted R Square	.21259
Standard Error	4.61687

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	1	1166.5351	1166.5351
Residuals	198	4220.4724	21.3155

F = 54.72704 Signif F = .0000

Variables in the Equation

Variable	B	SE B	Beta	T	Sig T
MATCH	1.853059	.250489	.465345	7.398	.0000
(Constant)	37.759819	.335716		112.476	.0000

Dependent variable.. PA Method.. QUADRATI

Multiple R	.46701
R Square	.21810
Adjusted R Square	.21016
Standard Error	4.62400

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	1174.8854	587.44272
Residuals	197	4212.1221	21.38133

F = 27.47456 Signif F = .0000

Variables in the Equation

Variable	B	SE B	Beta	T	Sig T
MATCH	1.907720	.265686	.479072	7.180	.0000
MATCH**2	-.074097	.118568	-.041695	-.625	.5327
(Constant)	37.875835	.384079		98.615	.0000

Table 22
ANOVA Tables for the Linear and Curvilinear Regressions of Effort on Match Scores

Dependent variable.. EFFORT Method.. LINEAR

Multiple R	.28805
R Square	.08297
Adjusted R Square	.07827
Standard Error	.78348

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	1	10.83000	10.830000
Residuals	195	119.69792	.613835

F = 17.64316 Signif F = .0000

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
MATCH	-.179354	.042700	-.288046	-4.200	.0000
(Constant)	3.400259	.057340		59.300	.0000

Dependent variable.. EFFORT Method.. QUADRATI

Multiple R	.35307
R Square	.12466
Adjusted R Square	.11563
Standard Error	.76743

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	16.27115	8.1355768
Residuals	194	114.25677	.5889524

F = 13.81364 Signif F = .0000

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
MATCH	-.135605	.044233	-.217784	-3.066	.0025
MATCH**2	-.059929	.019717	-.215922	-3.040	.0027
(Constant)	3.494893	.064218		54.422	.0000

Appendix F

Hierarchical Regression Analyses for Predicting Cheating and Explaining Cognitive Engagement

Table 1

Summary of Hierarchical Regression Analyses for Predicting the Frequency of Cheating

Criterion Variable	Predictor Variable	B	SE B	β
OVERALL FREQUENCY OF CHEATING (N = 199)				
Step 1	Learning Goal (LG)	-.186	.191	-.078
(R Square = .067)	Performance Goal (PG)	.079	.059	.096
	Perceived Ability (PA)	-.001	.110	.000
	LG x PG	.055	.021	.211 *
	PG x PA	-.029	.013	-.172 *
Step 2	Learning Goal (LG)	-.337	.200	-.141
(R Square = .093)	Performance Goal (PG)	.075	.058	.091
	Perceived Ability (PA)	-.067	.112	-.047
	LG x PG	.052	.021	.200 *
	PG x PA	-.029	.013	-.173 *
	Deep Strategy Use	.294	.126	.185 *
FREQUENCY: CHEATING ON TESTS (N = 200)				
Step 1	Learning Goal (LG)	-.108	.130	-.067
(R Square = .060)	Performance Goal (PG)	.075	.040	.134
	Perceived Ability (PA)	.000	.074	.000
	LG x PG	.030	.014	.169 *
	PG x PA	-.019	.009	-.169 *
Step 2	Learning Goal (LG)	-.220	.135	-.136
(R Square = .089)	Performance Goal (PG)	.072	.039	.129
	Perceived Ability (PA)	-.049	.075	-.051
	LG x PG	.028	.014	.158
	PG x PA	-.019	.009	-.169 *
	Deep Strategy Use	.214	.085	.200 *

(table continues)

Table 1 (cont)

Criterion Variable	Predictor Variable	B	SE B	β	
FREQUENCY: CHEATING FOR SELF ON ASSIGNMENTS (N = 200)					
Step 1	Learning Goal (LG)	-.109	.056	-.170	
(R Square = .079)	Future Consequences (FC)	.002	.044	.004	
	Perceived Ability (PA)	.036	.030	.094	
	LG x PA	.018	.008	.168	*
	FC x PA	-.026	.008	-.266	****
Step 2	Learning Goal (LG)	-.135	.056	-.210	*
(R Square = .110)	Future Consequences (FC)	.004	.043	.008	
	Perceived Ability (PA)	.032	.030	.082	
	LG x PA	.016	.008	.155	
	FC x PA	-.026	.008	-.265	****
	Autonomy	.057	.022	.182	**
FREQUENCY: CHEATING FOR OTHERS (N = 200)					
Step 1	Learning Goal (LG)	-.229	.093	-.212	*
(R Square = .098)	Future Consequences (FC)	.027	.084	.031	
	Perceived Ability (PA)	-.031	.055	-.048	
	LG x FC	-.014	.017	-.069	
	LG x PA	.007	.015	.041	
	FC x PA	.005	.016	.029	
	LG x FC x PA	.010	.003	.297	***
Step 2	Learning Goal (LG)	-.289	.094	-.267	***
(R Square = .139)	Future Consequences (FC)	-.014	.084	-.016	
	Perceived Ability (PA)	-.064	.055	-.099	
	LG x FC	-.014	.016	-.071	
	LG x PA	.005	.015	.028	
	FC x PA	.001	.016	.005	
	LG x FC x PA	.009	.003	.279	**
	Deep Strategy Use	.172	.057	.240	***

(table continues)

Table 1 (cont.)

Criterion Variable	Predictor Variable	B	SE B	β
FREQUENCY: CHEATING FOR OTHERS ON TESTS (N = 200)				
Step 1	Learning Goal (LG)	-.071	.061	-.094
(R Square = .065)	Performance Goal (PG)	.032	.019	.122
	Perceived Ability	.024	.035	.054
	LG x PG	.014	.007	.170 *
	PG x PA	-.010	.004	-.185 *
Step 2	Learning Goal (LG)	-.132	.063	-.174 *
(R Square = .105)	Performance Goal (PG)	.031	.018	.117
	Perceived Ability	-.003	.035	-.006
	LG x PG	.013	.007	.157
	PG x PA	-.010	.004	-.185 *
	Deep Strategy Use	.117	.040	.232 ***
FREQUENCY: CHEATING FOR OTHERS ON ASSIGNMENTS (N = 201)				
Step 1	Learning Goal (LG)	-.052	.034	-.123
(R Square = .230)	Performance Goal (PG)	-.000	.010	-.001
	Future Consequences (FC)	.000	.031	.000
	Perceived Ability (PA)	-.029	.020	-.113
	LG x FC	-.001	.006	-.012
	LG x PA	.020	.006	.281 ****
	PG x PA	-.004	.002	-.139 *
	FC x PA	-.002	.006	-.028
	LG x FC x PA	.006	.001	.421 ****
Step 2	Learning Goal (LG)	-.071	.035	-.168 *
(R Square = .256)	Performance Goal (PG)	-.001	.010	-.005
	Future Consequences (FC)	-.013	.031	-.037
	Perceived Ability (PA)	-.039	.020	-.154
	LG x FC	-.001	.006	-.013
	LG x PA	.019	.005	.272 ****
	PG x PA	-.004	.002	-.137 *
	FC x PA	-.003	.006	-.047
	LG x FC x PA	.005	.001	.405 ****
	Deep Strategy Use	.054	.021	.193 *

*p < .05, **p < .01, ***p < .005, ****p < .001

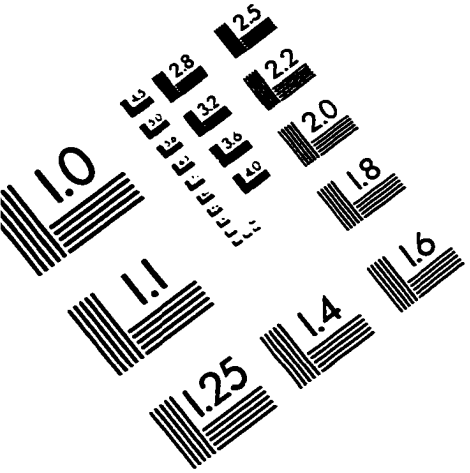
Table 2

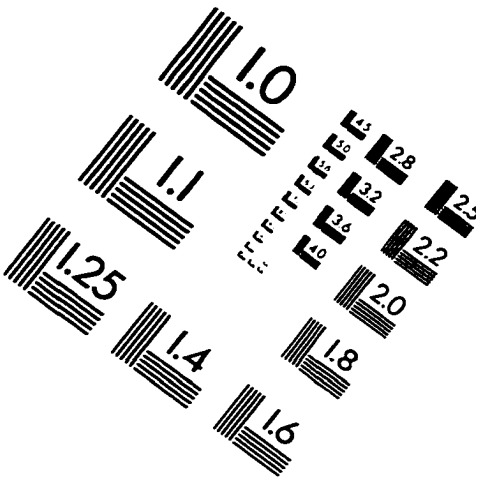
Summary of Hierarchical Regression Analyses for Explaining Cognitive Engagement

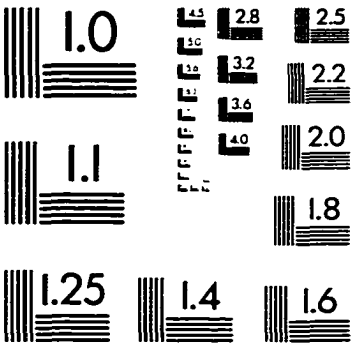
Criterion Variable	Predictor Variable	B	SE B	β
SELF-REGULATION (N = 201)				
Step 1	Learning Goals (LG)	.277	.118	.174 *
(R Square = .415)	Performance Goals (PG)	.019	.033	.035
	Future Consequences (FC)	.450	.089	.351 ****
	Perceived Ability (PA)	.190	.060	.200 ***
	LG x PG	-.020	.011	-.115
	LG x PA	.048	.015	.181 ***
	PG x PA	-.001	.007	-.011
	LG x PG x PA	.005	.002	.205 ***
Step 2	Learning Goals (LG)	.294	.116	.184 *
(R Square = .438)	Performance Goals (PG)	-.002	.034	-.004
	Future Consequences (FC)	.455	.087	.356 ****
	Perceived Ability (PA)	.227	.061	.238 ****
	LG x PG	-.020	.011	-.116
	LG x PA	.047	.015	.180 ***
	PG x PA	-.002	.007	-.015
	LG x PG x PA	.005	.002	.203 ***
	Competition	.213	.075	.164 **
EFFORT (N = 198)				
Step 1	Learning Goals (LG)	.101	.017	.388 ****
(R Square = .151)				
Step 2	Learning Goal (LG)	.099	.017	.382 ****
(R Square = .187)	Autonomy	.019	.009	.148 *
	Competition	.037	.015	.170 *

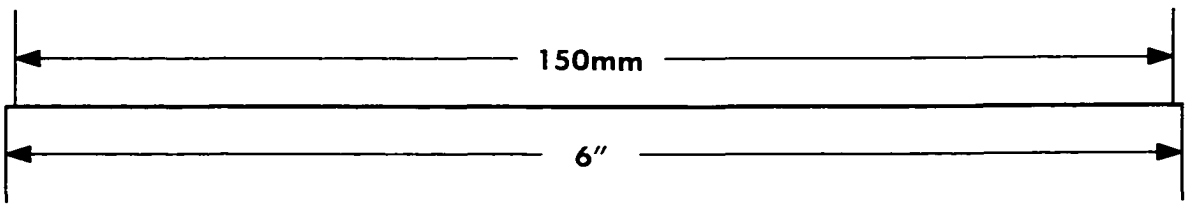
*p < .05, **p < .01, ***p < .005, ****p < .001

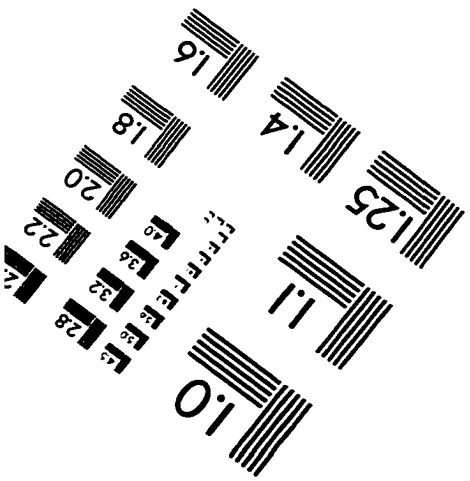
IMAGE EVALUATION
TEST TARGET (QA-3)

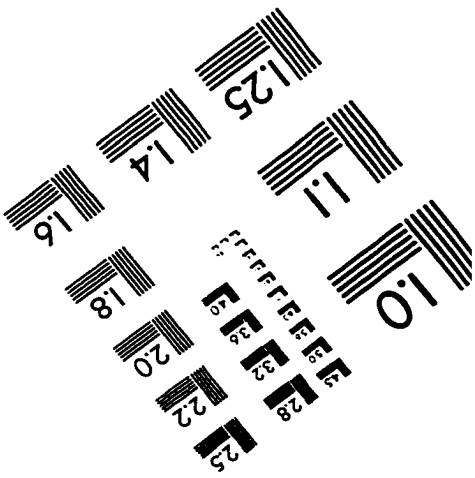












APPLIED IMAGE, Inc
1653 East Main Street
Rochester, NY 14609 USA
Phone: 716/482-0300
Fax: 716/288-5989

© 1993, Applied Image, Inc., All Rights Reserved