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Persistence Differences in Community College Courses Taught in Classrooms and Through Alternative Formats

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by

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A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy

School of Computer and Information Sciences
Nova Southeastern University

2000

We hereby certify that this dissertation, submitted by Andrew A. Runyan, conforms to acceptable standards and is fully adequate in scope and quality to fulfill the dissertation requirements for the degree of Doctor of Philosophy.

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Abstract

An Abstract of a Dissertation submitted to Nova Southeastern University in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy.

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While distance education programs continue to expand, the occurrence of higher dropout rates in those programs as compared to the same courses offered in lecture/lab settings remains a point of contention between supporters and detractors of non-traditional forms of education. This study used a foundation of research on dropout in higher education as the basis for an investigation of dropout rates in non-traditional forms of instruction in a community college setting. Course delivery formats studied included videotape-based courses, Internet-based courses, and courses offered in a self-paced laboratory environment. For each of these formats, the same course, offered in a lecture/lab setting was included as a point of comparison. The study considered whether demographic entry characteristics of students, and variables from Kember's (1995) model of student progress such as social and academic integration, external attribution, or academic integration differ between the different instructional formats.

Independent sample t-tests were used to compare variables between alternative format courses and equivalent courses taught in a classroom-based setting. Similar comparisons were made between those students completing and those not completing the course in the given instructional format.

Persistence rates were higher in the on-line course format than the equivalent courses in classroom settings. Self-paced and videotape-based courses had significantly lower persistence rates than their classroom equivalents. Of all the major scales from Kember's (1995) model considered, the only statistically significant difference was that students in classroom-based sections showed higher external attribution scores than their counterparts in on-line classes. None of the major scales from the model and few of the sub-scales were significantly different for comparisons within self-paced or videotape instruction or between those forms of instruction and the equivalent classroom-based courses. Of the demographic variables considered, measures of previous success in the college environment did prove to be an indicator of success in the current coursework.

Results indicate that the model did not effectively predict persistence in the courses studied and is not effective in providing insight to improvements in those persistence rates. Recommendations for future study suggest that the focus be shifted from student characteristics to course characteristics and effective instructional tools.

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Finally, to my family, I know the sacrifices you all have made throughout the past years that have allowed me to reach this milestone. Your love and support has been felt more than words on this page could express. I hope that my sons will see this effort as a worthwhile pursuit and will grow to appreciate that learning is a lifelong opportunity of which you must take advantage.

Table of Contents

List of Tables

Tables

List of Figures

Figures

Chapter One

Introduction

Problem Statement

Distance education and other forms of non-traditional instruction are increasing in popularity. A survey, conducted in Winter of 1998-99 by the National Center for Education Statistics (1999), of the higher education institutions in United States, District of Columbia and Puerto Rico indicated that 44% of those institutions offered distance education courses in the 1997-1998 school year. This was up from 33% in a similar study in 1995 (National Center for Education Statistics, 1998a). Of the technologies considered in the study, Internet-based offerings, were growing at the greatest rate. Courses offered in this format had increased from 22% of the institutions offering distance education in 1995 to 60% in 1997-1998. The survey also indicated that public 2-year, post-secondary institutions are gearing up their distance offerings. Of those schools, 72% indicated they offered distance courses in 1997-98, while 19% were planning to begin offering such courses within the next three years.

Clark State Community College began a program to increase its non-traditional offerings in the fall of 1996. That program, known as Alternative Methods of Instructional Delivery (AMID) now includes courses via the Internet, courses through videotape, and modular courses, offered in lab facilities on campus with an open time schedule to allow flexibility for students with work and family commitments. The growth of the AMID program has continued at approximately 20% per year so that the enrollment in these non-traditional courses is approaching 10% of the total college enrollment.

Clark State, like most institutions, is concerned not only with the number of students participating in non-traditional courses, but also with the quality of those courses and the learning that is occurring. An unpublished study by the college's Institutional Research office (Runyan, 1999) indicated that an average 47.6% of students participating in AMID courses either dropped, or received a failing grade. Students in the same courses, offered in traditional formats, were dropping or failing 26.4% of the time. This study was conducted in Spring and Fall terms, 1998 and included 589 students taking AMID courses and 2,803 in parallel sections of the same courses offered in traditional lecture/lab formats. This analysis of trends in Clark State's AMID program prompted this study of persistence in non-traditional courses versus those with similar content offered in classroom-based formats.

Clark State is not alone in its concern over low persistence rates in non-traditional courses and degree programs. Belawati (1998) cited statistics on a number of international programs with completion rates ranging from 4.8% at the Indonesian Open Learning University to 48.8% at the British Open University. Towles, Ellis, and Spencer (1993) reported 60% dropout rates from one-way video courses offered at Liberty University. The problem of distance education dropout was recently brought to the forefront by a review of research conducted by The Institute for Higher Education Policy (Phipps & Merisotis, 1999). That report identified the inability to explain higher drop-out rates in distance education courses as one of the major shortcomings of the existing research in the area of distance learning in higher education.

Dropout is especially prevalent at community colleges due to the non-traditional nature of the students. A study by the National Center for Education Statistics (1998b) reported that 42% of students enrolled in public 2-year colleges left postsecondary education before the beginning of their second year. The figure for four-year institutions was 16%. The report states "Student characteristics associated with early departure are typically linked to nontraditional status: being older, working full time, attending school part time, and having financial and family obligations that may conflict with attending school" (p. 1). This description is very typical of the first-year community college student and many of the students selecting distance learning as a format for instruction. It may also provide some clues to the environment that community college and distance learning students are facing as they attempt to balance the rigors of college coursework with family relationships and the requirements of the workplace. As evidenced by the study of AMID versus traditional persistence at Clark State and the overall dropout figures provided by the National Center for Educational Statistics, the community college student is especially susceptible to dropout from non-traditional learning environments.

Theoretical Basis

Dropout is a complex issue resulting from a wide range of variables. Researchers have considered characteristics of students upon entry into distance courses, but have often found little correlation between background characteristics such as gender, ethnicity, and age and those students' success in distance learning (Thompson, 1998). As a result, authors such as Tinto(1975, 1987), Billings (1988) and Kember (1995) have developed models including background variables, intervening variables, and outcomes such as

student success, in an attempt to bring some structure to our understanding of dropout in distance education. Such models allow us to consider a wide range of variables and how those variables interact in a student's decision to withdraw from a distance learning course.

For the purposes of this study, Kember's (1995) model of student progress was selected as the theoretical base for investigation. Based on a large body of research in distance education and persistence of non-traditional students in higher education, Kember's model includes: entry characteristics of students, such as age, gender, race, and marital status; social integration variables, which largely consider the quality of the support environment available to the student outside of the college setting; and academic integration variables which look at factors such as the student's approach to study, motivation, and impressions of the course. Using Kember's (1995) Distance Education Student Progress Inventory as a tool to evaluate social integration and academic integration in a variety of courses with similar content, but with different modes of instruction, this study considered the persistence differences experienced between the different modes of instruction.

Course Formats Considered

As mentioned previously, Clark State's AMID program offers courses in three main formats; videotape, self-paced, and Web-based instruction. In each of these cases, this study considered those courses that are offered in one of these formats versus the same course, offered in a more traditional classroom/lab based format.

Videotape courses were the first to be offered at Clark State. Content areas of these courses included Psychology, History, and Art Appreciation. In this format, the primary source of content for the course was a textbook. A schedule of weekly readings was provided to the students at the beginning of the term in the form of a study guide that was developed by the instructor. Students also received a series of videotapes related to the content of the course. These were not taped lectures from the instructor, but were supplementary materials that reinforced the material in the readings. Evaluation for these courses was generally through three or four on-campus (or proctored off-campus) written exams. Contact with the faculty member may have been arranged by the student on appointment but was not required outside the examinations. Students were required to complete the course during an eleven-week quarter.

The second course format is referred to as the self-paced course. Those included in this study were basic computer skills courses that taught concepts in Microsoft Windows, word processing, spreadsheets and databases. An open computer lab was available to students during day and evening hours throughout the week. It was staffed by a faculty member to allow the students to obtain assistance when needed. The faculty member also proctored and scored student examinations. The curriculum was modular and content was delivered through an instructor-prepared study-guide and a textbook. Hands-on exercises were required to be completed and submitted to the instructor. These assignments, along with a number of examinations that were to be completed in the self-paced lab, made up the components of evaluation for the course. The open hours of the lab, along with the ability for many students to complete assignments at home on their own computers or in other on-campus labs, provided a great deal of flexibility to the

students. Having a faculty member staff the self-paced lab provided opportunity for student-faculty contact. In this course format, students were allowed to extend their term to two, eleven week quarters. If the student did not finish in the first term they received an "in progress" (IP) grade and could continue working on the course material. At the end of the following term the IP grade had to be converted to a letter grade. Students who stopped working on the material and did not complete the course received a failing grade.

The final alternative format courses offered were those delivered through the Internet. Content area of those courses included in this study was a second-level course in English and composition skills. Course materials were available 24 hours per day through the college's Web site. Materials for each course site were prepared by the instructor following the instructor's completion of a course in the preparation and design of course materials for the Internet. The software used for development was WebCT. This software provided tools for communication and delivery such as asynchronous discussion strings, synchronous chat sessions, e-mail, on-line self-assessments and examinations. Contact with the faculty member was generally accomplished through the technology provided, but could also include phone conversations or face-to-face meetings by appointment. Faculty were encouraged to include a significant amount of student-faculty and student-student contact in these courses through mechanisms such as written assignments with faculty critique, student peer evaluation, cooperative projects, and faculty-facilitated discussions. Evaluation and assessment was conducted using a variety of these methods. Students were required to complete the course within an eleven-week quarter.

Parallel to each of these alternative courses were classroom-based courses delivering the same content and with the same course objectives. Some were offered by the same instructors as the alternative courses. Contact with the faculty member was primarily in the classroom but could be arranged outside class sessions by appointment or on scheduled office hours. Evaluation and assessment of student performance in these sections was by a combination of many of the methods previously mentioned such as projects, written assignments, examinations, or hands-on classroom/lab activities. Students were required to complete the course within an eleven week quarter.

Purpose of the Study and Research Questions to be Addressed

The purpose of this study was to investigate the degree to which variables including entry characteristics, social integration, and academic integration (as defined in Kember's, 1995, Model of Student Progress) of students in community college courses explain the differences in persistence between those students taking a course in traditional lecture and lab formats versus those in alternative learning situations. The relationships between persistence, entry characteristics, social integration, and academic integration were intended to be used to identify practices in individual courses that enhance student persistence. Identification of those practices would provide guidance for those faculty that are experiencing high levels of dropout in their courses.

Specific research questions addressed include:

- What variables and dependencies in Kember's model of student progress are significantly different for the course formats investigated?

- Do differences in variables and dependencies in Kember's model help explain differences in persistence rates between the various formats of instruction?
- Does the analysis of differences in variables and dependencies in Kember's model suggest practices in individual courses that can improve persistence rates in those courses?

Limitations and Delimitations

Individual students involved in this study were all community college students. Most, by the definition provided in the next section, would be considered non-traditional students. Results of the study, therefore, may not be applicable to other populations of students within higher education.

Four specific modes of instruction are discussed in this study. It should not be assumed that results from the courses presented in this study may be generalized to all other courses delivered in the same format. Bernard and Amundsen (1989) demonstrated that characteristics of the course, such as delivery, structure, and content can have a significant influence on a student's decision to drop out or persist. A well-designed on-line course may have significantly lower attrition than one using the same format and delivering the same content, but providing insufficient support for students because of poor instructional design. The research questions in this study focused on differences between a given course, offered using more than one delivery method. Comparisons between those courses are intended to suggest activities and learning experiences that improve the retention rate of students.

Definition of Terms

Researchers investigating distance learning suggest that the term *drop-out* must be clarified to categorize the many ways that students are unsuccessful in completing a course or a program of study. When such a distinction is necessary, Kember (1995) recommends the following terms be used for drop-out from an individual course:

- *Non-starters* - those students that complete the registration process for the course, but do not complete any of the assignments for the course.
- *Informal withdrawals* - those students that registered for the course, completed at least one assignment for the course, but did not complete an adequate number of assignments to receive a passing grade for the course. This category of student also did not complete the official withdrawal procedure and, as a result, receives a failing grade for the course.
- *Formal withdrawals* - this definition is similar to the informal withdrawal, with the exception that this student did complete the formal withdrawal procedure. The grade for the course will reflect that the student withdrew (grade of 'W').
- *Academic failures* - in this case the student completed the majority of the assignments for the course, indicating an intention to complete the course. The academic performance on those assignments was not sufficient to obtain a passing grade for the course. For purposes of this study a *passing grade* will be a letter grade of D or better.
- *Persistence*, in the context of a course, is the opposite of dropout, or that percentage of a group of students that do complete a course with a passing grade.

- A *part-time student* is defined by Kember (1995) as one that is enrolled for less than "the full load of a program" (p. 259). The minimum number of credits for full-time status at Clark State Community College is 12 quarter credits. For purposes of this study, a part-time student will be one taking less than 12 credits in an academic term. *Full-time students* would, therefore, be those enrolled for 12 or more credits in a term.

Bean and Metzner (1985) recognized the many types of non-traditional students on a campus and used four characteristics to define a *non-traditional student*. Three of the four are demographic variables including age, residency status, and full- or part-time status. The criteria used for non-traditional status is a minimum age of 24, living in a non-campus residence (or considered to be a commuter), with the status of a part-time student. Some combination of two or more of these variables must be met in order for the student to be considered non-traditional. The final variable in Bean and Metzner's definition deals with the social impact that the institution has on the student. By their definition a student must not be "greatly affected by the social environment of the institution" but should be "chiefly concerned with the institution's academic offerings" (p. 489). By this definition, the majority of students in the current study would be classified as non-traditional. Possible exceptions to that criteria would be those students that are under the age of 24, taking full-time classes, and significantly impacted by the social environment of the college. Clark State Community College is a commuter campus with no residential facilities. While the Student Services organizations of the college attempt to provide student activities, they are not heavily attended. It is assumed in this study that the proportion of time spent at the college by any of the students is considerably less than that spent in the home environment and that the home environment has the greatest

influence on students. All students participating in the study were, therefore, assumed to be non-traditional students. Distinctions were made concerning student demographics where appropriate.

Summary

The rapid growth of various forms of distance learning has prompted institutions of higher education to consider not only the number of students enrolling in these courses, but also the quality of the learning experience they receive. Studies have indicated that the dropout rate in courses offered in non-traditional formats are higher than those same courses offered in a more traditional classroom setting. A theoretical basis for studying dropout in higher education has been developed by authors such as Tinto (1975, 1987), Billings (1988), and Kember (1995). That basis was used in this study to investigate the factors contributing to dropout rates in courses offered in Clark State Community College's Alternative Method of Instructional Delivery program. Results of the study were intended to provide recommendations to faculty teaching in alternative formats of strategies that may help improve persistence rates.

Chapter Two

Review of the Literature

Purpose

Commercial correspondence courses, initiated in the 1830s in the United States, were some of the earliest forms of what we now refer to as distance education courses (National Center for Education Statistics, 1999). This development overcame the barrier of distance for some students, but at the cost of face-to-face contact with the instructor that students in the classroom setting enjoyed. Since that time, the barrier of distance has not been entirely eliminated, and other barriers such as time commitments, family and work responsibilities present real obstacles to the availability of education to those that desire it (Thompson, 1998). Improvements in communications technology have provided new tools for faculty to deliver content, interact with, and assess the learning of their students (Cooper, 1999; Gibson & Herrera, 1999; Johnson, 1999). Interestingly, many distance learning courses still rely on the tools of a textbook and instructor-developed written materials that were used in the late 19th century.

Modern educators (Arvan, Ory. Bullock, Burnaska & Hanson, 1998; Blakeley & Curran-Smith, 1998; Care, 1996; Cooper, 1999; Gibson & Herrera, 1999; Huston, 1997; Lockee, Moore & Burton, 2000; Merron, 1998; Ragan, 1999) are studying the ways students learn and the methods that are most effective for faculty to use to teach. Each new technology brings educators interested in exploiting its capabilities to reach their students and achieve the objectives of their course of instruction. The standard of comparison remains

the lecture-based course that continues to dominate students' educational experience (Phipps & Merisotis, 1999).

Studies of the various formats of instruction often consider the output variables of student satisfaction reported in surveys, student success (as measured by final grade or test scores) and occasionally the variable of dropout or persistence. A recent survey of research on distance learning by the Institute for Higher Education Policy (Phipps & Merisotis, 1999) criticized the body of research conducted on distance learning during the 1990's for a variety of reasons, all related to the lack of proper methodology in how the research was conducted. Of the seven major "gaps" listed in that analysis, one of the most condemning was that the research did not generally account for higher dropout rates in distance learning. They go on to add that not only is dropout a concern for those individual students that were not successful, but that if the research ignores those students that dropped out, the outcome of such research could be tilted to the successful student and, therefore, be of questionable validity. That review also expressed the concern that "The research does not include a theoretical or conceptual framework." (p. 6) The lack of such a framework means that current research is failing to build on past research and will be less likely to address the root issues of problems such as dropout rates.

The purpose of this review of literature was two-fold. First, recent research in distance learning methodologies comparable to those included in the study by the Institute for Higher Education Policy (Phipps & Merisotis, 1999) was reviewed to evaluate results of those studies and provide some indication of the expectations for the current study. Second, the body of research on the causes and preventative measures for dropout in

higher education was reviewed to provide a theoretical framework on which the current study was based.

Correspondence/Videotape Course Studies

Correspondence courses, which started in the mid 1800's, represented the earliest form of distance education in the United States (National Center for Educational Statistics, 1999). Early models used written texts and course materials, but more recent versions of these courses added audio and video supplemental materials in the form of audiocassettes, videocassettes, and one-way broadcast materials. High dropout rates were reported in these courses (Pugliese, 1994; Belawati, 1998; Pythian & Clements, 1982) which researchers have struggled to explain.

High dropout rates were the focus of one study by Pythian and Clements (1982) in response to increasing dropout rates at the British Open University. In 1980, of 2,208 students taking eight different mathematics classes, only 50% received passing grades. A survey of those that dropped indicated that most left for personal reasons such as family or job commitments with academic reasons being secondary. Recommendations for improvements in the persistence rate concentrated on giving better advice and information to students so that they could better choose whether or not to take the course in the first place. Improved counseling was also mentioned to reduce the effects of loneliness on the students.

By the mid 1990's many correspondence courses had included technologies such as one-way televised instruction, videotape, and audiotaped materials. Researchers such as Towles, Ellis, and Spencer (1993), Pugliese (1994), and Tallman (1994) were considering variables such as loneliness, support services, and instructor contact as factors influencing student satisfaction and persistence. Tallman (1994) found that all of these variables were significantly related to student satisfaction, but none showed a statistically significant relationship to the student's self-reported estimate of their probability of completing the course. Pugliese's (1994) study considered persistence, but found no significant links with the variables of loneliness, communication apprehension, communication competence, and locus of control.

Course persistence versus contact with the faculty in the form of faculty-initiated telephone calls was the variable of interest in the study by Towles, Ellis and Spencer (1993). Again, no significant relationship was found between the two variables. This study did demonstrate a significant relationship between the amount of the degree being pursued by the student that had been completed and persistence. First-year students had completion rates of 57% versus the seniors with a 100% completion rate. Having already demonstrated a commitment to completion of the program, the seniors' persistence was not hindered by the format of the course. This result should also be considered when reviewing studies such as that of Blakeley and Curran-Smith (1998) which reported 100% success rates in correspondence courses where all of the students had already completed more than 19 courses of a total 30 courses required for a nursing degree program.

Two-Way Videoconferencing Course Studies

Improvements in technology have allowed the supplemental audio and video materials offered in correspondence courses to grow into a medium that allows synchronous audio and visual contact between students and their instructor from anywhere in the world with access to advanced telecommunications systems. Two-way videoconferencing, or interactive compressed video, overcomes the barrier of distance through satellite, dedicated telephone, or other type of network connections.

Reports from authors such as Neeley, Neimi, and Ehrhard (1998) indicated high satisfaction with the delivery of instruction using this technology. Technical difficulties with transmission were the major potential for difficulty in such courses, but since the student-faculty interaction was comparable with that of the traditional classroom, the added flexibility provided by remote classrooms in close proximity to the student may have outweighed any inconvenience from occasional connection problems.

One study by Huston (1997) did consider persistence of students in a doctoral program within the School of Education at the University of Kentucky. Using Kember's (1995) Distance Education Student Progress (DESP) inventory, Huston analyzed student persistence in the program and found some variables to be significantly correlated to persistence. Her results indicated that a positive interaction with students and teachers, spousal support and intrinsic motivation were all significantly related to persistence. Background variables of marital status and financial status were also related. Huston pointed out that the population of her study was not generally characteristic of students in

higher education. These findings may not be transferable to the wider population of post-secondary students.

On-Line Course Studies

A study by the National Center for Education Statistics (1999) indicated that from their initial study in 1995, to a follow-up study in 1997-98, the number of institutions offering distance courses through correspondence and interactive video remained relatively constant. Schools offering Internet-based courses nearly tripled from 22% of institutions in 1995 to 60% in 1997-98. Of the 1,230 public, 2-year institutions included in that study, 59% indicated they offered courses on the Internet using asynchronous instruction. This increase in the use of the Internet for the delivery of courses has been followed by a surge in the number of publications on the topic. The positive results that many of these publications present on student success and performance led to the publication of "The No Significant Difference Phenomenon," an annotated bibliography by Russell (1999) building the case that student performance is not affected by the mode of delivery. A separate review of many of the studies, however, led to the Institute for Higher Education Policy's (Phipps & Merisotis, 1999) criticism of the overall body of research.

Appendix A presents a comparison of studies and published statistics from the past few years on courses that are offered on-line. Those studies that considered grades and satisfaction seem to support Russell's theory that there is no significant difference in these variables between on-line instruction and face-to-face classroom instruction. Looking at the data on completion rate showed significant variation. A number of cases indicated

rates as low as 50% (Carr, 2000; Serwatka, 1999), while others reported high completion rates (Bothun, 1998; Gibson & Herrera, 1999; McCollum, 1997, Smeaton & Keogh, 1999). Overall, most publications reported completion rates for on-line classes below those for face-to-face instruction. This statistic does raise the question of how dropout cases were handled in the analysis of student satisfaction and performance, since omission of students that dropped may skew the overall results of the study.

Carr (2000) reported statistics on dropout from distance learning courses at a number of institutions following interviews with officials at that institution representing distance learning programs. Carr (2000) was admittedly building a case to demonstrate a higher dropout rate for distance learning courses, but the number of contacts cited and the variety of schools contacted does provide a basis for concern for the dropout rates in these courses. It is interesting to note that significant impact can be made on the dropout rate in distance courses through institutional intervention. The University of California at Los Angeles (UCLA) reported that initial dropout rates upon implementation of their distance learning program were 40-50%, but after some experience with the technology, the institution improved that statistic to the point where, over 8 quarters at the institution, 87% of distance students completed their courses.

Those studies that reported high retention rates largely ignored the dropouts from their statistical analyses of grades and/or satisfaction. Bothun (1998) did note that if it were assumed that the 25 dropouts of 150 students should receive a failing grade for the course, the overall GPA of the on-line students would be less than that of the students in the face-to-face setting. Without including those students that dropped, the on-line

students received higher grades overall and that statistic was reported in the study. Bothun also indicated that since students in his study could self-select either on-line or face-to-face formats, he felt that the on-line students were more highly motivated to succeed.

McCollum's (1997) report on an experimental study by Jerald G. Schutte at California State University at Northridge indicated that none of the on-line students dropped the class. Impact on grades and satisfaction would obviously be nil, but the possible impact of reactive effects such as the Novelty Effect or the John Henry Effect, cited in the report by the Institute for Higher Education Policy's (Phipps & Merisotis, 1999, p. 4) could be a factor in a study where two groups are obviously placed in competition with each other. Studies by Gibson and Herrera (1999) and Smeaton and Keogh (1999) included only a passing comment concerning the dropout from their courses and provided no indication of including those results in either student achievement or student satisfaction measures.

A follow-on survey by Richards and Ridley (1997) illustrated how the exclusion of students that drop a course can skew the results of a study. In that case, the investigators surveyed students that had completed one on-line course and subsequently registered for a second on-line course. They reported that dropout from the initial on-line courses was "relatively high" (p. 490). Their analysis of "whether the perceived quality of prior instruction had any bearing on students' decisions to persist" (p. 492) indicated that there was no relationship between the two. Since the "relatively high" number of students that dropped the first on-line course were not included in the follow-on study, this result lacks validity.

Based on this review of on-line courses, along with the review by the Institute for Higher Education Policy (Phipps & Merisotis, 1999) it does appear that the effects of dropout in on-line courses is still an unknown factor and one that merits further study.

Technology Enhanced Lecture/Lab Courses

The influence of technology on distance learning is evidenced by the progression from print-based correspondence courses to today's use of the Internet to provide an interactive environment without face-to-face contact. That influence is becoming increasingly evident in the traditional classroom as well. Despite their criticisms of distance education research, the Institute for Higher Education Policy (Phipps & Merisotis, 1999) did state that the research on technology in education has a "salutary effect in that a rising tide lifts all boats. Any discussion about enhancing the teaching/learning process through technology also has the beneficial effect of improving how students are taught on campus" (p. 8).

Research studies demonstrated the advantages of using tools designed for distance education to support face-to-face instruction. Sandercock and Shaw (1999) used WebCT to support instruction in a lecture/lab course in applied sports science. While quantitative analysis of test scores showed no significant difference, student surveys indicated that the addition of the on-line support enhanced the delivery of the course. One study of a graduate course in medical physiology by Richardson (1997) found statistically significant increases in performance on examinations when computer simulations

supplemented lectures and laboratory experiences were conducted using these same simulations.

The SCALE Efficiency Projects at the University of Illinois at Urbana-Champaign (Arvan, Ory, Bullock, Burnaska & Hanson, 1998) focused on the ability of technological enhancements of traditional courses to increase student/faculty ratios without sacrificing the quality of instruction. The project used on-line materials to reduce the number of hours of direct instruction and to automate portions of the evaluation process. Lecture hours were reduced for courses and replaced by on-line materials. The investigators concluded that for very large class sections, the money invested in developing on-line materials and examinations could be recovered through reduced faculty and teaching assistant time, and through higher student/faculty ratios. Their measures of quality of instruction were, by their own admission, not ideal, but they do feel the gains in efficiency they achieved were not at the expense of the quality of instruction. The SCALE project also had the target to improve retention rates in classes, but the results presented within their publication left that question largely unanswered.

Foundational Theories of Persistence

Bean and Metzner (as cited in Huston, 1997) defined *dropout* as "any student who enrolls at an institution one semester but does not enroll the next semester and has not formally completed his or her declared program of study" (p. 2). The concept of persistence would then be defined as the enrolled student who completes the declared program of study. The emphasis in these definitions is on completion of the degree program versus

that of the individual course. Much of the research on dropout, including the foundational work of Tinto (1987), focused on this broad definition. Recommendations of those studies provided insight to the institution on the type of environmental variables that could impact persistence.

Researchers applying results of these studies to the distance learning setting have shifted the emphasis from dropout from programs to dropout from individual courses (Bernard & Amundsen, 1989). Such a shift may increase the value of the research to faculty, since the outcomes will likely provide more prescriptive recommendations to increase persistence within an individual course. For purposes of this study, persistence was determined by the percentage of students completing the course under investigation with a grade of "D" or better. Non-starting students, as defined in Chapter One, were reported, but were not included in measures of persistence.

Many researchers have attempted to find the right set of variables to explain persistence rates in non-traditional, higher education courses (Billings, 1988; Cookson, 1990; Garrison, 1985; Gibson & Graff, 1992; Powell, Conway, & Ross, 1990; Sweet, 1986). Others have developed models containing multiple variables correlated with persistence (Kember, Lai, Murphy, Siaw, & Yuen, 1994; Billings 1988). While these studies have looked at distance, or other non-traditional courses, they did not consider the difference in student persistence between a given course, taught in a non-traditional mode and that same course taught in the traditional lecture setting. This has prompted the recent criticism from the Institute for Higher Education Policy that the research does not

adequately explain why the drop-out rates of distance learners are higher (Phipps & Merisotis, 1999).

The foundation for much of the research on student persistence in higher education is attributed to Tinto (1975, 1987). Tinto's Theory of Departure was related to studies on suicide in that, much like the tendency toward suicide, a student's tendency to depart from college is strongly related to the degree of integration into the surrounding environment attained by that individual. Tinto divided integration, in the case of the college student, into the academic realm and the social realm. Academic integration referred to the students' ability to adapt to academic aspects of the institution. Success in coursework was the primary indicator of the level of academic integration. Social integration was indicated by the students' ability to fit within the social structure of the institution. Participation in extracurricular activities and social interactions with classmates were indicators of the degree of social integration. Dropout from college, according to this theory, could be attributed to the inability to integrate with the academic and/or social environments of the institution.

Researchers have studied the validity of Tinto's model in a variety of institutional settings. Pascarella and Chapman (1983) achieved results consistent with Tinto's theory within residential universities and liberal arts colleges. Their study of community college freshmen, however, had the opposite result. In that case students that persisted also showed lower levels of informal contact with faculty and their fellow students. Following studies by researchers such as Halpin (1990) indicated that the persistence of

community college students was predicted by the academic integration aspects of Tinto's model. Social integration was not a predictor for this group of students.

Application of Tinto's model to the distance learning environment was the subject of a study by Sweet (1986). Having reviewed Pascarella and Chapman's (1983) work with community college students, Sweet theorized that distance students would be most comparable to the community college students in the earlier study and that only academic variables would be correlated to student persistence. Results of Sweet's study did confirm that academic variables did contribute to student persistence, but he also found that one form of what he deemed to be social integration was a predictor of persistence. Sweet's distance students had access to tutoring services through the telephone. The use of this service was found to be related directly to institutional commitment, and therefore indirectly related to persistence.

Bernard and Amundsen (1989) developed a further refinement of Tinto's model in the study where the authors considered differences in course characteristics in their analysis of persistence and withdrawal. Course characteristics, in this case, consisted of variables such as the type of content involved in the course and the learning outcomes expected. The study considered three different distance education courses. One was in Communication, one in Business Administration, and one in Accounting. The authors characterized these as being three points on a spectrum of varying content and objectives as follows:

> The nature of the required assignments and skills is quite different across the three courses. Responses to the Communication course term assignments are in short essays that require reasoned arguments and the justification of personal opinion.

> Likewise, Business Administration course assignments require reactions within a structured format based on accepted principles of business practice. However, responses from students may vary. By contrast, Accounting course assignments are evaluated based on the student's ability to arrive at a single correct answer and use the correct procedure. (p. 36)

Results of Bernard and Amundsen's study did show that distinguishing between different types of courses can result in varying predictors of student persistence. The more analytical Accounting course had two variables as predictors of persistence. Those were academic integration and student commitment to the goal of completion. On the other extreme, the Communication course had four predictors of persistence consisting of student background characteristics, academic integration, social integration and student commitment to the institution. The appearance of social interaction as a significant predictor of persistence in the Communication course distinguished it from the other courses.

An attempt to further refine Tinto's model for students in distance learning situations was proposed by Kember (1995). Kember felt that the studies by Sweet (1986) and Bernard and Amundsen (1989) did not modify Tinto's model adequately to account for differences between traditional and distance learners. Kember (1995) redefined academic and social integration as follows:

> To suit the characteristics of adult open learning students, the model proposed in this book re-defines academic integration to encompass all facets of the offering of the course to the student by the institution. These include the study package, any tutoring by faculty members, and any interaction between student and institution whether of an academic or administrative nature. Social integration can then refer to the degree to which the student is able to integrate the demands of part-time study with the continuing commitments of work, family and social life. (p. 50)

Using these revised criterion, Kember developed the Distance Education Student progress (DESP) questionnaire that allowed him to evaluate these variables in a variety of student groups. Factor analysis of the data obtained with the DESP inventory indicated that both social integration and academic integration should be divided into positive and negative factors. An illustration of the resulting model is shown in Figure 1.

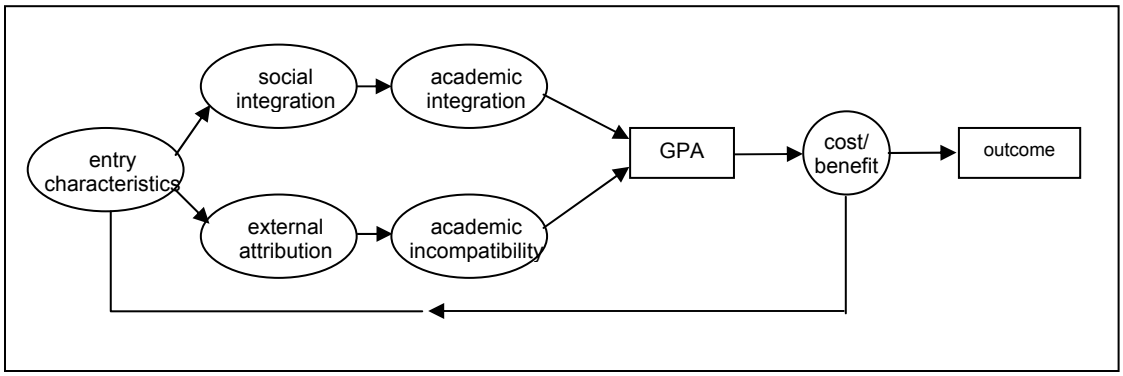


Figure 1. Kember's (1995) Two-track Version of the Student Progress Model

Students with entry characteristics that are favorable to the learning process would proceed on the upper, or positive track and be more able to integrate both socially and academically. Those with entry characteristics not favorable to the learning process would proceed on the lower, or negative track, and have more difficulty in integrating with the academic environment.

Kember's model and the DESP inventory are useful in illustrating the relationships between many of the variables associated with persistence in distance learning and in suggesting institutional practices that can assist students in successful completion of those courses. Both the inventory and the methods of analysis used to produce the model were used for the purposes of this study.

Summary

The introduction of the Internet as a mode of delivery has greatly expanded the demand for distance education (National Center for Educational Statistics, 1999). The current research in this area has concentrated on "how to" implement distance learning and "how to" utilize the technology. The concentration on student satisfaction and ensuring that distance courses are at least as good as, if not better than, face-to-face instruction (Russell, 1999) has caused researchers to lose sight of those students that are not completing the course.

Criticisms by organizations such as the Institute for Higher Education Policy (Phipps & Merisotis, 1999) serve as a warning that higher dropout rates in distance learning courses cannot be ignored. We must properly account for those students and, using proper research techniques and a firm grounding in theoretical concepts, provide faculty with insights on how to retain students in their distance courses.

The theoretical basis for our understanding of persistence of students in distance learning courses is still largely based on the body of research conducted in the 1980's and early 1990's using students in print-based correspondence courses and one-way video-based telecourses. Technological enhancements and added forms of media that are made possible by the Web have increased the modes of communication possible between students and faculty and between fellow students in today's distance learning course. As a result, the applicability of that theoretical foundation must again be tested.

This study made use of the theoretical background developed by authors such as Tinto (1975, 1987), Sweet (1986), and Kember (1995) and included Web-based courses as one possible format for non-traditional courses. It considered the differences between persistence in various instructional modes by concentrating on students that were enrolled in traditional lecture/lab settings versus those enrolled in the same course, offered in non-traditional formats. Those formats included Web-based courses, videotape courses, and courses offered in modular, self-paced labs on the college campus. The research drew from previously developed theory, directly addressed the problem of dropout from distance education courses, and applied it to the non-traditional student that is characteristic of the community college setting.

Chapter Three

Methodology

Approach

Much of the recent research in persistence in higher education has been based on a foundation developed by Tinto (1975, 1987). Tinto suggested a model for dropout from traditional, four-year, residence institutions that considered students' entry characteristics, social integration, and academic integration into the institution. Researchers have since investigated that model's applicability to nontraditional students (Ashar & Skenes 1993), distance education (Kember, 1995; Belawati, 1998; Sweet, 1986; Bernard & Amundsen, 1989), adult basic education (Garrison, 1985), community colleges (Mutter, 1992), and across multiple campuses (Pascarella & Chapman, 1983).

Kember (1995) modified Tinto's model for the specific case of distance education and developed an instrument known as the Distance Education Student Progress Inventory (DESP) which has been used to establish correlation between the various variables in the model. Like Tinto's model, Kember began with student entry characteristics, looked at the intervening variables of social integration and academic integration which led to the outcome of persistence or dropout. Kember's model is illustrated in Figure 1, and in greater detail in Appendix B.

Modifications Kember (1995) made to Tinto's (1987) model included a greater emphasis on integrating school work with existing social structures of family and work situations versus those of the traditional residential campus. Kember also divided social and

academic integration into two tracks, as illustrated in Figure 1. The top, or positive track fit those students whose environments were supportive of their participation in the learning experience and who were academically ready and willing to take the course. The lower, or "negative" track models those students who faced greater distractions in their studies and who were not as academically prepared for the course or program. This split resulted in four sets of intervening variables between the entry characteristics and the outcome of persistence or dropout as can be seen in the graphical model in Appendix B.

Kember's (1995) DESP inventory consisted of a series of demographic questions followed by statements individuals rate on a five-point Likert scale from definitely agree to definitely disagree. Each of those questions act as a measure of one of the four intervening variables of social integration, external attribution, academic integration, and academic incompatibility. For this study, modifications were made to the DESP inventory to account for differences in the method of tutoring supporting the courses studied and for the fact that participants in this study were native English speaking students versus Kember's analysis of students' ability with English as a second language. The survey instrument used in this study is included as Appendix C.

Following the modification of the DESP inventory, the instrument was administered to students in AMID courses and in the corresponding traditional lecture/lab courses. Student course completion with a grade of "D" or better was used as the measure of persistence (as shown in Kember's model). Advance permission to conduct the survey was obtained from Nova Southeastern's Institutional Review Board.

Participants

Participants in this study included those students registered in selected on-line, videotape-based, and self-paced courses during the winter quarter of 2000. Formats of each of these courses are described in Chapter One and course syllabi are included in Appendix D. To provide comparisons between alternative format courses and those taught in the classroom, parallel sections taught in the classroom were included in the study. Students involved were all registered students at Clark State Community College and could register for whichever section or instructional mode they preferred. Demographic characteristics of the students, described in greater detail in the next section, were collected from both the survey, and the college's administrative system. This information was included in the data analysis to evaluate variables such as student age, previous success in college and previous levels of experience in college.

Specific Procedures Employed

This research was conducted using sections taught during the winter quarter of 2000. Since one of the formats for delivery allows students two quarters to complete the coursework, a complete set of final data was not available until June of 2000. The schedule for completion of the research activity was as follows:

- October 1999 - Permission was obtained from Nova Southeastern's Institutional Review Board to conduct the study utilizing Kember's (1995) Distance Education Student Progress Inventory.
- November 1999 - Sections of courses were identified that were included in the study and initial contact was made with the faculty members.
- January 2000 - Winter term began.

- February 2000 - The Distance Education Student Progress (DESP) inventory was administered to students in the selected sections. Distance students and those participating in the self-paced lab instruction received and returned the instrument through the mail.
- March 2000 - Data on student completion were collected from faculty for those courses running over a single quarter. Demographic data were collected from both the DESP inventory for those students completing the survey, and from the college's administrative system for all students participating in the selected course sections.
- June 2000 - Data on student completion were collected from faculty for those courses running over both winter and spring terms.
- July-December 2000 - Data analysis and reporting were completed.

Data Collection and Analysis

Kember's Distance Education Student Progress (DESP) inventory was placed into a computer-readable form and is included in Appendix C. The survey began with demographic variables including age, number of children, gender, marital status, income level, educational attainment, work experience, the number of people living in the home and the amount of time required to travel to the college from the individual's home. A social security number was requested to allow matching of individual surveys with course grades and additional demographic data obtained from the college's administrative system. The course number and section were identified on the form prior to sending to the students to ensure accuracy of the machine-readable data.

Following the demographic data, a series of questions were included asking students to rank their level of agreement or disagreement on a five-point Likert scale. Table 1 lists those questions and how they build into the subscales and scales of Kember's model as illustrated in Appendix B. Five items, marked with an asterisk (*), were reverse scored

during data analysis, due to the fact that they were written in the opposite sense as compared with other items in the category.

Table 1 - Categories and items of the DESP inventory (Kember 1995)

Social Integration *Enrollment Encouragement* • My spouse encouraged me to enroll in this course. • My family encouraged me to enroll in this course. • My employer encouraged me to enroll in this course. • My friends encouraged me to enroll in this course. *Study Encouragement* • My employer was supportive while I was studying. • My spouse offered support while I was studying. • My co-workers encouraged me to study. • My family encouraged me to study because they thought the degree was important. *Family Environment* • The support of my family means a lot to me. • I usually spend a lot of time with my family. • I don't need the support of my family to succeed in this course.*
External Attribution *Insufficient Time* • As I work long hours it is difficult to find time to study. • Long hours at work left little time for study. • I seem to have so many other things to do there is never enough time for study. • A change in my work left me without enough time for study. *Unexpected Events* • A change to my work situation made it difficult to complete the course. • I was ill during the course, so found it difficult to keep up. • Personal/family circumstances, unseen at the time of enrollment, hindered my studies. *Distractions* • I went out a lot, rather than studying. • I have a busy social life. • I prefer to spend time doing things other than studying. • I do not let anything interfere with my studies.*

- My children interfered with my studies.
- My friends wanted me to go out rather than study.
- My spouse became annoyed because I spent so much time studying.

Potential Drop-out

- I often consider dropping out from the course.
- I often wonder whether all the study is worth the effort.
- I am very determined to finish the course.*

Academic Integration

Deep Approach

- I generally put a lot of effort into trying to understand things which seem difficult at first.
- When I'm tackling a new topic, I ask myself questions about it which the new information should answer.
- I usually set out to understand thoroughly the meaning of what I am asked to read.
- I often find myself questioning things that I read in books or study materials.

Intrinsic Motivation

- My main reason for doing this course is so that I can learn more about the subjects which interest me.
- I spend a good deal of my spare time in finding out more about interesting topics in the course.
- I find academic topics so interesting, I should like to continue with them after I finish this course.
- I find that studying academic topics can often be really exciting.

Positive Course Evaluation

- The teacher's comments on my assignments have helped me to study.
- The textbook is easy to learn from.
- The course was administered very efficiently.
- The activities/self-assessment questions have helped me to learn.
- I found the course materials and text useful in preparing for the course.

Faculty Contact

- I contacted the faculty member often.
- Trying to talk to the teacher is a waste of time.*
- Conversations I had with the faculty member were helpful.
- The faculty member was available to provide help when I needed it.

Reading Habit

- I read a wide variety of books and other materials.
- I enjoy reading so I am suited to distance learning courses.
- I read other books as well as the study materials and set texts.

Academic Incompatibility

Surface Approach

- The best way for me to understand technical terms is to remember the text-book definitions.
- Often I find I have read things without having a chance to really understand them.
- Lecturers seem to delight in making the simple truth unnecessarily complicated.
- I usually don't have time to think about the implications of what I have read.
- I find I have to concentrate on memorizing a good deal of what I have to learn.
- When I'm reading I try to memorize important facts which may come in useful later.

Extrinsic Motivation

- I suppose I am more interested in the degree I'll get than in the course I'm taking.
- I generally choose what I study more from the way it fits in with career plans than from my own interests.
- I chose the present course mainly to give me a chance of a really good job afterwards.
- My main reason doing this course is that it will help me to get a better job.

Negative Course Evaluation

- The learning materials are presented in a confusing way.
- The time allowed for completing the course is too short.
- The assignments are too difficult.
- The course is not run at the most suitable time of the year.
- I do not understand a lot of words in the course materials.
- The type of work required by assignments is very different from what I expected.

Data on all students in the selected sections were collected from the college's administrative system. That information included:

- Cumulative quarter credit hours attempted at the college
- Cumulative quarter credit hours completed at the college
- Cumulative grade point average (4.0 scale)
- Course grade
- Date of birth
- Marital status

- Gender

Demographic variables such as date of birth, marital status, and gender were used to verify information from the surveys and to verify that those students returning the surveys were representative of the students in the selected sections. The course grade was used as a measure of course completion and the remaining variables on credits hours attempted, credit hours completed, and cumulative GPA were used as measures of each students' experience and success in the college setting.

Analysis of the data considered differences in the major scales and sub-scales used in Kember's study and in the additional variables obtained from the administrative computing system. The major category-pairs of courses included:

1. Those taught on-line and their parallel courses taught in the classroom;
2. Those taught through video-tape and their parallel courses taught in the classroom;
3. Those taught in a self-paced format and their parallel courses taught in the classroom.
4. Students completing a course with a grade of "D" or better within a given format versus those not completing, or failing the same course in the same format

An analysis using independent sample t-tests (SPSS 1999a) was conducted for each of the formats of instruction and their parallel courses to establish what differences might exist between the students within each category-pair. Demographic variables, responses to the DESP inventory scales and sub-scales, and student success data obtained from the college's administrative system were considered.

Reliability and Validity

Kember's (1995) model and the use of the DESP inventory are supported by both reliability and validity studies. As in Kember's original study (Kember, Murphy, Siaw, & Yuen, 1991), and the replication study (Kember, Lai, Siaw, & Yuen, 1994), reliability analysis was conducted for this study which determined Chronbach Alpha values showing internal consistency of the sub-scales based on inter-item correlations (SPSS, 1999b). Alpha values obtained for this study were compared to Kember's two published studies to determine consistency.

Validity of Kember's model was also established during the original study (Kember, Murphy, Siaw, & Yuen, 1991). A qualitative study using telephone interviews was used to validate the analytical results obtained from the DESP instrument. Responses from those interviews were consistent with analytical results.

Resource Requirements

Resources required for this study included support from faculty teaching AMID courses and parallel traditional courses at Clark State Community College. The modified DESP instrument was used in these courses. Per Nova's policies concerning research on human subjects, permission to use the instrument was obtained from the Institutional Review Board.

Permission to obtain student records on the courses surveyed was requested as a part of the survey instrument. Data on assignment completion, course grades, and course

completion were obtained from the course faculty member or the college's administrative computing system. Statistical analysis was completed using SPSS software available through Clark State Community College.

Summary

In a recent article in the Chronicle of Higher Education, Carr (2000) questioned if higher dropout rates in distance education are the result of the busy schedules of the students, or problems inherent in the modes of instruction used in distance learning. This study used a theoretical background developed to examine persistence in higher education and distance education to evaluate that question for community college students participating in four different forms of instructional delivery. Those forms consisted of on-line, videotape-based, self-paced, and classroom-based delivery methods.

Kember's (1995) distance education student progress (DESP) inventory was used in combination with student demographic and academic progress data to evaluate persistence in the selected courses. Scales and subscales of Kember's model of persistence in distance learning, presented in Figure 1 and Appendix B were determined for students participating in the selected courses. Using these variables, the independent t-test was used to analyze the difference between the formats of instruction and the students participating in these courses. Using the results of that analysis, recommendations were intended to be developed for the institution and for faculty to improve persistence rates of community college students participating in the instructional formats considered.

Chapter Four

Results

Course Sections Studied

Surveys were conducted and data collected for sixteen different sections of seven different courses. The Table 2 provides information on the courses, formats of instruction, and enrollment within those sections.

Table 2 - Courses Studied and their Enrollment

Course	Section	Data Group Code	Title	Format	# Registered	Census Date Enrollment
Internet Based Courses and their Classroom Equivalents						
ENG 112	E1	EE	English II	Internet	29	21
ENG 112	E2	EE	English II	Internet	29	23
ENG 112	04	ET	English II	Classroom	28	24
ENG 112	07	ET	English II	Classroom	26	21
Self-Paced Lab Courses and their Classroom Equivalents						
ITS 103	S1	SS	Information Technology Basics	Self-Paced Lab	87	69
ITS 103	05	ST	Information Technology Basics	Classroom	26	19
ITS 12A	S1	SS	Windows Concepts	Self-Paced Lab	34	28
ITS 12A	X1	ST	Windows Concepts	Classroom	19	9
ITS 12W	S1	SS	Beginning Word Processing	Self-Paced Lab	46	32
ITS 12W	X1	ST	Beginning Word Processing	Classroom	22	13
Videotape Courses and their Classroom Equivalents						
HST 112	V1	VV	Western Civilization from the 14th through the 18th Centuries	Videotape	36	25
HST 112	03	VT	Western Civilization from the 14th through the 18th Centuries	Classroom	43	36
PSY 111	V1	VV	Psychology I	Videotape	44	34
PSY 111	02	VT	Psychology I	Classroom	42	37
PSY 230	V1	VV	Abnormal Psychology	Videotape	37	22
PSY 230	01	VT	Abnormal Psychology	Classroom	31	25

Course syllabi are included in Appendix D that provide course descriptions, goals, and objectives of each of these courses. The number of registered students in Table 2 indicates the total number of students that registered for the course. Attrition before the

fourteenth day of the term is not included in official reports of enrollment. The enrollment at that census date is included in the final column.

For purposes of this study, data from courses offered in a given alternative format were combined for analysis. Similarly, the equivalent classroom based courses were also combined as a comparison group. The "data group codes" indicate which course sections have been combined for analysis and comparison. Those codes were used throughout the analysis of the data.

Student Success in the Sections Studied

Chapter One provides definitions of the various types of dropout that Kember (1995) defined. With the data obtained from each section the number of non-starters, and formal withdrawals were determined. Informal withdrawals and academic failures could not be distinguished since the number of completed assignments were not available for all course sections and since both groups received a course grade of "F". Given that limitation, Table 3 presents a summary of success rates for each of the data groups. Successful students were defined as those receiving a grade in the range of "A" to "D".

Based on the data from Table 3, students taking Internet-based courses (EE) had a somewhat higher rate of non-starting students than the equivalent course sections in a classroom setting (ET), but of those starting the course, the percentage completing was slightly higher than students in equivalent, classroom-based sections. For both self-paced

Table 3 - Student Success

Group	# Registered	% Non-Starters (of # Registered)	Census Date Enrollment	% of Census Date Enrollment		
				% Academic Failure or Informal Withdrawal	% Formal Withdrawal	% Completing
Internet Based Courses and their Classroom Equivalents						
EE	58	24.1	44	6.8	2.3	90.9
ET	54	16.7	45	8.9	8.9	82.2
Self-Paced Lab Courses and their Classroom Equivalents						
SS	168	19.6	135	29.6	14.8	55.6
ST	66	37.9	41	7.3	0.0	92.7
Videotape Courses and their Classroom Equivalents						
VV	117	15.5	81	24.7	24.7	50.6
VT	116	30.8	98	16.3	9.2	74.5
Total	**579**	**23.3**	**444**	**19.4**	**12.2**	**68.5**

lab (SS) and videotape instruction (VV), the rate of non-starting students was lower than the classroom-based equivalents (ST and VT respectively), but the percentages of those that complete the course were significantly lower than the classroom-based sections.

Survey Response Rate

The DESP Inventory was administered to students in these sections in the fifth through seventh weeks of the ten-week, Winter 2000 quarter. Students in on-line and self-paced lab courses were mailed the surveys with a return postage envelope included in the mailing. Students in classroom sections received the survey in a regular class session and were requested to complete the survey. Those students in videotape classes are required to attend three examination sessions each term. The survey was administered to those students at the second of these sessions. Response rates to the survey are summarized in Table 4.

Table 4 - Survey Response

Group	Census Date Enrollment	Number of Survey Responses	Response Percentage
Internet Based Courses and their Classroom Equivalents			
EE	44	13	29.5
ET	45	23	51.1
Self-Paced Lab Courses and their Classroom Equivalents			
SS	135	18	13.3
ST	41	30	73.2
Videotape Courses and their Classroom Equivalents			
VV	81	33	40.7
VT	98	47	48.0
Total	**444**	**164**	**36.9**

Scale and Sub-Scale Reliabilities

The four major scales of the DESP inventory were defined in Chapter Three. The reliabilities of the major scales and subscales of this model were reported in Kember (1995) for both an original implementation of the instrument and for a replication test. Reliability analysis was conducted for the results of the current study and Chronbach alpha values are presented in Table 5, along with those reported by Kember (1995).

For the major scales of External Attribution (EA) and Academic Integration (AI) alpha values were higher than those reported in the initial studies. Social Integration (SI) and Academic Incompatibility (AX) figures were lower than those reported by Kember (1995). Comparisons of the individual scores on these scales and sub-scales for the various groups in this study were made considering the reliabilities of the measures as presented in Table 5.

Table 5 - Reliabilities of the DESP Inventory Scales and Sub-Scales

Scale/Subscale	Current Study Alpha Value	Kember's original study	Kember's Replication Study
Social Integration - SI	**.46**	**.68**	**.67**
Enrollment Encouragement - SIEE	.68	.69	.46
Study Encouragement - SISE	.29	.52	.49
Family Support - SIFS	.58	.39	.48
External Attribution - EA	**.74**	**.61**	**.68**
Insufficient Time - EAIT	.81	.71	.77
Events Hinder Study - EAHS	.38	.61	.55
Distractions - EADI	.65	.54	.56
Potential Dropout - EAPD	.54	.50	.66
Academic Integration - AI	**.73**	**.65**	**.61**
Deep Approach - AIDA	.59	Not Reported	Not Reported
Intrinsic Motivation - AIIM	.67	Not Reported	Not Reported
Positive Course Evaluation - AIPE	.72	.54	.49
Positive Faculty Perception - AIFP	.59	.67	.76
Reading Habit - AIRH	.71	.44	.53
Academic Incompatibility - AX	**.41**	**.55**	**.59**
Surface Approach - AXSA	.46	Not Reported	Not Reported
Extrinsic Motivation - AXEM	.47	Not Reported	Not Reported
Negative Course Evaluation - AXNE	.68	.54	.66

Group Comparisons

For each of the three alternative formats of instruction studied, independent sample t-tests were conducted to determine the difference in mean values for each of the variables included in the study. One set of variables included in the study were obtained from the college's administrative computing system and were available for all students involved in the study. These included:

- Cumulative Credits Attempted (CUMCRATT) - the number of quarter credits the student had attempted at Clark State Community College.

- Cumulative Credits Completed (CUMCRCMP) - the number of quarter credits the student had completed at Clark State Community College with a grade of A, B, C, or D.
- Cumulative Grade Point Average (CUMGPA) - the student's cumulative GPA at Clark State Community College. That GPA is based on a 4.0 scale.
- Gender - Male was coded as "1", Female as "2"
- Age - the age of the student as of the end of Winter quarter, 2000.

Of these variables, only gender, age, and grade point average were included in Kember's (1995) studies. The measures of credits attempted and completed were included to obtain comparisons of the experience of the students at the college.

The remaining variables in the study were self-reported by the students in the DESP inventory. Demographic variables investigated included:

- Children - the number of children the student reports to have.
- Marital Status - Married was coded as "1", Single as "0"
- Number of individuals living in the home.
- Previous education level obtained - The coded values and corresponding educational levels were as shown in Table 6.

Table 6 - Educational Attainment Level Codes

Code	Highest Educational Level Achieved
1	No High School Diploma
2	High School Diploma or GED
3	Associate Degree
4	Bachelor Degree
5	Masters Degree
6	Doctorate Degree

- Work experience - Number of years of work experience
- Income - The coded values and corresponding annual household income levels were as follows:

Table 7 - Annual Household Income Codes

Code	Annual Household Income
1	Less than $10,000
2	$10,000 - $19,999
3	$20,000 - $29,999
4	$30,000 - $39,999
5	$40,000 - $49,999
6	$50,000 - $59,999
7	$60,000 - $69,999
8	$70,000 or more

- Travel - The number of minutes required to travel from the student's home to the college.

The remaining survey variables consist of the scales and subscales derived from the DESP inventory as shown in Table 5. Individual questions making up each of these scales and sub-scales are detailed in Chapter Three. Responses to the questions were provided by the student on a five-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree." Those responses were coded from 1 to 5 respectively. Exceptions to that coding included four questions that were stated in the opposite sense from the other questions in the sub-scale. Those items were coded from 5 to 1 respectively. They are identified with an asterisk (*) in Table 1.

SPSS software was used to compare means of the variables for each of the groups considered. As recommended by SPSS (1999a), Levene's test for equality of variances was first considered to establish if the population variances are equal. If the significance

level for Levene's test is below .050, equal variances were not assumed when considering the statistical significance between mean values of the variables. For significance levels above .050 on Levene's test, equal variances were assumed when considering significance of the difference between mean values.

Comparisons Between Alternative Format Courses and their Classroom Equivalents

Detailed results for all variables considered are included in Appendix E. The intent of this study was to identify statistically significant differences between the variables that could assist in understanding persistence differences between the formats of instruction. Only those variables that were significantly different are included in the following summaries.

On-line Courses Versus Their Classroom Equivalents

Table 8 summarizes the differences between students electing to take the second-level English course in an on-line format versus those taking the same course in a traditional format. All of the on-line and classroom-based courses in this category were taught by the same instructor.

The greatest differences between students choosing instruction in an alternative format versus those selecting classroom-based instruction were seen in the category of on-line instruction. The on-line students had completed more coursework in higher education, however, their grade point averages did not significantly differ from those students in the

Table 8 - On-line vs. Equivalent Classroom Course Differences

Variable Name	On-line Course Mean	Equivalent Classroom Course Mean	Significance
Cumulative Credits Attempted	40.9	27.7	.001
Cumulative Credits Completed	39.8	25.8	.001
Gender (M=1, F=2)	1.78	1.59	.025
Age	26.6	20.6	.000
Marital Status (Single=0, Married=1)	0.42	0.05	.034
Educational Level Achieved	2.23	1.90	.029
Years Work Experience	11.5	4.3	.001
Insufficient Time (EAIT)	2.4	3.5	.001
Events Hinder Study (EAHS)	2.2	2.8	.007
Distractions (EADI)	2.5	3.3	.001
External Attribution (EA)	8.9	11.8	.000

classroom. The on-line students were generally older, a higher percentage were married, they had a higher percentage of females, and were more experienced in terms of years in the work environment and educational background. Demographic variables that did not show a significant difference between the groups included the number of children, number of individuals living in the home income and travel to the college.

Of the variables Kember (1995) indicated should be more directly related to persistence, only External Attribution (EA) and three of the subscales from that major scale, Insufficient Time (EAIT), Events Hinder Study (EAHS), and Distractions (EADI) showed a significant difference. In all cases it was the classroom-based students that indicated a greater problem with external pressures than their on-line counterparts. While Table 3 indicates that completion rates were relatively high for both these groups of students, the on-line students did demonstrate a higher completion rate than their

classroom-based counterparts. That result would be consistent with the theory that external attribution plays a role in the persistence of students. Since reliability figures for the External Attribution scale and subscales were high (as reported in Table 5), it is likely that this result did indicate a significant difference between these two groups of students.

Self-Paced Lab Courses Versus Their Classroom Equivalents

Table 9 presents the variables that were significantly different between those students choosing to take basic computer skills courses in a self-paced lab environment versus those taking the same courses in a classroom setting. In the self-paced lab setting a variety of instructors supervised the lab during its open hours. Students could encounter any of the three instructors, depending on when they chose to work in the lab.

Table 9 - Self-Paced vs. Equivalent Classroom Course Differences

Variable Name	Self-Paced Course Mean	Equivalent Classroom Course Mean	Significance
Cumulative Grade Point Average	2.30	2.65	.035
Reading Habit (AIRH)	3.72	3.18	.042
Surface Approach (AXSA)	2.98	3.35	.013

Given the great differences in completion rates for these two groups of students as shown in Table 3, there were very few differences between variables within the study. Of the demographic variables, only grade point average was significantly different, with those students selecting classroom instruction having a slightly higher overall cumulative average.

None of Kember's (1995) major scales from the DESP inventory showed significant differences. The subscale of Reading Habit (AIRH) did have a relatively high reliability coefficient of .71 and results in Table 9 indicate that the students in the self-paced setting had reading habits that would be more conducive to success in the academic environment. The Surface Approach (AXSA) subscale was not as reliable (alpha=0.46), but would indicate that the self-paced students feel their tendencies in this area would better support success in coursework than their classroom-based counterparts. These results seem to conflict with the results in Table 3 which indicate that the students in the self-paced lab had a completion rate of only 55.6%, while 92.7% of students in the classroom completed the course.

Videotape Courses Versus Their Classroom Equivalents

Table 10 shows the statistically significant differences between those students taking three different History and Psychology courses using videotaped materials as a supplement to a textbook (videotape course) versus those students taking the same course in a classroom setting. In this case, all four sections of the two Psychology courses used

Table 10 - Videotape vs. Equivalent Classroom Course Differences

Variable Name	Videotape Course Mean	Equivalent Classroom Course Mean	Significance
Gender (M=1, F=2)	1.79	1.59	.001
Age	27.8	22.8	.000
Children	1.03	.43	.031
Years Work Experience	10.16	5.70	.011
Intrinsic Motivation (AIIM)	2.79	3.14	.019

for the study were taught by the same individual. The History course was taught by one individual in the videotaped format and a separate individual in the classroom.

Considering the demographic variables from the study, the differences between these two groups of students were similar to those seen in the on-line courses, but not as extreme. Students selecting videotape courses did tend to be older, had a higher percentage of females, greater family commitments, and had significantly more work experience than students selecting classroom instruction for the same courses. Their academic experience was not significantly different since none of the measures of grade point average, credits completed, or educational level achieved were included in these differences.

Of Kember's (1995) scales and subscales from the DESP inventory, only the subscale of Intrinsic Motivation (AIIM) showed a significant difference. Those students selecting to take the course in the classroom showed higher levels of intrinsic motivation which should, according to Kember, lead to a higher persistence rate. The reliability on this subscale was reported in Table 5 as 0.67, which is relatively high. This result did seem consistent with the higher completion rates in the classroom-based sections (74.5%) versus those students in the videotape courses (50.6%).

Comparisons Between Completing and Non-Completing Students for Each Course Type

On-line English Courses (EE) and Their Classroom-Based Equivalents (ET)

With a completion rate of 90.9% for on-line courses, there were no students completing the DESP inventory that did not complete the requirements of the course. Differences for

variables on the survey could not be established for this category of students. Population variables indicating experience at the college, overall grade point average, gender and age showed no significant differences between those students completing (39 students) and those not starting or not completing (18 students) the course. It is interesting to note that of the 18 non-completing students, 14 would be classified as non-starters, one formally withdrew and three failed either for academic reasons or non-completion.

Similar to the on-line courses, the equivalent classroom-based courses in English had a high completion rate of 82.2%. As a result, only one survey was completed by a student that did not complete the course. This was not sufficient to provide a comparison for the variables on the survey. In this group of courses, of the 17 students who registered, but did not complete, nine would be classified as non-starters. As is illustrated in Table 11, a number of the population variables did show a significant difference between those students completing and those not completing the course.

Table 11 - Significant Differences Between Students Completing and Not Completing Classroom-Based Courses Equivalent to On-line Courses Studied

Variable Name	Non-Completing Students	Completing Students	Significance
Cumulative Credits Completed	18.8	29.0	.002
Cumulative Grade Point Average	2.30	3.14	.000
Gender (M=1, F=2)	1.29	1.73	.002

Those students that had higher grade point averages and more experience in college (credits completed) had a greater tendency to complete the course. Due to the low number of non-completing students, differences between Kember's (1995) scales and

subscales could not be reported for this group of students. However, relatively high persistence rates for both on-line and equivalent classroom sections indicate that comparisons of the other formats where persistence differences are greater may provide more significant information.

Self-Paced Lab Courses (SS) and Their Classroom-Based Equivalents (ST)

Recalling from Table 3 that only 55.6% of the students starting a self-paced lab course completed while 92.7 % of students taking the same courses in the classroom completed their course, it was expected that there would be significant differences between those completing and those not completing. As Table 12 indicates only four variables were significantly different.

Table 12 - Significant Differences Between Students Completing and Not Completing Self-Paced Lab Courses

Variable Name	Non-Completing Students	Completing Students	Significance
Cumulative Grade Point Average	2.10	2.59	.032
Events Hinder Study (EAHS)	3.20	2.47	.043
Potential Drop-Out (EAPD)	2.13	1.53	.014
Negative Course Evaluation (AXNE)	2.90	2.16	.032

Past success was a predictor of current performance as is indicated by the significance of the cumulative grade point average. Those students completing the course had a somewhat higher GPA than those who did not. It is interesting to note that none of the other demographic variables differed between those completing and not completing the course.

None of Kember's (1995) major scales differed between the two groups, while only three of the sub-scales were significantly different. Two of the subscales from External Attribution (Events Hinder Study, and Potential Dropout) were included which had reliabilities of 0.38 and 0.54 respectively. Magnitudes of these variables were consistent with those reporting higher influence of these external factors dropping out more frequently. Negative Course Evaluation did have a higher reliability value of .68 and results are consistent with those who would evaluate the course more negatively dropping out more frequently.

Those students taking the basic computer skills courses in a classroom setting had the highest completion rates of those studied (92.7%). Insufficient data on the non-completing students were obtained to compare variables from the DESP inventory for this group. Of the demographic variables obtained for all students in the study, only GPA was significantly different as is illustrated in Table 13. Again, the students completing the course tended to have higher GPA scores. With high completion rates for this group, the inability to compare DESP scales is not consequential to this study.

Table 13 - Significant Differences Between Students Completing and Not Completing Classroom-Based Courses Equivalent to Self-Paced Lab Courses Studied

Variable Name	Non-Completing Students	Completing Students	Significance
Cumulative Grade Point Average	2.12	3.05	.002

Videotape Courses (VV) and Their Classroom-Based Equivalents (VT)

The lowest completion rates for any of the course formats were seen in those offered in the videotape format. Only 50.6% of those students starting the course successfully completed. Table 14 illustrates the results of t-tests to compare mean values for all the variables included in the study.

Table 14 - Significant Differences Between Students Completing and Not Completing Videotape Courses

Variable Name	Non-Completing Students	Completing Students	Significance
Cumulative Credits Attempted	26.2	44.8	.002
Cumulative Credits Completed	22.4	44.1	.001
Cumulative Grade Point Average	2.02	2.83	.000

Of all demographic variables, the only differences were seen in the student's prior coursework and grade point average. Those with more credits already completed and higher grade point averages tended to complete their videotape-based course. No other demographic variables were significantly different.

None of Kember's (1995) scales or subscales indicated statistically significant differences between completing and non-completing students in the videotape format courses. For the classroom-based students in courses equivalent to those offered in videotape formats, the completion rate was 74.5% of those starting the course. Differences in the variables were few as is illustrated in Table 15.

Table 15 - Significant Differences Between Students Completing and Not Completing Classroom-Based Courses Equivalent to Videotape Courses Studied

Variable Name	Non-Completing Students	Completing Students	Significance
Cumulative Grade Point Average	1.87	2.85	.000
Insufficient Time (EAIT)	2.43	3.17	.049

Of all the demographic variables, only grade point average was significantly different with those completing the course having higher GPA's. Only one of Kember's (1995) sub-scales showed a significant difference between those completing and those who did not. Insufficient Time (EAIT) indicated that those who completed the course actually felt more pressed for time than those that did not complete. This result would be inconsistent with Kember's (1995) model of persistence.

Summary of Results

Three different alternative formats of instruction were studied and compared to the same courses offered in a classroom setting. Alternative formats included on-line courses, self-paced lab instruction, and videotape instruction. Basic demographic data from a total of sixteen sections were collected and the Distance Education Student Progress (DESP) Inventory (Kember 1995) was administered to each of those sections. The overall response rate to the survey was 36.9%.

Reliability analysis was conducted on the scales and subscales of the DESP inventory with Chronbach alpha values ranging from 0.41 to 0.73 for the major scales of the instrument. Because some of these scales and their component subscales were lower than

those reported in Kember's original study, care was taken to consider the reliability of any of the variables that were found to be statistically different between the various formats of instruction.

The first set of comparisons were conducted using independent sample t-tests considering differences between students taking courses in each of the alternative instructional formats versus students in those same courses offered in a classroom setting. The on-line students differed from their classroom counterparts in that they were generally older, had more college and working experience and greater family commitments. The on-line students were the only group that showed a difference in one of the major scales of Kember's (1995) DESP inventory. Those students taking the course in a classroom setting had significantly higher scores on the External Attribution (EA) scale than the students taking the on-line format. That difference was supported by differences in the subscales of Insufficient Time (EAIT), Events Hinder Study (EAHS), and Distractions (EADI). This tendency by the classroom-based students would, according to Kember's (1995) theory, lead to higher dropout rates for that group. While the classroom student dropout rate was 8.7% higher than the on-line students, the overall completion rates for both groups was relatively high at 82.2% for the classroom-based students and 90.9% for the on-line students.

Dropout rates from both the self-paced lab courses and the videotape courses were high with only 55.6% and 50.6% of the students completing, respectively. The use of variables identified in the study to help explain those dropout rates was disappointing. Cumulative grade point average was, in nearly all cases, a predictable indicator of

success in the current courses. Like the on-line courses, other demographic variables indicated that the students in alternative format courses were generally older, had more family commitments and greater work experience. Unlike the on-line students, however, these same attributes were not an indicator of higher persistence, but higher dropout rates. Using the major scales and subscales of the DESP inventory to try to obtain a greater understanding of these dropout rates yielded few results. None of the major scales were identified as being significantly different between the self-paced or videotape courses and their classroom equivalents. Two of the subscales were significantly different for the self-paced students and only one was different for the videotape students.

The second group of comparisons were those considering differences between students that completed their courses and those that did not in each of the various formats. Independent sample t-tests were again used to make these comparisons. In those course groupings where the completion rate was 80% or above, there were not an adequate number of surveys from non-completing students to compare mean values of the variables within the DESP inventory. Because completion rates in those groups were high, they were not the primary concern for the study. Comparisons between completing and non-completing students in self-paced and videotape courses which had low completion rates were of primary interest.

For the self-paced lab students, the variables that showed significant differences between completing and non-completing students included grade point average, Events Hinder Study (EAHS), Potential Drop-Out (EAPD), and Negative Course Evaluation (AXNE).

Two of these variables contribute to the External Attribution (EA) scale, but were not significant enough for the main scale to indicate a difference between the two groups.

Students taking courses in the videotape format showed no differences in any of Kember's (1995) scales or subscales from the DESP inventory. The measures of grade point average, credits attempted, and credits completed were significant differences with higher GPAs and greater credits completed being indicators of higher rates of completion in the current course.

Chapter Five

Conclusions, Implications, Recommendations, and Summary

Conclusions

Considering the student success rate of each of the three alternative formats individually indicates that the earlier, unpublished study by Clark State's Institutional Research office should have been broken down by course format. By combining all alternative instructional formats into one category, the major persistence differences between formats was not identified. This study indicates that the persistence rates of students in the on-line sections are at least as good as those in the same courses offered in a classroom setting. Self-paced and videotape courses did have significantly lower persistence rates than their classroom-based counterparts and should be the target of efforts to improve student success.

Kember's (1995) model of student progress suggests that variables of social integration, academic integration, external attribution, and academic incompatibility should serve as intervening variables between demographic entry characteristics and persistence in a distance learning environment. Given that theory, it would be expected that when comparing two groups of individuals working toward the same course objectives, major differences in persistence would be manifested by significant differences between variables within the model. This study attempted to use those variables to examine persistence differences being experienced in a variety of alternative course formats at a community college. Specifically the research questions under consideration were:

- What variables and dependencies in Kember's (1995) model of student progress are significantly different for the course formats investigated?
- Do differences in variables and dependencies in Kember's model help explain differences in persistence rates between the various formats of instruction?
- Does the analysis of differences in variables and dependencies in Kember's model suggest practices in individual courses that can improve persistence rates in those courses?

Considering the first research question, only one case of all the comparisons made between groups of students in the study showed a significant difference in any of the major scales presented in Kember's model. When comparing students taking an on-line course with their counterparts in the same course offered in a classroom setting, the on-line students showed lower levels of external attribution. Because the persistence rates of the on-line students were higher than their counterparts in the classroom, this result would be consistent with Kember's (1995) model. Because the same effect was not seen in the self-paced and videotape courses, however, we cannot conclude that this difference is an adequate predictor of persistence.

Since persistence differences were greatest for students in the courses offered in self-paced and videotape formats, it would be expected that the greatest differences in the DESP scales and subscales should be seen within those groups. Looking at the comparisons between the alternative format courses and those offered in the classroom, no significant differences were seen between the major scales of social integration, academic integration, external attribution, or academic incompatibility. While two of the subscales showed significant differences for the self-paced courses and one was

significantly different for the videotape course, these results do not show a consistent pattern from which conclusions can be drawn to impact practice in the instructional setting.

Looking at the results when comparing those students who do not complete a course in a given format versus those that do persist to completion, it would be expected that differences should be larger when comparing these groups of students than when comparing alternative to classroom styles of instruction. Results of the study, however, indicate that those differences are again, neither overwhelming nor consistent. The self-paced students that did not complete the course did show higher tendencies to allow external events to hinder their study, to have a higher expectation that they would drop out of the course, and to evaluate the course more negatively. These results are all consistent with Kember's (1995) model, but do not seem to provide the weight of evidence needed to explain a 44.4% dropout rate for this format of instruction. That lack of adequate evidence is also supported by the fact that none of the major scales or subscales from Kember's model were significantly different when considering students in videotape courses that did complete versus those that did not. Dropout rate in the videotape format of instruction was 49.4%.

The one variable that consistently indicated differences between groups that persisted to completion and those that did not was the cumulative grade point average. While knowing that past performance can be an indicator of present success may be beneficial in counseling students into or out of alternative format courses, it provides little insight on how to improve those courses to assist all students toward persistence.

Given the results of the study as discussed above, and in Chapter Four, the answers to the second and third research questions would be that the variables in Kember's (1995) model did not act as consistent predictors of success for students in the present study and that result would preclude researchers from making recommendations based on these results.

Implications

Results of this study indicated that Kember's model of student progress was not an appropriate tool when investigating significant persistence differences in an attempt to make recommendations on improving practice within this educational setting. As indicated in Chapter One, these results apply to non-traditional students in a community college setting. They may not be applicable to other populations of students within higher education. In addition, results can only be applied to those formats of instruction included in the study.

Huston (1997) reached comparable, but not identical conclusions in her study of a Doctorate in Education program in Higher Education at the University of Kentucky. In that case the format of instruction was interactive two-way videotape classes. Results of the DESP inventory showed no significant relationship between external attribution, or social integration, and completion of the program of study. Subscales of the DESP inventory that were positively related to persistence included intrinsic motivation and positive interaction (or Positive Faculty Perception in this study).

Results of this study indicate that in order to obtain concrete recommendations for improvement in the persistence rates of students in alternative format courses in a community college setting, another approach should be pursued. This result is consistent with a recent presentation by Lockee, Moore, and Burton (2000) which suggested that comparisons between classroom-based instruction and distance education is not an appropriate methodology for researchers since it generally leads to a no significant difference conclusion. While this study did make comparisons between a given alternative format of instruction and the same courses offered in a classroom setting, comparisons within a given format were also made, yielding results that indicate the scales and subscales of Kember's (1995) model were not adequate predictors of persistence.

Recommendations

The admonishment made by the Institute for Higher Education Policy stated that "The research does not adequately explain why the dropout rates of distance learners are higher" (Phipps & Merisotis, 1999, p. 18) Results of this study show that it is possible to have the persistence rates within distance education at, or above those of classroom-based instruction. That conclusion is also supported by results at UCLA which showed initial persistence rates of 40-50% climb to 87% (Carr, 2000) as the institution and its faculty gained experience in supporting distance learners.

This study, and many of those like it, concentrated on characteristics of the learners participating in alternative formats of instruction. For an open-access institution such as

a community college, the institution's mission demands those students be served despite the characteristics that they bring into the educational process. Student persistence rates in alternative forms of instruction exceeding 90%, as seen in the on-line students in this study, suggest that it is not the characteristics of the student that should be considered, but rather the characteristics of the instructional format. We should not ask why the distance learner is dropping out with greater frequency, but why a given course is experiencing low persistence rates. The difference is shifting the focus from student characteristics to mechanisms within a course that assist all students through completion.

Lockee, Moore and Burton (2000) suggest that comparisons made within a given format of instruction are of the greatest value. In the case of the course formats included in this study, if the self-paced and videotape formats are still seen as valuable in ensuring access to college coursework for many students, then strategies should be researched which would improve persistence within that format or by supplementing that format with additional instructional tools.

The current practice within the videotape courses studied is to provide a workbook, textbook, and series of videotapes to students at the beginning of the course and require students to work through those materials independently. Scheduled, on-campus examinations ensure that students work through the materials at a set pace. Those testing sessions also provided the only time for many of the students to interact with other members of their class and with the faculty. Students in the self-paced courses also work through course materials independently from each other. While the open lab does provide a forum for contact with other students and with faculty, students often fail to

take advantage of that opportunity citing inadequate time or not recognizing the need for such interaction. Researchers such as Tinto (1998), Care (1996), and Ragan (1999) suggest that interaction between students and between students and the instructor is key in supporting students through course completion. An area of further research for these formats of instruction would be the addition of requirements for group projects, on-line discussions, or faculty tutoring sessions. Evaluative studies should be designed to monitor the impact of such tools on persistence and determine the value of such activities.

Summary

While distance education programs continue to expand, the occurrence of higher dropout rates in those programs as compared to the same courses offered in lecture/lab settings remains a point of contention between supporters and detractors of non-traditional forms of education. This study used a foundation of research on dropout in higher education as the basis for a study of dropout rates in non-traditional forms of instruction in a community college setting. That foundation was based on Tinto's (1975, 1987) "Theory of Departure" from higher education and included refinements made by Pascarella and Chapman (1983) for community college students, Sweet (1986) for distance learning students, and Bernard and Amundsen (1989) for considering persistence from courses versus programs of study. The theoretical model forming the basis of the study was that developed by Kember (1995) for evaluating student progress in distance education. The instrument used for data collection was Kember's (1995) Distance Education Student Progress (DESP) Inventory.

Course delivery formats studied include videotape-based courses, Internet-based courses, and courses offered in a self-paced laboratory environment. For each of these formats, the same course, offered in a lecture/lab setting was included in the study as a point of comparison. The study considered whether entry characteristics of students, and variables such as social and academic integration, external attribution, or academic integration differ for students taking a course in a given alternative instructional format versus those taking the same course in a classroom-based setting. The study also made comparisons of those variables between students that persisted through completion and those that did not within a given instructional format.

The specific research questions addressed in this study were:

- What variables and dependencies in Kember's model of student progress were significantly different for the course formats investigated?
- Did differences in variables and dependencies in Kember's model help explain differences in persistence rates between the various formats of instruction?
- Did the analysis of differences in variables and dependencies in Kember's model suggest practices in individual courses that can improve persistence rates in those courses?

Results from a total of sixteen course sections were included in the study. Two sections were in an on-line format with two sections of the equivalent course in classroom-based sections. Three sections were in a self-paced setting with three equivalent classroom-based sections, and three videotape course sections were included with three corresponding classroom-based sections. Students in each of these sections were

surveyed using Kember's (1995) DESP inventory. Overall response rate to the survey was 36.9%, but student success data and some demographic data were obtained for all students in the sections through the college's administrative system.

Completion rates for each of the alternative formats of instruction were calculated and compared to those for the same courses in a classroom-based setting. The on-line sections actually had higher persistence rates (90.9%) as compared to the classroom sections (82.2%). This indicated that the persistence problems originally identified by the college may not extend to all alternative forms of instruction. Self-paced courses and videotape-based courses had completion rates of 55.6% and 50.6%, respectively. Both these formats demonstrated persistence significantly below the same courses offered in a classroom setting.

Reliability analysis was conducted on the scales and subscales of the DESP inventory results. Chronbach alpha values were compared to those obtained in the original development of the instrument by Kember, Murphy, Siaw, and Yuen (1991) and in a replication study by Kember, Lai, Murphy, Siaw, & Yuen (1994). Results were mixed with reliability values for the major scales of the instrument ranging from 0.41 to 0.74. When presenting results, care was taken to consider the reliability of the scales being reported.

Independent sample t-tests were used to compare background variables, and the major and sub-scales of the DESP inventory. The two main sets of comparisons included considering students electing an alternative format of instructional delivery versus those

in the same courses, but in a classroom-based setting. The second sets of comparisons were made between those students that completed a course in a given format versus those that did not complete the course in that same format.

For all sets of comparisons, the only major scale in Kember's (1995) model that showed a statistically significant difference was seen when comparing students taking the on-line courses versus those in the equivalent classroom courses. Students taking the classroom-based sections had significantly higher scores on the External Attribution scale of the inventory and three of its four subscales. Since the students in those classroom-based courses had lower persistence rates than those students in the on-line courses the result was consistent with Kember's (1995) model. That result did not, however, add greater insight to the intent of improving persistence rates in the alternative format courses. Significant differences in the demographic characteristics of students supported reports from other authors such as Thompson (1998), that indicate the students in on-line and videotape courses were generally older, had more college and working experience and greater family commitments. They also generally had a higher percentage of females than their classroom-based counterparts.

Comparisons between those students completing their courses and those that did not persist through completion provided results that would indicate that Kember's (1995) model was not effective in predicting completion rates. In the self-paced courses where completion was 55.6% of those students starting the course, none of the major scales of the model were significantly different. Three subscales showed differences including Events Hinder Study (EAHS), Potential Drop-Out (EAPD), and Negative Course

Evaluation (AXNE). Similar comparisons for the videotape courses where completion was only 50.6% of the students starting the course, showed no differences in either the major or sub-scales of the model.

The consistent predictors of success in most comparisons between groups was the cumulative grade point average of the student and the number of credits they had previously completed in college. While knowing that past performance can be an indicator of present success may be beneficial in counseling students into or out of alternative format courses, it provides little insight on how to improve those courses to assist all students toward successful completion.

Based on these results, answers to the research questions posed in this report would be that the variables in the model were not adequate predictors of persistence in the given formats of instruction. Significant differences were not established that could suggest practices to improve persistence rates in individual courses.

It is recommended that the focus of research intended to improve persistence rates within alternative format courses in the community college be directed away from the characteristics of the students to mechanisms that can be included in courses to support all students, regardless of their individual characteristics. Results from the on-line sections in this study indicate that it is possible for alternative formats of instruction to result in persistence rates at, or above those of classroom-based courses. Future research to improve those instructional formats that are experiencing low completion rates should include the addition of tools to provide support mechanisms such as greater interactivity.

Those tools could include group projects, on-line discussions, faculty tutoring sessions or others. Evaluative studies should be designed to monitor the impact of such tools on persistence.

Appendixes

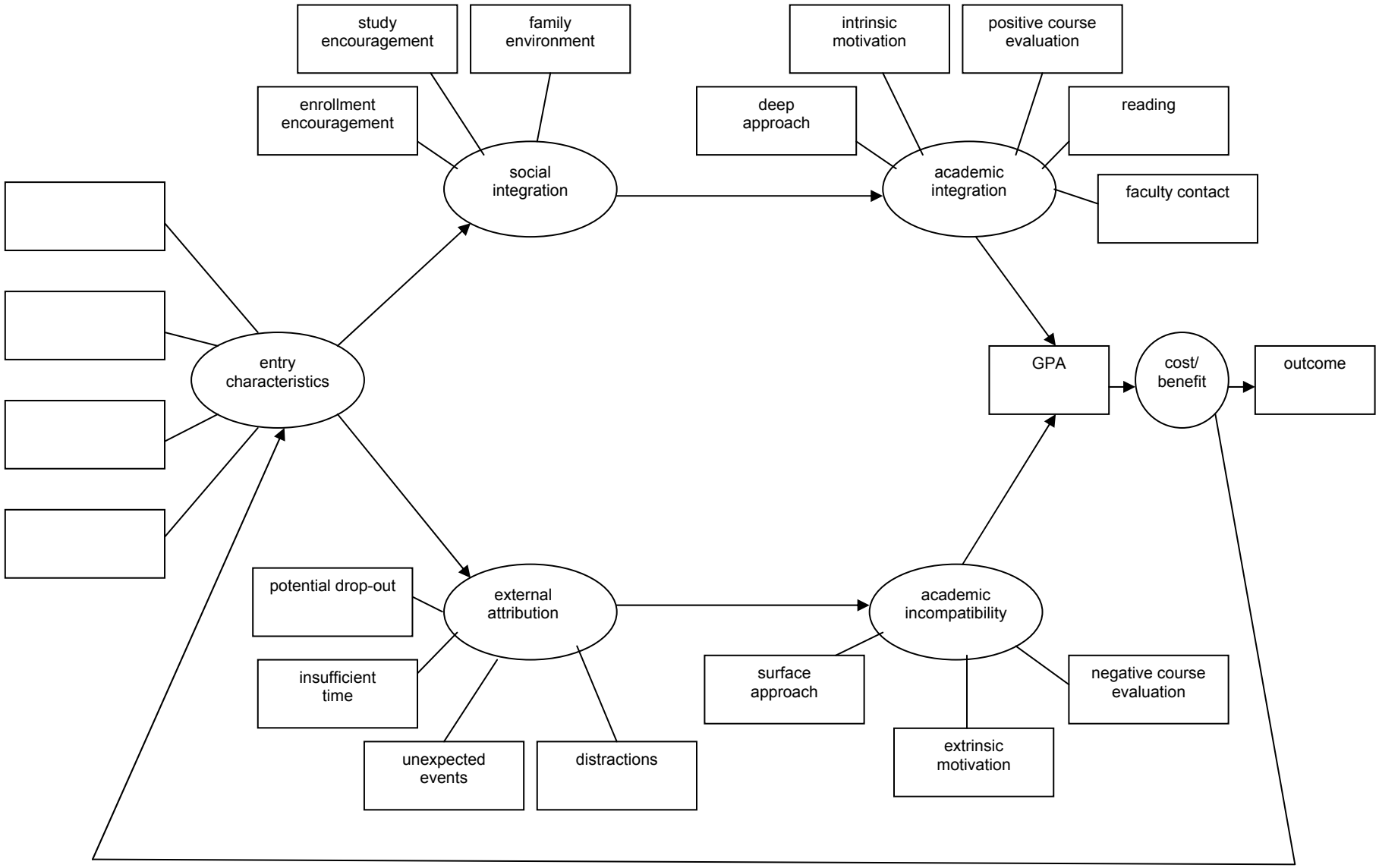
A. Comparison of Published Information on On-Line Classes

Source	Year	School	Level	Sample	Completion Rate	Grades	Satisfaction
Bothun	1998	U. of Oregon	undergraduate	150 students in 2 Physics and 2 Astronomy classes.	83.3%	DE grades higher if dropout not included, lower if they are counted as F's	N/A
Carr	2000	Dallas County Community College	undergraduate	18 years of distance courses	11 to 15 percentage points lower completion in distance courses	N/A	N/A
Carr	2000	Kirkwood Community College	undergraduate	N/A	completion rates in Internet courses higher than rates in older television-based courses.	N/A	N/A
Carr	2000	LeCroy Center	N/A	introductory computer course	switching to more interactive Internet software jumped course completion from 62% to 90%.	N/A	N/A
Carr	2000	Mountain View	N/A	history course	completion of 50% in Internet course vs. 65-70% in traditional section with same instructor	N/A	N/A
Carr	2000	Tyler Junior College	undergraduate	35 Internet courses	58% completion in one term as compared to 71% in traditional classes and 77% in video-based classes	N/A	N/A
Carr	2000	Tyler Junior College	undergraduate	chemistry course	49% completion in first on-line semester vs. 70-75% in traditional course	N/A	N/A
Carr	2000	U.C.L.A.	N/A	"first few quarters"	50-60% completion	N/A	N/A
Carr	2000	U.C.L.A.	N/A	"past 8 quarters"	87% Completion	N/A	N/A
Carr	2000	University of Central Florida	N/A	Educational Telecommunications classes	9% withdrawal from Web courses vs. 5% in face-to-face in the same subject	N/A	N/A

Source	Year	School	Level	Sample	Completion Rate	Grades	Satisfaction
Cooper	1999	Macon State College	undergraduate	Computer Foundations	N/A	N/A	high overall level of satisfaction
Gibson & Herrera	1999	Nova Southeastern University	undergraduate	Bachelors of Professional Management Program	high completion rate	on-line did at least as well as classroom	students were enthusiastic
Johnson	1999	University of Southern Maine	undergraduate	16 of 38 students in one principles of marketing course responding to the student satisfaction survey	N/A	relatively high grades achieved.	good satisfaction level.
McCollum	1997	California State University	undergraduate	one statistics course	100% completion in on-line course	on-line students out-performed traditional group by 20%	N/A
Merron	1998	State University of West Georgia	undergraduate	16 students in a senior-level journalism course	76% or possibly lower derived from statements in the article	Instructor indicated a higher quality of student performance compared with face-to-face sections	"overwhelmingly positive"
Ridley, Miller & Williams	1996	Christopher Newport University	undergraduate	34 courses and 2 on-line degrees	on-line has significantly lower completion	N/A	on-line comparable to classroom
Schulman & Sims	1999	Nova Southeastern University	undergraduate	40 online and 50 in-class students in varying classes	N/A	No significant difference in post-test scores. On-line pretest scores much higher	N/A
Serwatka	1999	Purdue U. Calumet	undergraduate	Introductory Computer course and Operating Systems Course	50% in one introductory course, "better" in operating systems course	N/A	project success is ed as henomenonal" sed on increased rollments
Smeaton & Keogh	1999	Dublin City University	undergraduate	3rd year database course - 115 students	at least 88.5%. 15 of 130 students were excluded for a variety of reasons including withdrawal	putting lectures on line made no significant difference to final exam grade	N/A

Source	Year	School	Level	Sample	Completion Rate	Grades	Satisfaction
Wegner, Holloway & Garton	2000	Southwest Missouri State University	graduate	curriculum design and evaluation course	N/A	format had no significant impact on grades	format had no significant impact on satisfaction

B. Kember's model of student progress (Kember, 1995 pp. 222-223)



C. The Distance Education Student Progress Inventory (Kember 1995)

The Distance Education Student Progress (DESP) Inventory is copyrighted by David Kember, Tammy Lai, David Murphy, Irene Siaw and K.S. Yuen. Permission to use this inventory for research or professional use that does not result in commercial gain to the user is provided in Kember (1995, p. 225).

For purposes of this study the DESP Inventory was put into a machine readable format. The actual survey is included on the following three pages.

D. Course Syllabi

ENG 112 - English II

Credits: 4 Prerequisites: ENG 111 Corequisites : None
Instructor Permission Required: No

Course Description:
Critical thinking, persuasive writing, research skills, and literary analysis.

Course Goals and Learning Objectives:
1. Learners develop effective sentence, paragraph, and essay writing by
    - Recognizing complete, clear sentences
    - Recognizing errors in punctuation
    - Recognizing errors in grammar
    - Illustrating the effective use of coordination and subordination
    - Generating sentences with variety of form and structure
    - Combining sentences effectively using transitional words, phrases, and clauses
    - Sustaining an idea through several sentences
2. Learners develop effective paragraph writing by
    - Developing a workable, focused central idea appropriate to paragraph length
    - Articulating a central idea in a clear, effective topic sentence
    - Developing a central idea in a series of unified sentences
    - Selecting appropriate content
    - Sequencing information, including logical coherence words
    - Developing effective concluding sentences
    - Producing a variety of paragraph forms
3. Learners develop effective essay writing by
    - Developing a workable, focused idea appropriate to essay length
    - Expressing the central idea effectively
    - Developing an effective introductory paragraph
    - Developing supporting paragraphs
    - Selecting content that develops the controlling idea
    - Structuring content within each paragraph
    - Writing varied, emphatic sentences within each paragraph
    - Arranging supporting paragraphs to fully develop the controlling idea
    - Developing an effective concluding paragraph
4. Learners writing essays in a variety of argumentative structures by
    - Practicing basic argumentative essay writing
    - Writing a rough draft for each of the following argumentative structures
    - Argument from researched sources, argument from personal experience, and argument from literary analysis
    - Revising each of the previously listed rough drafts

- Writing an argument from cause and effect as their final exam essay

5. Learners develop revision skills by
    - Analyzing, commenting on, and evaluating others' writing
    - Considering and evaluating the comments and analysis of others in their own writing process
    - Identifying their audience's needs and requirements
    - Revising to serve their chosen audience
6. Learners examine various writing styles and language issues by
    - Reading for logic
    - Differentiating among facts, opinions, and judgments
    - Evaluating sources for personal and cultural bias
    - Recognizing wordiness
    - Identifying figurative language, irony, and other literary devices
7. Learners critique others' writing by
    - Evaluating the appropriateness of the specific topic
    - Appraising the effectiveness of the writing style
    - Evaluating the quality of support for the topic
    - Judging the effectiveness of sentence, paragraph, and essay structure
    - Supporting their criticism through written comments
8. Learners demonstrate their understanding of basic research and research writing by
    - Using OhioLINK, other on-line resources, and paper sources to compile a working bibliography and works cited list
    - Writing notes summarizing, paraphrasing, and quoting sources
    - Writing rough and final drafts of the research essay in MLA documentation style
    - Producing a written synthesis of their own arguments and arguments and information from sources

HST 112 - Western Civilization from the 14th through 18th Centuries

Credits: 3 Prerequisites: None Corequisites :
Instructor Permission Required: No

Course Description:
History of western society from the end of medieval times to the end of the French Revolutionary period. Renaissance, Reformation, the Enlightenment, the French Revolution, and the Napoleonic era.

Course Goals and Learning Objectives:
1. To provide a survey of historical events, including the economic, religious, social and political events of the periods studied.

2. To focus on understanding the bonds between the past and present.

3. To demonstrate how various factors contribute to cultural change.

4. To differentiate between various methodologies of historians.

5. To discern the contributions of earlier societies to the development of the Western tradition as we know it today.

ITS 103 - Information Technology Basics

Credits: 3 Prerequisites: None Corequisites : None
Instructor Permission Required: No

Course Description:
A brief overview of Windows or current GUI, basic but essential word processing concepts, electronic mail, WWW research techniques, OhioLINK. Students with little or no keyboarding experience should expect to take longer to complete assignments.

Course Goals and Learning Objectives:
1. Demonstrate knowledge/usage of the Windows operating environment.
    - Understand proper usage of the Windows desktop, scroll bars, menus, dialog boxes, and help.
    - Understand how to use WordPad and Paint applications.
    - Understand how to manage, view, delete, and restore files and folders using My Computer.
    - Understand how to create folders, copy and move folders, and examine system properties using
    - Windows Explorer.
2. Demonstrate knowledge/usage of word processing software.
    - Understand how to create, save, preview, and print documents.
    - Understand how to open and save a document.
    - Understand how to select, replace, move, and copy text.
    - Understand how to use spelling, grammar, and autoconvert features.
    - Understand how to perform basic text formatting functions.
    - Understand how to perform basic table formatting functions.
3. Demonstrate knowledge/skills in accessing and using the World Wide Web.
    - Understand the basic function of a Web browser.
    - Understand how to search the Web.
    - Understand the categories of information contained on the Web.
4. Demonstrate knowledge/skill in using an electronic mail application.
    - Understand the basics of electronic mail.
    - Understand the electronic mail interface.
    - Understand how to send and retrieve mail.
5. Demonstrate knowledge/skill in using OhioLink.
    - Understand how to borrow books and videos using the OhioLink central catalog.
    - Understand how to find and access magazines and journal articles on OhioLink.
    - Understand how to use the Lexis-Nexis Academic Universe.

ITS 12A - Windows Concepts

Credits: 2 Prerequisites: None Corequisites : None
Instructor Permission Required: No

Course Description:
Familiarization with the mouse and a graphical operating environment. Topics include all major aspects of Microsoft Windows. Knowledge of a personal computer keyboard and basic DOS commands strongly recommended.

Course Goals and Learning Objectives:
1. Getting started with Windows 2000
    - Start Windows and view the Windows desktop
    - Use the mouse
    - Get started with the Windows desktop
    - Move and resize Windows
    - Use menus and toolbars
    - Use scrollbars
    - Use dialog boxes
    - Use Windows Help
    - Shut down Windows
2. Working with Windows Programs
    - Start a program
    - Open and save a WordPad document
    - Edit text in a WordPad document
    - Format text in a WordPad document
    - Use Paint
    - Copy data between programs
    - Print a document
    - Play a video clip
    - Play a sound
3. Managing Files using My Computer
    - Understand file management
    - Open and view my computer
    - View folders and files
    - Create a folder
    - Move files and folders
    - Delete and restore files and folders
    - Create a shortcut to a file
    - Display drive information
4. Managing Folders and Files using Windows Explorer
    - View the Windows Explorer window
    - Open and view folders in Windows Explorer
    - Customize the Windows Explorer window
    - Create and rename in Windows Explorer

- Search for a file
- Move and copy a file to a folder
- Restore a deleted file using Undo
- Customize a folder

5. Customizing Windows using the Control Panel
    - Customize the Active Desktop
    - Change the desktop background and screen saver settings
    - Change the desktop scheme
    - Set the date and time
    - Work with fonts
    - Manage power options
    - Add a scheduled task
    - Customize the taskbar
    - Customize the Start menu
6. Exploring the Internet with Microsoft Internet Explorer
    - Understand Web browsers
    - Start Internet Explorer
    - Explore the browser window
    - Open a Web page and follow links
    - Add a Web page to the Favorites list
    - Make a Web page available offline
    - Change your home page and add a link button
    - Search the Web
    - Print a Web page
7. Exchanging Mail and News
    - Start Outlook Express
    - Explore the Outlook Express Window
    - Add a contact to the Address Book
    - Compose and send e-mail
    - Retrieve, read, and respond to e-mail
    - Manage e-mail messages
    - Select a news server
    - View and subscribe to a newsgroup
    - Read and post a news message
8. Managing Shared Files using My Network Places
    - Understand Network Services
    - Examine network computer properties
    - Open and View my Network Places
    - Create a shared folder
    - Map a network drive
    - Copy and move shared files
    - Open and edit a shared file
    - Disconnect a network drive

ITS 12W - Beginning Word Processing

Credits: 1 Prerequisites: None Corequisites : None
Instructor Permission Required: No

Course Description:
Basic creation and editing of documents using packaged word processing software. Keyboarding skills strongly recommended. Students who have never worked on a keyboard and have little or no keyboarding skills will likely take much longer in completing the assigned tasks. ITS 102, which teaches keyboarding skills and beginning word processing skill, may be substituted for ITS 12W.

Course Goals and Learning Objectives:
1. Create, save, and retrieve documents (from appropriate drives).
    - Open (retrieve) documents from more than one drive.
    - Use the Word Help system to get help in creating documents.
    - Save documents to a floppy disk.
2. Edit and format documents (delete, move, copy blocks of text, etc.)
    - Choose commands using the toolbars and menus.
    - Reverse edits using the Undo and Redo commands.
    - Change fonts and adjust font sizes.
    - Move text within the document and to the clipboard.
    - Delete text.
3. Develop documents using special printing features.
    - Copy formatting with the Format Painter.
    - Select font and font attributes and shading.
    - Print selectively from a document.
    - Print multiple copies of one page or an entire document.
4. Work within the specified GUI environment to create a multiple-page report.
    - Use icon on the standard toolbar to create a table.
    - Center a page between the top and bottom margins.
    - Number the pages in a document.
    - Divide a document into sections.
    - Use ClipArt and WordArt.
5. File management using floppy diskettes.
    - Format a floppy diskette.
    - Copy a floppy diskette.
    - Delete files on a floppy diskette.

PSY 111 - Psychology I

Credits: 3 Prerequisites: None Corequisites :
Instructor Permission Required: No

Course Description:
Fundamental principles and practices of psychology. Includes theories and methods, biological bases, learning and memory, thought and intelligence, language, human development, personality, and measurement.

Course Goals and Learning Objectives:
1. Explain the theoretical approaches and research methods of modern scientific psychology.
- Compare the cognitive, behavioristic, psychodynamic, biological and cross-cultural approaches to human behavior
- Discuss the main elements involved in the experimental, correlational, survey, naturalistic, and case study methods in the study of human behavior
- Develop an empirical research project using one of the research methods

2. Describe the main biological factors influencing psychological behavior.
- Describe the main specializations of the lobes and hemispheres of the brain
- Describe the main elements of the nervous and endocrine systems
- Discuss the implication of the split-brain experiment

3. Demonstrate an understanding of the significant features in human development, personality, thinking, intelligence, learning, and memory.
- Describe the main changes that take place during childhood, adolescence, and adulthood
- Discuss the cognitive development theory of Jean Piaget
- Compare the type, trait, humanistic, social learning, and psychodynamic approaches to understanding personality
- Discuss the structures and functions of thinking
- Discuss the main issues involved in understanding the intelligence and the method used to measure it
- Explain the main conditioning and cognitive approaches to learning
- Compare sensory, short-term, and long-term memory and describe the main factors

PSY 230 - Abnormal Psychology

Credits: 3 Prerequisites: PSY 111 Corequisites : None
Instructor Permission Required: No

Course Description:
Classification, etiology, diagnosis, and treatment of abnormal behavior. Stress, anxiety, depression, schizophrenia, mental retardation, sexual deviation, problems of childhood and old age.

Course Goals and Learning Objectives:
1. Describe the history of psychological abnormality, and discuss the research methods and the theoretical approaches used in understanding it.
- Trace the attitudes to psychological abnormality in ancient, medieval, and modern times.
- Discuss the use of case study, the correlation, and the experimental methods in the study of psychological abnormality.
- Compare the psychodynamic, behavioral, cognitive, and humanistic models of psychological abnormality.

2. Demonstrate an understanding of the significant features in anxiety and mood disorders, mind-body problems, schizophrenia, brain disorders, and childhood disorders.
- Describe the clinical features of phobias, panic disorders, generalized anxiety, obsessive-compulsive disorder, and stress.
- Describe the clinical features, causes and treatment of alcohol and drug addiction, personality disorders, and sexual disorders.
- Describe the clinical features and causes of unipolar and bipolar disorders.
- Discuss the clinical features and causes of suicide.
- Describe the symptoms, course, and causes of schizophrenia.
- Discuss the issues involved in mental retardation and adult brain disorders.
- Explain oppositional defiant disorder; conduct disorder, attention-deficit hyperactivity disorder, elimination disorders, and autism.

3. Explain the main clinical practices used in treating psychological abnormality.
- Compare interviews, psychological tests, and clinical observations in assessing psychological abnormality.
- Discuss the five axes of the Diagnostic and Statistical Manual of Mental Disorders.
- Discuss the treatment approaches based on the psychodynamic, behavioral, cognitive, and humanistic models of psychological abnormality.

E. Independent Sample T-Test Results Comparing Courses in Alternative Formats Versus the Same Courses in a Classroom Setting

Type = E - On-line Courses (N) and their Classroom Equivalents (T)

Group Statistics[a]

	Traditional or Non	N	Mean	Std. Deviation	Std. Error Mean
CUMCRATT	N	57	40.9123	26.9684	3.5721
	T	54	27.7222	12.4634	1.6961
CUMCRCMP	N	57	39.8772	27.7914	3.6811
	T	54	25.7778	11.4012	1.5515
CUMGPA	N	57	2.9018	.8120	.1075
	T	54	2.8734	.7191	9.785E-02
M=1 F=2	N	57	1.7895	.4113	5.448E-02
	T	54	1.5926	.4960	6.749E-02
POPINFO.AGE	N	57	26.61	8.97	1.19
	T	54	20.56	4.97	.68
Children	N	13	.77	.93	.26
	T	23	.22	.60	.13
MARIT	N	12	.4167	.5149	.1486
	T	21	4.762E-02	.2182	4.762E-02
#inhouse	N	13	3.15	1.21	.34
	T	23	3.43	1.44	.30

a. Type = E

Group Statistics[a]

	Traditional or Non	N	Mean	Std. Deviation	Std. Error Mean
education	N	13	2.23	.44	.12
	T	21	1.90	.30	6.56E-02
workexp	N	13	11.46	5.65	1.57
	T	23	4.30	2.44	.51
income	N	13	4.46	2.44	.68
	T	20	4.00	2.32	.52
travel	N	13	28.85	15.96	4.43
	T	23	23.78	15.59	3.25
Enrollment Encouragement	N	13	2.5962	.9549	.2648
	T	23	3.0543	.4824	.1006
Study Encouragement	N	13	3.2949	.9674	.2683
	T	23	3.1159	.4883	.1018
Family Support	N	13	4.0000	.6804	.1887
	T	23	3.7246	.9356	.1951
Insufficient Time	N	13	2.4231	.8978	.2490
	T	23	3.5326	.9023	.1882

a. Type = E

Group Statistics[a]

	Traditional or Non	N	Mean	Std. Deviation	Std. Error Mean
Events Hinder Study	N	13	2.1795	.6179	.1714
	T	23	2.8261	.6580	.1372
Distractions	N	13	2.5275	.7789	.2160
	T	23	3.3354	.5509	.1149
Potential Drop-out	N	13	1.7436	.5798	.1608
	T	23	2.0725	.6510	.1357
Deep Approach	N	13	3.4872	.5547	.1538
	T	23	3.4130	.6725	.1402
Intrinsic Motivation	N	13	2.9808	.5991	.1662
	T	23	2.5978	.7337	.1530
Positive Course Evaluation	N	13	3.6308	.6316	.1752
	T	23	3.3478	.6881	.1435
Positive Faculty Perception	N	13	3.1538	.5822	.1615
	T	23	3.2391	.6099	.1272
Reading Habit	N	13	3.5385	.8979	.2490
	T	23	3.3043	.8282	.1727

a. Type = E

Group Statistics[a]

	Traditional or Non	N	Mean	Std. Deviation	Std. Error Mean
Surface Approach	N	13	3.0513	.4377	.1214
	T	23	3.3333	.5752	.1199
Extrinsic Motivation	N	13	3.5192	.8445	.2342
	T	23	3.7283	.6166	.1286
Negative Course Evaluation	N	13	2.2308	.4169	.1156
	T	23	2.3442	.5665	.1181
SI	N	13	9.8910	2.0280	.5625
	T	23	9.8949	1.4649	.3055
EA	N	13	8.8736	2.1202	.5880
	T	23	11.7666	1.9853	.4140
AI	N	13	16.7910	2.2305	.6186
	T	23	15.9022	2.4043	.5013
AX	N	13	8.8013	1.2535	.3477
	T	23	9.4058	1.2233	.2551

a. Type = E

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
CUMCRATT	Equal variances assumed	29.272	.000	3.277	109	.001	13.1901	4.0248	5.2131	21.1670
	Equal variances not assumed			3.336	79.810	.001	13.1901	3.9543	5.3205	21.0596
CUMCRCMP	Equal variances assumed	33.576	.000	3.462	109	.001	14.0994	4.0730	6.0269	22.1719
	Equal variances not assumed			3.530	75.158	.001	14.0994	3.9947	6.1419	22.0569
CUMGPA	Equal variances assumed	.457	.500	.195	109	.846	2.840E-02	.1459	-.2607	.3175
	Equal variances not assumed			.195	108.517	.845	2.840E-02	.1454	-.2598	.3166
M=1 F=2	Equal variances assumed	18.885	.000	2.281	109	.024	.1969	8.630E-02	2.584E-02	.3679
	Equal variances not assumed			2.270	103.129	.025	.1969	8.674E-02	2.486E-02	.3689
POPINFO.AGE	Equal variances assumed	24.925	.000	4.368	109	.000	6.06	1.39	3.31	8.81
	Equal variances not assumed			4.432	88.324	.000	6.06	1.37	3.34	8.78
Children	Equal variances assumed	9.526	.004	2.172	34	.037	.55	.25	3.56E-02	1.07
	Equal variances not assumed			1.930	17.808	.070	.55	.29	-4.92E-02	1.15
MARIT	Equal variances assumed	43.005	.000	2.887	31	.007	.3690	.1278	.1083	.6298
	Equal variances not assumed			2.364	13.297	.034	.3690	.1561	3.260E-02	.7055
#inhouse	Equal variances assumed	.199	.659	-.593	34	.557	-.28	.47	-1.24	68
	Equal variances not assumed			-.623	28.759	.538	-.28	.45	-1.20	64

a. Type = E

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
education	Equal variances assumed	4.623	.039	2.575	32	.015	.33	.13	6.82E-02	.58
	Equal variances not assumed			2.359	19.039	.029	.33	.14	3.68E-02	.62
workexp	Equal variances assumed	11.321	.002	5.304	34	.000	7.16	1.35	4.42	9.90
	Equal variances not assumed			4.343	14.572	.001	7.16	1.65	3.64	10.68
income	Equal variances assumed	.277	.602	.548	31	.588	.46	.84	-1.26	2.18
	Equal variances not assumed			.542	24.835	.593	.46	.85	-1.29	2.22
travel	Equal variances assumed	.004	.948	.928	34	.360	5.06	5.46	-6.02	16.15
	Equal variances not assumed			.922	24.539	.366	5.06	5.49	-6.26	16.39
Enrollment Encouragement	Equal variances assumed	6.301	.017	-1.921	34	.063	-.4582	.2385	-.9429	2.648E-02
	Equal variances not assumed			-1.617	15.535	.126	-.4582	.2833	-1.0602	.1438
Study Encouragement	Equal variances assumed	9.253	.005	.741	34	.464	.1789	.2416	-.3120	.6698
	Equal variances not assumed			.623	15.530	.542	.1789	.2870	-.4310	.7888
Family Support	Equal variances assumed	.747	.394	.929	34	.359	.2754	.2964	-.3270	.8778
	Equal variances not assumed			1.015	31.641	.318	.2754	.2714	-.2777	.8285
Insufficient Time	Equal variances assumed	.006	.940	-3.550	34	.001	-1.1095	.3126	-1.7447	-.4744
	Equal variances not assumed			-3.555	25.143	.002	-1.1095	.3121	-1.7521	-.4669

a. Type = E

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Events Hinder Study	Equal variances assumed	.001	.973	-2.893	34	.007	-.6466	.2235	-1.1008	-.1924
	Equal variances not assumed			-2.945	26.400	.007	-.6466	.2195	-1.0975	-.1957
Distractions	Equal variances assumed	2.015	.165	-3.634	34	.001	-.8079	.2223	-1.2598	-.3561
	Equal variances not assumed			-3.302	18.921	.004	-.8079	.2447	-1.3202	-.2957
Potential Drop-out	Equal variances assumed	.509	.481	-1.512	34	.140	-.3289	.2175	-.7709	.1131
	Equal variances not assumed			-1.563	27.561	.130	-.3289	.2104	-.7603	.1025
Deep Approach	Equal variances assumed	.651	.425	.337	34	.738	7.414E-02	.2198	-.3726	.5208
	Equal variances not assumed			.356	29.222	.724	7.414E-02	.2082	-.3515	.4998
Intrinsic Motivation	Equal variances assumed	.697	.410	1.601	34	.119	.3829	.2391	-.1031	.8689
	Equal variances not assumed			1.695	29.430	.101	.3829	.2259	-7.87E-02	.8446
Positive Course Evaluation	Equal variances assumed	.140	.711	1.219	34	.231	.2829	.2320	-.1886	.7545
	Equal variances not assumed			1.249	26.898	.222	.2829	.2264	-.1818	.7477
Positive Faculty Perception	Equal variances assumed	.018	.894	-.409	34	.685	-8.528E-02	.2083	-.5086	.3380
	Equal variances not assumed			-.415	26.041	.682	-8.528E-02	.2055	-.5078	.3372
Reading Habit	Equal variances assumed	.117	.734	.791	34	.435	.2341	.2962	-.3677	.8360
	Equal variances not assumed			.772	23.369	.448	.2341	.3031	-.3923	.8605

a. Type = E

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Surface Approach	Equal variances assumed	.052	.820	-1.532	34	.135	-.2821	.1842	-.6563	9.220E-02
	Equal variances not assumed			-1.653	30.833	.109	-.2821	.1706	-.6302	6.607E-02
Extrinsic Motivation	Equal variances assumed	1.980	.168	-.854	34	.399	-.2090	.2448	-.7065	.2885
	Equal variances not assumed			-.782	19.362	.443	-.2090	.2672	-.7675	.3495
Negative Course Evaluation	Equal variances assumed	.360	.553	-.630	34	.533	-.1134	.1800	-.4792	.2523
	Equal variances not assumed			-.686	31.440	.498	-.1134	.1653	-.4504	.2235
SI	Equal variances assumed	1.905	.176	-.007	34	.995	-3.902E-03	.5848	-1.1923	1.1845
	Equal variances not assumed			-.006	19.211	.995	-3.902E-03	.6401	-1.3426	1.3347
EA	Equal variances assumed	.163	.689	-4.099	34	.000	-2.8929	.7058	-4.3272	-1.4587
	Equal variances not assumed			-4.023	23.670	.001	-2.8929	.7191	-4.3783	-1.4076
AI	Equal variances assumed	.082	.777	1.093	34	.282	.8889	.8135	-.7644	2.5421
	Equal variances not assumed			1.116	26.664	.274	.8889	.7963	-.7459	2.5236
AX	Equal variances assumed	.168	.684	-1.412	34	.167	-.6045	.4282	-1.4747	.2657
	Equal variances not assumed			-1.402	24.521	.173	-.6045	.4312	-1.4934	.2844

a. Type = E

Type = S - Self-Paced Lab Courses (N) and their Classroom Equivalents (T)

Group Statistics[a]

	Traditional or Non	N	Mean	Std. Deviation	Std. Error Mean
CUMCRATT	N	167	29.0838	29.9565	2.3181
	T	66	24.2727	25.5990	3.1510
CUMCRCMP	N	167	26.6407	28.8476	2.2323
	T	66	23.0606	24.7386	3.0451
CUMGPA	N	167	2.2954	1.1673	9.033E-02
	T	66	2.6547	1.1526	.1419
M=1 F=2	N	133	1.7218	.4498	3.900E-02
	T	66	1.6970	.4631	5.700E-02
POPINFO.AGE	N	165	28.42	10.72	.83
	T	66	30.15	11.63	1.43
Children	N	18	.67	1.19	.28
	T	29	1.21	1.24	.23
MARIT	N	15	.2667	.4577	.1182
	T	29	.4138	.5012	9.308E-02
#inhouse	N	18	3.11	1.18	.28
	T	30	3.23	1.33	.24

a. Type = S

Group Statistics[a]

	Traditional or Non	N	Mean	Std. Deviation	Std. Error Mean
education	N	18	2.28	.89	.21
	T	30	2.10	.31	5.57E-02
workexp	N	16	13.38	11.34	2.83
	T	30	9.97	7.89	1.44
income	N	16	4.31	1.92	.48
	T	29	4.21	2.54	.47
travel	N	17	20.29	8.74	2.12
	T	30	22.47	25.86	4.72
Enrollment Encouragement	N	18	2.8333	.6417	.1512
	T	30	2.9806	.7171	.1309
Study Encouragement	N	18	3.2222	.7140	.1683
	T	30	3.1111	.5762	.1052
Family Support	N	18	3.6667	.7231	.1704
	T	30	3.8333	.7466	.1363
Insufficient Time	N	18	2.9444	.8726	.2057
	T	30	3.0333	.9348	.1707

a. Type = S

Group Statistics[a]

	Traditional or Non	N	Mean	Std. Deviation	Std. Error Mean
Events Hinder Study	N	18	2.5648	.7074	.1667
	T	30	2.3778	.6173	.1127
Distractions	N	18	2.6984	.5959	.1405
	T	30	2.7952	.6080	.1110
Potential Drop-out	N	18	1.7407	.5666	.1335
	T	30	1.7000	.5350	9.767E-02
Deep Approach	N	18	3.6389	.4635	.1093
	T	30	3.7667	.4910	8.965E-02
Intrinsic Motivation	N	18	3.3889	.7186	.1694
	T	30	3.4667	.7449	.1360
Positive Course Evaluation	N	18	3.8444	.4369	.1030
	T	30	3.9933	.6400	.1168
Positive Faculty Perception	N	18	3.3241	.7398	.1744
	T	30	3.6361	.5671	.1035
Reading Habit	N	18	3.7222	.9164	.2160
	T	30	3.1778	.8475	.1547

a. Type = S

Group Statistics[a]

	Traditional or Non	N	Mean	Std. Deviation	Std. Error Mean
Surface Approach	N	18	2.9815	.5938	.1400
	T	30	3.3478	.3907	7.133E-02
Extrinsic Motivation	N	18	3.4028	.7078	.1668
	T	30	3.4583	.5457	9.963E-02
Negative Course Evaluation	N	18	2.2815	.6598	.1555
	T	30	2.1889	.5819	.1062
SI	N	18	9.7222	1.4292	.3369
	T	30	9.9250	1.4866	.2714
EA	N	18	9.9484	1.9543	.4606
	T	30	9.9063	2.2080	.4031
AI	N	18	17.9185	2.2408	.5282
	T	30	18.0406	2.1826	.3985
AX	N	18	8.6657	1.6135	.3803
	T	30	8.9950	.9253	.1689

a. Type = S

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
CUMCRATT	Equal variances assumed	1.942	.165	1.149	231	.252	4.8111	4.1869	-3.4384	13.0606
	Equal variances not assumed			1.230	138.510	.221	4.8111	3.9118	-2.9235	12.5458
CUMCRCMP	Equal variances assumed	2.187	.141	.887	231	.376	3.5801	4.0351	-4.3702	11.5305
	Equal variances not assumed			.948	138.025	.345	3.5801	3.7757	-3.8856	11.0458
CUMGPA	Equal variances assumed	.236	.628	-2.125	231	.035	-.3593	.1691	-.6925	-2.61E-02
	Equal variances not assumed			-2.137	120.617	.035	-.3593	.1682	-.6923	-2.64E-02
M=1 F=2	Equal variances assumed	.507	.477	.363	197	.717	2.483E-02	6.839E-02	-.1100	.1597
	Equal variances not assumed			.360	126.461	.720	2.483E-02	6.907E-02	-.1118	.1615
POPINFO.AGE	Equal variances assumed	.026	.872	-1.080	229	.281	-1.73	1.60	-4.88	1.42
	Equal variances not assumed			-1.042	111.519	.300	-1.73	1.66	-5.01	1.56
Children	Equal variances assumed	.455	.503	-1.478	45	.146	-.54	.37	-1.28	.20
	Equal variances not assumed			-1.492	37.286	.144	-.54	.36	-1.27	.19
MARIT	Equal variances assumed	4.329	.044	-.950	42	.348	-.1471	.1549	-.4598	.1656
	Equal variances not assumed			-.978	30.823	.336	-.1471	.1504	-.4540	.1598
#inhouse	Equal variances assumed	.003	.953	-.321	46	.750	-.12	.38	-.89	.64
	Equal variances not assumed			-.331	39.336	.743	-.12	.37	-.87	.63

a. Type = S

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
education	Equal variances assumed	8.543	.005	1.001	46	.322	.18	.18	-.18	.54
	Equal variances not assumed			.815	19.400	.425	.18	.22	-.28	.63
workexp	Equal variances assumed	1.741	.194	1.195	44	.238	3.41	2.85	-2.34	9.16
	Equal variances not assumed			1.072	22.966	.295	3.41	3.18	-3.17	9.99
income	Equal variances assumed	6.615	.014	.145	43	.886	.11	.73	-1.37	1.58
	Equal variances not assumed			.157	38.625	.876	.11	.67	-1.26	1.47
travel	Equal variances assumed	1.574	.216	-.334	45	.740	-2.17	6.50	-15.26	10.91
	Equal variances not assumed			-.420	39.006	.677	-2.17	5.18	-12.64	8.30
Enrollment Encouragement	Equal variances assumed	1.003	.322	-.715	46	.478	-.1472	.2058	-.5614	.2670
	Equal variances not assumed			-.736	39.139	.466	-.1472	.2000	-.5518	.2574
Study Encouragement	Equal variances assumed	.155	.696	.591	46	.557	.1111	.1880	-.2674	.4896
	Equal variances not assumed			.560	30.182	.580	.1111	.1985	-.2941	.5163
Family Support	Equal variances assumed	.365	.549	-.757	46	.453	-.1667	.2200	-.6096	.2762
	Equal variances not assumed			-.764	36.863	.450	-.1667	.2182	-.6089	.2756
Insufficient Time	Equal variances assumed	.904	.347	-.327	46	.745	-8.889E-02	.2720	-.6364	.4586
	Equal variances not assumed			-.333	37.930	.741	-8.889E-02	.2673	-.6300	.4522

a. Type = S

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Events Hinder Study	Equal variances assumed	.356	.553	.962	46	.341	.1870	.1944	-.2043	.5784
	Equal variances not assumed			.929	32.149	.360	.1870	.2013	-.2228	.5969
Distractions	Equal variances assumed	.164	.687	-.538	46	.593	-9.683E-02	.1800	-.4590	.2654
	Equal variances not assumed			-.541	36.520	.592	-9.683E-02	.1790	-.4597	.2661
Potential Drop-out	Equal variances assumed	.021	.887	.250	46	.804	4.074E-02	.1630	-.2874	.3689
	Equal variances not assumed			.246	34.300	.807	4.074E-02	.1654	-.2954	.3769
Deep Approach	Equal variances assumed	.121	.729	-.891	46	.378	-.1278	.1434	-.4165	.1609
	Equal variances not assumed			-.904	37.604	.372	-.1278	.1413	-.4140	.1584
Intrinsic Motivation	Equal variances assumed	.034	.856	-.355	46	.724	-7.778E-02	.2192	-.5190	.3635
	Equal variances not assumed			-.358	36.978	.722	-7.778E-02	.2172	-.5179	.3623
Positive Course Evaluation	Equal variances assumed	2.200	.145	-.871	46	.388	-.1489	.1709	-.4930	.1952
	Equal variances not assumed			-.956	45.116	.344	-.1489	.1557	-.4626	.1648
Positive Faculty Perception	Equal variances assumed	.303	.585	-1.645	46	.107	-.3120	.1897	-.6940	6.988E-02
	Equal variances not assumed			-1.539	28.988	.135	-.3120	.2028	-.7268	.1027
Reading Habit	Equal variances assumed	.576	.452	2.090	46	.042	.5444	.2605	2.016E-02	1.0687
	Equal variances not assumed			2.049	33.718	.048	.5444	.2657	4.292E-03	1.0846

a. Type = S

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Surface Approach	Equal variances assumed	1.729	.195	-2.581	46	.013	-.3663	.1419	-.6519	-8.07E-02
	Equal variances not assumed			-2.332	25.951	.028	-.3663	.1571	-.6892	-4.34E-02
Extrinsic Motivation	Equal variances assumed	2.672	.109	-.305	46	.762	-5.556E-02	.1821	-.4220	.3109
	Equal variances not assumed			-.286	29.116	.777	-5.556E-02	.1943	-.4529	.3418
Negative Course Evaluation	Equal variances assumed	.547	.463	.508	46	.614	9.259E-02	.1824	-.2746	.4598
	Equal variances not assumed			.492	32.428	.626	9.259E-02	.1883	-.2908	.4760
SI	Equal variances assumed	.158	.693	-.464	46	.645	-.2028	.4370	-1.0823	.6768
	Equal variances not assumed			-.469	37.077	.642	-.2028	.4326	-1.0792	.6737
EA	Equal variances assumed	.628	.432	.067	46	.947	4.206E-02	.6314	-1.2289	1.3130
	Equal variances not assumed			.069	39.446	.946	4.206E-02	.6121	-1.1956	1.2798
AI	Equal variances assumed	.242	.625	-.186	46	.854	-.1220	.6572	-1.4449	1.2008
	Equal variances not assumed			-.184	35.181	.855	-.1220	.6616	-1.4650	1.2209
AX	Equal variances assumed	1.946	.170	-.901	46	.372	-.3293	.3654	-1.0647	.4062
	Equal variances not assumed			-.791	23.827	.437	-.3293	.4161	-1.1885	.5300

a. Type = S

Type = V - Videotape Courses (N) and their Classroom Equivalents (T)

Group Statistics[a]

	Traditional or Non	N	Mean	Std. Deviation	Std. Error Mean
CUMCRATT	N	115	32.6522	28.5451	2.6618
	T	116	27.9828	21.0672	1.9560
CUMCRCMP	N	115	29.9217	29.2497	2.7276
	T	116	25.8362	21.7567	2.0201
CUMGPA	N	115	2.3007	1.2068	.1125
	T	116	2.4879	1.0250	9.517E-02
M=1 F=2	N	115	1.7913	.4082	3.806E-02
	T	116	1.5948	.4931	4.578E-02
POPINFO.AGE	N	115	27.78	9.37	.87
	T	115	22.75	7.42	.69
Children	N	32	1.03	1.33	.24
	T	47	.43	.95	.14
MARIT	N	33	.3030	.4667	8.124E-02
	T	47	.1489	.3599	5.249E-02
#inhouse	N	33	4.06	3.53	.61
	T	47	3.70	1.60	.23

a. Type = V

Group Statistics[a]

	Traditional or Non	N	Mean	Std. Deviation	Std. Error Mean
education	N	33	2.03	.30	5.30E-02
	T	47	1.91	.46	6.68E-02
workexp	N	31	10.16	8.37	1.50
	T	47	5.70	5.04	.74
income	N	29	4.31	2.29	.42
	T	45	3.93	2.65	.39
travel	N	33	40.52	84.82	14.77
	T	46	19.48	10.64	1.57
Enrollment Encouragement	N	33	2.6061	.8292	.1443
	T	47	2.6702	.6429	9.378E-02
Study Encouragement	N	33	3.0303	.6088	.1060
	T	47	2.9149	.6500	9.482E-02
Family Support	N	33	3.7525	.8741	.1522
	T	47	3.8369	.8897	.1298
Insufficient Time	N	33	3.1136	.8863	.1543
	T	47	3.0585	.9240	.1348

a. Type = V

Group Statistics[a]

	Traditional or Non	N	Mean	Std. Deviation	Std. Error Mean
Events Hinder Study	N	33	2.4646	.6452	.1123
	T	47	2.6844	.6504	9.487E-02
Distractions	N	33	2.8369	.5547	9.656E-02
	T	47	3.0061	.6148	8.968E-02
Potential Drop-out	N	33	2.0808	.9318	.1622
	T	47	1.9362	.6654	9.705E-02
Deep Approach	N	33	3.4697	.8239	.1434
	T	47	3.6011	.7494	.1093
Intrinsic Motivation	N	33	2.7879	.6963	.1212
	T	47	3.1383	.6052	8.828E-02
Positive Course Evaluation	N	33	3.4485	.6820	.1187
	T	47	3.4202	.6154	8.977E-02
Positive Faculty Perception	N	33	3.3939	.5521	9.611E-02
	T	47	3.4362	.5862	8.551E-02
Reading Habit	N	33	2.9798	1.1116	.1935
	T	47	3.1773	.8677	.1266

a. Type = V

Group Statistics[a]

	Traditional or Non	N	Mean	Std. Deviation	Std. Error Mean
Surface Approach	N	33	3.3101	.5898	.1027
	T	47	3.3071	.5685	8.292E-02
Extrinsic Motivation	N	33	3.4091	.6429	.1119
	T	47	3.3723	.8338	.1216
Negative Course Evaluation	N	33	2.4242	.6998	.1218
	T	47	2.4177	.5405	7.884E-02
SI	N	33	9.3889	1.5789	.2749
	T	47	9.4220	1.4474	.2111
EA	N	33	10.4960	2.2654	.3944
	T	47	10.6852	2.1309	.3108
AI	N	33	16.0798	3.0062	.5233
	T	47	16.7730	2.3276	.3395
AX	N	33	9.1434	1.1397	.1984
	T	47	9.0972	1.3883	.2025

a. Type = V

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
CUMCRATT	Equal variances assumed	10.246	.002	1.415	229	.158	4.6694	3.2990	-1.8309	11.1697
	Equal variances not assumed			1.414	209.735	.159	4.6694	3.3033	-1.8424	11.1813
CUMCRCMP	Equal variances assumed	9.602	.002	1.205	229	.229	4.0855	3.3899	-2.5938	10.7649
	Equal variances not assumed			1.204	210.560	.230	4.0855	3.3941	-2.6053	10.7764
CUMGPA	Equal variances assumed	5.099	.025	-1.271	229	.205	-.1872	.1473	-.4774	.1030
	Equal variances not assumed			-1.270	222.538	.205	-.1872	.1474	-.4777	.1032
M=1 F=2	Equal variances assumed	40.857	.000	3.298	229	.001	.1965	5.958E-02	7.908E-02	.3139
	Equal variances not assumed			3.300	221.951	.001	.1965	5.953E-02	7.915E-02	.3138
POPINFO.AGE	Equal variances assumed	15.537	.000	4.517	228	.000	5.03	1.11	2.84	7.23
	Equal variances not assumed			4.517	216.581	.000	5.03	1.11	2.84	7.23
Children	Equal variances assumed	16.474	.000	2.361	77	.021	.61	.26	9.49E-02	1.12
	Equal variances not assumed			2.218	51.988	.031	.61	.27	5.76E-02	1.15
MARIT	Equal variances assumed	10.735	.002	1.667	78	.100	.1541	9.246E-02	-3.00E-02	.3382
	Equal variances not assumed			1.593	57.344	.117	.1541	9.672E-02	-3.96E-02	.3478
#inhouse	Equal variances assumed	1.342	.250	.614	78	.541	.36	.58	-.80	1.52
	Equal variances not assumed			.546	41.326	.588	.36	.66	-.97	1.68

a. Type = V

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
education	Equal variances assumed	2.120	.149	1.263	78	.210	.12	9.14E-02	-6.65E-02	.30
	Equal variances not assumed			1.353	77.815	.180	.12	8.53E-02	-5.45E-02	.29
workexp	Equal variances assumed	13.222	.001	2.936	76	.004	4.46	1.52	1.43	7.48
	Equal variances not assumed			2.663	44.408	.011	4.46	1.67	1.09	7.83
income	Equal variances assumed	1.186	.280	.630	72	.531	.38	.60	-.82	1.57
	Equal variances not assumed			.650	66.001	.518	.38	.58	-.78	1.53
travel	Equal variances assumed	4.827	.031	1.668	77	.099	21.04	12.61	-4.07	46.15
	Equal variances not assumed			1.417	32.723	.166	21.04	14.85	-9.18	51.26
Enrollment Encouragement	Equal variances assumed	1.532	.219	-.390	78	.698	-6.415E-02	.1647	-.3920	.2637
	Equal variances not assumed			-.373	57.577	.711	-6.415E-02	.1721	-.4088	.2805
Study Encouragement	Equal variances assumed	.017	.895	.802	78	.425	.1154	.1439	-.1710	.4018
	Equal variances not assumed			.812	71.755	.420	.1154	.1422	-.1681	.3989
Family Support	Equal variances assumed	.003	.959	-.420	78	.675	-8.435E-02	.2006	-.4838	.3151
	Equal variances not assumed			-.422	69.797	.674	-8.435E-02	.2000	-.4833	.3145
Insufficient Time	Equal variances assumed	.112	.739	.267	78	.790	5.513E-02	.2064	-.3558	.4660
	Equal variances not assumed			.269	70.797	.789	5.513E-02	.2049	-.3534	.4636

a. Type = V

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Events Hinder Study	Equal variances assumed	.002	.962	-1.493	78	.140	-.2198	.1472	-.5129	7.335E-02
	Equal variances not assumed			-1.495	69.383	.140	-.2198	.1470	-.5130	7.351E-02
Distractions	Equal variances assumed	.138	.712	-1.260	78	.211	-.1691	.1342	-.4363	9.802E-02
	Equal variances not assumed			-1.284	73.150	.203	-.1691	.1318	-.4318	9.349E-02
Potential Drop-out	Equal variances assumed	1.293	.259	.811	78	.420	.1446	.1784	-.2106	.4999
	Equal variances not assumed			.765	54.182	.447	.1446	.1890	-.2343	.5236
Deep Approach	Equal variances assumed	.242	.624	-.741	78	.461	-.1314	.1773	-.4844	.2217
	Equal variances not assumed			-.729	64.772	.469	-.1314	.1803	-.4915	.2288
Intrinsic Motivation	Equal variances assumed	1.564	.215	-2.395	78	.019	-.3504	.1463	-.6417	-5.92E-02
	Equal variances not assumed			-2.337	62.685	.023	-.3504	.1500	-.6501	-5.07E-02
Positive Course Evaluation	Equal variances assumed	.023	.881	.193	78	.847	2.827E-02	.1462	-.2627	.3193
	Equal variances not assumed			.190	64.409	.850	2.827E-02	.1488	-.2690	.3256
Positive Faculty Perception	Equal variances assumed	.331	.567	-.325	78	.746	-4.223E-02	.1300	-.3011	.2166
	Equal variances not assumed			-.328	71.533	.744	-4.223E-02	.1286	-.2987	.2142
Reading Habit	Equal variances assumed	6.270	.014	-.892	78	.375	-.1975	.2215	-.6384	.2434
	Equal variances not assumed			-.854	57.868	.397	-.1975	.2312	-.6604	.2654

a. Type = V

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Surface Approach	Equal variances assumed	.220	.640	.023	78	.982	3.009E-03	.1311	-.2580	.2640
	Equal variances not assumed			.023	67.409	.982	3.009E-03	.1320	-.2604	.2664
Extrinsic Motivation	Equal variances assumed	2.077	.154	.213	78	.832	3.675E-02	.1729	-.3075	.3810
	Equal variances not assumed			.222	77.257	.825	3.675E-02	.1653	-.2924	.3659
Negative Course Evaluation	Equal variances assumed	2.874	.094	.047	78	.963	6.512E-03	.1387	-.2697	.2827
	Equal variances not assumed			.045	57.411	.964	6.512E-03	.1451	-.2840	.2970
SI	Equal variances assumed	1.064	.305	-.097	78	.923	-3.310E-02	.3413	-.7125	.6464
	Equal variances not assumed			-.095	65.129	.924	-3.310E-02	.3466	-.7252	.6590
EA	Equal variances assumed	.016	.898	-.381	78	.704	-.1891	.4967	-1.1780	.7997
	Equal variances not assumed			-.377	66.307	.708	-.1891	.5021	-1.1915	.8133
AI	Equal variances assumed	2.950	.090	-1.162	78	.249	-.6933	.5967	-1.8812	.4947
	Equal variances not assumed			-1.111	57.520	.271	-.6933	.6238	-1.9421	.5556
AX	Equal variances assumed	.579	.449	.158	78	.875	4.627E-02	.2934	-.5379	.6305
	Equal variances not assumed			.163	76.014	.871	4.627E-02	.2835	-.5183	.6109

a. Type = V

E. Independent Sample T-Test Results Comparing Students Completing (1.00) and Not Completing (.00) the course for each Alternative Format and its Classroom Equivalent

TYPE = ee - On-line Courses

Group Statistics[b]

	Completion 01	N	Mean	Std. Deviation	Std. Error Mean
CUMCRATT	.00	18	45.9444	29.8358	7.0324
	1.00	39	38.5897	25.6132	4.1014
CUMCRCMP	.00	18	43.5556	31.4048	7.4022
	1.00	39	38.1795	26.2226	4.1990
CUMGPA	.00	18	2.6793	.9569	.2255
	1.00	39	3.0045	.7264	.1163
M=1 F=2	.00	18	1.7222	.4609	.1086
	1.00	39	1.8205	.3888	6.225E-02
POPINFO.AGE	.00	18	28.61	11.22	2.64
	1.00	39	25.69	7.72	1.24
Children	.00	0[a]	.	.	.
	1.00	13	.77	.93	.26
MARIT	.00	0[a]	.	.	.
	1.00	12	.4167	.5149	.1486
#inhouse	.00	0[a]	.	.	.
	1.00	13	3.15	1.21	.34

a. t cannot be computed because at least one of the groups is empty.

b. TYPE = ee

Group Statistics[b]

	Completion 01	N	Mean	Std. Deviation	Std. Error Mean
education	.00	0[a]	.	.	.
	1.00	13	2.23	.44	.12
workexp	.00	0[a]	.	.	.
	1.00	13	11.46	5.65	1.57
income	.00	0[a]	.	.	.
	1.00	13	4.46	2.44	.68
travel	.00	0[a]	.	.	.
	1.00	13	28.85	15.96	4.43
Enrollment Encouragement	.00	0[a]	.	.	.
	1.00	13	2.5962	.9549	.2648
Study Encouragement	.00	0[a]	.	.	.
	1.00	13	3.2949	.9674	.2683
Family Support	.00	0[a]	.	.	.
	1.00	13	4.0000	.6804	.1887
Insufficient Time	.00	0[a]	.	.	.
	1.00	13	2.4231	.8978	.2490

a. t cannot be computed because at least one of the groups is empty.

b. TYPE = ee

Group Statistics[b]

	Completion 01	N	Mean	Std. Deviation	Std. Error Mean
Events Hinder Study	.00	0[a]	.	.	.
	1.00	13	2.1795	.6179	.1714
Distractions	.00	0[a]	.	.	.
	1.00	13	2.5275	.7789	.2160
Potential Drop-out	.00	0[a]	.	.	.
	1.00	13	1.7436	.5798	.1608
Deep Approach	.00	0[a]	.	.	.
	1.00	13	3.4872	.5547	.1538
Intrinsic Motivation	.00	0[a]	.	.	.
	1.00	13	2.9808	.5991	.1662
Positive Course Evaluation	.00	0[a]	.	.	.
	1.00	13	3.6308	.6316	.1752
Positive Faculty Perception	.00	0[a]	.	.	.
	1.00	13	3.1538	.5822	.1615
Reading Habit	.00	0[a]	.	.	.
	1.00	13	3.5385	.8979	.2490

a. t cannot be computed because at least one of the groups is empty.

b. TYPE = ee

Group Statistics[b]

	Completion 01	N	Mean	Std. Deviation	Std. Error Mean
Surface Approach	.00	0[a]	.	.	.
	1.00	13	3.0513	.4377	.1214
Extrinsic Motivation	.00	0[a]	.	.	.
	1.00	13	3.5192	.8445	.2342
Negative Course Evaluation	.00	0[a]	.	.	.
	1.00	13	2.2308	.4169	.1156
SI	.00	0[a]	.	.	.
	1.00	13	9.8910	2.0280	.5625
EA	.00	0[a]	.	.	.
	1.00	13	8.8736	2.1202	.5880
AI	.00	0[a]	.	.	.
	1.00	13	16.7910	2.2305	.6186
AX	.00	0[a]	.	.	.
	1.00	13	8.8013	1.2535	.3477

a. t cannot be computed because at least one of the groups is empty.

b. TYPE = ee

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
CUMCRATT	Equal variances assumed	.659	.420	.956	55	.343	7.3547	7.6905	-8.0575	22.7669
	Equal variances not assumed			.903	29.029	.374	7.3547	8.1410	-9.2947	24.0041
CUMCRCMP	Equal variances assumed	.723	.399	.676	55	.502	5.3761	7.9579	-10.5719	21.3240
	Equal variances not assumed			.632	28.386	.533	5.3761	8.5102	-12.0456	22.7978
CUMGPA	Equal variances assumed	1.636	.206	-1.418	55	.162	-.3252	.2293	-.7847	.1343
	Equal variances not assumed			-1.282	26.411	.211	-.3252	.2538	-.8464	.1960
M=1 F=2	Equal variances assumed	2.509	.119	-.836	55	.407	-9.829E-02	.1175	-.3338	.1372
	Equal variances not assumed			-.785	28.619	.439	-9.829E-02	.1252	-.3545	.1579
POPINFO.AGE	Equal variances assumed	4.942	.030	1.145	55	.257	2.92	2.55	-2.19	8.03
	Equal variances not assumed			1.000	24.704	.327	2.92	2.92	-3.10	8.93

a. TYPE = ee

TYPE = et - Same courses as those offered on-line but delivered in a classroom setting

Group Statistics[a]

	Completion 01	N	Mean	Std. Deviation	Std. Error Mean
CUMCRATT	.00	17	23.0000	9.9750	2.4193
	1.00	37	29.8919	13.0038	2.1378
CUMCRCMP	.00	17	18.7647	6.3790	1.5471
	1.00	37	29.0000	11.8063	1.9409
CUMGPA	.00	17	2.3033	.7437	.1804
	1.00	37	3.1353	.5398	8.874E-02
M=1 F=2	.00	17	1.2941	.4697	.1139
	1.00	37	1.7297	.4502	7.402E-02
POPINFO.AGE	.00	17	21.65	6.21	1.51
	1.00	37	20.05	4.28	.70
Children	.00	1	.00	.	.
	1.00	22	.23	.61	.13
MARIT	.00	1	.0000	.	.
	1.00	20	5.000E-02	.2236	5.000E-02
#inhouse	.00	1	3.00	.	.
	1.00	22	3.45	1.47	.31

a. TYPE = et

Group Statistics[b]

	Completion 01	N	Mean	Std. Deviation	Std. Error Mean
education	.00	1	2.00	.	.
	1.00	20	1.90	.31	6.88E-02
workexp	.00	1	2.00	.	.
	1.00	22	4.41	2.44	.52
income	.00	0[a]	.	.	.
	1.00	20	4.00	2.32	.52
travel	.00	1	2.00	.	.
	1.00	22	24.77	15.20	3.24
Enrollment Encouragement	.00	1	3.0000	.	.
	1.00	22	3.0568	.4936	.1052
Study Encouragement	.00	1	2.3333	.	.
	1.00	22	3.1515	.4683	9.985E-02
Family Support	.00	1	3.0000	.	.
	1.00	22	3.7576	.9438	.2012
Insufficient Time	.00	1	3.2500	.	.
	1.00	22	3.5455	.9214	.1964

a. t cannot be computed because at least one of the groups is empty.

b. TYPE = et

Group Statistics[a]

	Completion 01	N	Mean	Std. Deviation	Std. Error Mean
Events Hinder Study	.00	1	3.0000	.	.
	1.00	22	2.8182	.6724	.1434
Distractions	.00	1	3.8571	.	.
	1.00	22	3.3117	.5518	.1176
Potential Drop-out	.00	1	2.3333	.	.
	1.00	22	2.0606	.6638	.1415
Deep Approach	.00	1	4.0000	.	.
	1.00	22	3.3864	.6758	.1441
Intrinsic Motivation	.00	1	2.0000	.	.
	1.00	22	2.6250	.7390	.1576
Positive Course Evaluation	.00	1	2.8000	.	.
	1.00	22	3.3727	.6936	.1479
Positive Faculty Perception	.00	1	2.7500	.	.
	1.00	22	3.2614	.6147	.1311
Reading Habit	.00	1	3.3333	.	.
	1.00	22	3.3030	.8477	.1807

a. TYPE = et

Group Statistics[a]

	Completion 01	N	Mean	Std. Deviation	Std. Error Mean
Surface Approach	.00	1	3.3333	.	.
	1.00	22	3.3333	.5887	.1255
Extrinsic Motivation	.00	1	3.7500	.	.
	1.00	22	3.7273	.6311	.1345
Negative Course Evaluation	.00	1	2.0000	.	.
	1.00	22	2.3598	.5747	.1225
SI	.00	1	8.3333	.	.
	1.00	22	9.9659	1.4583	.3109
EA	.00	1	12.4405	.	.
	1.00	22	11.7359	2.0265	.4320
AI	.00	1	14.8833	.	.
	1.00	22	15.9485	2.4503	.5224
AX	.00	1	9.0833	.	.
	1.00	22	9.4205	1.2500	.2665

a. TYPE = et

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
CUMCRATT	Equal variances assumed	.682	.413	-1.936	52	.058	-6.8919	3.5607	-14.0370	.2532
	Equal variances not assumed			-2.135	39.924	.039	-6.8919	3.2285	-13.4173	-.3665
CUMCRCMP	Equal variances assumed	1.550	.219	-3.346	52	.002	-10.2353	3.0593	-16.3743	-4.0963
	Equal variances not assumed			-4.124	50.453	.000	-10.2353	2.4821	-15.2196	-5.2509
CUMGPA	Equal variances assumed	4.439	.040	-4.656	52	.000	-.8320	.1787	-1.1906	-.4734
	Equal variances not assumed			-4.139	24.055	.000	-.8320	.2010	-1.2469	-.4171
M=1 F=2	Equal variances assumed	.122	.728	-3.258	52	.002	-.4356	.1337	-.7039	-.1673
	Equal variances not assumed			-3.207	29.987	.003	-.4356	.1358	-.7131	-.1582
POPINFO.AGE	Equal variances assumed	1.972	.166	1.097	52	.278	1.59	1.45	-1.32	4.51
	Equal variances not assumed			.958	23.248	.348	1.59	1.66	-1.85	5.03
Children	Equal variances assumed	.	.	-.363	21	.720	-.23	.63	-1.53	1.07
	Equal variances not assumed			.	.	.	-.23	.	.	.
MARIT	Equal variances assumed	.	.	-.218	19	.830	-5.000E-02	.2291	-.5296	.4296
	Equal variances not assumed			.	.	.	-5.000E-02	.	.	.
#inhouse	Equal variances assumed	.	.	-.302	21	.765	-.45	1.50	-3.58	2.67
	Equal variances not assumed			.	.	.	-.45	.	.	.

a. TYPE = et

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
education	Equal variances assumed	.	.	.317	19	.755	.10	.32	-.56	.76
	Equal variances not assumed			.	.	.	.10	.	.	.
workexp	Equal variances assumed	.	.	-.965	21	.346	-2.41	2.50	-7.60	2.79
	Equal variances not assumed			.	.	.	-2.41	.	.	.
travel	Equal variances assumed	.	.	-1.465	21	.158	-22.77	15.54	-55.09	9.55
	Equal variances not assumed			.	.	.	-22.77	.	.	.
Enrollment Encouragement	Equal variances assumed	.	.	-.113	21	.911	-5.682E-02	.5047	-1.1064	.9928
	Equal variances not assumed			.	.	.	-5.682E-02	.	.	.
Study Encouragement	Equal variances assumed	.	.	-1.709	21	.102	-.8182	.4789	-1.8140	.1777
	Equal variances not assumed			.	.	.	-.8182	.	.	.
Family Support	Equal variances assumed	.	.	-.785	21	.441	-.7576	.9650	-2.7645	1.2493
	Equal variances not assumed			.	.	.	-.7576	.	.	.
Insufficient Time	Equal variances assumed	.	.	-.314	21	.757	-.2955	.9421	-2.2547	1.6638
	Equal variances not assumed			.	.	.	-.2955	.	.	.

a. TYPE = et

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Events Hinder Study	Equal variances assumed	.	.	.264	21	.794	.1818	.6875	-1.2480	1.6116
	Equal variances not assumed			.	.	.	.1818	.	.	.
Distractions	Equal variances assumed	.	.	.967	21	.345	.5455	.5642	-.6278	1.7187
	Equal variances not assumed			.	.	.	.5455	.	.	.
Potential Drop-out	Equal variances assumed	.	.	.402	21	.692	.2727	.6787	-1.1387	1.6841
	Equal variances not assumed			.	.	.	.2727	.	.	.
Deep Approach	Equal variances assumed	.	.	.888	21	.385	.6136	.6910	-.8234	2.0506
	Equal variances not assumed			.	.	.	.6136	.	.	.
Intrinsic Motivation	Equal variances assumed	.	.	-.827	21	.417	-.6250	.7556	-2.1964	.9464
	Equal variances not assumed			.	.	.	-.6250	.	.	.
Positive Course Evaluation	Equal variances assumed	.	.	-.808	21	.428	-.5727	.7092	-2.0476	.9022
	Equal variances not assumed			.	.	.	-.5727	.	.	.
Positive Faculty Perception	Equal variances assumed	.	.	-.814	21	.425	-.5114	.6285	-1.8184	.7957
	Equal variances not assumed			.	.	.	-.5114	.	.	.
Reading Habit	Equal variances assumed	.	.	.035	21	.972	3.030E-02	.8668	-1.7722	1.8328
	Equal variances not assumed			.	.	.	3.030E-02	.	.	.

a. TYPE = et

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Surface Approach	Equal variances assumed	.	.	.000	21	1.000	-4.441E-16	.6019	-1.2518	1.2518
	Equal variances not assumed			.	.	.	-4.441E-16	.	.	.
Extrinsic Motivation	Equal variances assumed	.	.	.035	21	.972	2.273E-02	.6453	-1.3192	1.3646
	Equal variances not assumed			.	.	.	2.273E-02	.	.	.
Negative Course Evaluation	Equal variances assumed	.	.	-.612	21	.547	-.3598	.5876	-1.5819	.8622
	Equal variances not assumed			.	.	.	-.3598	.	.	.
SI	Equal variances assumed	.	.	-1.095	21	.286	-1.6326	1.4911	-4.7335	1.4684
	Equal variances not assumed			.	.	.	-1.6326	.	.	.
EA	Equal variances assumed	.	.	.340	21	.737	.7045	2.0720	-3.6044	5.0135
	Equal variances not assumed			.	.	.	.7045	.	.	.
AI	Equal variances assumed	.	.	-.425	21	.675	-1.0652	2.5054	-6.2754	4.1451
	Equal variances not assumed			.	.	.	-1.0652	.	.	.
AX	Equal variances assumed	.	.	-.264	21	.795	-.3371	1.2781	-2.9950	2.3208
	Equal variances not assumed			.	.	.	-.3371	.	.	.

a. TYPE = et

TYPE = ss - Self-Paced Lab Courses

Group Statistics[a]

	Completion 01	N	Mean	Std. Deviation	Std. Error Mean
CUMCRATT	.00	92	27.8043	27.5997	2.8775
	1.00	41	27.7805	29.3526	4.5841
CUMCRCMP	.00	92	24.5326	26.3094	2.7429
	1.00	41	26.8537	29.0151	4.5314
CUMGPA	.00	92	2.1048	1.1934	.1244
	1.00	41	2.5907	1.1885	.1856
M=1 F=2	.00	92	1.7174	.4527	4.720E-02
	1.00	41	1.7317	.4486	7.006E-02
POPINFO.AGE	.00	90	28.00	11.53	1.22
	1.00	41	28.12	8.09	1.26
Children	.00	5	.80	.84	.37
	1.00	10	.40	.97	.31
MARIT	.00	5	.4000	.5477	.2449
	1.00	10	.2000	.4216	.1333
#inhouse	.00	5	3.60	.55	.24
	1.00	10	3.00	1.41	.45

a. TYPE = ss

Group Statistics[a]

	Completion 01	N	Mean	Std. Deviation	Std. Error Mean
education	.00	5	2.00	.00	.00
	1.00	10	2.20	.79	.25
workexp	.00	4	5.25	2.99	1.49
	1.00	9	13.33	10.77	3.59
income	.00	4	3.00	1.41	.71
	1.00	9	5.00	2.12	.71
travel	.00	4	21.25	10.31	5.15
	1.00	10	20.50	9.85	3.11
Enrollment Encouragement	.00	5	2.5500	.7159	.3202
	1.00	10	3.0250	.4632	.1465
Study Encouragement	.00	5	3.1333	1.2824	.5735
	1.00	10	3.2333	.4458	.1410
Family Support	.00	5	4.1333	.8028	.3590
	1.00	10	3.3667	.5973	.1889
Insufficient Time	.00	5	3.5000	1.1859	.5303
	1.00	10	2.7250	.6917	.2187

a. TYPE = ss

Group Statistics[a]

	Completion 01	N	Mean	Std. Deviation	Std. Error Mean
Events Hinder Study	.00	5	3.2000	.6912	.3091
	1.00	10	2.4667	.5488	.1736
Distractions	.00	5	2.5429	.3557	.1591
	1.00	10	2.8143	.7348	.2324
Potential Drop-out	.00	5	2.1333	.4472	.2000
	1.00	10	1.5333	.3583	.1133
Deep Approach	.00	5	3.8500	.4183	.1871
	1.00	10	3.4250	.4417	.1397
Intrinsic Motivation	.00	5	3.4500	1.2042	.5385
	1.00	10	3.2500	.5000	.1581
Positive Course Evaluation	.00	5	3.6400	.6542	.2926
	1.00	10	3.8800	.2700	8.537E-02
Positive Faculty Perception	.00	5	3.0000	.6614	.2958
	1.00	10	3.3083	.6503	.2056
Reading Habit	.00	5	3.6667	.7071	.3162
	1.00	10	3.5000	1.0214	.3230

a. TYPE = ss

Group Statistics[a]

	Completion 01	N	Mean	Std. Deviation	Std. Error Mean
Surface Approach	.00	5	3.2667	.9545	.4269
	1.00	10	2.7667	.3702	.1171
Extrinsic Motivation	.00	5	3.6000	.9618	.4301
	1.00	10	3.4000	.6476	.2048
Negative Course Evaluation	.00	5	2.9000	.9022	.4035
	1.00	10	2.1567	.3139	9.926E-02
SI	.00	5	9.8167	2.1766	.9734
	1.00	10	9.6250	1.2560	.3972
EA	.00	5	11.3762	1.8880	.8443
	1.00	10	9.5393	1.9579	.6191
AI	.00	5	17.6067	2.4925	1.1147
	1.00	10	17.3633	2.0248	.6403
AX	.00	5	9.7667	2.4341	1.0886
	1.00	10	8.3233	1.1008	.3481

a. TYPE = ss

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
CUMCRATT	Equal variances assumed	.576	.449	.005	131	.996	2.386E-02	5.2852	-10.4316	10.4793
	Equal variances not assumed			.004	72.765	.996	2.386E-02	5.4124	-10.7636	10.8113
CUMCRCMP	Equal variances assumed	.787	.377	-.455	131	.650	-2.3210	5.1008	-12.4116	7.7695
	Equal variances not assumed			-.438	70.521	.663	-2.3210	5.2969	-12.8841	8.2420
CUMGPA	Equal variances assumed	.034	.855	-2.171	131	.032	-.4859	.2238	-.9287	-4.32E-02
	Equal variances not assumed			-2.175	77.171	.033	-.4859	.2235	-.9309	-4.10E-02
M=1 F=2	Equal variances assumed	.117	.733	-.169	131	.866	-1.432E-02	8.477E-02	-.1820	.1534
	Equal variances not assumed			-.169	77.536	.866	-1.432E-02	8.447E-02	-.1825	.1539
POPINFO.AGE	Equal variances assumed	1.625	.205	-.061	129	.951	-.12	1.99	-4.07	3.82
	Equal variances not assumed			-.070	107.095	.945	-.12	1.75	-3.60	3.35
Children	Equal variances assumed	.000	1.000	.787	13	.446	.40	.51	-.70	1.50
	Equal variances not assumed			.828	9.278	.428	.40	.48	-.69	1.49
MARIT	Equal variances assumed	1.778	.205	.787	13	.446	.2000	.2542	-.3492	.7492
	Equal variances not assumed			.717	6.469	.498	.2000	.2789	-.4706	.8706
#inhouse	Equal variances assumed	6.158	.028	.901	13	.384	.60	.67	-.84	2.04
	Equal variances not assumed			1.177	12.649	.261	.60	.51	-.50	1.70

a. TYPE = ss

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
education	Equal variances assumed	4.046	.065	-.556	13	.587	-.20	.36	-.98	.58
	Equal variances not assumed			-.802	9.000	.443	-.20	.25	-.76	.36
workexp	Equal variances assumed	1.935	.192	-1.444	11	.177	-8.08	5.60	-20.41	4.24
	Equal variances not assumed			-2.079	10.193	.064	-8.08	3.89	-16.72	.56
income	Equal variances assumed	1.928	.192	-1.703	11	.117	-2.00	1.17	-4.58	.58
	Equal variances not assumed			-2.000	8.727	.078	-2.00	1.00	-4.27	.27
travel	Equal variances assumed	.330	.576	.127	12	.901	.75	5.89	-12.09	13.59
	Equal variances not assumed			.125	5.352	.905	.75	6.02	-14.43	15.93
Enrollment Encouragement	Equal variances assumed	.376	.550	-1.567	13	.141	-.4750	.3031	-1.1298	.1798
	Equal variances not assumed			-1.349	5.738	.228	-.4750	.3521	-1.3461	.3961
Study Encouragement	Equal variances assumed	4.243	.060	-.228	13	.824	-.1000	.4394	-1.0493	.8493
	Equal variances not assumed			-.169	4.491	.873	-.1000	.5906	-1.6714	1.4714
Family Support	Equal variances assumed	1.919	.189	2.098	13	.056	.7667	.3655	-2.29E-02	1.5563
	Equal variances not assumed			1.890	6.306	.105	.7667	.4057	-.2144	1.7477
Insufficient Time	Equal variances assumed	4.817	.047	1.619	13	.129	.7750	.4787	-.2592	1.8092
	Equal variances not assumed			1.351	5.407	.230	.7750	.5737	-.6669	2.2169

a. TYPE = ss

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Events Hinder Study	Equal variances assumed	.624	.444	2.245	13	.043	.7333	.3266	2.776E-02	1.4389
	Equal variances not assumed			2.069	6.627	.080	.7333	.3545	-.1146	1.5813
Distractions	Equal variances assumed	2.082	.173	-.771	13	.454	-.2714	.3519	-1.0316	.4887
	Equal variances not assumed			-.964	12.992	.353	-.2714	.2816	-.8798	.3370
Potential Drop-out	Equal variances assumed	.696	.419	2.824	13	.014	.6000	.2124	.1411	1.0589
	Equal variances not assumed			2.610	6.674	.036	.6000	.2299	5.103E-02	1.1490
Deep Approach	Equal variances assumed	.244	.630	1.785	13	.098	.4250	.2381	-8.93E-02	.9393
	Equal variances not assumed			1.820	8.526	.104	.4250	.2335	-.1077	.9577
Intrinsic Motivation	Equal variances assumed	14.560	.002	.464	13	.650	.2000	.4310	-.7311	1.1311
	Equal variances not assumed			.356	4.704	.737	.2000	.5612	-1.2705	1.6705
Positive Course Evaluation	Equal variances assumed	8.069	.014	-1.027	13	.323	-.2400	.2338	-.7450	.2650
	Equal variances not assumed			-.787	4.695	.469	-.2400	.3048	-1.0390	.5590
Positive Faculty Perception	Equal variances assumed	.151	.704	-.861	13	.405	-.3083	.3581	-1.0819	.4653
	Equal variances not assumed			-.856	7.973	.417	-.3083	.3603	-1.1396	.5229
Reading Habit	Equal variances assumed	3.121	.101	.325	13	.750	.1667	.5127	-.9409	1.2742
	Equal variances not assumed			.369	11.255	.719	.1667	.4520	-.8255	1.1588

a. TYPE = ss

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Surface Approach	Equal variances assumed	5.586	.034	1.490	13	.160	.5000	.3355	-.2248	1.2248
	Equal variances not assumed			1.130	4.613	.314	.5000	.4426	-.6672	1.6672
Extrinsic Motivation	Equal variances assumed	.597	.454	.482	13	.638	.2000	.4153	-.6973	1.0973
	Equal variances not assumed			.420	5.885	.690	.2000	.4764	-.9712	1.3712
Negative Course Evaluation	Equal variances assumed	2.362	.148	2.404	13	.032	.7433	.3092	7.539E-02	1.4113
	Equal variances not assumed			1.789	4.492	.140	.7433	.4155	-.3621	1.8488
SI	Equal variances assumed	1.696	.215	.219	13	.830	.1917	.8746	-1.6978	2.0812
	Equal variances not assumed			.182	5.377	.862	.1917	1.0513	-2.4549	2.8382
EA	Equal variances assumed	.007	.937	1.732	13	.107	1.8369	1.0608	-.4547	4.1285
	Equal variances not assumed			1.754	8.381	.116	1.8369	1.0470	-.5585	4.2324
AI	Equal variances assumed	.011	.918	.204	13	.842	.2433	1.1937	-2.3356	2.8222
	Equal variances not assumed			.189	6.749	.855	.2433	1.2855	-2.8195	3.3062
AX	Equal variances assumed	1.698	.215	1.615	13	.130	1.4433	.8936	-.4873	3.3739
	Equal variances not assumed			1.263	4.837	.264	1.4433	1.1429	-1.5245	4.4112

a. TYPE = ss

TYPE = st - Same courses as those offered in the Self-Paced Lab but delivered in a classroom setting

Group Statistics[b]

	Completion 01	N	Mean	Std. Deviation	Std. Error Mean
CUMCRATT	.00	28	22.6429	24.3572	4.6031
	1.00	38	25.4737	26.7357	4.3371
CUMCRCMP	.00	28	21.6786	23.8934	4.5154
	1.00	38	24.0789	25.6129	4.1550
CUMGPA	.00	28	2.1220	1.2846	.2428
	1.00	38	3.0472	.8698	.1411
M=1 F=2	.00	28	1.7143	.4600	8.694E-02
	1.00	38	1.6842	.4711	7.642E-02
POPINFO.AGE	.00	28	30.82	15.08	2.85
	1.00	38	29.66	8.44	1.37
Children	.00	0[a]	.	.	.
	1.00	29	1.21	1.24	.23
MARIT	.00	0[a]	.	.	.
	1.00	29	.4138	.5012	9.308E-02
#inhouse	.00	0[a]	.	.	.
	1.00	30	3.23	1.33	.24

a. t cannot be computed because at least one of the groups is empty.

b. TYPE = st

Group Statistics[b]

	Completion 01	N	Mean	Std. Deviation	Std. Error Mean
education	.00	0[a]	.	.	.
	1.00	30	2.10	.31	5.57E-02
workexp	.00	0[a]	.	.	.
	1.00	30	9.97	7.89	1.44
income	.00	0[a]	.	.	.
	1.00	29	4.21	2.54	.47
travel	.00	0[a]	.	.	.
	1.00	30	22.47	25.86	4.72
Enrollment Encouragement	.00	0[a]	.	.	.
	1.00	30	2.9806	.7171	.1309
Study Encouragement	.00	0[a]	.	.	.
	1.00	30	3.1111	.5762	.1052
Family Support	.00	0[a]	.	.	.
	1.00	30	3.8333	.7466	.1363
Insufficient Time	.00	0[a]	.	.	.
	1.00	30	3.0333	.9348	.1707

a. t cannot be computed because at least one of the groups is empty.

b. TYPE = st

Group Statistics[b]

	Completion 01	N	Mean	Std. Deviation	Std. Error Mean
Events Hinder Study	.00	0[a]	.	.	.
	1.00	30	2.3778	.6173	.1127
Distractions	.00	0[a]	.	.	.
	1.00	30	2.7952	.6080	.1110
Potential Drop-out	.00	0[a]	.	.	.
	1.00	30	1.7000	.5350	9.767E-02
Deep Approach	.00	0[a]	.	.	.
	1.00	30	3.7667	.4910	8.965E-02
Intrinsic Motivation	.00	0[a]	.	.	.
	1.00	30	3.4667	.7449	.1360
Positive Course Evaluation	.00	0[a]	.	.	.
	1.00	30	3.9933	.6400	.1168
Positive Faculty Perception	.00	0[a]	.	.	.
	1.00	30	3.6361	.5671	.1035
Reading Habit	.00	0[a]	.	.	.
	1.00	30	3.1778	.8475	.1547

a. t cannot be computed because at least one of the groups is empty.

b. TYPE = st

Group Statistics[b]

	Completion 01	N	Mean	Std. Deviation	Std. Error Mean
Surface Approach	.00	0[a]	.	.	.
	1.00	30	3.3478	.3907	7.133E-02
Extrinsic Motivation	.00	0[a]	.	.	.
	1.00	30	3.4583	.5457	9.963E-02
Negative Course Evaluation	.00	0[a]	.	.	.
	1.00	30	2.1889	.5819	.1062
SI	.00	0[a]	.	.	.
	1.00	30	9.9250	1.4866	.2714
EA	.00	0[a]	.	.	.
	1.00	30	9.9063	2.2080	.4031
AI	.00	0[a]	.	.	.
	1.00	30	18.0406	2.1826	.3985
AX	.00	0[a]	.	.	.
	1.00	30	8.9950	.9253	.1689

a. t cannot be computed because at least one of the groups is empty.

b. TYPE = st

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
CUMCRATT	Equal variances assumed	.011	.916	-.441	64	.661	-2.8308	6.4155	-15.6473	9.9856
	Equal variances not assumed			-.448	61.087	.656	-2.8308	6.3245	-15.4770	9.8154
CUMCRCMP	Equal variances assumed	.103	.749	-.387	64	.700	-2.4004	6.2020	-14.7904	9.9896
	Equal variances not assumed			-.391	60.453	.697	-2.4004	6.1362	-14.6727	9.8719
CUMGPA	Equal variances assumed	6.101	.016	-3.489	64	.001	-.9251	.2652	-1.4549	-.3954
	Equal variances not assumed			-3.295	44.607	.002	-.9251	.2808	-1.4908	-.3595
M=1 F=2	Equal variances assumed	.274	.603	.259	64	.797	3.008E-02	.1162	-.2020	.2622
	Equal variances not assumed			.260	59.095	.796	3.008E-02	.1158	-.2015	.2617
POPINFO.AGE	Equal variances assumed	3.142	.081	.399	64	.691	1.16	2.92	-4.66	6.99
	Equal variances not assumed			.368	39.366	.715	1.16	3.16	-5.23	7.56

a. TYPE = st

TYPE = vv - Videotape Courses

Group Statistics[a]

	Completion 01	N	Mean	Std. Deviation	Std. Error Mean
CUMCRATT	.00	75	26.1733	23.7915	2.7472
	1.00	40	44.8000	32.7979	5.1858
CUMCRCMP	.00	75	22.3867	23.4584	2.7087
	1.00	40	44.0500	33.8048	5.3450
CUMGPA	.00	75	2.0187	1.3123	.1515
	1.00	40	2.8295	.7417	.1173
M=1 F=2	.00	75	1.7867	.4124	4.762E-02
	1.00	40	1.8000	.4051	6.405E-02
POPINFO.AGE	.00	75	27.47	9.47	1.09
	1.00	40	28.38	9.28	1.47
Children	.00	6	.67	1.03	.42
	1.00	26	1.12	1.40	.27
MARIT	.00	6	.3333	.5164	.2108
	1.00	27	.2963	.4653	8.955E-02
#inhouse	.00	6	2.83	1.47	.60
	1.00	27	4.33	3.80	.73

a. TYPE = vv

Group Statistics[a]

	Completion 01	N	Mean	Std. Deviation	Std. Error Mean
education	.00	6	2.00	.00	.00
	1.00	27	2.04	.34	6.50E-02
workexp	.00	6	9.50	7.37	3.01
	1.00	25	10.32	8.73	1.75
income	.00	6	3.00	1.67	.68
	1.00	23	4.65	2.33	.49
travel	.00	6	27.50	17.82	7.27
	1.00	27	43.41	93.52	18.00
Enrollment Encouragement	.00	6	2.0417	.6003	.2451
	1.00	27	2.7315	.8289	.1595
Study Encouragement	.00	6	2.8333	.5477	.2236
	1.00	27	3.0741	.6225	.1198
Family Support	.00	6	3.5556	.5837	.2383
	1.00	27	3.7963	.9295	.1789
Insufficient Time	.00	6	3.1667	1.0916	.4457
	1.00	27	3.1019	.8584	.1652

a. TYPE = vv

Group Statistics[a]

	Completion 01	N	Mean	Std. Deviation	Std. Error Mean
Events Hinder Study	.00	6	2.8333	.4082	.1667
	1.00	27	2.3827	.6648	.1279
Distractions	.00	6	2.7619	.5396	.2203
	1.00	27	2.8536	.5667	.1091
Potential Drop-out	.00	6	2.1667	.8628	.3522
	1.00	27	2.0617	.9609	.1849
Deep Approach	.00	6	3.3750	.5420	.2213
	1.00	27	3.4907	.8811	.1696
Intrinsic Motivation	.00	6	3.2083	.7651	.3124
	1.00	27	2.6944	.6590	.1268
Positive Course Evaluation	.00	6	3.6000	.7043	.2875
	1.00	27	3.4148	.6860	.1320
Positive Faculty Perception	.00	6	3.0000	.6325	.2582
	1.00	27	3.4815	.5044	9.708E-02
Reading Habit	.00	6	2.9444	1.1039	.4507
	1.00	27	2.9877	1.1341	.2183

a. TYPE = vv

Group Statistics[a]

	Completion 01	N	Mean	Std. Deviation	Std. Error Mean
Surface Approach	.00	6	3.1111	.5932	.2422
	1.00	27	3.3543	.5910	.1137
Extrinsic Motivation	.00	6	3.5417	.6406	.2615
	1.00	27	3.3796	.6518	.1254
Negative Course Evaluation	.00	6	2.5556	.7503	.3063
	1.00	27	2.3951	.6997	.1347
SI	.00	6	8.4306	.9866	.4028
	1.00	27	9.6019	1.6193	.3116
EA	.00	6	10.9286	2.5583	1.0444
	1.00	27	10.3999	2.2372	.4305
AI	.00	6	16.1278	3.3135	1.3527
	1.00	27	16.0691	3.0017	.5777
AX	.00	6	9.2083	1.1002	.4492
	1.00	27	9.1290	1.1682	.2248

a. TYPE = vv

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
CUMCRATT	Equal variances assumed	8.863	.004	-3.493	113	.001	-18.6267	5.3330	-29.1923	-8.0610
	Equal variances not assumed			-3.174	61.413	.002	-18.6267	5.8685	-30.3599	-6.8934
CUMCRCMP	Equal variances assumed	12.186	.001	-4.027	113	.000	-21.6633	5.3789	-32.3200	-11.0067
	Equal variances not assumed			-3.615	59.535	.001	-21.6633	5.9922	-33.6514	-9.6752
CUMGPA	Equal variances assumed	17.765	.000	-3.608	113	.000	-.8108	.2247	-1.2560	-.3655
	Equal variances not assumed			-4.231	112.568	.000	-.8108	.1916	-1.1904	-.4312
M=1 F=2	Equal variances assumed	.112	.738	-.166	113	.868	-1.333E-02	8.026E-02	-.1723	.1457
	Equal variances not assumed			-.167	80.992	.868	-1.333E-02	7.981E-02	-.1721	.1455
POPINFO.AGE	Equal variances assumed	.013	.909	-.493	113	.623	-.91	1.84	-4.56	2.74
	Equal variances not assumed			-.497	81.193	.621	-.91	1.83	-4.55	2.73
Children	Equal variances assumed	3.749	.062	-.739	30	.466	-.45	.61	-1.69	.79
	Equal variances not assumed			-.893	9.751	.393	-.45	.50	-1.57	.68
MARIT	Equal variances assumed	.106	.747	.173	31	.864	3.704E-02	.2139	-.3992	.4733
	Equal variances not assumed			.162	6.924	.876	3.704E-02	.2290	-.5058	.5799
#inhouse	Equal variances assumed	.250	.621	-.941	31	.354	-1.50	1.59	-4.75	1.75
	Equal variances not assumed			-1.584	21.666	.128	-1.50	.95	-3.47	.47

a. TYPE = vv

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
education	Equal variances assumed	1.283	.266	-.265	31	.792	-3.70E-02	.14	-.32	.25
	Equal variances not assumed			-.570	26.000	.574	-3.70E-02	6.50E-02	-.17	9.65E-02
workexp	Equal variances assumed	.357	.555	-.212	29	.834	-.82	3.87	-8.73	7.09
	Equal variances not assumed			-.236	8.730	.819	-.82	3.48	-8.73	7.09
income	Equal variances assumed	2.049	.164	-1.623	27	.116	-1.65	1.02	-3.74	.44
	Equal variances not assumed			-1.972	10.703	.075	-1.65	.84	-3.50	.20
travel	Equal variances assumed	.571	.456	-.410	31	.685	-15.91	38.79	-95.02	63.20
	Equal variances not assumed			-.819	30.901	.419	-15.91	19.41	-55.50	23.69
Enrollment Encouragement	Equal variances assumed	.576	.454	-1.919	31	.064	-.6898	.3595	-1.4230	4.339E-02
	Equal variances not assumed			-2.359	9.796	.041	-.6898	.2924	-1.3432	-3.64E-02
Study Encouragement	Equal variances assumed	.141	.710	-.873	31	.389	-.2407	.2758	-.8032	.3217
	Equal variances not assumed			-.949	8.153	.370	-.2407	.2537	-.8238	.3423
Family Support	Equal variances assumed	1.716	.200	-.604	31	.550	-.2407	.3985	-1.0535	.5720
	Equal variances not assumed			-.808	11.519	.436	-.2407	.2980	-.8930	.4115
Insufficient Time	Equal variances assumed	1.051	.313	.160	31	.874	6.481E-02	.4062	-.7637	.8934
	Equal variances not assumed			.136	6.445	.896	6.481E-02	.4753	-1.0790	1.2086

a. TYPE = vv

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Events Hinder Study	Equal variances assumed	1.389	.248	1.584	31	.123	.4506	.2846	-.1298	1.0310
	Equal variances not assumed			2.145	11.838	.053	.4506	.2101	-7.86E-03	.9091
Distractions	Equal variances assumed	.314	.579	-.361	31	.720	-9.171E-02	.2538	-.6094	.4260
	Equal variances not assumed			-.373	7.663	.719	-9.171E-02	.2458	-.6629	.4795
Potential Drop-out	Equal variances assumed	.076	.785	.246	31	.807	.1049	.4269	-.7657	.9755
	Equal variances not assumed			.264	8.019	.799	.1049	.3978	-.8121	1.0220
Deep Approach	Equal variances assumed	1.965	.171	-.307	31	.761	-.1157	.3772	-.8851	.6536
	Equal variances not assumed			-.415	11.814	.685	-.1157	.2788	-.7242	.4927
Intrinsic Motivation	Equal variances assumed	.009	.925	1.681	31	.103	.5139	.3057	-.1095	1.1373
	Equal variances not assumed			1.524	6.749	.173	.5139	.3371	-.2893	1.3171
Positive Course Evaluation	Equal variances assumed	.148	.703	.596	31	.556	.1852	.3109	-.4490	.8194
	Equal variances not assumed			.585	7.268	.576	.1852	.3164	-.5574	.9277
Positive Faculty Perception	Equal variances assumed	.596	.446	-2.024	31	.052	-.4815	.2379	-.9668	3.798E-03
	Equal variances not assumed			-1.745	6.489	.128	-.4815	.2758	-1.1443	.1814
Reading Habit	Equal variances assumed	.019	.892	-.085	31	.933	-4.321E-02	.5097	-1.0827	.9963
	Equal variances not assumed			-.086	7.541	.933	-4.321E-02	.5007	-1.2102	1.1238

a. TYPE = vv

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Surface Approach	Equal variances assumed	.034	.854	-.911	31	.369	-.2432	.2669	-.7876	.3012
	Equal variances not assumed			-.909	7.381	.392	-.2432	.2675	-.8693	.3829
Extrinsic Motivation	Equal variances assumed	.071	.791	.552	31	.585	.1620	.2934	-.4363	.7604
	Equal variances not assumed			.559	7.489	.593	.1620	.2901	-.5149	.8390
Negative Course Evaluation	Equal variances assumed	.001	.971	.502	31	.619	.1605	.3196	-.4914	.8123
	Equal variances not assumed			.480	7.069	.646	.1605	.3346	-.6292	.9502
SI	Equal variances assumed	1.669	.206	-1.691	31	.101	-1.1713	.6928	-2.5842	.2416
	Equal variances not assumed			-2.300	11.954	.040	-1.1713	.5093	-2.2813	-6.13E-02
EA	Equal variances assumed	.077	.784	.511	31	.613	.5287	1.0345	-1.5811	2.6384
	Equal variances not assumed			.468	6.806	.654	.5287	1.1297	-2.1581	3.2154
AI	Equal variances assumed	.429	.518	.043	31	.966	5.864E-02	1.3785	-2.7527	2.8700
	Equal variances not assumed			.040	6.946	.969	5.864E-02	1.4709	-3.4250	3.5423
AX	Equal variances assumed	.011	.916	.152	31	.880	7.932E-02	.5224	-.9862	1.1448
	Equal variances not assumed			.158	7.726	.879	7.932E-02	.5023	-1.0861	1.2448

a. TYPE = vv

TYPE = vt - Same courses as those offered by videotape but delivered in a classroom setting

Group Statistics[a]

	Completion 01	N	Mean	Std. Deviation	Std. Error Mean
CUMCRATT	.00	43	26.8837	19.3209	2.9464
	1.00	73	28.6301	22.1356	2.5908
CUMCRCMP	.00	43	22.5116	20.8182	3.1748
	1.00	73	27.7945	22.1979	2.5981
CUMGPA	.00	43	1.8681	1.2051	.1838
	1.00	73	2.8530	.6830	7.994E-02
M=1 F=2	.00	43	1.5116	.5058	7.713E-02
	1.00	73	1.6438	.4822	5.643E-02
POPINFO.AGE	.00	43	23.88	8.53	1.30
	1.00	72	22.07	6.64	.78
Children	.00	7	.29	.76	.29
	1.00	40	.45	.99	.16
MARIT	.00	7	.1429	.3780	.1429
	1.00	40	.1500	.3616	5.718E-02
#inhouse	.00	7	3.43	1.81	.69
	1.00	40	3.75	1.58	.25

a. TYPE = vt

Group Statistics[a]

	Completion 01	N	Mean	Std. Deviation	Std. Error Mean
education	.00	7	2.00	.00	.00
	1.00	40	1.90	.50	7.84E-02
workexp	.00	7	3.86	1.35	.51
	1.00	40	6.03	5.39	.85
income	.00	6	2.00	2.00	.82
	1.00	39	4.23	2.63	.42
travel	.00	7	24.57	13.21	4.99
	1.00	39	18.56	10.04	1.61
Enrollment Encouragement	.00	7	2.8214	.6409	.2422
	1.00	40	2.6438	.6477	.1024
Study Encouragement	.00	7	3.0476	.7800	.2948
	1.00	40	2.8917	.6333	.1001
Family Support	.00	7	4.0952	.7127	.2694
	1.00	40	3.7917	.9173	.1450
Insufficient Time	.00	7	2.4286	.7460	.2820
	1.00	40	3.1688	.9153	.1447

a. TYPE = vt

Group Statistics[a]

	Completion 01	N	Mean	Std. Deviation	Std. Error Mean
Events Hinder Study	.00	7	2.7857	.5830	.2204
	1.00	40	2.6667	.6667	.1054
Distractions	.00	7	3.0408	.5198	.1965
	1.00	40	3.0000	.6356	.1005
Potential Drop-out	.00	7	1.8095	.3780	.1429
	1.00	40	1.9583	.7048	.1114
Deep Approach	.00	7	3.3929	.8643	.3267
	1.00	40	3.6375	.7337	.1160
Intrinsic Motivation	.00	7	2.9286	.7460	.2820
	1.00	40	3.1750	.5807	9.181E-02
Positive Course Evaluation	.00	7	3.5643	.5677	.2146
	1.00	40	3.3950	.6267	9.910E-02
Positive Faculty Perception	.00	7	3.6786	.7029	.2657
	1.00	40	3.3938	.5630	8.902E-02
Reading Habit	.00	7	2.8571	.8789	.3322
	1.00	40	3.2333	.8646	.1367

a. TYPE = vt

Group Statistics[a]

	Completion 01	N	Mean	Std. Deviation	Std. Error Mean
Surface Approach	.00	7	2.9905	.5259	.1988
	1.00	40	3.3625	.5635	8.909E-02
Extrinsic Motivation	.00	7	3.0714	.5537	.2093
	1.00	40	3.4250	.8682	.1373
Negative Course Evaluation	.00	7	2.4667	.1934	7.310E-02
	1.00	40	2.4092	.5816	9.196E-02
SI	.00	7	9.9643	1.4820	.5602
	1.00	40	9.3271	1.4391	.2275
EA	.00	7	10.0646	1.4685	.5550
	1.00	40	10.7938	2.2232	.3515
AI	.00	7	16.4214	2.9027	1.0971
	1.00	40	16.8346	2.2512	.3559
AX	.00	7	8.5286	1.1714	.4428
	1.00	40	9.1967	1.4121	.2233

a. TYPE = vt

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
CUMCRATT	Equal variances assumed	.051	.822	-.430	114	.668	-1.7464	4.0643	-9.7977	6.3049
	Equal variances not assumed			-.445	97.911	.657	-1.7464	3.9234	-9.5325	6.0396
CUMCRCMP	Equal variances assumed	.042	.838	-1.266	114	.208	-5.2829	4.1715	-13.5466	2.9808
	Equal variances not assumed			-1.288	92.811	.201	-5.2829	4.1023	-13.4295	2.8637
CUMGPA	Equal variances assumed	21.732	.000	-5.625	114	.000	-.9849	.1751	-1.3318	-.6380
	Equal variances not assumed			-4.915	58.184	.000	-.9849	.2004	-1.3860	-.5838
M=1 F=2	Equal variances assumed	3.747	.055	-1.401	114	.164	-.1322	9.439E-02	-.3192	5.478E-02
	Equal variances not assumed			-1.383	84.825	.170	-.1322	9.557E-02	-.3222	5.782E-02
POPINFO.AGE	Equal variances assumed	3.582	.061	1.272	113	.206	1.81	1.43	-1.01	4.64
	Equal variances not assumed			1.195	72.278	.236	1.81	1.52	-1.21	4.84
Children	Equal variances assumed	.573	.453	-.418	45	.678	-.16	.39	-.96	.63
	Equal variances not assumed			-.505	9.967	.625	-.16	.33	-.89	.56
MARIT	Equal variances assumed	.009	.924	-.048	45	.962	-7.143E-03	.1491	-.3074	.2931
	Equal variances not assumed			-.046	8.045	.964	-7.143E-03	.1539	-.3616	.3474
#inhouse	Equal variances assumed	.245	.623	-.486	45	.629	-.32	.66	-1.65	1.01
	Equal variances not assumed			-.441	7.683	.672	-.32	.73	-2.02	1.37

a. TYPE = vt

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
education	Equal variances assumed	2.924	.094	.528	45	.600	.10	.19	-.28	.48
	Equal variances not assumed			1.275	39.000	.210	.10	7.84E-02	-5.87E-02	.26
workexp	Equal variances assumed	3.448	.070	-1.050	45	.299	-2.17	2.06	-6.32	1.99
	Equal variances not assumed			-2.186	39.296	.035	-2.17	.99	-4.17	-.16
income	Equal variances assumed	2.780	.103	-1.983	43	.054	-2.23	1.12	-4.50	3.77E-02
	Equal variances not assumed			-2.428	7.941	.042	-2.23	.92	-4.35	-.11
travel	Equal variances assumed	.947	.336	1.390	44	.172	6.01	4.32	-2.70	14.72
	Equal variances not assumed			1.145	7.295	.288	6.01	5.25	-6.30	18.31
Enrollment Encouragement	Equal variances assumed	.121	.730	.671	45	.506	.1777	.2650	-.3560	.7114
	Equal variances not assumed			.676	8.296	.518	.1777	.2630	-.4250	.7804
Study Encouragement	Equal variances assumed	.228	.635	.581	45	.564	.1560	.2683	-.3844	.6963
	Equal variances not assumed			.501	7.449	.631	.1560	.3114	-.5714	.8833
Family Support	Equal variances assumed	.497	.485	.830	45	.411	.3036	.3658	-.4331	1.0403
	Equal variances not assumed			.992	9.856	.345	.3036	.3059	-.3795	.9866
Insufficient Time	Equal variances assumed	.994	.324	-2.020	45	.049	-.7402	.3665	-1.4784	-1.98E-03
	Equal variances not assumed			-2.335	9.476	.043	-.7402	.3169	-1.4517	-2.87E-02

a. TYPE = vt

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Events Hinder Study	Equal variances assumed	.170	.682	.443	45	.660	.1190	.2688	-.4224	.6605
	Equal variances not assumed			.487	8.987	.638	.1190	.2443	-.4337	.6718
Distractions	Equal variances assumed	.395	.533	.160	45	.873	4.082E-02	.2546	-.4720	.5536
	Equal variances not assumed			.185	9.451	.857	4.082E-02	.2207	-.4548	.5364
Potential Drop-out	Equal variances assumed	4.014	.051	-.542	45	.591	-.1488	.2747	-.7021	.4045
	Equal variances not assumed			-.821	14.688	.425	-.1488	.1812	-.5357	.2381
Deep Approach	Equal variances assumed	.234	.631	-.794	45	.432	-.2446	.3083	-.8655	.3762
	Equal variances not assumed			-.706	7.590	.501	-.2446	.3467	-1.0516	.5623
Intrinsic Motivation	Equal variances assumed	2.184	.146	-.994	45	.326	-.2464	.2480	-.7459	.2531
	Equal variances not assumed			-.831	7.327	.432	-.2464	.2965	-.9413	.4485
Positive Course Evaluation	Equal variances assumed	.096	.758	.667	45	.508	.1693	.2537	-.3417	.6802
	Equal variances not assumed			.716	8.771	.492	.1693	.2363	-.3675	.7061
Positive Faculty Perception	Equal variances assumed	.949	.335	1.191	45	.240	.2848	.2391	-.1967	.7664
	Equal variances not assumed			1.017	7.408	.341	.2848	.2802	-.3704	.9400
Reading Habit	Equal variances assumed	.132	.718	-1.060	45	.295	-.3762	.3550	-1.0913	.3389
	Equal variances not assumed			-1.047	8.168	.325	-.3762	.3592	-1.2016	.4492

a. TYPE = vt

Independent Samples Test[a]

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Surface Approach	Equal variances assumed	.070	.792	-1.626	45	.111	-.3720	.2289	-.8330	8.893E-02
	Equal variances not assumed			-1.708	8.600	.123	-.3720	.2178	-.8683	.1242
Extrinsic Motivation	Equal variances assumed	1.201	.279	-1.036	45	.306	-.3536	.3414	-1.0411	.3340
	Equal variances not assumed			-1.413	11.935	.183	-.3536	.2503	-.8992	.1921
Negative Course Evaluation	Equal variances assumed	5.819	.020	.257	45	.798	5.750E-02	.2237	-.3931	.5081
	Equal variances not assumed			.489	28.888	.628	5.750E-02	.1175	-.1828	.2978
SI	Equal variances assumed	.004	.947	1.076	45	.287	.6372	.5920	-.5551	1.8295
	Equal variances not assumed			1.054	8.109	.322	.6372	.6046	-.7538	2.0282
EA	Equal variances assumed	1.756	.192	-.832	45	.410	-.7291	.8760	-2.4934	1.0351
	Equal variances not assumed			-1.110	11.494	.290	-.7291	.6570	-2.1676	.7093
AI	Equal variances assumed	.545	.464	-.429	45	.670	-.4132	.9622	-2.3511	1.5248
	Equal variances not assumed			-.358	7.317	.730	-.4132	1.1534	-3.1168	2.2905
AX	Equal variances assumed	.125	.725	-1.180	45	.244	-.6681	.5664	-1.8088	.4726
	Equal variances not assumed			-1.347	9.346	.210	-.6681	.4959	-1.7835	.4473

a. TYPE = vt

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