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A Comparative Analysis of Computer Assisted Instruction and Traditional Lecture Instruction for Administration and Management Topics in Physical Therapy Education

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A COMPARATIVE ANALYSIS OF COMPUTER ASSISSTED INSTRUCTION
AND TRADITIONAL LECTURE INSTRUCTION FOR ADMINISTRATION
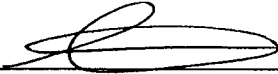AND MANAGMENT TOPICS IN PHYSICAL THERAPY EDUCATION

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A COMPARATIVE ANALYSIS OF COMPUTER ASSISSTED INSTRUCTION AND TRADITIONAL LECTURE INSTRUCTION FOR ADMINISTRATION AND MANAGMENT TOPICS IN PHYSICAL THERAPY EDUCATION

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Statement of the problem: Graduate Physical Therapy educators must determine how to best utilize new technology such as computer assisted instruction (CAI, defined as supplementing or replacing classroom teaching with the computer) and identify factors that may influence a student's ability to succeed in this medium. Therefore, the purpose of the present study was to determine if student ability to learn via CAI was equivalent to traditional lecture instruction (TLI), and to determine if student self identified learning style via the Gregorc Style Delineator impacted ability to succeed.   *Methods*: Prospective, experimental, randomized, single factor, pretest/post-test design. 33 out of a possible 40 students consented to participate in the study and were randomized to two groups: CAI n=17, TLI n=16. The groups participated in an Administration and Management of Physical Therapy course taught in 2004. Ability to learn was evaluated by a knowledge based pretest and post-test and by final course grade. *Results*: There were no significant differences between the groups with regard to age, gender, GPA or pretest knowledge. When comparing pretest to post-test both the TLI (52.0 ± 9.5 to 85.1 ± 6.1; $p<0.001$) and CAI (51.5 ± 12.7 to 80.6 ± 7.8; $p<0.001$) groups significantly improved. There were no statistical differences between the groups on either the post-test (TLI 85.1 ± 6.1; CAI 80.6 ± 7.8; $p=0.073$) or for final course grade (TLI 90.5 ± 3.1; CAI 90.2 ± 3.0; $p=0.763$). The most prevalent dominant solo learning style was concrete-sequential, and 50% of the subjects were identified as being dual dominant learners. When comparing between group outcomes by learning style category, there was no significant differences for either the final exam or final course grade. Within group comparisons were unable to be statistically examined due to the small number of subjects in each category. *Conclusions*: CAI was as effective as TLI for the teaching of Administration and Management material in Physical Therapy Education. Learning style did not impact either medium. This may allow institutions to hire remote faculty to teach in areas that they do not presently have a content expert, and it may also allow institutions a new medium in order to recruit graduate students from a changing demographic.

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DEDICATION

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Chapter I

INTRODUCTION

Higher Education

Intense competition in student recruitment and tremendous technological advancements have challenged educational institutions to change traditional teaching methods in order to attract, stimulate, engage and retain today's students. This paradigm shift has created an educational revolution in teaching methods, typified by centers for higher education moving away from educator-directed teaching to student-centered learning (Barr & Tagg, 1995). The undergraduate population exhibits unprecedented skills in computer literacy. Graduate demographics are shifting toward an older student body characterized by full-time employees functioning on restricted time schedules and in specific geographic locations (Furst-Bowe & Dittman, 2001; Fornaciari, Gorte, and Mathews, 1999). These students demand a medium that facilitates better acquisition of higher cognitive

learning such as critical thinking skills (Gardiner, 1998). Consequently, curriculum changes and instructional revisions need to occur so that campus climates meet the needs of today's student body in an attempt to foster improved student growth (Gardiner, 1998). Greater computer utilization as a teaching strategy may meet the needs of today's students in higher education.

Computer Assisted Instruction (CAI)

Supplementing or replacing the traditional classroom model with the computer is known as computer assisted instruction (CAI). It is also referred to as distance learning, on-line instruction, computer assisted learning, blended learning, asynchronous learning, web-based instruction, cyber education, or computer enhanced instruction (Grimes & Willey, 2002). The intent of CAI is the ability to offer an alternative educational medium in a non-traditional manner with the freedom to customize instructions to better suit a diverse population (Cheng-Chang, Sivo, and Brophy, 2003). The use of CAI as a learning tool in the health professions began in the 1970's (Garrett, Ashford, and Savage, 1987). Its application has been examined in areas such as oncology (Garrett et al, 1987), radiology (Jacoby, Smith, and Albanese, 1984), anatomy (Friedman, 1994; Plack 2000), neuroanatomy (Lamperti & Sodicoff, 1997), physical therapy (Kinney, Keskula, and Perry, 1997), nursing (Schare, Dunn, Clark, Soled, and Gilman, 1991), anesthesia (Garfield, Paskin, and Philip, 1989), and medical education (Lilienfield &

Broering, 1994). Studies suggest that CAI is as effective a teaching method as traditional didactic learning (Hmelo, 1989; Barker, 1998; Halloran, 1995; Kinney et al, 1997; Koch & Guice, 1989; Kulik J, Kulik C, and Cohen, 1980; Bauer, Geront, and Huynh, 2001; Chisholm, Dehoney, and Poirier, 1996; Clem, Murry, Perry, and Alexander, 1992; Shomaker, Ricks, and Hale, 2002).

In addition to its efficacy as a teaching method, computer assisted instruction has resulted in numerous student benefits in educational environments. These benefits include reduced learning time (Napholz & McCanse, 1994), improved attitudes toward learning (Koch & Guice, 1989); increased motivation toward learning (Lynch, Steele, and Palensky, 2001), greater enjoyment of learning, and increased self confidence (Gleydura, Michelman, and Wilson, 1995). Despite mounting evidence, there continues to be debate regarding the efficacy and application of computer assisted instruction.

Disadvantages of CAI

Opponents of CAI frequently cite the following as disadvantages: start up costs, lack of software, an emphasis on technology versus teaching, and changes in teacher/ learner roles (Billings, 1986; Hirschheim, 2005). Start up costs to implement CAI includes training of educator and student, hardware, software, memory, and maintenance of the system. While software continues to improve, many systems remain time consuming and are not user-friendly. A lack of commercially available courseware to meet the needs of advanced

or diverse levels of clinical care practice, especially in the health care arenas, is also a problem. Critics further point out that CAI is impersonal, that it is "high tech without high touch," and that students who are visual learners may not thrive in this type of learning environment (Billings, 1986; Hirschheim, 2005). Lastly, CAI requires a role reversal between the instructor and student, one in which learning becomes student driven. Some suggest it requires the students to initiate their learning while the instructor acts as a support system rather than the class leader (Billings, 1986). Interestingly, while these disadvantages continue to be cited in the literature, there is growing support for the utilization of computers in education.

Advantages of CAI

Proponents of CAI advocate computer technology as the trend in today's society. Frequently cited advantages include: a varied instructional event, individualized instruction, accessibility, time efficiency, instructional effectiveness, instructional consistency, development of critical thinking skills, convenience, and student privacy (Billings, 1986; Hirschheim, 2005). Varied instructional events relate to the multiple methods available to the instructor in presenting information to students. Individualized instruction allows students to self pace their learning. When students comprehend topic material they can move to the next topic without having to wait for their classmates. Conversely, students who struggle with material can spend more time reviewing and learning without detaining their peers. Accessibility is one of

the most frequently cited advantages of CAI. Students are afforded the freedom to work on material when it is convenient for them rather than being restricted to a set class schedule. Students can access and complete their coursework from any location where computer access is available versus being confined to a classroom. Increased efficiency is often identified with testing procedures. Once the instructor has loaded the exam, the CAI program administers it to the student and then grades it. This process decreases the time typically allotted for test proctoring and grading (Billings, 1986; Hirschheim, 2005). CAI enriches students' educational environment and may create enhanced learning through improved instructional effectiveness, instructional consistency, decision-making skills, and student privacy.

Current research identifies CAI as an effective teaching method for learning. Some studies actually identify CAI as more effective than the traditional classroom, possibly due to the consistency of teaching. An online medium affords all students to view the same material in print, video, or simulation form. In the classroom, students may interpret the instructor's words differently, thus writing them incorrectly in their notes (Lilienfield & Broering, 1994; Grimes & Willey, 1990; Kinney et al, 1997). A professor who teaches multiple sections of a course has the potential of representing the information with a different bias or interpretation each time, thereby giving students a different emphasis. In addition, if used correctly, CAI may improve

clinical decision making through increased student privacy (Hmelo, 1989; Napholz & McCanse, 1994; Billings, 1986). With CAI, students can make a mistake or review the information repeatedly without affecting their classmates. They can also discuss course material with the instructor or peers through e-mail without fear of reprisal or ridicule from others. In the classroom, the same student may continue to struggle with material, and either be viewed as 'slowing the class down,' or would allow the class to proceed without understanding the information (Billings, 1986). With the many advantages that CAI offers and its increasing popularity, educational institutions must implement strategies to investigate how CAI can effectively be incorporated into their academic programs to satisfy today's student.

Implementation

Alternative teaching methods in the health professions are not a new concept. Over the years, there have been numerous challenges to the traditional daytime, weekday teaching schedule. Over time, some of the alternative teaching methods have become more mainstream, such as weekend programs, evening classes, distance learning, and problem-based learning. One of the growing challenges to educational institutions today is the integration of new computer-based technology into the classroom.

While known by many names, computer assisted instruction consists of three main forms: as a course supplement, as a hybrid (a.k.a. computer enhanced), or as a replacement. As a course supplement, the traditional

classroom education continues with CAI technology added. Via CAI, the instructor has the ability to post important notices for the class, add internet links, or converse with students via email. As a hybrid, in addition to the classroom component there would be a large CAI component, thereby decreasing classroom time. Students may communicate in class and via CAI, and would potentially be required to perform independent research, observe simulations, generate threaded discussion, complete assignments and stimulate more in-depth discussion online. As a replacement, the traditional classroom is eliminated and all the coursework is exchanged and completed through CAI. Within all three forms, different strategies exist for administering CAI including: interactive CD-ROM, Web pages, chat rooms, tutorials, communication bulletin boards, internet links, and as previously discussed, the ability to give quizzes, exams, and surveys. In using CAI, an instructor chooses the format, and subsequently the corresponding strategies they are going to use to present the material to the students in the best manner possible. While there is great variability in how CAI is presented and utilized, its usage continues to grow.

<u>CAI Usage</u>

The National Center for Education Statistics (NCES) tracks the number of institutions using computer assisted instruction. The results from their 2000-2001 survey revealed that 56% of all accredited undergraduate programs in the United States used some form of CAI, 31% did not offer any

CAI, and 13% reported being in the process of implementing CAI (Waits & Lewis, 2003). It is acknowledged that the NCES data is five years old and only includes undergraduate programs while most health professions programs are graduate level; however, it does strongly suggest that the majority of programs in the United States implement CAI in some form.

Institutions utilizing CAI is on the rise. Further statistical evidence reinforcing the growing utilization of CAI comes from the Sloan C Survey which was released in the fall of 2004. This survey, which was supported by the Alfred Sloan Foundation, reported that there were over 1.9 million students studying online in the fall of 2003, and projected this number to grow by 20% over the subsequent year, far exceeding the growth rate for the entire higher education student population. With the tremendous growth in CAI, entire courses as well as academic degrees are now being offered through this medium.

Prevalence in Physical Therapy (PT)

While there is extensive literature to support the use of CAI as an educational tool, use in physical therapy education has been slow. In 1995, Kosmahl studied CAI usage in entry level physical therapy programs. Questionnaires were sent to all accredited programs in the U.S. With a response ratio of 86.9%, it was identified that 29.9% of the programs used CAI within their curriculum (Kosmahl, 1994). In contrast, a study by Jonas, Etzel, and Barzansky identified 82.4% of U.S. and Canadian medical schools,

and a study by Bednash, Berlin, and Haux identified 91.2% of baccalaureate nursing programs as utilizing CAI within their curriculum (Jonas, Etzel, and Barzansky, 1990; Bednash, Berlin, and Haux, 1991). These figures indicate that physical therapy educational programs were clearly lagging behind their medical school and nursing counterparts in adopting CAI into the professional education of their students.

Physical therapy programs not only utilized CAI less, but also implemented it differently than other medical professions. Physical therapy programs were most likely to use CAI as a tutorial or for drills and practice, and less likely to use it for testing or remedial work. In contrast, nursing programs were more likely to use CAI for patient simulation and problem solving, and least likely to use it for remedial work and supplemental work (Kosmahl, 1994). Current literature shows the gap in CAI utilization by PT programs has been closing over the past ten years (Phillips-Simpson, 2002; Erickson, 2003; Hyland & Willis, 2004). It is these phenomena, PT programs' growing use and interest in CAI, which have laid the foundation of this study.

The governing body of the Physical Therapy profession, the American Physical Therapy Association, supports the use of CAI. Over the past three years, the American Physical Therapy Association (APTA) has taken a formal position regarding online education. In a statement by former APTA president Ben Massey, Jr., PT, he said, "Implementing online education is an exciting step as we strive to give APTA members the best possible service"

(www.apta.org, retrieved 2002a). The APTA has begun to implement various forms of CAI through online continuing education, news releases, and publications. On a Chapter (state) level, Texas has begun to utilize CAI in the certification of Clinical Instructors (CI), now making it possible for CI in rural, remote areas to receive the same on-site training as their colleagues in urban regions (Utsey, Dillon, and Gleeson, 2005). From an educational standpoint, the Commission on Accreditation in Physical Therapy Education (CAPTE) has adopted a position paper on CAI titled "Principles of Good Practice for Distance Learning" (CAPTE Accreditation Handbook, 2002). The position paper establishes the criteria for using CAI, and states that programs should be reviewed against the 'Principles of Good Practice.'

While CAPTE has published a formal position on CAI, there has also been a change in the entry-level educational requirement for physical therapy as part of the initiative, "Vision 2020" (www.apta.org, retrieved 2002a, 2002b). Presently, all PT programs are required to be at a minimum of a Masters level curriculum (with the established vision of a Doctorate in Physical Therapy [DPT] being the minimum by the year 2020). Moreover, within both the Masters level and the DPT curriculum, a course in administration and management is essential (www.apta.org, retrieved 2002b). While the requirement of including administration and management material is important as an entry-level skill, a dearth of qualified instructors exists to teach this course (Hyland & Willis, 2004). This Abilene paradox of sorts

highlights another possible advantage of CAI: allowing institutions to hire qualified faculty regardless of geographic location.

Computer assisted instruction in higher education is growing, affording institutions with new and exciting opportunities. As a result, educators must stay current with technology, as well as employ CAI strategies to meet the needs of today's students. With an educational emphasis toward "evidence-based practice" in physical therapy, expansion of the existing evidence regarding CAI is essential. It is imperative that physical therapy programs scrutinize their use of CAI and the impact it has on faculty and students.

Statement of the Problem

While computer assisted instruction continues to become more prevalent in higher education, there is little evidence supporting its use in physical therapy education. Additionally, there is minimal knowledge regarding individual characteristics, such as learning styles, which may impact ability to learn in physical therapy. Lastly, with a change in the entry-level requirements for physical therapy, a teaching conflict exists as faculty members who teach administration and management material have little practical background in the subject matter, or conversely, practicing administrators have little teaching experience.

Purposes of the Study

The primary purpose of this study was to assess the effectiveness of teaching administration and management content in physical therapy

education utilizing computer assisted instruction. The use of CAI attempts to bridge the gap between two seemingly different educational problems: the lack of evidence regarding CAI in physical therapy education, and the lack of qualified instructors teaching administration and management topics within programs. The demonstration of CAI as a viable teaching medium affords institutions the opportunity to recruit adjunct faculty from remote locations to teach specialty content areas.

The secondary purpose of this study was to identify characteristics, such as learning styles, which may contribute to the success or failure of a student in an online medium. The study looked at student learning utilizing the Gregorc Style Delineator (GSD) and demographic information.

Hypothesis

It was hypothesized that:

1. CAI will be equally effective for assimilation of information (measured by earned grade on final exam and final course grade) presented in a professional management and administration class when compared to traditional lecture instruction (TLI).

2. Learning styles as determined by Gregorc Style Delineator (GSD) will not show a differential impact on the final exam or final course grade between CAI and TLI.

Chapter II

REVIEW OF THE LITERATURE

The personal computer has become an integral part of society, allowing vast accessibility and improved efficiency. Today's technology-literate generation embraces the computer and internet, using it as part of their daily life style. Institutions of higher education have recognized the need to incorporate CAI to attract and retain today's students.

CAI in Non-Health Professional Education

Computer assisted instruction (CAI) has been found effective in many higher education programs. Konukman, Tacla, Palmer, Poole, and Petrakis (2001) studied the effects of CAI on tennis swings within a physical education curriculum. Subjects were divided into two groups, control group (Classroom/ lab, n = 22) or CAI test group (CAI, n = 20). Knowledge in application of different tennis strokes (referred to as qualitative testing by the authors) and psychomotor skills in actually performing the strokes (referred to as skills

testing by the authors) were assessed in both groups. A pretest and post-test covering the qualitative and skills sections were administered around a four part instructional intervention. The instructional intervention was provided in a classroom for the control group and via CD-ROM for the test group. The Hewitt's Comprehensive Tennis Knowledge test was used as a measure of cognitive tennis knowledge, and the Hewitt Tennis Achievement test was used to evaluate forehand and backhand psychomotor ability. Both groups improved significantly from pretest to post-test in the qualitative test, while neither group improved statistically in the skills test. Based upon the data, rate of knowledge acquisition was faster for the CAI group compared to the control group (Konukman, Tacla, Palmer, Poole, and Petrakis, 2001). This study provides support that CAI is as effective as classroom education for knowledge acquisition.

Utilizing CAI as an educational tool is not limited to the United States. England has acknowledged a strong influence of CAI (commonly referred to as CAL: Computer assisted learning in England) within higher education. Rainbow and Sadler-Smith (2003) studied CAI within a business school student population via survey addressing demographics, attitudes, and comparisons to other teaching methods. The sample consisted of 321 second year undergraduates (70% response rate) studying Introduction to Marketing at the University of Plymouth Business School. The results showed no statistical significance for attitude toward or preference for CAI

between age, gender, or major. A positive attitude toward CAI was reported by 91.2% of the respondents. Students felt that CAI compared to classroom learning had no impact on producing high quality notes, amount of information presented, providing a flexible way to study, providing a clear summary of the material, allowing effective study of case materials, encouraging thinking about the course materials, enjoyment of the module, motivation to work hard, or encouraging reading of subject material. The only difference between CAI and classroom learning was a significant correlation between classroom learning and explaining difficult material ($r = 0.46$, $p < 0.001$) and promoting discussion between students ($r = 0.46$, $p < 0.001$). This study, which examined CAI from the student's perspective, was consistent with other studies showing that CAI is an equally effective teaching tool as classroom based learning (Rainbow & Sadler-Smith, 2003). Similarly to their British counterparts, US business schools also utilize CAI within their curricula.

Researchers at Mississippi State University randomly assigned 2,100 students registered for 'Principals in Economics I' into a control group (traditional learning) and an experimental group (traditional and CAI) (Grimes & Willey, 1990). The control and experimental classes were taught identically with respect to time of day, text, course material, exam, grading, and instructor. The only difference between the two groups was that the experimental group was required to complete a CAI economic simulation. The results suggested that students using the computer simulation

significantly improved their ability to solve implicitly stated problems in economics when tested. They also suggested that the computer simulation group completed the course with a more positive attitude toward the discipline, based on the results of a survey comparing students who did not use the simulation (Grimes & Willey, 1990). While the effectiveness of CAI for business education has been examined in both Europe and the United States, its application in teaching administration and management in health related fields has not been studied.

CAI in Health Professional Education

Computer assisted instruction has been studied in many health care programs, such as physiology (Lilienfield & Broering, 1994), radiology (Jacoby et al, 1984), anatomy (Plack, 2000) and neuroanatomy (Lamperti & Sodicoff, 1997). In 1994, Lilienfield and Broering examined CAI in the area of cardiovascular physiology. The sample of medical students was divided into a test group (CAI, n = 48) and control group (traditional classroom, n = 129). All subjects completed a pretest on cardiovascular physiology and were assigned into groups. The two groups received a two-hour program, and upon completion, a post-test was administered. A second post-test was included within the course's cumulative final exam. Results indicated that both the test and control group improved significantly from the pretest to post-test with no significant differences between the two groups on the post-test. However, on the second post-test (taken two weeks later and embedded in

their course final), the CAI group achieved a significantly higher grade in the cardiovascular section compared to the control (81.73 ± 1.11 vs. 75.29 ± 0.85; p < 0.01) (Lilienfield & Broering, 1994). These results indicate that while initial learning of material was comparable between the groups, retention was improved when using CAI.

Jacoby et al. (1984) studied the use of CAI within a group of fourth year radiology students. The areas assessed were reading and interpreting CT-scans of the head and identifying child abuse through radiology. The study utilized a pretest / post-test design. Students were randomly placed into two groups: group one (n = 26) received a CAI tutorial on head CT scans and a lecture on child abuse, and group two (n = 27) received a lecture on head CT scans and CAI tutorial on child abuse. Both groups improved significantly on interpreting CT-scans (CAI 78.0 ± 7.7 to 89.4 ± 5.8; lecture 74.1 ± 8.6 to 87.5 ± 7.2; both p values < 0.01) and identifying child abuse through radiology (CAI 66.6 ± 6.2 to 84.5 ± 6.1; lecture 68.8 ± 9.7 to 85.8 ± 6.6; both p values < 0.01); however, there were no significant differences between groups (Jacoby et al, 1984). This study supports CAI as being as effective as TLI in the learning of material.

Lamperti and Sodicoff (1997) studied the effects of CAI on a group of first year medical students in a neuroanatomy course. The traditional lab component of the course was replaced with a CAI component. A dissected cadaver brain was photographed and the images placed into a digitalized

computer atlas with a laboratory guide and a problem solving section. To assess the effectiveness of the CAI component, student performance between the test classes (1995 and 1996) was compared with the two previous lab-based classes on the same material (1993 and 1994). Three components were assessed: average grades on the practical final, written final, and the final course grade. The authors utilized the identical practical and written exams for the test groups as were given to the previous two classes. Results yielded no statistical significance in any of the three categories between the groups. (Lamperti & Sodicoff, 1997) Consistent with Jacoby's study, the findings indicate that CAI is as effective a teaching method as the traditional classroom method for topics in health care education.

Prevalence of CAI in Physical Therapy Education

CAI within physical therapy curricula has increased over the past decade. In 1994, Kosmahl, reported that of all the accredited physical therapy programs only 29.9% utilized CAI. In 2002, Phillips-Simpson surveyed CAI use in the 186 accredited entry-level physical therapy programs in the United States. The study had a 73% response rate (n = 135). Results showed that 100% of responding faculty communicates via email with their students, 83.1% required students to access the web to complete assignments in several or all courses and 67.8% of the programs utilized web boards for communication with students. In the area of instruction

(supplementing the course), 71.4% of the respondents reported utilizing CAI in specific coursework, and an additional 7.7% reported they were planning on implementing it in the following year. Fifteen of the programs (11.1%) reported having one or more courses taught entirely online. An additional 30.4% reported using CAI in a hybrid or enhanced form. The most common topics for CAI entirely online were: Introduction to PT, Administration/ Management, Anatomy and Measurement, Assistive Technology, and Healthcare Delivery in the United States (Phillips-Simpson). Finally, 95.2% of respondents were in favor of online instruction in entry-level physical therapy programs; however, 78.7% felt that it should be limited to certain types of courses. The types of courses identified as most appropriate for CAI were administration, education, ethics and pathology, all courses without clinical hands-on practice (Phillips-Simpson, 2002).

Erickson (2003) performed a similar study as Phillips-Simpson, with an emphasis on how programs were utilizing CAI. The survey was sent to all accredited entry-level physical therapy programs in the United States and received a 52% response rate (n = 85). The results showed 80.0% of the respondents utilize CAI. Erickson performed the study one year later than Phillips-Simpson, which may explain the higher utilization of CAI (80% compared to 71.4%). Additionally, Erickson had a smaller sample (85 vs. 135) creating the possibility that program directors interested in CAI may have been more inclined to respond. The most prevalent types of CAI were: a web

page (80%), CD-ROM's (77%), chat rooms (40%), and online quizzes (37%).
Additional uses of CAI included: online testing (39.7%), tutorials (55.1%),
replacing class meeting (25%), remediation (12.5%), extra credit (6.3%), and
distance learning during clinical education (13.8%). Positive aspects of CAI
that were identified included: improved student independence with information
gathering (73.8%), improved knowledge of technology (63.8%), improved
student/faculty communication (56.3%), and more effective use of class time
(51.3%). The negative aspects identified were: lack of time for integration
(76.3%), and cost (52.5%) (Erickson, 2003).

Hyland and Willis (2004) administered a survey to the directors of all
physical therapy programs (n = 187) inquiring about the use of CAI within
their Administration and Management course. The response rate was 39% (n
= 72). Results identified that 95.8% of the respondents were using some form
of CAI within their program; however, only 52.8% were utilizing CAI within
Administration and Management courses. Administration and Management
courses taught entirely with CAI were offered by 2.8% of the respondents (n =
2). Of those utilizing CAI in Administration and Management, 48.8% used
CD-ROM or video communication, 41.5% used postings of discussion
questions, assignments, and exams, and 7.3% utilized real-time white board
interface or chat rooms. The study also assessed the qualifications of those
teaching Administration and Management. The highest degree earned by the
instructor was: Master's 43.9%, Doctorate 34.1%, and Bachelors 22%.

60.5% of the respondents reported receiving some form of training in CAI, and 41.5% reported having a degree in a business-related field. The majority of instructors were non-practicing full time faculty (78%). Years of teaching experience in Administration and Management for all respondents were: more than eight years 43.9%, six to eight years 12.2%, three to five years 26.8%, and less than three years 17.1%. The study also identified that 87.1% of respondents felt that CAI was a valuable tool in entry-level physical therapy education and that 84.8% felt it was appropriate for Administration and Management material (Hyland & Willis, 2004).

Efficacy of CAI in Physical Therapy Education

Few studies have examined the use of CAI in physical therapy education, with most focusing on specific pathologies or the area of anatomy. Kinney et al. (1997) studied the efficacy and efficiency of CAI for students learning evaluation and treatment skills for carpal tunnel syndrome (CTS). The study consisted of a sample of 10 physical therapy students who were randomly assigned either to an interactive lecture group or a computer-assigned group. All students completed a test on carpal tunnel syndrome prior to and after participating in their educational groups. Results showed no significant differences in pretest / post-test scores between the groups; however, the CAI group completed the case assignment 30 minutes (24%) quicker than the interactive group (Kinney, 1997). These findings provide further evidence demonstrating that CAI is equally as effective a teaching tool

compared to classroom learning. It is also consistent with previous research by Konukman et al, identifying CAI as a faster learning medium. In conjunction with the internet, CAI may allow faculty to be more efficient and productive in their teaching. A single faculty member can teach multiple sections of a course at different geographic branches of an institution.

English, Harrison, and Hart (1998) studied outcomes within the physical therapy program at the University of Kentucky. This institution offered physical therapy at two different geographic locations 150 miles apart. The instructor, located on the main campus, taught a pathomechanics course in the traditional classroom. A compressed video was then sent to the satellite program for the remote students to observe. Handouts and other audiovisual aides were available to the students via the internet. Exam scores and course evaluation scores were compared, and no statistical significance was found (English, Harrison, and Hart, 1998). In addition to providing further evidence that CAI is equally effective a teaching medium as TLI, it identifies that student satisfaction levels are also equal between the two groups. This study also shows the efficiency of CAI in that one faculty member can lead two geographically separated sections of a class from one physical location, thus eliminating the time and expense of the instructor traveling between the two campuses.

Gross anatomy has traditionally been a cornerstone of physical therapy education, and is one area in which CAI has been investigated.

Plack (2000) compared first year physical therapy students who took gross anatomy via CAI and lab (cadaver prosections) (n = 48), to those who took it in the traditional lecture and lab (n = 102). The test years for the study were 1996 and 1997. One instructor taught both groups in 1996 and 1997 and utilized four written exams, five practicals, and the final course grade as outcome criteria. The results showed no significant difference between the groups on any of the grading criteria (Plack, 2000). The only noted statistically significant difference in any of the categories was the mean on the written exam in 1997 with the CAI group scoring higher as compared to the lecture group (77.44 $\pm$ 10.25 vs. 72.64 $\pm$ 9.55; p =0.044). This study provides further support to the hypothesis that CAI is a comparable teaching tool to classroom learning.

Bukowski (2001) studied alternative methods of instruction, including CAI, in a human gross anatomy course. The author utilized three consecutive entry-level physical therapy cohorts for the study, with the first class receiving traditional anatomy instruction utilizing the cadaver and weekly lectures and lab (n= 18). The second class of students completed a self-study, utilizing a computerized non-cadaver anatomy course consisting of lectures and simulated cadaver instruction (n = 17). The third class attended weekly lectures and completed the self study for the simulated cadaver dissection (n = 20). There were no significant differences between any of the three groups with regard to final course grade or time spent on course material.

There was also no significant difference between any of the three groups with regard to future performance in the PT curriculum, on affiliations, or on the licensure exam (Bukowski, 2001). The analysis of the final course grade is consistent with Plack and other studies in that statistically the CAI groups did equally as well as the lecture groups. Furthermore, the data from Bukowski's study differed from previous studies such as Kinney and Konukman, in that it was not significantly more efficient with regard to time spent learning material. With the inconsistent results regarding efficiency, this presents an area for future study.

Learning Styles

The effectiveness of a particular learning environment is often determined by student success. While the medium in which a course is taught may play a role in the student's ability to succeed, the student's learning style may also be an essential factor. The way in which individuals learn may be a predictor of how comfortable they are in an environment, and how successful they are in completing the course.

A learning style is the way in which an individual processes and stores information during an event or an activity. Learning styles are considered to be stable characteristics within an individual and will determine how an individual interacts with his or her environment (Claxton & Murrell, 1987). Various tools exist to identify an individual's learning style preference. Some of the more common assessment tools include: The Kolb Learning Style

Inventory, the Canfield Learning Style Inventory, and the Gregorc Style Delineator. While there are many studies examining learning styles, there are few assessing the relationship between CAI and learning style.

Brudenell and Carpenter (1990) assessed whether a relationship existed between learning styles and attitudes toward CAI in a group of nursing students taking a research class in which CAI was integrated as an instructional method (n=40). The subjects completed the 'Attitude Toward CAI Semantic Differential Tool' (Allen, 1986) before and after the CAI based course. Allen's tool is comprised of three attitude subscales toward CAI: comfort, creativity, and function. The three subscales are scored and combined to produce an overall attitude score toward CAI (Allen, 1986). Published content validity and factor analysis support the contention that 'Allen's Attitude Toward CAI Tool' measures the evaluative component toward CAI. Content validity was established by a panel of five content experts (Allen, 1986). The Kolb Learning Style Inventory (KLSI) was used to determine learning style. The KLSI identifies four learning style categories: accommodator, assimilator, converger, and diverger (Kolb, 1976). Reliability and validity of the KLSI has been established through previous publications correlating the inventory with the Thematic Apperception Test, the FIRO-B, and the Myers Briggs Type indicator (Kolb, 1976). Results showed a significantly greater negative attitude toward CAI post-test for all four learning style categories in at least one of the Attitude Toward CAI Semantic

Differential Tool categories: accommodator in function (34.8 to 30.6, p<0.05); assimilator in total, creativity, and function (79.4 to 60.5, p<0.01; 20.9 to 15.9, p<0.05; 38.1 to 26.9, p<0.01); converger in function (33.0 to 25.4, p<0.05); and diverger in function (33.7 to 29.2, p<0.05) (Brudenell & Carpenter, 1990). So regardless of learning style a negative attitude was present following CAI post-test. This may indicate that learning styles play a role in a student's satisfaction level toward learning, presenting a recommended area for future study.

Thompson (1987) examined the use of CAI in a physical therapy assistant course and compared differences in information retention following traditional lecture (control group, n=8) and CAI (experimental group, n=8). The study also evaluated whether there was a correlation between students' attitudes about computers, their retention of the material, and their learning style as identified on the KLSI. The two groups took a pretest on the material to be covered (respiration). Immediately following the presentation, they completed post-test 1, and then a month later completed post-test 2. There were no significant differences in post test data at either time period. When comparing outcomes of the KLSI to the test outcomes, no significant correlation was found. This indicated that students' learning styles are not a factor in their ability to successfully complete a course. An item analysis revealed, however, that those students who answered positively to the question "I like working on computers" showed a significant positive

correlation to increased retention of the material from post-test 1 to post- test 2 (r = 0.08 to r = 0.72, p<0.05) (Thompson, 1987). This study suggests that learning styles are neither a predictor nor an influence on a student's success in passing a test covering course content in either TLI or CAI environments. Limitations of the study included the lack of analysis on specific learning styles at pretest between the groups, and the ipsitive nature of the KLSI tool which lacks independent validity and reliability testing.

Gregorc Style Delineator

To identify student preferred learning style, the Gregorc Style Delineator (GSD) was chosen as the assessment tool in this study. It was chosen due to its previous use in research on physical therapy students, health care students and graduate school students therefore allowing comparison. It has also been shown to have stronger validity and reliability than does the KLSI.

The Gregorc Mediation Ability Theory identifies learning style preference. An individual's learning preference is his or her mind's most effective and efficient way of processing information (Gregorc, 1982). Gregorc identifies 2 types of mediation abilities: perception and ordering. Perception identifies how an individual grasps information and ranges from abstract to concrete. Ordering identifies how an individual arranges information and ranges from sequential to random (Gregorc, 1982; Butler,

1988). The Gregorc Style Delineator (GSD) is a test instrument which pairs perception with ordering.

The GSD determines which of the 4 mediation channels is prominent: Concrete-Sequential (CS), Abstract-Sequential (AS), Abstract-Random (AR), or Concrete-Random (CR). To determine learning style, the GSD presents ten series of four descriptive words. An individual has four minutes to rank order each series' words between 4-1, with 4 being assigned to the word which best describes them, and 1 being assigned to the word which least describes them. Gregorc identifies a score of 27 in any one category as being the threshold to identify a specific dominant learning style (Gregorc & Butler, 1984).

Each individual learning style has certain qualities or traits that represent it. Those who are concrete-sequential are characterized by being structured, practical, and predictable individuals who prefer workbooks, handouts, and programmed instruction. Those who are abstract-sequential are characterized by being logical, analytical, and studious individuals who prefer lectures, textbooks, and readings. Those who are abstract-random are characterized by being sensitive, imaginative, and expressive individuals who prefer discussion, media, and flexibility. Those who are concrete-random are characterized by being intuitive, original, and investigative individuals who prefer the computer, trial and error, and independent study (Gregorc & Butler, 1984). Individuals' learning styles may influence the manner in which they

learn academically and may serve as a predictor of their ability to succeed in a given educational medium.

Olson and Scanlon (2001) assessed the effects of learning styles on student preferences for various teaching methods and instructional activities. The study utilized a four part survey to obtain information on demographics, learning styles (via GSD), teaching method preferences, and instructional activity preference of physical therapy students in the State of New Jersey (n= 190). Results identified the dual learner as the most predominant learning style, followed by CS, AR, AS, and CR. The dual learner is an individual who has an affinity toward two of the four possible learning styles. The results also indicated that the most preferred teaching methods were ones that promoted an environment that was supportive, personalized, and positive. The teaching methods least preferred by the subjects were individual study, CAI, optional readings, and trial and error discovery. The most popular instructional activities included a preference for practical orientation, active learning, and participation through "doing." The least popular instructional activities included videos, workbooks, drills, and audiotapes (Olson & Scanlon, 2001). This study indicated, similar to Brudenell and Carpenter, that learning styles may influence student satisfaction. Another potential impact on student learning may be the complexity of the presented material.

Bloom's Taxonomy

Benjamin Bloom created a hierarchy to categorize student learning (competence) of material in educational settings. He identified three domains (categories) in higher education: cognitive (mental skills), affective (growth in feelings or emotional areas), and psychomotor (manual or physical skills) (Bloom, 1984). Within each domain Bloom established a range of competencies toward skill acquisition and mastery. The present study focuses on Bloom's cognitive domain.

The cognitive domain focuses on mental acuity and provides a structure for categorizing test questions, ranging from the ability to memorize information to the ability to implement and critically assess concepts. These competencies, ranging from lowest to highest, include: knowledge, comprehension, application, analysis, synthesis, and evaluation (Bloom, 1984). Bloom's Taxonomy is important in higher education because it creates the foundation for a learner-centered classroom, focuses on student learning, establishes a framework for knowledge construction, and forms a blueprint for the constructivist classroom. Table 1 identifies the skills required by each student to achieve each competency.

Summary

With widespread use of CAI in higher education, it is critical to enhance existing evidence supporting it as a viable teaching and learning tool. It is equally important to determine whether there are specific predictors such as

learning styles that may influence a student's ability to succeed in one teaching medium as compared to another. Programs in the health professions, specifically physical therapy, have embraced the use of CAI within their curricula as identified by its exponential growth over the past decade. With this growth, programs must be careful to implement technology without compromising student learning. Physical therapy programs nationally must evaluate how they will best utilize CAI within their curriculum in order to attract, stimulate, engage and retain today's technology driven students. This self evaluation must be based upon existing evidence.

Table 1
Bloom's Taxonomy

Competence	Skills Demonstrated
Knowledge	Mastery of subject matter; knowledge of dates, events, places; observation and recall of information; knowledge of major ideas.
Comprehension	Understanding of information; interpret facts, compare, contrast; grasp meaning; translate knowledge into new concepts; predict consequences; order, group, infer causes.
Application	Solve problems using required skills or knowledge; use methods, concepts, theories in new situations; use information.
Analysis	Seeing patterns; organization of parts; recognition of hidden meanings; identification of components.
Synthesis	Predict, draw conclusions; relate knowledge from several areas; use old ideas to create new ones; generalize from given facts.
Evaluation	Compare and discriminate between ideas; assess value theories, presentations; make choices based on reasoned argument; recognize subjectivity; verify value of evidence.

* Adapted from Benjamin Bloom's *Taxonomy of Educational Objectives,* 1984.

Chapter III

METHODS

Research Design

The study utilized a prospective, experimental, randomized, single factor, pretest / post-test design. The project was approved by both the Mercy College and Seton Hall University Institutional Review Boards, and all students signed appropriate informed consents prior to participation.

Subjects

A sample of convenience was drawn from third year, master's degree level physical therapy students at Mercy College (Dobbs Ferry, NY). Subjects were selected based on the following criteria: Inclusion: 1. enrolled as a graduate student in the Mercy College Physical Therapy program; 2. enrolled in PHTR620, Administration and Management of Physical Therapy in 2004; 3. accepted randomization into either the control or experimental group; 4. self

declared proficient in Mercy College's online computer media (Campus Pipeline-Web CT); 5. presence of computer access. Exclusion: 1. refusal to participate in the study. Forty students were enrolled in PHTR620 in 2004 and 33 consented to participate in the study.

General Procedures

For recruitment, the primary researcher met with all 40 students registered for PHTR620 prior to the semester and described the study to the potential participants, who were then provided an opportunity to ask questions. Once questions were answered, the primary researcher left the classroom, and an unbiased research assistant (a Mercy College faculty member not associated with the study) obtained signed informed consent forms from the entire class (Appendix B). On the informed consent form, two signature lines (one agreeing to consent and the other refusing participation) were available. In addition to the informed consent, each potential participant completed a pretest on the material to be covered in PHTR 620 (Appendix C), a demographic survey (Appendix D), and the Gregoric Style Delineator (Appendix E). Each student submitted their paperwork to the research assistant and left the classroom. The research assistant then separated those students who had consented from those who did not.

The students who consented were randomly assigned via lottery, to either the control (TLI, n=16) or experimental group (CAI, n=17), and their paperwork, which was coded to assure anonymity, was given to the primary

researcher. The research assistant conducted the lottery by placing each consenting subject's name into a hat and then upon drawing, alternately assigning them into groups, with the first subject going into the CAI group. Those who did not consent to participate in the study were informed by the research assistant to attend the classroom learning group. This selection procedure was utilized to avoid any possible coercion as perceived by the students. Although it was known which students were in the CAI group, it was not known by either the primary researcher (course instructor) or those in the classroom portion who had consented to participate in the study and those who had not. Students then attended the course in the designated medium and at the end of the semester, all students took a post-test.

Participant Demographic Characteristics

Learning Style Inventory: As discussed in Chapter 2, the Gregorc Style Delineator (GSD) is an assessment tool utilized in the identification of students' preferred learning style. Both the reliability (Gregorc, 1984; O'Brien & Wilkinson, 1992; Olson, 2000) and the validity (O'Brien, 1990; Borokos, Goldstein, and Sweeney, 1992; Drummond & Stoddard, 1992) of the GSD have been well established in the literature.

Demographic Survey: The demographic survey consisted of 24 questions. The survey was adapted from a questionnaire developed by Davis and was targeted to gather demographic information (GPA, gender, age), assess computer literacy and measure student attitude toward CAI (Davis,

1993). While specific reliability and validity assessments of this adaptation were not studied, the questionnaire as developed by Davis has been shown to be valid (Davis, 1989). The purpose of the survey was to give further knowledge about the participants' demographics and familiarity with the computer.

Specific Procedures

Independent Variables: Teaching Methodology

The independent variable (teaching methodology) was studied during an Administration and Management of Physical Therapy (PHTR620) course taught in 2004. PHTR620 was a required class within the master's level Physical Therapy Program at Mercy College. The Mercy College Physical Therapy program is a weekend curriculum that was taught in a lifespan model. PHTR620 was a one semester long class that met on nine Friday nights throughout the semester for a total of four hours per meeting. The independent variable was administered in two levels, traditional lecture based instruction (TLI) and CAI.

Traditional Lecture Instruction: The class was held in a traditional classroom, and material was disseminated in a lecture style format utilizing Power Point overheads as a teaching medium. Lecture supplements included study questions and lecture outlines. Students had the opportunity to ask questions throughout the semester, either in class or scheduled meeting, allowing for more in-depth explanation of topic material if needed.

Within this format, students were also allowed to give personal experiences regarding the material. Covered topics included management and administration issues in physical therapy (Course Syllabus, Appendix F).

Computer Assisted Instruction: The CAI group had unlimited access to the course web site (Campus Pipeline) throughout the semester. The topics covered each week were the same for both groups. The CAI group received the professor's notes online in a lecture style format for the class to read. Specific examples were included within the notes to help the students grasp the material. Additionally, they received the same Power Point presentation, study questions, and lecture outline as the control group. The same assignments, consisting of readings and case studies, were required for both groups. Consistent with the classroom group, students in the CAI group were able to ask questions of the instructor via email or through threaded online discussion and share personal experiences also through threaded online discussion. The only difference between the TLI and CAI groups were the utilization of a computer in the CAI group and the absence of face to face dialogue.

Dependent Variables

Pretest/Post-test: The pretest and post-test were comprised of 25 and 50 multiple choice questions respectively, with one answer and three distracters per question (Appendix C and G, respectively). The tests were scored by the percentage of questions answered correctly. The pre-test was

administered prior to any form of education in PHTR620, serving as a tool to assess the pre-intervention knowledge of the participants. This assessment determined the equality of knowledge between the groups in the test areas before the study began. Both the pretest and the post-test were drawn from a bank of questions that have been utilized for PHTR620 from 1996 to 2004. This bank was comprised of approximately 200 questions and was categorized according to Bloom's Taxonomy in order to assure a variety of necessary learning strategies ranging from memorization to the ability to critically assess material (Bloom, 1984).

To establish reliability of the examinations, an analysis of variance (ANOVA), with Tukey *post hoc*, was performed on the test years 1997-2003 (1996 and 2002 were omitted due to the fact that different testing procedures and exam styles were used in those years). The total sample number for the 6 assessed years was 168, with an individual class mean of 28. The ANOVA revealed the only significance existing was between 1997 compared with 1998-2000 and between 2000 compared with 2001 and 2003 (Table 2). There are many possible reasons a class may be stronger statistically than another on a given exam; however, the overall homogeneity of the exam scores year to year indicates an overall excellent level of reliability of the question bank. Content and context validity of the two tests were established together via the use of three content experts in the areas to be covered in

Table 2
Exam Reliability Table

(I) Year	(J) Year	Mean Difference (I-J)	Standard Error	Significance
1997	1998	7.19*	1.54	0.00
	1999	6.91*	1.47	0.00
	2000	8.02*	1.50	0.00
	2001	2.84	1.51	0.42
	2003	2.92	1.60	0.45
1998	1997	-7.19*	1.54	0.00
	1999	-0.28	1.47	1.00
	2000	0.84	1.50	0.99
	2001	-4.34	1.51	0.05
	2003	-4.27	1.60	0.09
1999	1997	-6.91*	1.47	0.00
	1998	0.28	1.47	1.00
	2000	1.11	1.43	0.97
	2001	-4.07	1.45	0.06
	2003	-3.99	1.54	0.11
2000	1997	-8.02*	1.50	0.00
	1998	-0.84	1.50	0.99
	1999	-1.11	1.43	0.97
	2001	-5.18*	1.47	0.01
	2003	-5.10*	1.56	0.02
2001	1997	-2.84	1.51	0.42
	1998	4.34	1.51	0.05
	1999	4.07	1.45	0.06
	2000	5.18*	1.47	0.01
	2003	0.07	1.58	1.00
2003	1997	-2.92	1.60	0.45
	1998	4.27	1.60	0.09
	1999	3.99	1.54	0.11
	2000	5.10*	1.56	0.02
	2001	-0.07	1.58	1.00

* Indicates significant value

PHTR620. These individuals were identified by the primary researcher based upon their teaching background and knowledge of the material covered in PHTR620. All three are full time faculty at their institutions, currently teaching similar material within their curriculum. The test questions, along with the course syllabus and lecture materials, were sent to the content experts.

The course content and lectures were reviewed. Test questions were assessed for validity, as well as rated according to Bloom's Taxonomy. Based upon the feedback from the content experts, it was determined that the material covered in PHTR620 both complied with CAPTE requirements and was appropriate for a graduate level course in a PT curriculum.

Course Grade: The final course grade was comprised of the following evaluative criteria: final exam (25%), final project (20%), health and wellness assignment (20%), ethics paper (15%), and two case studies (10% each). The course coordinator collected the assignments, and after giving them to the research assistant to code, graded each assignment. Grading criteria used for the ethics paper and final project are found in Appendices H and I, respectively.

Data Analysis

Subject demographic information (age, gender, GPA, distance from Mercy College, home computer access, internet access, previous participation in CAI, and interest in taking a course via CAI) are reported as a percentage of respondents for each established category. To determine if

there were significant differences between the students attending in the spring and fall semesters, final exam grade and final course grade were compared using unpaired Student's t-tests (Portney & Watkins, 1993a). To determine if the groups were equivalent at baseline, demographic characteristics of subjects in the CAI group were compared to the TLI group using unpaired Student's t-tests (GPA and age) and Chi Square analysis (gender) (Portney and Watkins, 1993b).

To determine if CAI was equally effective for assimilation and retention of information compared to the TLI group, between group differences of the pretest and post-test and the final grades for the groups were compared using unpaired Student's t-tests (Portney and Watkins, 1993a). Paired Student's t-tests were utilized to determine differences within the groups from pre-test to post-test (Portney and Watkins, 1993c).

Learning styles were reported as percentages within each group. For each learning style identified, unpaired t-tests were used to determine between group differences for final exam grade and final course grade (Portney and Watkins, 2006a). Comparisons with less then 3 total subjects were not exposed to inferential analysis (an n of at least 3 is needed to perform analysis of $df = (n1 + n2) - 2$) (Portney and Watkins, 1993d).

Alpha level was set at 0.05 for all analysis.

Chapter IV

RESULTS

Semester Comparison

There were no significant differences for the entire group of students (n=33) between the spring and fall semesters for final exam grade (83.7±5.0 vs. 81.7±9.1; p = 0.478) or final course grade (90.2±3.0 vs. 90.5±3.1; p =0 .733). Their data, therefore, were pooled for final comparisons (n=33 subjects; CAI n=17 and Lecture n=16).

Demographics

Three individuals did not fill out the demographic survey correctly, therefore their information was omitted, reducing the sample number to 30 (CAI=15, TLI=15). There were no significant differences between the two groups with regard to grade point average (GPA) (p=0.852), age (p=0.095), and gender (p=0.217) (Table 3). Descriptive demographic information regarding computer knowledge is found in Table 4, and CAI / Internet knowledge found in Table 5.

Pretest/Posttest Scores

Both the CAI and TLI groups showed a significant improvement in test scores from pretest to post-test (51.5±12.7 to 80.6±7.8; p<0.001), and (52.0±9.5 to 85.1±6.1; p<0.001) respectively. There was no significant difference between the CAI and TLI groups for baseline knowledge (52.0±9.5 vs. 51.5±12.7; p=0.905). There was no significance difference between the CAI and TLI groups for final exam scores (80.6±7.8 vs. 85.1±6.1; p=0.073).

Final Course Grade

There was no significant difference between the CAI and TLI groups for final course grades (90.2±3.0 vs. 90.5±3.1; p = 0.763).

Gregorc Style Delineator

Learning styles of the CAI and TLI groups are found in Table 6. Three individuals did not fill out the GSD correctly. Their GSD's accordingly were omitted, reducing the overall sample number to 30 (CAI n = 15 and TLI n = 15). No significant differences for any learning style between the CAI and TLI groups were initially noted on final exam (Table 7) or final course grade (Table 8). Raw data for the final exam and final course grade within each group are presented by learning style in Tables 9 and 10, respectively. Noted trends include an increase in AR, CS-AR, and Trio learners in the TLI group and an increase in the CS and AR-CR learners in the CAI group. The small sample size in each learning style makes statistical analysis within group difficult due to the high likelihood of type I error. Additionally, it is difficult to

characterize an individual, who is the lone subject in a group, as being representative of everyone with that particular learning style. The overall homogeneity of the final exam and final course grades within each group identify no apparent outliers in any learning style. It is also important to note that all subjects successfully passed the final exam and final course with the minimum grade of C, which is the Mercy College PT requisite.

Table 3
Subject Demographics

Demographic	CAI (%)	TLI (%)
Gender		
Male	66.6	40.0
Female	33.3	60.0
Age (years)		
45-50	26.6	0.0
40-44	6.7	13.3
35-39	6.7	13.3
30-34	40.0	26.6
25-29	13.3	33.3
20-24	6.7	13.3
GPA		
3.8-4.0	6.7	0.0
3.5-3.7	53.3	66.6
3.2-3.4	33.3	20.0
2.9-3.1	6.7	13.3
Distance from Mercy (min)		
>120	0.0	26.6
90-120	0.0	0.0
60-90	40.0	6.7
30-60	33.3	40.0
<30	26.6	26.6
Own a home computer		
Yes	100.0	93.3
No	0.0	6.7
Have easy internet access		
Yes	100.0	100.0
No	0.0	0.0
Have taken CAI course		
Yes	53.3	40.0
No	46.7	60.0
Interested in taking CAI		
Yes	93.3	93.3
No	6.7	6.7

**Three individuals (CAI=2, TLI=1) did not fill out the demographic survey correctly. Their results were omitted, leaving a total n = 30

Table 4
Subject Characteristics: Computer Knowledge

Question	CAI (%)	TLI (%)
How do you rate your overall computer knowledge?		
Expert	6.7	0.0
Novice	60	86.6
Little experience	32	13.3
No experience	0.0	0.0
How many hours per week do You spend using the computer?		
< 1	13.3	0.0
1-7	33.3	60.0
8-14	33.3	33.3
>14	20.0	6.7
I can easily compose documents on a computer.		
Strongly agree	40.0	46.7
Agree	46.7	53.3
Disagree	13.3	0.0
Strongly disagree	0.0	0.0
I can save documents without difficulty on the computer.		
Strongly agree	53.3	66.6
Agree	46.7	26.6
Disagree	0.0	6.7
Strongly disagree	0.0	0.0
I can easily install programs onto a computer.		
Strongly agree	40.0	26.6
Agree	33.3	6.7
Disagree	6.7	60.0
Strongly disagree	20.0	6.7

**Three individuals (CAI=2, TLI=1) did not fill out the demographic survey correctly. Their results were omitted, leaving a total n = 30

Table 5
Subject CAI / Internet Knowledge

Question	CAI (%)	TLI (%)
I can easily send email messages to others using the Internet.		
Strongly agree	66.6	73.3
Agree	33.3	26.6
Disagree	0.0	0.0
Strongly disagree	0.0	0.0
I am able to send documents as attachments through the Internet without difficulty.		
Strongly agree	46.7	53.3
Agree	53.3	33.3
Disagree	0.0	13.3
Strongly disagree	0.0	0.0
I am comfortable in using the Mercy College Pipeline system.		
Strongly agree	53.3	33.3
Agree	40.0	60.0
Disagree	6.7	0.0
Strongly disagree	0.0	6.7
I can easily conduct searches for information on the Internet.		
Strongly agree	53.3	33.3
Agree	40.0	60.0
Disagree	6.7	6.7
Strongly disagree	0.0	0.0
I can download information from the Internet without difficulty.		
Strongly agree	46.7	33
Agree	46.7	66.6
Disagree	6.7	0.0
Strongly disagree	0.0	0.0

**Three individuals (CAI=2, TLI=1) did not fill out the demographic survey correctly. Their results were omitted, leaving a total n = 30

Table 6
Distribution of Learning Styles

Learning Style	CAI Count	CAI Percent	TLI Count	TLI Percent
CS	4	26.7	3	20
AS	0	0.0	0	0.0
AR	1	6.7	4	26.7
CR	1	6.7	1	6.7
CS-AS	2	13.3	2	13.3
CS-AR	1	6.7	2	13.3
AS-CR	1	6.7	1	6.7
AR-CR	5	33.3	1	6.7
Trio	0	0.0	1	6.7

**Three individuals (CAI=2, TLI=1) did not fill out the GSD correctly. Their results were omitted, leaving a total n = 30

Table 7

Between Group Differences for Final Exam Grade for Each Identified Learning Style

Learning Style	CAI Count	CAI Mean	TLI Count	TLI Mean	Significance
CS	4	79.50±11.00	3	85.33±7.02	0.463
AS	0	N/A	0	N/A	N/A
AR	1	90.00±0.00	4	82.50±4.12	0.202
CR	1	84.00±0.00	1	86.00±0.00	N/A
CSAS	2	76.00±8.49	2	75.00±4.24	0.895
CSAR	1	86.00±0.00	2	91.00±1.41	0.212
ASCR	1	70.00±0.00	1	90.00±0.00	N/A
ARCR	5	80.00±6.33	1	88.00±0.00	0.312
Trio	0	N/A	1	90.00±0.00	N/A

**Three individuals (CAI=2, TLI=1) did not fill out the GSD correctly. Their results were omitted, leaving a total n = 30

Table 8
Between Group Differences for Final Course Grade for Each Identified
Learning Style

Learning Style	CAI Count	CAI Mean	TLI Count	TLI Mean	Significance
CS	4	88.75±2.63	3	90.67±1.16	0.299
AS	0	N/A	0	N/A	N/A
AR	1	96.00±0.00	4	88.25±2.99	0.103
CR	1	94.00±0.00	1	94.00±0.00	N/A
CSAS	2	89.50±2.12	2	88.00±4.24	0.698
CSAR	1	94.00±0.00	2	92.50±2.12	0.667
ASCR	1	89.00±0.00	1	90.00±0.00	N/A
ARCR	5	89.00±2.92	1	89.00±0.00	1.000
Trio	0	N/A	1	93.00±0.00	N/A

**Three individuals (CAI=2, TLI=1) did not fill out the GSD correctly. Their results were omitted, leaving a total n = 30

Table 9
Learning Style: Final Exam Scores

Learning Style	CAI Scores	CAI Mean	TLI Scores	TLI Mean
CS	90 70 88 70	79.50	92 78 86	85.33
AS	N/A	N/A	N/A	N/A
AR	90	90.00	88 82 82 78	82.50
CR	84	84.00	86	86.00
CSAS	70 82	76.00	72 78	74.00
CSAR	86	86.00	90 92	91.00
ASCR	70	70.00	90	90.00
ARCR	84 76 80 88 72	80.00	88	88.00
Trio	N/A		90	90.00

Table 10
<u>Learning Style: Final Grades</u>

Learning Style	CAI Scores	CAI Mean	TLI Scores	TLI Mean
CS	91 87 91 86	88.75	90 90 92	90.67
AS	N/A	N/A	N/A	N/A
AR	96	96.00	92 85 87 89	88.25
CR	94	94.00	94	94.00
CSAS	88 91	89.50	85 91	88.00
CSAR	84	84.00	91 94	92.50
ASCR	89	89.00	90	90.00
ARCR	93 88 85 89 90	89.00	89	89.00
Trio	N/A		93	93.00

Chapter V

DISCUSSION

Sample

The gender of the study population was more homogenous than the national PT student and American Physical Therapy Association (APTA) demographic profile. The study sample was comprised of 57% female and 43% male, as compared to a national student population of 73% female and 27% male (APTA; Annual Accreditation Report, 2005) and American Physical Therapy Association (APTA) Member Demographic Profile (2004) of 67.8% female and 32.2% male.

Discrepancies in ethnicity between the study sample and the national student population and APTA member profile also exist. The study sample was comprised of 36.0% minority, as compared to 17.0% in physical therapy programs nationally and 7.1% of practicing APTA members. This indicates a future trend toward greater minority populations in the profession based upon

present student demographics. Other unique attributes of the study sample include being 100% commuters, with the majority commuting 1 hour, and a more mature population, with 66% being over the age of 30.

While the presented demographic information may allow inference that the study population was not representative of the PT student population at large, or the population of practicing physical therapists, this may not be accurate. The study population differed in its general makeup, but it was representative of PT for qualifications of acceptance into school. In 2004, a task force established by the Education Section of the APTA presented a set of recommendations describing a set of "core" requirements for admission into PT programs. These core admission requirements compared favorably to the admission requirements of other doctoral health professions such as medical school, podiatry, and chiropractic (Lake, 2004). These recommendations, which were approved by the Education Section of the APTA, consisted of the categories: prerequisite courses and other requirements. Recommended prerequisite course requirements included: 2-3 courses of human behavior (one being psychology), 2 courses Biology, 2 courses Chemistry, 2 courses Physics, 2 courses Anatomy/Physiology, 1 course Statistics. Recommended other requirements included: a standardized test assessing communication and reasoning skills (GRE, MCAT, GMAT, etc), volunteer hours, personal assessment of applicant (interview, references, essay), and GPA (Lake, 2004). At the time of

admission for the subjects who participated in the present study, Mercy College met all recommended guidelines with the exception of requiring standardized testing, such as the GRE's. While the individuals applying to PT schools may be unique in their personal attributes, these recommended requirements create a more homogeneous applicant pool, due to similarities in their educational qualifications.

Further support that the subjects in the present study are representative of students nationally is created by the content standardization of the programs themselves and licensure requirements. PT curricula are overseen by the Commission on Accreditation of Physical Therapy Education (CAPTE), thus making them uniform in the information required to be presented and learned. The minimum educational requirement is a post-baccalaureate degree from an accredited education program. Finally, upon completion, graduates must successfully pass the licensure exam prior to practicing independently. Mercy College's passing rate for first time test takers in 2004-2005 (which would be inclusive of the study sample) was above the New York State average and comparable to the national average. While the study sample demographic make-up was different than the national student population, they were similar in their educational background, information taught, and information learned as evident on the licensure exam, creating a representative sample of PT students.

Learning Styles

Little information exists regarding learning styles of physical therapy (PT) students, identifying a future area of study. Research in other health care related fields such as nursing and dentistry identify 13%-15% of students in those fields as being dual learners (O'Brien & Wilkinson, 1992; Hendricson, Berlocher, Herbert, 1987). In contrast, PT students attending school in the State of New Jersey were identified as follows: dual learners (34.2%), predominant singular learning style as CS (31.1%), trio learners (1.1%), and having 'no preference' toward a learning style (0.5%) (Olson & Scanlan, 2001). Similarly, Gaden assessed learning styles of PT students within 4 entry-level programs (n=147) and identified that 56% were dual learners (Gaden, 1992). These studies identifying learning styles of PT students are consistent with the present study. As identified in table 6, the majority of subjects in the present study were classified as dual learners (50.0%), with CS being the predominant singular learning style (23.3%), only 3.3% of subjects being identified as trio learners, and no subjects being identified as having 'no preference' toward a learning style. Within the dual learning style 46.7% consisted in part of the CS learning style. The similarities in learning styles between the present study and previous research add more support to the fact that the present sample is representative of the greater national pool of PT students.

The results of the present study indicate that no learning style category did significantly better in one teaching medium (CAI or TLI) compared to their counterparts in the other teaching medium on either the final exam or final course grade. Additionally, when critically assessing the raw data in each teaching medium, no represented learning style category showed a strong propensity to do better than the others in that same medium on either the final exam or final course grade. The results of the present study indicate that learning style is not a predictor or factor in a physical therapy student's ability to perform on the final exam or pass the course. Based upon the general attributes associated with the different learning styles as identified by Gregorc, the high prevalence of dual learners in PT education may imply they have a high level of adaptability and could succeed in any teaching medium.

Effectiveness of Teaching Methods

The results of this study indicate that both the CAI and TLI groups significantly improved from the pretest, while no statistical significance existed between the CAI and TLI groups with regard to learning as measured by final exam score and final course grade. The final course grade was comprised of: final exam (25%), development of a business plan as the final project (20%), health and wellness assignment (20%), ethics paper (15%), and two case studies (10% each). The final exam, as discussed in Chapter Three, was comprised of 50 multiple choice questions with one correct answer and three

distracters per question, and can be classified by Bloom's Taxonomy as upper level in the category of knowledge (Bloom, 1984).

The business plan project required students to create a business plan for a fictional physical therapy practice they wanted to establish. The elements of the business plan included: the name and location of the business, reasons for choosing the name and location, identification of the type of practice and what population it will serve, the mission statement, projected start up costs, marketing plan, pricing strategy, projected first year income statement, and a 5 year plan. The purpose of the project was to have students utilize skills in synthesis and evaluation as identified by Bloom.

The health and wellness project required students identify a health / wellness need in a community, then develop and complete a plan to address that need. In order to fulfill these requirements students completed all necessary connections to implement their projects. Representative project topics included: a bike helmet safety program in a 5th grade; smoking cessation program at a senior center; health screening including blood pressure, postural assessment and body fat composition at a mall; and a 'get fit' program in an adult day care. Students were allowed to work in groups to perform the project and then were required to write individual papers. The papers were to include a general overview of the project with regard to its content, location, audience, marketing, media, successes, failures, and reassessment to identify any changes they would make if the project was

repeated. The purpose of the project was to have students use application, analysis, synthesis and evaluation skills, the mid to higher levels of Bloom's cognitive domain.

The ethics paper was based on the non-fictional case of Christine deMeurers (Arras & Steinbock, 1998). The case describes the plight of a young, married teacher in her thirties who has children and who ultimately succumbs to stage IV breast cancer. It goes into detail regarding her relationship with her doctors, her course of care, her desire to receive an experimental treatment, the battle with her insurance company, her ultimate death, and the subsequent lawsuit by her estate. Students were required to write a 3-4 page paper discussing the case from an ethical perspective. They were required to use the ethical principles of autonomy, justice, beneficence and nonmaleficence as presented in readings and in class. Application of the ethical principles had to occur from the perspective of the patient, her family, the insurance company, the doctors, and their individual feelings. The purpose of this assignment was to have students utilize knowledge, comprehension, application, and analysis according to Bloom.

The two case studies in PHTR620 were similar to the Christine deMuerers case in that students had to utilize knowledge, comprehension, application, and analysis according to Bloom. The first case entitled "The Associate Controller and Directors" comes from the book Health Services Management: A Book of Cases (Kovner & Neuhauser, 1994). The case

revolves around the management of personnel in a large medical center. It ends with the protagonist, Jim Joel, needing to make decisions regarding an employee, the organization, and his own future. Students were required to prepare short answers to a series of questions as if they were Jim Joel (Appendix J). The second case was created by the course coordinator of PHTR620 and is based upon a fictitious private practice in a local county that is undergoing a period of change. The previously successful practice is beginning to experience financial difficulties and has decisions to make regarding the future of the practice. Students are provided a series of six questions to answer regarding the case as if they were hired by the practice as consultants. (Appendix K)

Students' ability to learn didactic information in an alternative model (CAI) was supported in this study, and is consistent with previous research using the criteria of final exam score and course grade. Thus, allowing institutions the possibility of providing education in an alternative medium to individuals who may have been limited due to time or geographical restrictions, as well as to the new generation of computer savvy student.

Student Perception

Students' success in the classroom does not necessarily equate to their satisfaction with a teaching strategy. This study did not formally assess satisfaction levels; however, subjective student information obtained on the course evaluation is consistent with previously published research.

Hirschheim (2005) performed an open-ended questionnaire survey (n = 25) to assess quality of learning. He accepted, based upon previous literature that no significant differences existed in learning as measured through testing between the teaching mediums. Consequently, the study focused on students' self-reported quality of learning or satisfaction levels. His results showed an overwhelming positive response that CAI was more convenient (76%). In contrast, he also found that 74% of respondents felt like "they had missed out on something" because they had not attended the classroom sessions (Hirschheim, 2005).

The feeling of "missing out" is prevalent throughout the course evaluations of the CAI group in the present study. The Mercy College course evaluations consist of multiple open-ended questions regarding the course and the instructor. The subject of one such question is "Things I did not like about the class." In this section 12 of the 17 students (71%) reported some variation on the theme of "missing out on something that the classroom students were getting." While no formal analysis was done regarding student satisfaction in the present study, it is a recommended area of future study.

Limitations

Limitations of the present study may be generalized to the sample and methodology. The small sample size is an acknowledged limitation (n=33). Based upon a pilot study and power analysis it was determined that an 80% participation of the potential pool of subjects (n=40) was needed to achieve

80% power. With 33 out of the possible 40 participating (81.75%), the minimum threshold was met. The course material covered in Administration and Management and the criteria used for grading may also be a threat to the study. While CAPTE outlines content areas to be covered by programs, there is variability in how the material is presented, as well as in what depth, and which assessment tools used. These noted limitations to the sample create threats to the external validity.

Methodological limitations expose the study to threats in internal validity. Issues regarding blinding, testing, grading and learning are all present in the current study. The primary researcher in this study was semi-blinded to the participants. While it was known that all students in the CAI group had consented, it was not known which students in the classroom had consented. To minimize the issue of blinding, the research assistant coded all material so that the primary researcher only received coded data. Due to the acknowledged limitation in blinding, the potential exists for compensatory equalization of treatment. This is controlled for through the neutral hypothesis. There were no expected outcomes with regard to one group performing statistically better, nor were there any incentives to have one group perform better than another. In order to address the issues of testing and grading bias, a grading template was utilized for all assignments, leaving minimal subjective input from the instructor. Coding the material prior to

grading helped control for bias, since the PI did not know whose paper was being evaluated.

Threats to internal validity due to methodology are also noted with regard to the testing and grading criteria used. The threats may be categorized as: historical, testing, and imitation of testing. Historical threats are present because of the potential that the CAI group's outcomes may have been due to the impact of the computer itself as opposed to their actual ability to learn. This was controlled for through the demographic survey. The survey included questions regarding students' comfort levels with computers and the online Mercy College Pipeline system. The entire CAI group reported having computer experience, and identified that they were able to compose emails, send documents, and save documents. Additionally, 93% reported being comfortable with the Pipeline system itself, with only 7% not feeling comfortable (100% of the CAI group reported feeling comfortable with the system). To control for threats to the testing itself, no question on the pre-test was used on the post-test. There was little ability to control for imitation of testing, as students in both classes have access to each other outside of the PHTR620 class. While those who were in the classroom did not have access to Pipeline for this class and vice versa, the students do take other classes together and therefore may communicate. While this potential does exist, it should not have an impact on the outcome of the study because the use of or lack of use of the computer to obtain information was the only difference.

Class discussion regarding covered topics outside of the framework of the class is common in learning and encouraged regardless of the medium. All students received the same material and had the same assignments; therefore, any discussions or interactions that occurred were outside the scope of material being presented by the instructor.

One final noted limitation to this study exists with respect to amount of time spent on learning material and retention of learned material. Efficiency within a particular learning style, and long term retention of the material were not a focus of this study, and are identified as potential areas for future study.

Future areas of study

While the present research supports the use of CAI, it raises new issues for further analysis. Nationally assessing learning styles in a much larger sample of PT students would provide for a larger cross-section of subjects, thus improving representation. As institutional consumers, student satisfaction levels are very important for recruitment and retention. Evaluating efficiency with regard to time required for comprehending material, completing homework assignments, or preparing for the final exam. Outcome data in this arena may alter the workload given in a particular medium over the course of a semester. Long term follow-up studies assessing retention of presented and learned material between the two groups on the subject matter (a potentially important consideration). Generational studies to assess ability and satisfaction, determining whether a certain age demographic has a

propensity to perform better or receive higher gratification in a certain medium.

These areas would enhance the existing literature regarding various teaching and learning mediums by adding more depth and breadth and enriching the current evidence.

Chapter VI

SUMMARY AND CONCLUSIONS

This study began with two primary purposes: to assess the effectiveness of teaching administration and management content in physical therapy education utilizing CAI, and to determine if student learning styles may contribute to the success or failure in that medium. The effectiveness of teaching in a CAI format has three facets: the instructor's ability to teach, the instructor's ability to teach in an online medium, and the students' ability to learn in this medium. This study focused on the third facet, giving educational institutions more options in addressing the first two: the instructor's ability to teach, and his or her ability to teach in an online medium. With regard to both purposes, the present study indicates that students do learn equally well in a CAI course format and a TLI course format for this type of course content. Secondly, learning styles do not impact their success in either format.

The effective use of CAI affords many new possibilities to institutions of higher education. From an educational standpoint, it allows hiring faculty from remote locations to fill positions for which suitable candidates are unavailable locally. It also allows an instructor to teach multiple sections of the same course at different geographic campuses. Additionally, it creates new marketing strategies for institutions to attract, stimulate, engage, and retain today's students. These options benefit not only the institution, but ultimately, the students as well.

From the students' perspective, CAI allows them to use a medium with which they are comfortable. Higher Education opportunities that may not have been available in the past due to time or geographic constraints are now available. Finally, it allows for more continuity. If an instructor cannot finish a lecture, the material can be completed or supplemented via CAI. If the instructor or student is absent due to illness or emergency, the material can be placed online so that no one falls behind. In major disasters such as hurricane Katrina, CAI may afford displaced students whose institutions are closed indefinitely to attend college elsewhere, continuing their degrees by taking multiple classes at multiple colleges and universities simultaneously. This can occur wherever they are geographically located.

In conclusion, the present study supports both stated hypotheses: that CAI will be equally effective for assimilation and retention of information presented in a professional management and administration class when

compared to TLI, and that learning styles will not have an impact on learning regardless of the instructional method as determined by earned grade on the final exam or the final course grade. This new evidence supports the use of CAI in the teaching of administration and management material to physical therapy students, providing institutions of higher learning with an alternative teaching strategy to meet the needs of today's students and the marketplace as a whole.

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LIST OF APPENDIXES

Appendix A

MEMO

To: Matthew Hyland

From: Kathleen Golisz, MA, OTR, BCN
Chairperson, Mercy College IRB

Subject: IRB Review of Proposed Research

Date: November 24, 2003

Project #: 03-57

Project: A comparative analysis of computer assisted instruction versus traditional classroom model for non-lab based physical therapy education

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The committee has reviewed and **Approved** your revisions to your research proposal for a one year period of time. **The stamped approved informed consent should be the one you copy for participants.** Good luck with your research.

Listed below are your responsibilities to your study participants regarding informed consent and confidentiality and to the IRB. Please sign, date, and return one copy of this memo to the IRB.

Research investigators are responsible for:
- Insuring that informed consent is documented by the use of the written consent form approved by the IRB and signed by the participant or the participant's legally authorized representative.
- Insuring that each person signing the written consent form is given a copy of that form.
- Placing the consent documents, signed by human research participants, in a repository approved by the IRB.
- Protecting study subject confidentiality and confidentiality of their records.
- Submitting for IRB review, any advertisements to recruit research subjects. This includes, but is not limited to, newspaper, radio, and television advertisements and notices, public service announcements, posters and flyers.
- Reporting the progress of the research to the IRB, as often as and in the manner prescribed by the IRB, but no less than once per year.
- Reporting promptly in writing to the IRB, any injuries to human subjects or any unanticipated problems that involve risks to the human research participants or others. Investigators are encouraged to call the IRB with these reports in addition to preparing a written report.
- Reporting promptly, in writing to the IRB, any proposed changes in a research protocol that shall not be initiated by research investigators without IRB review and approval, except where necessary to eliminate apparent immediate hazards to the subject.
- Reporting promptly, in writing to the IRB, any serious or continuing noncompliance with the requirements of this approval or the determinations of the IRB.

_____   ___11/24/03___
Principal Investigator(s)   Date
Cc:\

Appendix B
A Comparative Analysis of Computer Assisted Instruction versus Traditional
Classroom Model for Non-Lab-Based Physical Therapy Education

Purpose of Research
I understand that I am being asked to participate in a research project and by
signing this consent form enter the study by my own free will. I have been
informed that the purpose of this study will be to assess outcomes in various
teaching methods which will include lecture and online education. The
assessments that will be used are: student learning style inventory, student
satisfaction forms, a pre-test, final exam, and final course grade.

Procedure
I am aware I will be taking a pre-test / post-test design, as well as filling out a
student satisfaction survey, learning style inventory and completing the final
exam. I am also aware that all students must complete these assessment
tools, regardless of participation in the study as a requirement for
Administration and Management of Physical Therapy (PHTR620). I am
aware that I will be randomly assigned to one of two groups and will either
show up for class as scheduled or participate in the course online via campus
pipeline.

Risks and Discomfort
I understand that there are no inherent risks to the study.

Benefits
I understand that there are no immediate benefits to me in my graduate
school education by participating in this study. However, the outcomes may
lead to alternative teaching methods that may be integrated into physical
therapy education curricula in the future. An additional benefit may be that I
do not have to drive to campus for class if I am assigned to the online group

Confidentiality
I understand that the researcher will be blinded as to participation of those
individuals in the classroom. I also understand that if I consent to the study,
and am randomly assigned to the experimental group, that the researcher will
know that I have consented to participate. I understand that the initial
information that I provide will be to a non-biased research assistant who will
use a coding system to maintain individual's anonymity to the researchers.
This coded key will be kept by the research assistant in a personal computer
file only accessible to them with a password.

Request for More Information

I understand that I may ask more questions about the study at any time. Matthew Hyland is the primary investigator and I have been provided with the name and number of the research assistant Genevieve Pinto-Zipp. If I am concerned about maintaining my anonymity in the study, but have questions, I may go through the research assistant who will act as a medium between me and the researcher. A copy of this consent form will be given to me to keep.

Refusal or Withdrawal of Participation

I understand that my participation is voluntary and that I may refuse to participate or withdraw my consent and discontinue participation in the study at any time without prejudice to my present or future status at Mercy College. I also understand that the researcher may terminate my participation in this study at any time after he has explained the reasons for doing so.

I have explained to _____ the purpose of the research, the procedures required, and the possible risks and benefits to the best of my abilities.

_____   _____
Dr. Steve Lichtman   Date
Research Assistant

I confirm that Dr. Steve Lichtman has explained to me the purpose of this research, the study procedures that I will undergo, and the possible risks and benefits that I may experience. I have read and I understand this consent form. Therefore I agree to give my consent to participate as a subject in this research project.

This project has been reviewed and approved by the Mercy College Institutional Review Board for Human Subjects Research. The IRB believes that the research procedures adequately safeguard the subject's privacy, welfare, civil liberties, and rights. The chairperson of the IRB may be reached at (914) 674-9331 x 601

I have read the material above, and any questions I asked have been answered to my satisfaction. I agree to participate in this activity, realizing that I may withdraw without prejudice at any time. If I withdraw from the study I may notify one of the following: Dr. Genevieve Pinto-Zipp at (973) 275-2457, Dr. Claudia Fenderson at (914) 674-9331 x 650, or the course coordinator Matthew Hyland at (914) 921-6061. If I am in the control group and withdraw I will stay in the classroom and if I am in the experimental group and

withdraw, I have the choice to continue online or move to the classroom.

_____   _____
Name of Participant   Date

ONLY SIGN BELOW IF YOU **DO NOT** WISH TO PARTICIPATE

_____   _____
Please sign stating you do not wish to participate   Date
Appendix C

Appendix C
PHTR620: Professional Management and Administration
Pretest

NAME: _____ DATE:_____

Code (for administrative use only): _____

1. Major changes associated with health care costs and spending began with the initiation of titles 18 and 19 of the Social Security Act in 1965. Title 19 is known as what?

      A. Medigap
      B. Medicare
      C. Medihelp
      D. Medicaid

2. Of the following, who is an indirect provider of care?

      A. Physical Therapist
      B. Pharmaceutical Rep.
      C. Dietician
      D. Nurse

3. In the State of New York, a physical therapist is considered what level of health care provider?

      A. Primary
      B. Secondary
      C. Tertiary
      D. Supplementary

4. The organizational developmental stage characterized as being organized by structure and function to create an environment where an employee has more than one immediate supervisor is known as?

      A. Entrepreneurial stage
      B. Bureaucratic stage
      C. Divisionalized stage
      D. Matrix stage

5. The factor of 'organizational design' which describes what an organization wants to be in the future, identifies the organization's direction, and creates a feeling of movement toward the desired outcome is known as what?

      A. Mission
      B. Vision
      C. Goals
      D. Strategy

6. The type of supervision that is characterized by the manager actually watching, or supervising the employee doing the work, is known as what?
> A. Direct supervision
> B. Indirect supervision
> C. Close supervision
> D. Regular supervision

7. What historical 'model of management' is best characterized by Elton Mayo's 'Hawthorne Experiment?'
> A. The Traditional Model
> B. The Human Relations Model
> C. The Human Resource Model
> D. The Hyland Rules Model

8. In Hersey and Blanchard's 'Situational Leadership' model what type of leader behavior would be most successful with an employee who was unable to do the task, but willing (motivated but unproductive)?
> A. High task and low relationship
> B. High task and high relationship
> C. Low task and high relationship
> D. Low task and low relationship

9. According to Thomas Killman which style would be most successful in dealing with conflict in a situation where you realize you are wrong, or when continued competition would only damage your cause?
> A. Avoiding
> B. Compromising
> C. Accommodating
> D. Competing

10. The ethical principle that shows respect for self-determination, and is considered by most as the principle to be followed if there are no other principles clearly applicable, is known as what?
> A. Beneficence
> B. Nonmaleficence
> C. Autonomy
> D. Justice

11. The concept that allows individual States to make their own laws, as long as they don't conflict with Federal laws is known as what?
> A. Private law
> B. Public law
> C. Legal diversity
> D. Tort

12. What legal concept holds health care practitioners' accountable for harm caused to a patient either by their 'duty to perform' or if appropriate 'duty to refrain.'
  A. Criminal malpractice
  B. Standard of practice
  C. Battery
  D. Liability

13. What stage of the 'community health promotion model' establishes a core planning group; chooses an organizational structure; identifies, selects, and recruits organizational.members; and defines the organizations mission, vision, values and goals?
  A. Community analysis
  B. Design and initiation
  C. Implementation
  D. Program maintenance-consolidation

14. Established by the Center for Medicare and Medicaid, which of the following is a mandatory Medicare guideline for physical therapists to receive payment for services rendered?
  A. As long as you have an up to date prescription Medicare will reimburse
  B. You must use the HCFA 700 evaluation form for Medicare patients
  C. The patient must see the MD and obtain a new prescription every 30 days
  D. The prescriptions are good for as long as the MD writes on them

15. Which form of reimbursement is characterized by shifting the risk from the insurance company to the patient by implementing such things as: co-payments, deductibles, and gatekeepers?
  A. Fee-for-service
  B. Capitation'
  C. Medicare
  D. Managed care

16. One of the key concepts of modern marketing theory is the concept of marketing mix. A popular method of classifying marketing mix variables is through the four P classification systems. The "P" that can be referred to as marketing communications is known as?
  A. Product
  B. Place
  C. Price
  D. Promotion

17. During the past decade, health care providers, primarily hospitals, have learned much about the art and science of marketing. One of the first notable trends in health care marketing was how providers began to target their marketing efforts towards a certain population. This targeting of marketing efforts is known as?
> A. Market Research
> B. Market Segmentation
> C. Innovative Marketing Communications
> D. Quality and Customer Service

18. The planning, organizing, directing, and controlling of health care products while maintaining hospital goals in a high quality, cost efficient manner are the roles of what department?
> A. Risk Management
> B. Utilization Management
> C. Peer Review
> D. Safety Committee

19. The pricing strategy that sets prices low to attract new business is called?
> A. Cost plus Pricing
> B. Going Rate Pricing
> C. Market Share Pricing
> D. Capitation Pricing

20. A physical therapy practice routinely utilizes accounting principals to determine how stable and successful the business is. The financial statement that analyzes a period of time, and is established by identifying revenues versus expenses is known as what?
> A. Income statement
> B. Bank statement
> C. Balance sheet
> D. Tax return

21. A physical therapy office's costs such as rent and employee salaries have what characteristics?
> A. Variable costs
> B. Fixed costs
> C. Semi-variable costs
> D. Repeating costs

22. The success of an organization is based on management's ability to organize, direct, and motivate the efforts of the staff. One way this can be done is by establishing parameters for managers to work within, to ensure fair and equitable management of all employees. These parameters are known as what?
- A. Bylaws
- B. Policies
- C. Procedures
- D. Laws

23. Work design is a process in which an organization structures and regulates the activities of the employees. The parameter of work design which focuses on the scope of the job, and is characterized by the employee having only a few narrowly defined tasks, is known as what?
- A. Behavior formalization
- B. Training and professional socialization
- C. Position specialization: horizontal specialization
- D. Position specialization: vertical specialization

24. Of the following purposes of a performance appraisal, which allows for growth and development?
- A. Administrative
- B. Behavioral
- C. Social
- D. Economical

25. In a pediatric physical therapist's waiting room, there is a bulletin board where parents may place pictures of their children, as well as thank you notes. Since there are no names on the pictures and all names have been crossed out of the thank you notes, is this in compliance with HIPAA, and why?
- A. Yes: Because parents' placed the pictures, thereby giving implied consent
- B. Yes: There are no provisions for minors under HIPAA, so there is no violation
- C. No: The parents' would have to give written authorization
- D. No: Under no circumstances can a practitioner display a picture of a minor

Appendix D

Student Survey

1. Please indicate your graduating class. Class of : _____

2. GPA:
   ____ 3.8-4.0
   ____ 3.5-3.7
   ____ 3.2-3.4
   ____ 2.9-3.1
   ____ 2.6-2.8

Place a mark on the appropriate line to answer the questions below.

3. Age:
   ____ Under 20
   ____ 20-24
   ____ 25-29
   ____ 30-34
   ____ 35-39
   ____ 40-44
   ____ 45-50

4. Gender: M ____
            F ____

5. Please indicate, on average, the length of time it takes for you to travel to Mercy College.
   ____ None, I live on campus
   ____ Less than 30 minutes
   ____ 30-60 minutes
   ____ 60-90 minutes
   ____ 90-120 minutes
   ____ Greater than 120 minutes

6. Do you have a home computer? ____ Yes   ____ No

If you answered NO to Question 6, skip to Question 11.
If you answered YES to Question 6, please answer Questions 7-10 and continue with the survey.

7. Does your home computer it have Internet access? ____ Yes   ____ No

If YES, answer Question 8. If NO please skip to Question 9.

8. Please specify the type of Internet connection you have:

___Dial-up connection (through the phone line)

___DSL Connection

___Cable Connection (such as Optimum Online or Road Runner)

___Other, please specify

Please respond to the following statements by placing a check mark next to the appropriate comment:

9. How do you rate your overall computer knowledge?

___ Expert

___ Novice

___ Little Experience

___ No experience

10. Do you access computers at Mercy College to complete your assignments?

___ Never

___ Sometimes

___ Frequently

___ Always

11. How many hours **per week** do you spend using a computer?

___ None

___ Less than 1 hour

___ 1-7 hours

___ 7-14 hours

___ Over 21 hours

12. I can easily compose documents on a computer.

___ Strongly Agree

___ Agree

___ Disagree

___ Strongly Disagree

13. I can easily send email messages to others using a computer.

___Strongly Agree

___Agree

___Disagree

___Strongly Disagree

14. I am able to send documents as attachments through the Internet without difficulty.

    ___Strongly Agree

    ___Agree

    ___Disagree

    ___Strongly Disagree

15. I am comfortable in using the Mercy College Campus Pipeline.

    ___Strongly Agree

    ___Agree

    ___Disagree

    ___Strongly Disagree

16. I am able to print documents from Pipeline easily.

    ___Strongly Agree

    ___Agree

    ___Disagree

    ___Strongly Disagree

17. I can save documents without difficulty.

    ___Strongly Agree

    ___Agree

    ___Disagree

    ___Strongly.Disagree

18. I can easily install programs onto a computer.

    ___Strongly Agree

    ___Agree

    ___Disagree

    ___Strongly Disagree

19. I can download information from the Internet without difficulty.

    ___Strongly Agree

    ___Agree

    ___Disagree

    ___Strongly Disagree

20. I can easily conduct searches for information on the Internet.

    ___Strongly Agree

    ___Agree

    ___Disagree

    ___Strongly Disagree

21. Have you ever taken an online course? ___Yes ___No

If you answered NO to question 21, please skip to question 24.
If you answered YES to question 21, please answer questions 22-24.

22. What type(s) of course(s) was it (were they)? Please specify the content and the academic level (graduate or undergraduate)_____

23. Please rate your general computer experience during the course(s) you have taken, disregarding the course's content.
   ___No difficulty
   ___Some difficulty
   ___Moderate Difficulty
   ___Extremely Difficult

24. If an on-line course were to be offered in the Mercy College Physical Therapy Program, would you be interested in participating?   ___Yes   ___No

Please provide any comments regarding the content or format of this survey:

NAME: _____DATE:_____

Appendix E

DIRECTIONS

Before starting with the word matrix on the next page, carefully read all seven of the following directions and suggestions:

1. **Reference Point.** You must assess the relative value of the words in each group using your SELF as a reference point: that is, who you are deep down. NOT who you are at home, at work, at school or who you would like to be or feel you ought to be. THE REAL YOU MUST BE THE REFERENCE POINT.

2. **Words.** The words used in the *Gregorc Style Delineator* matrix are not parallel in construction nor are they all adjectives or all nouns. This was done on purpose. Just react to the words as they are presented.*

3. **Rank.** Rank in order the ten sets of four words. Put a "4" in the box above the word in each set which is the best and most powerful descriptor of your SELF. Give a "3" to the word which is the next most like you, a "2" to the next and a "1" to the word which is the least descriptive of your SELF. Each word in a set must have a ranking of 4, 3, 2 or 1. No two words in a set can have the same rank.

4. **React.** To rank the words in a set, react to your *first impression*. There are no "right" or "wrong" answers. The real, deep-down you is best revealed through a first impression. Go with it. Analyzing each group will obscure the qualities of SELF sought by the Delineator.

5. **Proceed.** Continue to rank all ten vertical columns of words, one set at a time.

6. **Time.** Recommended time for word ranking: 4 minutes.

7. **Start.** Turn the page and start now.

Example

X

a. **4** sun

b. **2** moon

c. **3** stars

d. **1** clouds

4 = MOST descriptive of you
1 = LEAST descriptive of you

*For an explanation on how and why these words were chosen, see the "Development" section of *An Adult's Guide to Style.*

WORD MATRIX

	1	2	3	4	5
a.	objective	perfectionist	solid	practical	careful with detail
b.	evaluative	research	quality	rational	ideas
c.	sensitive	colorful	non judgmental	lively	aware
d.	intuitive	risk-taker	insightful	perceptive	creative

	6	7	8	9	10
a.	thorough	realistic	ordered	persistent	product oriented
b.	logical	referential	proof	analytical	judge
c.	spontaneous	empathy	attuned	aesthetic	person oriented
d.	trouble shooter	innovative	multi-solutions	experimenting	practical dreamer

a.   b.   c.   d.

Total of above

CS   AS   AR   CR

After ranking all ten sets, read how to determine your score on the next page.

SCORING

1. **Add Across.** Add across the "a." row of words in the
first five sets. Put that total in the top "a" column box.
Do the same for the "b", "c" and "d" rows of the first set.
Next, do the last group of five sets, putting the row totals
in the bottom group of boxes.

Example

a. $\boxed{4}$ + $\boxed{4}$ + $\boxed{1}$ + $\boxed{3}$ + $\boxed{2}$ $\overset{a}{\boxed{14}}$

a. $\boxed{1}$ + $\boxed{3}$ + $\boxed{4}$ + $\boxed{2}$ + $\boxed{1}$ $\boxed{11}$

                        Total $\underset{CS}{\boxed{25}}$
                        of above

2. **Add Down.** Add the top and bottom box in each
scoring column to get the total for that column.

3. **Check.** If your combined total scores of CS (a),
AS (b), AR (c) and CR (d) is greater or less than 100,
please recheck your addition. All four columns should
total exactly 100.

GRAPHING

Use the Style Profile below to graph your scores.

1. On the vertical axis leading toward 12 o'clock (Concrete Sequential) place a large dot by the number which corresponds to your total CS (col a) score.

Example:

CS
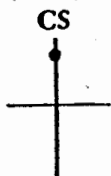
2. On the horizontal axis leading toward 3 o'clock (Abstract Sequential), place a large dot by the number which corresponds to your total AS (col.b) score.

Example:

AS
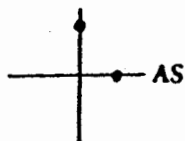
3. On the vertical axis leading toward 6 o'clock (Abstract Random) place a large dot by the number which corresponds to your total AR (col.c) score.

Example:

AR
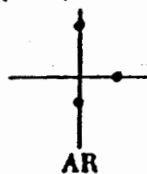
4. On the horizontal axis leading toward 9 o'clock (Concrete Random) place a large dot by the number which corresponds to your total CR (col.d) score.

Example:

CR
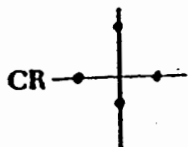
5. Now join the dots with straight lines to form a four-sided figure.

Example:

CS
CR — AS
AR
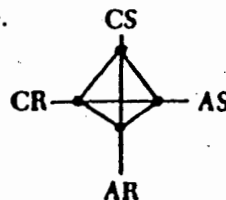
You now have a graphic representation of your dominate (27-40 points), intermediate (16-26 points) and low (10-15 points) style, or "mediation," channels.

Appendix F

MERCY COLLEGE GRADUATE CENTER
PHYSICAL THERAPY PROGRAM
COURSE OUTLINE

COURSE: PHTR620   **CREDITS: 3**

PROFESSIONAL MANAGEMENT AND ADMINISTRATION OF PHYSICAL
THERAPY PRACTICE

5.   **HOURS**   **9 WEEKENDS**

COURSE DESCRIPTION:
This course involves the study of the administrative and organizational knowledge essential to the professional practice. Students are exposed to, analyze, and critically discuss issues such as changes in the health care environment, managed care, the cost / quality / access triad and reimbursement. Within these broad topics the course also discusses and critically analyses issues in bioethics, legal aspects of patient care, technological advancements, program planning, marketing, and conflict. Upon the completion of this course it is expected that students will have a broader understanding of the elements that make up a profession, the internal and external impacts on it, and their role within the ever-changing health care profession.

COURSE INSTRUCTOR:
Matthew R. Hyland, P.T., M.P.A., C.S.C.S.

REQUIRED TEXTS:
1.   Gabard and Martin. (2003). Physical Therapy Ethics. Philadelphia, Pa.: F.A. Davis.

2.   Johnson, S. (1998). Who Moved My Cheese? New York, NY: Putnam.

3.   Kovner and Neuhauser. (1994). Health Services Management, A Book of Cases (4th edition.). Ann Arbor, Mi.: Health Administration Press.

4.   Robbins and DeCenzo. (2001). Supervision Today. Upper Saddle River, NJ: Prentice Hall.

5.   Schachat, R. (2000). Recapturing the Trust. Greenwich, CT.: Creative Effort Books.

6.   Empty notebook: purchase on your own. Will be used for a self reflecting journal.

METHOD OF EVALUATION:

Final Exam:	25 Points
Final Project:	20 Points
Ethics paper:	15 Points
Health and Wellness Paper and Project:	20 Points
Case Study Review (2: 10 points each)	20 Points
	------------
	100 Points

- Written assignments are expected to be handed in on time to receive full credit for work. Any assignment handed in after the due date will be penalized 10 point per class it is late. There are no exceptions to this policy. If you can not attend class the day an assignment is due, please make arrangements with the instructor to submit it on-time

GRADING SCALE:

94 - 100	A	4.0
90 - 93	A-	3.7
86 - 89	B+	3.3
82 - 85	B	3.0
78 - 81	B-	2.7
74 - 77	C+	2.3
70 - 73	C	2.0
0 - 69	F	0.0

** Please be aware that any grade below a 70% on the final exam will require a competency retake as outlined in the programs policy and procedure manual.

OUTLINE OF CONTENT: GOALS AND OBJECTIVES:

1.0 Understand, examine, compare and contrast organizational theory, in a developmental
context, as it applies to educational, social and administrative services.
    1.1 Analyze and examine the scope of physical therapy practice through collaboration with other members of the health care team.

2.0 Distinguish between administrative and clinical supervision for all levels of personnel.
    2.1 Describe and analyze between the different types of supervisors.

    3.0 Describe and examine the functions essential to effective departmental management
    3.1 Analyze and address the changes that occur when becoming mgmt.
    3.2 Analyze and describe the functions of management
    3.3 Compare and contrast various management processes

4.0   Define and contrast participating vs. authoritative styles of management.
   4.1   Differentiate the differences between leadership, supervision, and management.
   4.2   Compare the 3 models of management theory
   4.3   Identify the skills of a manager
   4.4   Compare and contrast McGregor's Theory X vs. Theory Y
   4.5   Describe and demonstrate "Managing the Monkey."
   4.6   Examine the history of management and "classic styles"

5.0   Discuss, describe, and understand different types and methods of motivation.
   5.1   Differentiate between internal and external reinforcements

6.0   Identify and assess different types of leadership styles
   6.1   Examine the leadership challenge
   6.2   Examine enabling
   6.3   Develope the meaning of a "shared vision" and "encouraging the heart."

7.0   Examine the various types of health care organizations as social systems and be able to analyze their administrative structure and organizational dynamics.

8.0   Understand and discuss the American Health Care Environment.
   8.1   Examine Historical perspectives
   8.2   Discuss and understand the National Health Expenditures

9.0   Identify the demand for health care
   9.1   Identify and discuss the value of time
   9.2   Identify and compare the publics' expectation from the health care system
   9.3   Identify the dimensions of quality

10.0   Identify, examine and discuss the three components of health care: personal, social, and professional.

11.0   Describe and assess the American health care delivery system
   11.1   Identify and describe direct vs. indirect providers.
   11.2   Identify and describe the different levels of care: primary, secondary, and tertiary

12.0   Introduce, compare and contrast the various forms of reimbursement form traditional indemnity plans, to the DRG system, to managed care.
   12.1   Identify and examine the impacts of reimbursement on quality of care
      12.2 Evaluate the ways in which payment systems create rationing and

inequality in health care systems

13.0 Examine and review organizations
    13.1   Describe and discuss what an organization is and what it does
    13.2   Identify and assess organizations characteristics
    13.3   Identify and discuss organizational development
          13.3.1 Discuss organizational developmental stages
    13.4   Identify and examine the factors that influence organizational design
    13.5   Discuss the importance of a mission, vision, values, and goals
          13.5.1 Evaluate the content of a mission statement and develop a framework for one
    13.6   Discuss and demonstrate the role of strategic planning
    13.7   Identify and synthesize the internal and external environments

14.0 Describe, identify and assess conflict and conflict resolution.
    14.1   Identify contemporary statements about conflict
    14.2   Define and understand what conflict is
    14.3   Identify and evaluate symptoms and causes of conflict
    14.4   Demonstrate ways to deal with conflict
    14.5   Discuss and apply "Recapturing the Trust"

15.0 Examine, review, and apply skills of marketing
    15.1   Examine internal and external impacts on marketing
    15.2   Examine and identify strategic marketing process
    15.3   Identify market segmentation and demand measurement/forecasting
    15.4   Identify marketing tasks
    15.5   Describe and demonstrate market mix (the 4 P's)
    15.6   Examine the eight basic principals to "stay on to"

16.0 Develop a comprehensive survey of the health care system in the U.S. and a comparative analysis to other systems.

17.0 Review Medicare, Medicaid and other health and social services mandated to serve and support the disabled, including the current use of the International Classification of Impairment, Disabilities, and Handicap.
    17.1   Evaluate and apply the use of CPT and ICD-9 codes
    17.2   Understand and apply the Nagi Model

18.0 Describe and overview of service for the developmentally delayed and disadvantage in the education system.

19.0 Outline and demonstrate the proper way to perform a community health assessment
    19.1   Plan and implement programs designed to promote and maintain

health and
wellness, on an individual, group, or community basis.
- 19.2   Identify and assess the health needs of individuals, groups, and communities, including screening, prevention, and wellness programs that are appropriate to physical therapy

20.0   Describe the licensure laws and rules and regulations that govern practice
- 20.1   Identify and examine the functions of risk management, quality assurance, peer review and utilization
- 20.2   Identify and examine reimbursement methodologies, prospective payment and diagnostic related grouping and accreditation (JCAHO).

21.0   Describe the code of ethics.
- 21.1   Describe and assess values
- 21.2   Review the 4 principals of potential courses of action
- 21.3   Understand and implement the 4-step process of moral judgment and action.

22.0   Analyze the role and function, policy and procedures and organizational structure of the APTA on a local, state and national level.

23.0   Understand the state and federal legislation and the legislative process as if impacts on
physical therapy practice.
- 23.1   Understand and review the 2 general types of law
- 23.2   Discuss legal concepts and terms
- 23.3   Review the legality of the medical chart
- 23.4   Identify and implement HIPAA compliance standards

24.0   Plan and develop a physical therapy service through development of personnel management, equipment and space, and quality assurance
- 24.1   Describe and demonstrate the personnel management theory
- 24.2   Understand quality assurance and quality improvement theories and practice

25.0   Plan and develop departmental programs, policies and procedures and implement a physical therapy record system.
- 25.1   Identify and implement work design/redesign
    25.1.1 Describe and identify the 3 parameters of work design

26.0   Direct, coordinate and supervise physical therapy personnel through the development of performance appraisals, staff development and in-service training programs.
- 26.1   Describe and Apply criteria for hiring and firing

26.2 Discuss and evaluate appropriate recruitment position and advertising of position
26.3 Examine, review, and apply good interview skills
26.4 Identify appropriate methods of employee discipline
26.5 Identify and describe personnel retention tools

27.0 Plan and develop a physical therapy service through development and application of physical management.
27.1 Describe, analyze, and identify the importance and application of economics, budgeting, finance and accounting and the concepts associated with each.
27.2 Describe, analyze, and identify the terms assets, liabilities, revenue, expenses, wealth, and income within the context of 27.1.
27.3 Describe, analyze, and identify, and apply income statements and balance sheets within the context of standard accounting principals.
27.4 Describe, analyze, and identify the 4 methods of financial statement analysis.
27.5 Discuss and identify purpose of a business plan
27.6 Identify proper method of measuring goods and services for sale.
27.7 Identify and review method of pricing a product
27.8 Identify methods of forecasting volumes of sales

28.0 Describe and implement cost characteristics
28.1 Understand and identify variable cost vs. semi-variable costs vs. fixed costs.
28.2 Understand and identify direct vs. indirect costs.

29.0 Review and utilize skills in program planning, record keeping, accounting, organizational
theory, recruitment and retention, staffing evaluation and fiscal management.

30.0 Describe and demonstrate skills in operations management
30.1 Describe and demonstrate purpose for and skills in strategic planning
31.1.1 Identify and describe the internal and external uses of a strategic plan
30.2 Identify the 5 strategies that need to be addressed in a formal strategic plan.

31.0 Review work design and standardization
31.1 Review and apply the need for businesses to have bylaws and policies/procedures.

32.0 Identify and assess program evaluation skills.

33.0 Develop a body of knowledge for the role of researcher, consultant, educator and administrator in the practice of physical therapy in the different practice settings of home care, hospital, long-term rehabilitative, private practice, and as a consultant

34.0 Apply basic principals in the development and design of learning experiences by a new graduate.
    34.1 Determining the needs of the learners, developing objectives, organizing content for teaching sessions, operation audio-visual equipment and evaluating teaching experiences.
    34.2 Identify, assess, and reflect upon the role of the clinical instructor
        34.2.1 Identify and examine the traits that make a positive and negative learning experience clinically
        34.2.2 Identify and hypothesize what you will need to do to prepare for the role of the clinical instructor
        34.2.3 Discuss the role of the CI in the educational continuum

35.0 Demonstrate via class participation the development and sequencing of a lecture or demonstration method of teaching.
    35.1 Demonstrate via CAI the development and sequencing of a lecture or demonstration method of teaching

36.0 Hypothesize and analyze your upcoming role in the health care environment as a new graduate. What will be the expectations of you from various forces: your facility, your patients, the health care environment, and you personally.

37.0 Reflect upon and hypothesize about the quality of critical thinking
    37.1 Discuss the skills needed as a student
    37.2 Contrast the skills that will be needed as a clinician
        37.2.1 Discuss the importance of being a critical thinker across the continuum, from patient care to management roles, and implementation of critical thinking strategies for clinical application

38.0 Discuss and Understand new HIPAA regulations and the impacts that they have on health facilities.
    38.1 Understand your role and responsibilities under HIPAA while working or affiliating within health facilities

** All readings are to be done prior to class so that they can enhance classroom discussion. You are also to keep a journal. Throughout the semester you will be asked to make journal entries as part of the class. You may choose to only make entries on topics that are given to you, or you may add additional entries, not only on this class, but others as well. Your journal is your own private entity, you may write as much or as little as you wish. Your journal will not be collected, read by the instructor, or graded in any way.

WEEKEND # 1:

Readings:
"Who Moved My Cheese?" by Spencer Johnson
Robbins and DeCenzo: Chapter 14 (Please note there is a lot of reading from this book for weeks 2 and 3. It may be beneficial for you to start this prior to the semester, in an effort to lessen the workload during the semester).

Topics:

1. Introduction
2. American health care environment
3. Quality
4. Demand for health care
5. Components of health care
6. American health care delivery system
7. Restructuring of the health care system

Class Activity:
*Self Reflection and journal entry on what "Who Moved My Cheese?" meant to you.
*Case study # 1 "The Associate Director and the Controllers" (Worksheet to be distributed)

WEEKEND # 2:

Readings:

Recapturing the Trust pp. 1-86
Kovner and Neuhauser: "The Associate Director and the Controllers."
Robbins and DeCenzo: Chapters 1,6,9,10,11,12

Topics:

1. Organizations
2. Environments of health care internal vs. external
3. Management and the skills of a manager
4. Trust
5. Types of supervision
6. Reinforcements
7. Keeping employees happy
8. Respect

Class Activities: (Case Review # 1 Due)

* Hand in Case Review and discuss case study: "Associate Director and the Controllers"
* Journal Entry: "Color Me" (To be distributed day of class)

WEEKEND # 3:

Readings:
Gabard and Martin: Chapter 7
Complete "Recapturing the Trust"
Robbins and DeCenzo: Chapters 2,3,13,14

Topics:

1. Management theories
2. Conflict
3. Leadership challenge

Class Activities:

*Matt to provide Christine deMeurers case study: This will be foundation for Ethics Paper
*Matt to provide "The Private Practice" case study (This will be for case review # 2: Study Questions to be included)
*Journal Entry: Think about why "Recapturing the Trust" was chosen as a book for this course, and what you thought of it.

WEEKEND #4:

Readings:
Gabard and Martin: Chapters 1-3, appendices I-III
Christine deMeurers case study

Topics:

1. Professional ethics
2. Legal aspects of patient care

Class Activity:

*Ethics paper assigned: In a 3-4 page paper (double spaced, 12 point font) please discuss the case (Christine deMeurers) from an ethical prospective relating to the principals presented in your readings and in class. It is an interesting case with many perspectives including that of the patient, her family, the insurance company, the doctors, and your own feelings. Discuss the issues each entity faces and the decisions they made.
*Journal Entry: how did the case of Christine deMeurers make you feel?

WEEKEND # 5:

Readings:

"The Private Practice" case study (Distributed in week 3)
Gabard and Martin: Chapters 9, 10

Topics:

1. Health care economy
2. Reimbursement
3. Community health assessment

Class Activity:

*Health and Wellness paper assigned: You are to prepare a 3-5-page paper (same criteria as previous) giving a general overview of your health and wellness assignment. If you have not done a health and wellness assignment you must first complete one (if you have not done one, see me at the beginning of the semester). Your paper should include the following topics: what the project was, where the project was done, how many people attended, how it was marketed, what media did you use educationally, what went well, what didn't go well, what you would change if you were to do it again.
*Journal Entry: How do you like the semester so far, with regard to the medium in which you are taking this class?

WEEKEND 6:

Readings:
Gabard and Martin: Chapters 5, 8

Topics:

1. Marketing
2. Eight basic principals to staying on top
3. Personnel management theory
4. Work design
5. Recruitment and hiring

Class Activity: (Case Review # 2 due)
*Discussion Case #2 "The Private Practice"
*Journal Entry: Contemplate your professional goals: both in the short term upon graduation, and long term.

WEEKEND # 7:

Readings:
Robbins and DeCenzo: Chapters 4,5,8

Topics:

1. Performance appraisals
2. Money matters
3. Business plan
4. Pricing
5. Operations management
6. Work design
7. Program evaluation

Class Activity: (Ethics Paper Due)
*Final Project: Congratulations you are about to open your own practice. Your 'final paper' is the business plan for that practice. Elements and headings of your business plan should be as follows: Name of business, location of business (include how you chose it), what type of practice it will be (ie what population it will serve), mission statement, projected start up costs, marketing plan, pricing strategy, projected first year income statement, and lastly 5 year plan. Your paper is to be no more then 8 pages and should be double spaced.
*Journal Entry: What qualities do you feel you possess that will make you a successful owner?

WEEKEND # 8: (Health and Wellness Paper Due)

Readings:
Robbins and DeCenzo: Chapter 15

Topics:

1. Complete any unfinished business
2. The interview process
3. Performance Appraisals
4. HIPPA

Class Activity
*Journal Entry: Reflect upon your work history, or volunteer history and write about something that has happened that made you feel good, and something that has happened that has made you feel sad.

WEEKEND #9: (Final Project Due)

*Final Exam: Please note that ALL students must show up for the final exam, regardless of the medium in which you took this class. The time and location of the exam to follow.

*Journal Entry: After handing in your exam, go back to your seat, take a few minutes and reflect   upon the semester, and this class.

Appendix G

MERCY COLLEGE GRADUATE CENTER
DEPARTMENT OF PHYSICAL THERAPY
PHTR620: Administration and Management
FINAL EXAM

NAME: _____

Mary Plight was a self sufficient 77 year old female residing in Tompkins County, New York. She was admitted to St. Fixer's Memorial Hospital (SFMH) in February of 1996, with an admitting diagnosis of fever of unknown origin. Upon further medical workup it was determined that Ms. Plight (Mary to her friends), had pneumonia, and end stage chronic obstructive pulmonary disorder (COPD). Information reported in her chart, as documented by her attending physician, included a past medical history of multiple bouts of pneumonia, COPD, diabetes mellitus, congestive heart failure, and three prior incidents and subsequent treatments for malignant cancer. The social work notes indicated that Ms. Plight lived alone on the first floor of a one bedroom apartment, and that she received 'Meals on Wheels' five days a week, and required assistance from the 'Senior Center' any time she needed transportation from the apartment. Additionally, it was noted that Ms. Plight had two sons, both married, and both living in California. At the time of admission the doctor ordered three medications to be added to her present daily medication protocol of four pills.

Ten days after admission, Mary's physician determined she was becoming medically stable, and anticipated a discharge in 2 days. Up to this point she had been generally bed-bound, only moving to a bed-side chair with the assistance of nursing. When the physical therapist arrived to review the chart, he noted that Ms. Plight was listed as being 5'3" tall and weighing 97 pounds. The therapist entered the patient's room and introduced himself by name, indicating his profession, the department he was from, and why he was asked to evaluate her. Upon exam he noted that she was a frail individual who was alert and oriented to person, place, and time.

While polite to the therapist, after the subjective exam, Ms. Plight refused treatment by the therapist, rather choosing to stay in bed. The therapist, in a most prudent manner, while respecting her right to refuse, persisted and explained to her the risks and benefits to both participating in physical therapy as well as refusing to participate. The patient again politely, but firmly, refused to participate in physical therapy. At this point the therapist was most definitely challenged with an ethical dilemma, and most probably a legal one as well.

The following questions refer to the case above.

1. The diagnosis of "fever of unknown origin" is identified by a code, established by the World Health Organization. This diagnostic code is known as?
    A. CPT code
    B. ICD-9 code
    C. ICIDH code
    D. WHO-9 code

2. In the case above, who should not have access to Mary's chart without her permission?
    A. The patient herself
    B. The physical therapist
    C. The social worker
    D. Her two sons

3. While in the hospital, Ms. Plight stayed in her bed for ten days before the doctor set a possible discharge date. At this point physical therapy was ordered. An individual from which department in the hospital would most likely have recommended to the physician that physical therapy be ordered after so long?
    A. Physical therapy
    B. Emergency
    C. Risk management
    D. Utilization management

4. In the above case who is the primary care provider?
    A. Nursing
    B. The attending physician
    C. Physical therapy
    D. Social work

5. Based upon the information in the case, who will most likely pay the majority of Ms. Plight's hospital bill?
    A. Medicare part A
    B. Medicare part B
    C. Medicaid
    D. Mary

6. Who would be considered an indirect care provider for Mary?
    A. The physician
    B. The nurse
    C. The physical therapist
    D. The hospital pharmacist

7. By introducing himself, identifying where he was from, why he was there, and then subsequently explaining the risks and benefits of participating in versus refusing therapy, the therapist is trying to obtain what?

    A. Informed consent for care

    B. The patient's level of orientation

    C. A positive patient satisfaction survey

    D. The patient's willingness to participate

8. The therapist ultimately respects the patient's request to refuse care, which ethical principal is he adhering to?

    A. Justice

    B. Nonmaleficence

    C. Beneficence

    D. Autonomy

9. If the therapist demanded the patient get out of bed, based upon his knowledge of the importance of his service, which ethical principal would he be following?

    A. Justice

    B. Nonmaleficence

    C. Beneficence

    D. Autonomy

10. Unfortunately, despite excellent care while in the hospital, Mary Plight passes away prior to her being discharged. The doctor, therapist, and nurses were all surprised that Ms. Plight's condition did not improve, ultimately leading her home. What dimension of quality was not achieved in this case?

    A. Appropriateness

    B. Continuity

    C. Acceptability

    D. Efficacy

       Miguel is a twenty-year-old, left handed, college baseball pitcher for the University of Florida. At the end of the spring season he began to feel sharp pain over the anterior aspect of his left shoulder which radiated to the upper middle third of his humerus. After an extensive diagnostic workup it was determined that Miguel had sustained a torn rotator cuff and he subsequently underwent surgical repair. Miguel went home to New York for the summer, where he underwent his postoperative rehabilitation. His ultimate post-surgical goal was to return to pitching in the late fall.

       Post-surgically Miguel arrived at the therapist's office two weeks after surgery with his sling on and his prescription from the surgeon. The prescription read PROM post-operative weeks one and two, including a home program of codman's pendulum exercises, progressing in week three to Neer's shoulder program and resistive IR and ER.

Prior to initiating therapy Miguel discussed his financial situation with the therapist, stating that he is a college student, and that a fifteen dollar co-pay would be a hardship for his family to pay each visit. The therapist tells him to put his mind at ease, and that she will waive his co-pay. She continues to tell him that it is an honor to work with such a high level athlete as himself.

During the evaluation Miguel tells his therapist that he often removes his sling at home and has begun to 'move the arm a little' as he is feeling 'very good.' Appropriately, upon evaluation the therapist introduced a home exercise program, and developed a PT program of joint mobs, ROM, and Thera-Band resistive exercises. Over the next four weeks the therapist increased his program to include dumbbells, isokinetics, and the addition of plyometrics.

Six weeks post-op (four weeks of PT), Miguel reported that he was returning to Florida to begin to work out with the team, specifically the trainer and the strength and conditioning coach. The Therapist agreed that this was a good plan and they agreed to finish out the week, as he was scheduled to leave at the beginning of the following week.

During the same visit, while the therapist was working with Miguel, the office manager approached the therapist explaining that she had an important call from a doctor regarding Michelle TaPico (another patient). The therapist, who had been waiting on the call excused herself from Miguel and asked one of the facilities personal trainers to finish stretching Miguel's shoulder and then begin his exercises if she was not back yet.

While the ATC was stretching Miguel, he reported that he was feeling increased pressure and discomfort in the shoulder, of which he had never had in therapy before. The ATC explained to him that it was necessary to regain full ROM as soon as possible if he was planning on pitching this fall. Miguel then reiterated that he did want to pitch in the fall and stated the old phrase 'no pain, no gain' I guess, to which both he and the ATC chuckled. With that the trainer gave some additional end-range overpressure creating an audible pop followed by intense pain. The trainer said that this was okay and that is was most likely just scar tissue and that in the long run it will be beneficial. With that he applied ice to Miguel's shoulder and resumed working with other clients.

Ten minutes later the therapist returned and Miguel informed her of what happened. She instructed him to apply ice to the shoulder for 10 minutes every hour, and to keep the shoulder 'quiet.' She also told him that they would re-evaluate the shoulder in two days when he returned for his final appointment. That night the therapist was out with her friends and she was recounting the story of Miguel, how much fun it had been working with him, and how bad she felt that he had experienced pain while working with someone else.

Two days later Miguel did not show for his final appointment, which struck the therapist as odd considering he had never missed an appointment to date. She asked the secretary to call his parent's house and to leave a message requesting him to call back. The following week she had still not heard from Miguel, so she assumed that he had returned to Florida, and she discharged him from the active files.

One month later a summons was served on the therapy office suing them for battery, and improper supervision. The therapist then called the doctor only to find out that Miguel had undergone a repeat MRI which revealed a re-injury to the repaired site, and a subsequent second surgery.

The following five questions refer to the case above.

11. Using the four quadrant clinical practice grid where would Miguel's physical therapist's actions fall?

      A. (+) Legal: (+) Ethical

      B. (-) Legal: (+) Ethical

      C. (+) Legal: (-) Ethical

      D. (-) Legal: (-) Ethical

12. Which of the following actions by Miguel's physical therapist was a clear HIPAA violation?

      A. Having the trainer treat Miguel while she was on the phone

      B. Waiving Miguel's co-pay

      C. Discussing Miguel's case with her friends (who were PT's)

      D. Calling Miguel's surgeon

13. Which of the following actions by Miguel's physical therapist would probably be considered illegal?

      A. Taking a phone call about another patient while engaged in a treatment session

      B. Waiving Miguel's co-pay

      C. Discussing Miguel's case with her friends (who were PT's)

      D. Having her secretary call Miguel's parents

14. The physical therapist required a prescription to treat Miguel, a prescription is not required in every state, and this example of a variation in State laws is known as what?

      A. Direct access

      B. Legal diversity

      C. Tort law

      D. Public law

15. While the therapist in this case is being sued, it is not a given that she will be found guilty of malpractice. If you were the therapist's lawyer, which one of the following factors would you argue was not definitive?

      A. A duty was owed to Miguel

      B. There was a breach of this duty

      C. Harm resulted from the act or omission

      D. The harm was foreseeable

Jane is the supervisor of a hospital based physical therapy department. She has been in this position for 5 years. Jane runs a "tight ship" and likes to keep an eye on the activities of the department throughout the day. She feels that the best way to supervise her staff is while they are actually doing the work. One of Jane's responsibilities is to keep her employees' motivations at a consistently high level. A few of the methods that Jane has used to do this are: bonuses, promotions, work delegation, and staff development. Jane knows that she is very lucky; for the most part her staff is very experienced. In fact they are able and willing (motivated and productive) to do their jobs, and show high competency and high commitment towards the job.

16. What would best characterize Jane's type of supervision?
    A. Loose or Sporadic supervision
    B. Regular Supervision
    C. Direct Supervision
    D. Indirect Supervision

17. Jane's way of motivating her staff is with what?
    A. Internal Reinforcements
    B. External Reinforcements
    C. Enhancing belief in themselves
    D. Buying them off

18. What type of leadership style would you expect to best suit Jane's staff?
    A. High task and low relationship
    B. Low task and high relationship
    C. High task and high relationship
    D. Low task and low relationship

Dominique is a hospital CEO/President who was recruited from a bureaucratic State agency position. She believes that those employees with superior abilities should lead those with less superior abilities. She also believes that skilled workers will not perform unless closely supervised. One day while giving a lecture at a local college to a class of future administrators, Dominique stated that she believes her employees generally view their job as distasteful, have little capacity for creativity in solving organizational problems, and need to be closely controlled and often coerced to achieve organizational goals.

19. Which model of management would you say Dominique subscribes to?
    A. The Traditional Model
    B. The Human Relations
    C. The Human Resource Model
    D. The Traditional Human Model

20. Dominique's assumptions about human nature could best be categorized as what?
    A. Hyland's Theory of Confusion
    B. Nosse's Theory Z
    C. McGregor's Theory X
    D. McGregor's Theory Y

21. In her role as a hospital administrator, Dominique is an example of what type of provider of care.
    A. Direct Provider
    B. Indirect Provider
    C. Semi-direct Provider
    D. None of the above

As it turns out, Jane runs the physical therapy department in the hospital that Dominique is the CEO at. Of late, Jane and Dominique have not seen eye to eye on the mission, vision, and values of physical therapy. Dominique has become disinterested in Jane's thoughts and is assertive and uncooperative towards her. In dealing with Dominique Jane is experiencing a situation in which her beliefs and needs are being denied.

22. It is clear that Jane and Dominique have a basic problem, which can be best described as what?
    A. Ethical Situation
    B. Ethical Dilemma
    C. Conflict
    D. Negative Demand

23. The way that Dominique handles the above situation by becoming assertive and uncooperative would be identified by Thomas Killman as?
    A. Competing
    B. Accommodating
    C. Avoiding
    D. Collaborating

Joe is a home care therapist in Buffalo specializing in pediatrics. He is facing a very difficult problem which bothers him deeply. Joe has been working with twin boys, presently 34 months old, since they were 6 months old. Both have CP and the family relies heavily on Joe's twice a week visits to work with the twins and educate the parents in their children's care. At 3 years of age the boys' State and County funding, which pays for Joe's services, will be cut off. At that time they will enter the school system and receive care as it is available. The family has begged Joe to stay, and said that they will give what they can to reimburse him. Joe knows that the boys need one on one care and that they will probably get lost in the school system. He also knows that family has little money and without State and County funds, will be able to pay

him very little. What is he to do, Joe knows he must quickly make a decision, but the choice is not clear?

24. Joe sits down and gathers all relevant information, and clearly in his mind identifies his choices. With each choice he asks himself is it legal, is it balanced, and how will I feel about myself after. What is Joe doing?
   A. Quick Ethics Check
   B. Ethical Decision Tree
   C. Formal Ethical Decision Making Process
   D. Self Ethical Analysis

25. Joe reflects, and decides he will continue to see the twins. He bases his decision upon his belief that his role as a therapist is to provide the best care he can to all children who are in need, regardless of their ability to pay. What ethical principle is Joe Following?
   A. Beneficence
   B. Non-maleficence
   C. Autonomy
   D. Justice

26. Joe is the sole proprietor of his business, and its only employee. He is responsible for all facets of care. What organizational developmental stage is Joes business at?
   A. Divisionalized stage
   B. Entrepreneurial stage
   C. Bureaucratic stage
   D. Craft stage

27. Joe loves being a physical therapist, and is proud of what he does. What he finds challenging about running a business are the constant changes in reimbursement, and the law. Joe's environment could best be described as how?
   A. Stable
   B. Diverse
   C. Unstable
   D. Singular

The following eleven questions refer to the case of specialized physical therapy; you do not need to have the case with you to answer the questions.

28. In the case of specialized physical therapy, one tactic that Mary and Dana may consider before hiring a consultant is to take a closer look at their financial position. They should determine how they are doing today, from a financial standpoint, as a single snapshot in time. To do this Mary and Dana should develop what?
    A. Balance sheet
    B. Budget
    C. Investment portfolio
    D. Income statement

29. One thing that Mary has always been proud of with regard to her practice is the high quality of care that they are able to provide. The component of quality that deals with material resources, human resources, and organizational framework is known as what?
    A. Process
    B. Structure
    C. Outcome
    D. Efficiency

30. One thing that is stated about Specialized Physical Therapy is its approximate case mix: managed care 30%, workers comp./ no fault 20%, Medicare 20%, and pro bono 3%. Which of these categories is characterized by the payer shifting risk to the participant by making them responsible for a portion of their bill such as a co-pay, deductible, or visit limit?
    A. Managed care
    B. Workers compensation / no fault
    C. Medicare
    D. Pro bono

31. After meeting with Dana, Mary returned to work the next day and held an impromptu staff meeting with her employees. She was very open with them regarding the state of the organization and the choices that need to be made. She encouraged her staff to come up with ideas and possible solutions to achieve success. Based upon the way Mary interacts with her staff, including them in decision making and being oriented to job satisfaction, it may be hypothesized that Mary subscribes to which traditional management model?
    A. Human resource model
    B. The traditional model
    C. The human relations model
    D. The McGregor multiple theory model

32. Mary and Dana decide that one of the key tasks they will need to do, in order to help their practice survive, is to begin marketing. Mary tells Dana, that customer satisfaction is an absolute must, and that the needs of the patients can not be compromised. Organizations, such as Mary's, are known as what?

    A. Market savvy
    B. Market segmentation
    C. Market oriented
    D. Market tasked

33. Mary identifies that her biggest reservation to marketing is her lack of marketing skill, and her present lack of financial resources. These negative factors which are impacting Mary's ability to market are considered what?

    A. Internal factors
    B. External factors
    C. Hybrid factors
    D. Complicating factors

34. Mary has always believed that each patient should be treated as a unique person, and their treatment plan should be determined and individualized based upon their needs. Mary's market strategy would be considered what?

    A. Product driven
    B. Market driven
    C. Facility driven
    D. Service driven

35. With the help of a consultant, Mary identifies a three prong marketing strategy: insurance companies, the general public, and physicians. Mary identifies her local orthopedic physicians, as well as those within a 15 mile radius to initiate her marketing plan. This physician identification is known as what?

    A. Physician specialization
    B. Market segmentation
    C. Market identification
    D. Market habitualization

36. It states in the case that Mary is experiencing a drop in patient visits; this is defined as which marketing task?

    A. Negative demand
    B. Irregular demand
    C. Faltering demand
    D. Lack of demand

37. The methods of marketing that Mary uses, such as: radio advertisements, a web page, little league team sponsorship, etc. are examples of which 'P' in market mix?
    A. Product
    B. Place
    C. Price
    D. Promotion

38. After meeting with a consultant, Mary returned to work and held an impromptu staff meeting with her employees. She encouraged her staff to come up with ideas and possible solutions to achieve success. Mary created awareness that her employees' best efforts are essential for the success of the organization, and when they return to prominence, they will all reap the rewards. Peters and Waterman would refer to this concept as what?
    A. A bias for action
    B. Autonomy and entrepreneurship
    C. Hands on value driven
    D. Productivity through people

In the spring of 2004, a group of motivated physical therapy students from Mercy College opened their own physical therapy practice with the help of their faculty mentor. Below are their financial statements:

Balance Sheet April 18, 2004

Assets:
Current Assets
Cash	$10,000	
Accounts receivable	7,000	
Total Current Assets		$17,000

Fixed Assets
Equipment	$20,000	
Land	$50,000	
Total Fixed Assets		$70,000
TOTAL ASSETS		**$87,000**

Liabilities:
Accounts payable	$8,000	
Taxes payable	$2,000	
TOTAL LIABILITIES		**$10,000**
OWNERS' EQUITY		**XXXXX**

Pro Forma Income Statement April 1, 2004-March 31, 2005

Revenues

Service	750,000	
Supplies sold	11,000	
Equipment rented	4,000	
Total Revenue		765,000

Expenses

Salaries	400,000	
Benefits	80,000	
Office supplies	50,000	
Supplies sold	8,000	
Equipment	30,000	
Education	5,000	
Recruitment	5,000	
Advertising	30,000	
Rent	60,000	
Utilities	8,000	
Depreciation	18,000	
Travel	6,000	
Entertainment	20,000	
Total Expenses		720,000
Net Income (loss)		xxxxxx

39. What is the owners' equity in the balance sheet?
    A. $77,000
    B. $7,000
    C. $60,000
    D. $97,000

40. What does the term 'Pro Forma' mean in the income statement?
    A. Calculated by a professional financial expert
    B. It is a legal term
    C. Projected
    D. Hypothetical

41. What is the net income in the income statement?
    A. $1,485,000
    B. $45,000
    C. $745,000
    D. $4,500

42. What is the Quick Ratio for Mercy College Physical Therapy?
   A. 1.7
   B. 8.7
   C. 7.0
   D. None of the above

43. It will be important for the 25 owners of Mercy College Physical Therapy to take the financial information, and use it to help make decisions regarding the activities of the practice. This projection into the future is known as what?
   A. Financial planning
   B. Marketing
   C. Business planning
   D. Measuring goods and services

44. As a new practice, Mercy College Physical Therapy will have to market to attract new customers. One thing that may draw more business to the practice is the cost of the service. A determination is made to set prices below that of all the local competition to try to attract new business. This pricing strategy is known as what?
   A. Cost plus pricing
   B. Market share pricing
   C. Going rate pricing
   D. Capitation pricing

45. As a new practice the organization will experience many costs, which of the following would be considered a fixed cost?
   A. Linens
   B. Telephone
   C. Chart materials
   D. Rent

46. With so many individuals in the organization, it will be important to divide up the work so that there is no unnecessary duplication. Work groups are set up for: marketing, production, research, finance, and organizational management. This grouping of employees is known as what?
   A. Departmentalization
   B. Chain of command
   C. Work tasking
   D. Operations management

47. As a corporation Mercy College Physical Therapy will have to set rules which will govern the internal affairs of an organization. These rules will establish the broadest scope of influence over the organization and set forth the boundaries for all organizational activities. These rules are known as what?

    A. Policies
    B. Procedures
    C. Articles of incorporation
    D. Bylaws

48. Due to the anticipated busy nature of Mercy College Physical Therapy, it will be important for them to hire aides, and technicians. With regard to scope and depth of task, what degrees of specialization do aides and technicians have?

    A. High horizontal: High vertical
    B. High horizontal: Low vertical
    C. Low horizontal: High vertical
    D. Low horizontal: Low vertical

49. What part of the Mercy College Physical Therapy would the aides and technicians fall into?

    A. Operating core
    B. Support staff
    C. Management
    D. Professional staff

50. You have survived this class, and this program; which ability do you anticipate as being the most critical to cultivate as you move into the community of physical therapy?

    A. The ability to memorize text material
    B. The ability to write papers
    C. The ability to be away from family and friends all weekend
    D. The ability to "move with the cheese"

Appendix H
Ethics Paper Grading Sheet

Name: _____

Each heading is worth 3 points

Format (3-5 pages, 12 point font, double spaced, grammar)   _____

Patient/ Family perspective   _____

Insurance company perspective   _____

Doctors' perspectives (Gupta, Glaspy, Slamon)   _____

Your perspectives   _____

TOTAL (out of a possible 15)   _____

Appendix I
Business Plan

Student Name: _____

10 Elements to paper (2 points each)

Name   _____

Location (why)   _____

Type of practice   _____

Mission   _____

Budget   _____

Market plan   _____

Pricing strategy   _____

Pro-forma income statement   _____

5 year plan   _____

Overall Quality of paper   _____

Total out of 20:   _____

Appendix J
"The Associate Director and the Controllers"

Case Worksheet

1) Who is the protagonist?

2) What are the protagonist's goals both explicit and implicit?

3) What decisions must the protagonist make both explicit and implicit?

4) What problems, opportunities, and risks does the protagonist face?

5) What evidences does the protagonist have to make a decision?

6) What are the alternative courses of action (what are the choices)?

7) What criteria should be used to judge the alternatives?

8) What action would you take from the possible courses if you were the protagonist?

9) Why did you choose the course of action you did?

Appendix K

Case #2: Specialized Physical Therapy
Topic: Health care consulting

You are hired as the consultant for Specialized Physical Therapy, answer the following questions in giving your recommendations.

1. Overview the case and outline the problems you see.

2. What are the strengths of the practice?

3. What are the weaknesses of the practice?

4. What information are you lacking to make an informed decision?

5. What options are available to Mary?

6. What recommendations do you have?