

THE RELATIONSHIP OF SELECTED ADMISSION
CRITERIA TO THE ACADEMIC SUCCESS OF
PHYSICAL THERAPIST ASSISTANT
STUDENTS

By

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CHAPTER I

INTRODUCTION

Selection and retention of students in a program of limited capacity is a concern of many allied health educators. The concern is based upon both economic and humanitarian reasons.

Humanitarian concerns include the protection of the public who will be served by the graduates and the emotional "trauma" of students who are either not selected into a program or who are not successful when selected into a program. Cohen and Brawer (cited in Southerland, 1986) felt it was more humane to withhold admissions to a program than to admit with the expectation of noncompletion.

Economic concerns are paramount. Houston (1977) noted that the "cost of educating students in all allied health areas has been found to be extremely high in relation to other college curricula" (p. 3). Other economic concerns include manpower and attrition costs. Manpower costs include the time the academic faculty devote to the selection process in communication with applicants, processing application materials, and in interviewing. Professional manpower costs exist since each position granted to an unsuccessful student necessitates denial of a potentially successful applicant.

Attrition also contributes to the professional manpower issue as the curricula of most allied health programs are designed on the basis of one-time entrance dates. Thus, dropouts further reduce the number of graduates available to meet health care needs. Douce and Coates (1984) indicated that attrition is also a problem because faculty may neglect some students while spending a disproportionate amount of time and energy helping students who will ultimately drop out of the program.

Statement of the Problem

In the Tulsa Junior College (TJC) Physical Therapist Assistant program, the attrition rate fluctuated randomly year to year from 12.5 to 66.7 percent during the time frame of 1985 to 1990. The average attrition rate during this time frame was 40.4 percent. Identification of admission criteria which allow for selection of students with the highest potential for academic success would seem useful to reducing and stabilizing the attrition rate in this program.

Additionally, evaluation of admissions requirements should be ongoing. Oliver (1980) maintained that validity studies to determine the correlation between preadmission variables and college success should be performed annually, or at periodic intervals.

Thus, the selection system criteria utilized needed to be evaluated to determine differences, if any, between graduating and withdrawing students in the TJC program.

Purpose

The purpose of this study was to determine by retrospective analysis which, if any, of the criteria used in the selection of students for a physical therapist assistant education program contributed significantly toward predicting academic success.

Hypotheses

Of students selected into a physical therapist assistant program:

1. There is no significant difference between the successful and unsuccessful program completion groups' pre-program overall grade point averages.
2. There is no significant difference between the successful and unsuccessful program completion groups' pre-program science and math grade point averages.
3. There is no significant difference between the successful and unsuccessful program completion groups' ACT composite scores.
4. There is no significant difference between the successful and unsuccessful program completion groups' ACT math and science score averages.
5. There is no significant difference between the successful and unsuccessful program completion groups' recommendation form scores.
6. There is no significant difference between the successful and unsuccessful program completion groups'

observation form scores.

7. There is no significant difference between the successful and nonsuccessful program completion groups' written essay scores.

8. There is no significant difference between the successful and nonsuccessful program completion groups' interview scores.

Assumptions

It was assumed that:

1. Student records provided reliable data sources.
2. The student records utilized for this study were representative of future applicants.

Scope and Limitations

The population of this study consisted of 88 students who were selected into and began the physical therapist assistant program at Tulsa Junior College from 1983 to 1988. Eighty-nine students began the program during the time frame studied, however, one was omitted from the study due to an incomplete student file. The study excluded students who were selected for the program, but did not accept the positions offered.

There were 7 male and 81 female students in the population of the study. The age range at the time of acceptance into the program varied from 18 to 46, with a mean age of 26.2.

Definition

Academic success -- Completion of the physical therapist assistant program in two years and passage of the licensure examination on the first attempt.

CHAPTER II

LITERATURE REVIEW

Attrition

Attrition is a frequent topic in discussions among health educators and in the literature. Common threads of this discussion include attrition rates and common causes for attrition with some attention devoted to when attrition occurs in a given program.

Cited attrition rates and times varied considerably among institutions, among disciplines, and from year to year in given programs. Douce and Coates (1984) surveyed 83 accredited respiratory education programs and reported the average attrition rate of all responding programs was 26 percent. Rowland (cited in Oliver, 1985) indicated that one third of all students admitted to nursing schools, considering all levels of programs, did not successfully complete their programs. Among this group, 80 percent dropped out during their first year. National dental hygiene student attrition was reported by Young and Fellows (1981) to be 8.4 percent for classes graduating in 1979. In addition, their study displayed the wide variability in attrition rates among institutions and from year to year in a given program, as they

reported 14 to 21 percent attrition rates in the University of Minnesota Dental Hygiene program from 1974 to 1977 and an attrition rate of 44 percent in the class entering in 1978. Hedl (1987) reported a 44 percent attrition rate for allied health educators at the University of Texas Health Science Center at Dallas from 1972 to 1986. As in the nursing study, this study displayed attrition early in the program; he reported 46 percent of the dropouts occurred within one semester or less. Bridle (1987) showed an average attrition rate of 4.7 percent to 23.8 percent for classes selected from 1977 to 1980 for occupational therapy students at Queens University, Kingston, Ontario. The time of attrition ranged from within days of entry to half way through the third year of the program. On the lower end of the attrition rates, Byl (1988) cited a 7 percent attrition rate for physical therapy students admitted to the University of California from 1984 to 1986 and Rezler (1983) noted that for medical and dental schools, attrition figures were 2 percent and 7 percent respectively.

Reasons cited for attrition also showed considerable variation. In respiratory therapy education, Douce and Coates (1984) reported the most common causes for attrition were poor academic performance (47%), unknown reasons (17.2%), and changes in career interest (12.4%). Byl (1988) reported a low attrition rate in physical therapy education, but of the five students who withdrew in a three year period, three were counselled to withdraw due to poor academic performance and one voluntarily withdrew to take additional science courses.

However, the three with academic difficulties also reported personal problems. Hedl (1987) listed personal/family reasons (25%) and unknown reasons (26%) as the largest stated attrition factors from an allied health education program. Only 14 percent of the students in this study stated academic reasons were the cause of their dropping out of the program. Gates and Creamer (1984) reported that their study failed to account for "practically useful explanations of variations in retention status" (p. 45). Reasons given for withdrawal in a dental hygiene program (Young & Fellows, 1981) included change in career interest (34%), academic problems (23%), dislike of the learning environment (20%), personal (17%), and financial (6%). Rezler (1983) reported that academic difficulties accounted for about 40 percent of the students who leave nursing school. Other reasons she cited for nursing school attrition included change in career choice, inability to adjust to working with sick people and inability to adjust to the program. Oliver (1985) cited failure in classwork, dislike for nursing, marriage, and ill health as reasons for attrition in nursing education. Disenchantment with the field of study, academic failure and personal or family problems were listed as reasons for dropping out of an occupational therapy program (Bridle, 1987). Rezler (1983) reported that in dental education "withdrawals for personal reasons outnumber withdrawals for academic reasons" (p. 213).

These studies seemed to indicate that attrition rates and reasons were related to a multitude of factors. Gates and Creamer (1984) reported that students are "influenced

significantly by institutional conditions" (p. 48), such as policies, organizational patterns, and interactive climate and further suggested that what happens to a student after acceptance may be a more important determinant of attrition than the characteristics the student brings to the program. Hedl (1987) suggested that "commitment and motivation variables appear more important than academic ability or social/academic integration factors" (p. 219). These varied and multi-faceted reasons seemed consistent with literature on adult learning (Cross, 1988).

Selective Admission

Oliver (1980) noted that selective admission is practiced in acceptance of students into professional programs (such as law, medicine or theology), graduate programs, and specific programs (where the demand exceeds the number of spaces, such as nursing) and in special categories of students (such as disadvantaged students, talented students, or international students). Manning (cited in Oliver, 1980)

. . . proposed a two-stage model of the admissions process for institutions or programs with more qualified applicants than they can enroll: **admissibility** (minimum level required to succeed in the program) and **selection** (of those who would make up the best available entering class, based on nonacademic as well as academic considerations). (p. 47)

Petty and Todd (1985) stated, "In a sense, selectivity of admissions is merely a process of shifting the inevitable

'weeding out' process, which will always occur in a vigorous program, from the actual course work back to the admissions process" (p. 2). Enright (1972) stated:

An effective selection process will result in a higher level of competence among graduates, improved internal morale in the school, more interest in the subject matter among students, and more involvement and respect on the part of faculty for undergraduate students. (p. 154)

Selective admissions implies the establishment of selection criteria. Hawkins (1989) stated:

Ideally, to determine selection criteria, one would first determine what characteristics constitute a successful practitioner, design an educational program to produce this collection of characteristics, and then select students who either possess the characteristics or who have demonstrated abilities to acquire them in the educational program. There are very few examples of this ideal occurring. More often, it seems that programs are designed by "restraint"; i.e., budget, geography, available faculty, or some other set of factors related to limited resources are weighed against the requirements to meet accreditation standards. The result is that a program is usually designed within these restraints.

(p. 164)

No matter what methods were utilized to establish the selection criteria, Petty and Todd (1985) maintained that the criteria developed and utilized must be backed by data that predict student success. They stated "the process of

selecting students in and out of a program must be done in such a manner that there is a high probability that the most qualified students will be selected" (p. 4). In line with the ethics of the establishment of criteria, Hawkins (1989) maintained that "regardless of criteria and means, the entire process should be strictly followed for all applicants" (p. 166). To ensure that the selection criteria utilized are predictive, Oliver (1980) advocated that validation studies should be conducted. He maintained that attempts should be made to determine if each requirement was doing what it was intended to do in selection of the incoming class. He further identified other bases important for evaluating selection criteria: "fairness (reasonableness and relation to the requirements of the educational program), feasibility (practicality and cost effectiveness), and secondary effects (unintended effects on the college, the feeder schools, or the profession served by the educational program)" (p. 40).

In addition to ethical concerns in the development of selection criteria, legal concerns must also be considered. Oliver (1980) cautioned the admitting officer to keep abreast of the legal issues. Domholdt (1987) identified three grounds upon which admissions criteria are generally challenged: (1) constitutional, (2) federal statutory, or (3) contractual. She stated,

Three general constraints are placed on admissions policies, each relating to one of three legal grounds;
1) selection must not be arbitrary or capricious
(violating constitutional due process as guaranteed by

the 14th Amendment to the U.S. Constitution); 2) institutions must honor published standards (violating contract theory based on state statutes), and; 3) institutions may not discriminate on the basis of race, gender, handicap, age and citizenship (violating constitutional equal protection based on the 14th Amendment and compliance with federal nondiscriminatory statutes). (p. 5)

Cited admission criteria for health educational programs varied by grouping, but showed some commonalities. Bennett and Wakeford (1983) maintained that information available about applicants falls into two categories: 1) academic ability and 2) experience and nonacademic personal qualities. Balogun (1987) felt that candidates were most often evaluated on psychomotor skills, affective traits, and preprofessional cognitive knowledge. Rezler (1983) divided student characteristics she found important in student selection into four categories: 1) measures that indicate intellectual capacity, 2) personal characteristics and interests, 3) biographical data, and 4) psychomotor skills.

Bennet and Wakeford (1983) and Dietrich and Crowley (1982) reported that academic ability and/or prior academic performance are the most common assessments used in the selection of students in training programs as health workers. The measures often listed as selection criteria in this category included achievement test scores, national examination test results (such as the Scholastic Aptitude Test [SAT] or the American College Test Battery [ACT]), previous

academic record (cumulative grade point average and/or grade point average for specified courses), high school class rank, intelligence test scores, academic aptitude scores and specialized test results (such as the Allied Health Professions Admission Test [AHPAT] or the Medical College Admissions Test [MCAT]) (Balogun, 1987; Bennett & Wakeford, 1983; Enright, 1972; Hawkins, 1989; Oliver, 1980; Rezler, 1983). Dietrich (1981) felt the psychomotor domain is the most neglected in health program student selection. She further noted that evaluation of this area is expensive and time consuming. Measures listed for the psychomotor area indicated that students are tested on spatial perception, gross motor skills, and eye-hand coordination (Balogun, 1987; Rezler, 1983). Dietrich (1981) noted that "quantifying applicant affective characteristics is perhaps the most difficult task in student selection" (p. 230). Nonacademic personal qualities or affective domain measurement tools frequently cited included letters of recommendation, interviews, essays, and psychological tests (Balogun, 1987; Rezler, 1983; Bennett & Wakefield, 1983; Oliver, 1980; Enright, 1972). Scott (1978) reported that a biographical inventory could be used to predict success or nonsuccess of allied health students matriculating through community colleges.

Examination of the reported strengths and weaknesses of some of the various criteria utilized in selective admission would be of interest to health educators involved in this process.

Educational Records

Oliver (1980) noted that the documents most frequently required are the official transcripts of an applicant's high school and/or college work. These documents are used to verify the "nature, amount and quality of the academic work attempted" (p. 34). They are also utilized to determine cumulative grade point average and/or grade point average in selected course work. Oliver (1980) cautioned the program admission committee or officer to work with the institution's admission office in securing these documents "because the possibility of fraudulent records always exists" (p. 35). Rezler (1983) supported the use of grade point average as a selection criteria; she stated "maintaining high grades over a period of time reflects motivation and work habits, in addition to subject matter knowledge" (p. 208). Bennett and Wakeford (1983) acknowledged the assumption that students who have done well in previous learning will do well in subsequent academic work, however, they cautioned that students may apply to a health program only because they know they can gain entry and have no other motivation.

Test Scores

Test scores are utilized to "measure the extent to which an individual has developed his ability in certain skills that psychologists and educators think important" (Enright, 1972, p. 154). Rezler (1983) supported the use of standardized test scores in the selection process. She stated, "Variations in

the quality of undergraduate institutions, grading standards, and the difficulty level of courses can be counterbalanced" (p. 208). She also felt standardized tests could be advantageous to the late-bloomers, who did not distinguish themselves in high school or early college years. Oliver (1980) stated that scores on standardized tests are valuable as they have "consistently demonstrated" (p. 36) predictability of academic performance. However, he also acknowledged the issue of fairness of tests when used as a factor in the admission of racial and ethnic minorities. Mokros's (1984) and Bennett and Wakeford's (1983) studies discussed this issue; they concluded that test measures did not reflect true ability, rather differences in experiences. Both of these studies suggested the use of randomized selection or a lottery system to assure fairness in the selection process. Bennett and Wakeford (1983) further denounced the use of standardized tests; they stated:

Even specially designed tests (including the MCAT) predict performance only in the early years of medical training, and that to a very limited extent.

Considerable financial and manpower resources have been expended in developing such tests, yet it has been found difficult to extend the prediction of students' academic performance beyond the early years of training. Little if any progress has been made in predicting actual clinical performance either during or after training.

(p. 17)

In discussing the use of specially designed or custom-made

professional batteries, Rezler (1983) noted that the Allied Health Professions Admission Test (AHPAT) was developed for allied health programs to improve prediction, but she reported that the AHPAT and the ACT seemed ". . . to predict academic achievement equally well for mixed samples of allied health students in collegiate programs" (p. 221). Southerland (1986) cautioned, "those who give tests and interpret their results should avoid the temptation to become smug about their sufficiency; they should also use as wide an array of performance predictors as possible" (p. 13).

Interviews

"The interview as a selection device has been a source of controversy for a long time" (Rezler, 1983, p. 210). Oliver (1980) indicated that the research findings regarding the effectiveness of the interview as a predictive instrument have been mostly negative. However, he maintained the interview was effective and should be utilized as a means of communication (rather than evaluation) between the prospective student and the institution. Enright (1972) acknowledged the unreliability of the interview as a selection device, but advocated its use "to evaluate an individual's emotional maturity and potential for growth in interpersonal relations" (p. 155). Enright (1972) also listed self-confidence, personality, motivation, enthusiasm, and articulateness as factors that could be evaluated with the interview. Hawkins (1989) stated, "Interviews are excellent methods for assessing non-academic qualities of applicants, but only if conducted

objectively with specific criteria established for measuring each quality to be assessed" (p. 172). Rezler (1983) and Bennett and Wakeford (1983) pointed out that interviewers often disagree when they rate the same applicant. Hawkins (1989), Bennett and Wakeford (1983), and Rezler (1983) indicated that interview objectivity increased with training of the interviewers. However, Dietrich (1981) noted that interviews were a big time drain and training the interviewers added to that time constraint to the point that she felt the feasibility of interviewer development should be evaluated. Rezler (1983) made additional suggestions for the selection interview; she recommended utilizing a highly structured format, employing group interviews, and using students and representatives from the profession, in addition to faculty members, as interviewers.

Recommendations

Letters of recommendation may be utilized for assessment of personal characteristics. Oliver (1980) noted that their use has been impacted from the Family Educational Rights and Privacy Act of 1974, as Amended, which provides for student access to recommendations. A problem noted was most letters tended to emphasize only positive characteristics to enhance the applicant's selection chances (Rezler, 1983; Oliver, 1980; Bennett & Wakeford, 1983; Dietrich, 1981). Quantification of the data was another difficulty with this selection tool (Dietrich, 1981; Rezler, 1983). Another difficulty discussed with the use of letters of recommendation was that they may

not reflect the personal characteristics of the applicant, rather they may demonstrate the writing skills or characteristics of the person who prepared the recommendation (Oliver, 1980; Enright, 1972). Oliver (1980) suggested the use of a standard form or specifying who should complete the recommendation to help negate some of the problems. Enright (1972) suggested requiring high numbers of recommendations as "anyone can find two or three or four persons to give them a character reference" (p. 156).

Essay

Oliver (1980) discussed the strengths and weaknesses of the use of the essay. He noted the essay required the applicant to organize and present his ideas; so the applicant's writing skills could be evaluated as well as insights gained into the applicant's thinking processes. The limitations Oliver (1980) presented included verification of authorship and the concern that socio-economic background could affect content and quality of the essay.

Dietrich (1981) and Hawkins (1989) pointed out that after selection criteria are established, the health educators must decide upon a system or format by which to transform data from their information sources into measurable form. They stated that criteria could be weighted with point designations and subsequent applicant ranking, including the establishment of an alternate list. Dietrich (1981) also described the Q-technique, simultaneous judgement of all the applicants' characteristics by a panel of professionals, as an alternate

analytical approach to rank applicants.

The final step in selective admission was described by Dietrich (1981) and Oliver (1980) as evaluation of the validity and reliability of admissions criteria. Dietrich (1981) proposed that all information on entering and exiting student characteristics be converted into nominal, ordinal, and/or interval data and be included in a comprehensive input-output data base. She then suggested statistical analysis as appropriate for the individual program to evaluate their selection process. In a later study, Dietrich and Crowley (1982) received survey responses from 453 allied health programs that indicated that evaluation of the admissions content and process was a major weakness; evaluation was absent in most responding programs. They further noted that evaluation procedures were less likely to be utilized by associate degree curricula than by baccalaureate programs.

Admission Criteria as Indicators of Student Success in Allied Health Programs

Researchers have looked at different allied health programs to determine if the admission criteria utilized were predictors of student success. Rezler (1983) reported that most studies in allied health since 1960 attempted to relate selection criteria to grade point averages or clinical ratings and that overall, entry grade point average was the best predictor of academic performance and that clinical performance was "much less predictable than academic performance" (p. 212).

In radiologic technology, Kavanagh (1981) found that high school grade point average and grades in algebra and biology were predictive of academic performance in the program at Indiana Vocational Technical College. Cisneros-Blagg and Blagg (1983) reported that personality and demographic variables were not related to student performance in academic courses, but personality variables had potential as indicators of successful clinical performance. Winkler and Bender (1989) reported that student age, Iowa Test of Educational Development score, American College Test (ACT) composite score, years worked, college grade point average, and college mathematics and science grade point averages were significant predictors of program grade point average and class rank in the radiography program at the Mayo School of Health-Related Sciences. Jensen (1989) reported that in the radiologic technology program at Southern Illinois University, the best predictor of final college grade point average was the natural science ACT score and that the natural science and mathematics ACT scores were the best predictors of national board examination scores.

In Jensen's (1989) study at Southern Illinois University, high school class rank was found to be a significant indicator to predict respiratory therapy final grade point average, but none of the variables he studied were significant predictors of graduation status or of national board scores. Flanigan (1985) found that the pre-program science and math grade point average was the strongest predictor of academic performance in the baccalaureate respiratory therapy program

at Ohio State University.

The Miami-Dade study (Bistreich, 1981) found that high school natural science grades and high school English grades were significant variables for the medical laboratory technology program. Heilman (1991) studied eleven medical laboratory technology programs in Texas and found the ACT test and its four subtests, the Nelson-Denny Reading Test (NDRT) and its three subtests, pre-professional grade average, and pre-professional science grade average all to be predictors with the final program grade point average. However, only six of the predictors, NDRT vocabulary, NDRT total, ACT math, ACT social science, ACT natural science, and ACT composite scores were correlated with the certification examination score.

In dental hygiene, Kochev (cited in Jensen, 1989) found some correlation between age and high school mathematics grade point average and students' grade point average in the first semester of the program at Northampton County Area Community College. The Miami-Dade study (Bistreich, 1981) reported pre-program grade point average was a significant variable for that community college's dental hygiene program.

In the occupational therapy program at the University of Western Ontario, Posthuma and Sommerfreund (1985) suggested that previous academic performance coupled with an interview item of problem solving appeared to correlate with occupational therapy coursework success for high school students, while previous academic work alone appeared to be the best predictor for university students. Vargo, Madill and Davidson (1986) reported that pre-program grade point average

correlated more highly with program grade point average than the interview ratings in the occupational therapy program at the University of Alberta. They also found clinical performance to be less related to pre-admission interview rating than some of the academic measures. Bridle (1987) compared three selection methods for entry into Queen's University Occupational Therapy Program and concluded that those candidates chosen on the basis of pre-program academic achievement attained significantly higher program academic scores than the other groups and the clinical performance of the academic group was comparable to the other groups.

Admission Criteria as Indicators of Student Success in Physical Therapy Education

In physical therapy education, as in the general allied health category, researchers have studied various admission criteria to determine predictors of success. In a study in the Program in Physical Therapy at the University of Western Ontario, Peat, Woodbury, and Donner (1982) reported that admission average (based primarily on previous academic performance) was highly related to academic and clinical performance. However, the admission average was more highly related to academic performance than clinical performance.

Balogun, Karacoloff and Farina (1986) performed a retrospective study to examine admission criteria as indicators of success in the baccalaureate physical therapy program at Russell Sage College, Troy, New York. They reported that the best predictors of academic achievement were

the pre-program grade point average and the essay score.

A study at the University of Illinois at Chicago evaluated individual versus group interviews for classes entering this physical therapy program in 1982 and 1983 (Levine, Knecht & Eisen, 1986). They reported that neither type of interview scores correlated significantly with academic and clinical performance. They also evaluated pre-professional academic and personal characteristics and reported none were strong predictors of performance.

Balogun (1987) found that preadmission grade point average was the best predictor of first-year academic performance in the physical therapy education program at Russell Sage College, Troy, New York. The second best predictor of academic success in the first year in this study was the AHPAT biology subscore. However, the researcher felt that even though this measure was statistically significant, it was not of practical importance and did not feel this indicator was predictive enough to justify its cost.

Cocanour and Peatman (1988) reported that the grade point average in the basic sciences was a better predictor of success than the SAT score in the baccalaureate physical therapy program at the University of Lowell in Maine.

In Roehrig's (1988) study, the selection criteria were examined as predictors of licensing examination scores for physical therapy graduates of the University of New Mexico. Multiple regression analysis was utilized and showed that three equations were highly significant: 1) the ACT composite score with the pre-admission prerequisite grade point average

and the pre-admission non-prerequisite grade point average; 2) the ACT composite score, both the pre-admission prerequisite and non-prerequisite grade point averages and the interview score; and 3) the ACT composite score, pre-admission prerequisite grade point average and interview score.

Garamet and Terracina (1988) reported that for baccalaureate physical therapy program graduates (classes 1972-1980) of SUNY Health Center at Syracuse, a four variable model of high school grade point average, age at entry into the program, pre-professional cumulative grade point average and personal interview score was the best predictor of the cumulative professional grade point average.

Gross (1989) studied three undergraduate physical therapy programs of graduating classes of 1983-1985 to examine the predictive value of admission criteria. He reported that conventional admission criteria were poor indicators of clinical performance and that pre-professional academic performance and standardized measures of general verbal and mathematical aptitude were moderate predictors of academic success.

As previously noted, Dietrich and Crowley (1983) reported that evaluation of admissions criteria was less likely to be utilized by associate degree programs than by baccalaureate programs in allied health education in general. This seemed to hold true for reported studies in physical therapy education. Two studies were found that examined selection criteria for a physical therapist assistant program. Pape and Casey (1986) found no significant difference between the

students who received higher scores with their selective admission formula and those who received lower scores in terms of clinical or academic success, as measured by their program grade point averages and clinical evaluations. Aldag and Martin (1975) found a positive correlation between ACT test scores and graduation grade point average in a physical therapist assistant program at Illinois Central College.

Summary

Attempts to identify reasons for attrition or factors that influenced the attrition rate in health education programs revealed a multitude of possible explanations that varied among and between disciplines and among and within institutions. These multiple and inter-related factors seemed consistent with Cross's (1988) views regarding adult learning.

A recurrent theme in the literature regarding selective admission was summarized by Hawkins (1989) when he stated, "The selection process must be rational and objective, fair and equitable, and humane" (p. 172). Various criteria have been used to select applicants into (or out of) health education programs. Ethical and legal concerns during the development of criteria were stressed. The most commonly utilized criteria were those that measured academic ability. However, a multitude of other criteria in the cognitive, affective and psychomotor domains were also offered as useful in the selection process. The importance of evaluation of the selection criteria and process was stressed in some studies and the lack of ongoing evaluation procedures was identified

as a weakness in allied health education.

The literature in allied health education programs in general and in the specific area of physical therapy education suggested there may be predictive power in various selection variables for individual programs. Pre-admission grade point average seemed to be the most recurrent predictor of academic success. A predictor for clinical success seemed more difficult to define.

CHAPTER III

METHODS AND PROCEDURAL DESIGN

This study was performed to evaluate the admissions requirements utilized by a physical therapist assistant program to determine which of the selection criteria, if any, were predictive of academic success.

Subjects

The population for this study consisted of students who were selected into and began the physical therapist assistant program at Tulsa Junior College from 1983 to 1988 with graduation dates between 1985 and 1990. For the purpose of this study, students were classified as successful if program completion was accomplished in two years and if they passed the licensure examination on the first attempt. The nonsuccessful classification included the students who withdrew prior to completion, who required more than two years to complete the program, or who did not pass the licensure examination on their first attempt.

There were a total of 89 students accepted into the program during this time frame; one student file was incomplete, so was omitted from the study. As presented in

Table 1, of the 88 student files utilized for the study, 40 were classified in the nonsuccessful group and 48 were successful. Of those classified as nonsuccessful, 5 completed the program, but required more than two years for completion. Of the 5 who required more than two years to complete the program, 2 did not pass the licensure examination on their first attempt.

TABLE 1
CLASSIFICATION OF POPULATION BY YEAR OF ACCEPTANCE

Year Accepted	Number of Students Accepted	Successful	Nonsuccessful
1983	16	12	4
1984	13	6	7
1985	11*	4	7*
1986	13	8	5
1987	16	8	8
1988	19	10	9
Totals	88	48	40

*One student file was incomplete and omitted from the study.

As can be seen in Table 1, there were 16 students

accepted in 1983; 12 were successful, 4 were not. Of the 13 students accepted in 1984, 6 were successful and 7 withdrew. In 1985, 12 students were accepted; 4 completed the program and 8 were nonsuccessful. However, one of the student files in the nonsuccessful category was incomplete and was therefore omitted from the study. There were 13 students accepted in 1986; 8 were successful and 5 were nonsuccessful. In 1987, 16 students were accepted; 8 were successful and 8 were nonsuccessful. Of the 19 students accepted in 1988, 10 completed the program while 9 withdrew.

Data Collection

The data were collected retrospectively from student files. Information gathered included the overall grade point average, math and science grade point average, ACT composite score, average of the ACT math and science scores, recommendation rating, observation rating, essay rating and interview score.

The overall grade point average and the math and science grade point average were based upon pre-program college work only, if the student had completed 12 or more college credit hours. If the student had completed 11 or less college credit hours, the grade point averages were obtained by averaging the student's high school grade point with the college work. If the student had not earned any college credit, the high school course work was used to determine the grade point averages.

Three standardized recommendation or reference forms were completed on each student (Appendix A). In the weighted

selection system, each recommendation form was worth 2 points, for a total of 6 points. In order to receive two points of credit (all or none) for each form, the average score had to be five or above.

The essay or written assignment was completed by each student at the time of their interview. It was worth 10 points total and was scored on content (3), organization (3), completeness (2), grammar (1), and punctuation (1). This selection criterion was not utilized in 1983 or 1984, therefore, the sample size for this variable was reduced to 30 in the successful group and 29 in the unsuccessful group.

The interview was worth 30 points and was broken into two sections. Basic information was worth 25 points and was scored on verbal skills (3), attentiveness/enthusiasm (1), composure/self-confidence (1), eye contact (1), appearance and behavior (1), and content/quality of responses (18). Discussion of a solution to a hypothetical problem was worth the other 5 points. This was rated on content/quality of response (2), organized thought processes (2), and enthusiasm for the challenge/composure/eye contact (1). The interview was not utilized in the selection system in 1983, therefore the sample size for this variable was reduced to 36 in the successful group and 36 in the unsuccessful group.

Students were also required to complete a minimum of two hours of observation in at least two different physical therapy clinics, for a total of four hours. Forms were supplied to be completed and signed by a physical therapist at the sites where the observations were performed (Appendix B).

In the selection system, each form was worth 2 points or 0 points. All satisfactory responses resulted in 2 points; any "no" response resulted in 0 points.

Statistical Analysis

The scores for each selection criteria were retrieved from each student's record and were entered into the computer. Utilizing MYSTAT software, the "t" test for independent samples was used to compare mean differences between the successful and unsuccessful groups for each selection variable. The statistical level of significance was .05 to accept or reject the null hypotheses.

CHAPTER IV

RESULTS AND DISCUSSION

The purpose of this study was to determine by retrospective analysis which, if any, of the criteria used in the selection of students for a physical therapist assistant education program contributed significantly toward predicting academic success. The scores from the eight selection variables were retrieved from the files of 88 students who had been selected into the physical therapist assistant program during the time frame of 1983 through 1988. Of the total population, 48 were classified as successful while 40 were classified as unsuccessful. The "t" test was used to compare the mean differences between the successful and unsuccessful groups for each selection criteria.

Analysis of Pre-program Overall Grade Point Averages

The mean scores and standard deviations of the overall grade point averages for the successful and unsuccessful groups are presented in Table 2 on the following page. This table also reports the separate variances "t" test value of 2.145 and the pooled variances "t" test value of 2.114. These values were significant at the .05 level.

TABLE 2
PRE-PROGRAM OVERALL GRADE POINT AVERAGES

Group	N	Range	Mean	SD
Successful	48	1.82 - 4.00	2.900	0.572
Nonsuccessful	40	1.61 - 4.00	2.658	0.489
Separate Variances			t = 2.145	df = 85.9
Pooled Variances			t = 2.114	df = 86.0

Analysis of Pre-program Science and Math
Grade Point Averages

Table 3 on the following page illustrates the mean scores, range and standard deviations of the science and math grade point averages for the successful and nonsuccessful groups. Significance to the .05 level was not found when comparing the means of the successful and nonsuccessful groups for this variable. The separate variances "t" test value of 1.191 and the pooled variances "t" test value of 1.183 are also shown in the table.

TABLE 3
PRE-PROGRAM SCIENCE AND MATH GRADE POINT
AVERAGES

Group	N	Range	Mean	SD
Successful	48	0.00 - 4.00	2.302	1.160
Nonsuccessful	40	0.00 - 4.00	2.017	1.079
Separate Variances			t = 1.191	df = 84.9
Pooled Variances			t = 1.183	df = 86.0

Analysis of ACT Composite Scores

The ACT composite scores were found to be significant to the .001 level with a separate variances "t" test value of 4.078 and a pooled variances "t" test value of 4.122. The "t" test values, mean scores, ranges and standard deviations for this selection criteria are presented in Table 4 on the following page.

TABLE 4
ACT COMPOSITE SCORES

Group	N	Range	Mean	SD
Successful	48	10 - 32	18.521	4.356
Nonsuccessful	40	05 - 28	14.450	4.904
Separate Variances			t = 4.078	df = 78.9
Pooled Variances			t = 4.122	df = 86.0

Analysis of ACT Math and Science
Score Averages

Table 5 on the following page displays the mean scores, ranges, standard deviations and "t" test values for the ACT math and science score averages. Significance to the .001 level was found with a separate variances "t" test value of 3.569 and a pooled variances "t" test value of 3.570.

TABLE 5
ACT MATH AND SCIENCE SCORE AVERAGES

Group	N	Range	Mean	SD
Successful	48	06.5 - 32.5	18.010	5.289
Nonsuccessful	40	03.0 - 30.5	13.963	5.304
Separate Variances			t = 3.569	df = 83.1
Pooled Variances			t = 3.570	df = 86.0

Analysis of Recommendation Form Scores

The difference in the mean scores from the recommendation forms was too small to perform a "t" test analysis. The mean scores, ranges and standard deviations for the successful and nonsuccessful groups are presented in Table 6 on the following page.

TABLE 6
RECOMMENDATION FORM SCORES

Group	N	Range	Mean	SD
Successful	48	6 - 6	6.000	0.000
Nonsuccessful	40	4 - 6	5.900	0.441
Insufficient data for t test				

Analysis of Observation Form Scores

All applicants selected into the physical therapist assistant program had completed both their observations in a satisfactory manner. Since the rating for this selection criteria was all or none, there was no difference in the mean scores to perform a "t" test analysis. The mean scores, ranges and standard deviations for the successful and nonsuccessful groups are presented in Table 7 on the following page.

TABLE 7
OBSERVATION FORM SCORES

Group	N	Range	Mean	SD
Successful	48	4 - 4	4.000	0.000
Nonsuccessful	40	4 - 4	4.000	0.000
Insufficient data for t test				

Analysis of Essay Scores

Table 8 on the following page presents the mean scores, ranges and standard deviations for the essay scores of the successful and nonsuccessful groups. This table shows that a smaller sample size of 30 for the successful group and 29 for the nonsuccessful group was found for this variable since this criterion was not used in the selection process in 1983 or in 1984. The "t" test values are also presented in Table 8. The separate variances "t" test value was 2.426 and the pooled variances "t" test value was 2.443. This mean difference was significant to the .05 level.

TABLE 8
ESSAY SCORES

Group	N	Range	Mean	SD
Successful	30	6.0 - 10.0	8.817	1.310
Nonsuccessful	29	2.0 - 10.0	7.724	2.055
Separate Variances			t = 2.426	df = 47.3
Pooled Variances			t = 2.443	df = 57.0

Analysis of Interview Scores

Mean scores, ranges and standard deviations for the successful and nonsuccessful groups' interview scores are presented in Table 9 on the following page. This table also reports the pooled variance "t" test value of .801. This difference was not significant at the .05 level. This criterion was not used in the selection process in 1983, therefore the sample size indicated in the table was 36 in the nonsuccessful group and 36 in the successful group.

TABLE 9
INTERVIEW SCORES

Group	N	Range	Mean	SD
Successful	36	18.0 - 30.0	27.056	2.848
Nonsuccessful	36	12.0 - 30.0	26.403	3.975
Pooled Variances		t = .801	df = 70.0	

Discussion

Overall grade point averages, ACT composite scores, and the math and science ACT score averages were found to be predictive of academic success in this study. These findings are congruent with numerous studies reported in the literature regarding the selection variables for allied health education programs (Rezler, 1983; Winkler & Bender, 1989; Jensen, 1989; Bistreich, 1981; Bridle, 1989; Balogun, Karacoloff & Farina, 1986; Balogun, 1987; Roehrig, 1988; & Garamet & Terracina, 1988). Of these variables, pre-admission grade point average seemed to be the most recurrent predictor of academic success in the literature review. However, this study showed the ACT composite score and the average of the ACT math and science scores to be very strong predictors ($p < .001$) for the physical therapist assistant program studied. Discretion should be used, however, when utilizing ACT scores as

predictive of success. The range of composite ACT scores in the successful group in this study was 10-32 and the range for this variable in the nonsuccessful group was 05-28. Most certainly the interplay of motivation, life circumstance and ability has an impact upon whether a student completes a program or withdraws prior to completion.

The math and science pre-program grade point average was not found to be predictive of success in this study. This finding is in contrast to numerous studies cited in the literature (Kavanagh, 1981; Winkler & Bender, 1989; Flanigan, 1985; Bistreich, 1981; & Cocanour & Peatman, 1988). When determining math and science pre-program grade point average in the selection process studied, the average was considered 0.00 if the applicant had not taken any math or science courses to that point in time. This practice may have skewed the data as compared to other programs and may account for this inconsistency.

The mean scores of the recommendation forms for the successful and nonsuccessful groups showed too little difference for data analysis. Common sense suggests that each applicant will request recommendations only from people who will report their personal characteristics in a positive manner. Enright (1972) suggested this finding when he advocated requiring high numbers of recommendations. Also, the data for this study may have been more useful had a scoring system been established to evaluate the forms, rather than the all or none scoring that was utilized.

The observation form mean scores showed no difference

between the two groups. It is interesting that this criterion was not specifically addressed in the literature. While observations are commonly required in physical therapy education, it is difficult and possibly not appropriate to assign a score to this type of activity.

The written essay scores were found to be a predictor of success in this study. Oliver (1980) suggested the essay could be useful if authorship could be controlled. Limited reference is given to the essay as a selection criterion or as a possible predictor of success, however, Balogun, Karacoloff and Farina (1986) reported the essay to be a predictor of academic success in a physical therapy program.

The literature shows controversy over the use of the interview as a selection device and wide variation among studies in regard to its usefulness as a predictor of success. This criterion was not found to be significant in predicting success in this study. It is interesting to note that different interviewers and different methods of interviewing were utilized during the time frame of this study. Lack of consistency with this selection criterion might have altered the results of this study.

CHAPTER V

FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

Identification of admission criteria which allow for selection of students with the highest potential for academic success is a goal of many allied health educators. The importance of selection and retention of students in a program of limited capacity led to this investigation of the selection criteria utilized in a physical therapist assistant education program.

The purpose of this study was to identify which, if any, of the eight selection criteria utilized by a physical therapist assistant education program were indicators of academic success. A total of 88 files of students who were selected into the program during a five year time frame was utilized to retrospectively capture data for the study. The students were divided into two groups based on completion or noncompletion of the program in two years and successful passage of the licensing examination on the first attempt.

The statistical procedure used to analyze the data was the "t" test to compare the mean differences between the successful and nonsuccessful groups for each selection variable.

Findings

The data collected in this study were analyzed and led to the following findings:

1. H_0 There is no significant difference between the successful and unsuccessful program completion groups' pre-program overall grade point averages. Hypothesis one was rejected. The "t" test indicated that this criterion was significant at the .05 level of confidence.

2. H_0 There is no significant difference between the successful and unsuccessful program completion groups' pre-program science and math grade point averages. Hypothesis two was accepted as no significant difference ($p > .05$) was found between the successful program completion group and the unsuccessful group.

3. H_0 There is no significant difference between the successful and unsuccessful program completion groups' ACT composite scores. Hypothesis three was rejected. The "t" test indicated this criterion was significant to the .001 level of confidence.

4. H_0 There is no significant difference between the successful and unsuccessful program completion groups' ACT math and science score averages. Hypothesis four was rejected. The "t" test indicated this criterion was significant to the .001 level of confidence.

5. H_0 There is no significant difference between the successful and unsuccessful program completion groups' recommendation form scores. Hypothesis five was accepted as

no significant difference ($p > .05$) was found between the successful and nonsuccessful groups for this variable.

6. H_0 There is no significant difference between the successful and nonsuccessful program completion groups' observation form scores. Hypothesis six was accepted as no significant difference ($p > .05$) was found between the successful and nonsuccessful groups.

7. H_0 There is no significant difference between the successful and nonsuccessful program completion groups' essay scores. Hypothesis seven was rejected. The "t" test indicated this criterion was significant to the .05 level of confidence.

8. H_0 There is no significant difference between the successful and nonsuccessful program completion groups' interview scores. Hypothesis eight was accepted as no significant difference ($p > .05$) was found for this criterion between the successful and nonsuccessful groups.

Conclusions

The following conclusions were drawn from this study:

1. Pre-program overall grade point averages, the ACT composite scores, the ACT math and science score averages, and the essay scores were predictive of success in this physical therapist assistant education program.

2. The pre-program math and science grade point averages, the interview scores, the recommendation form scores, and the observation form scores were not found to be predictive in this study.

Recommendations

The results of this study and the literature review suggest that generalities should be avoided since indicators for success in one program were often not statistically significant in another program. This is probably due to the wide variability in program curricula and evaluation procedures. It is therefore felt that the predictors determined in this study should not be considered predictive for other programs. It is further recommended that individual programs develop their own evaluation process with the goal of a better understanding of the correlates of success and the establishment of valid admissions criteria. This evaluation process should be ongoing since predictors could change as curricular changes evolve.

The ACT composite scores and ACT math and science score averages were found to be predictive in this study. However, effective November, 1989, the ACT test was revised and is now the Enhanced ACT. It is recommended that this study be repeated in two to three years to determine if this selection criterion remains predictive for this program.

The interview was not found to be a selection criterion that was predictive of success in this study. However, personal characteristics are considered an important aspect of successful health care-givers. It is recommended that a personality inventory or a vocational interest inventory be administered to each student upon entering the program for the next three years. At the end of this time frame, the

successful groups' data could be compared to the unsuccessful groups' data to determine if the inventory contributes significantly toward predicting program success.

This study evaluated selection criteria in regard to successful academic performance. Clinical performance was not considered due to the lack of adequate quantifying measures. Future research is needed to develop criterion measures for clinical skills. Additional research could then be pursued to determine what selection criteria are useful to predict successful clinical performance and to determine if relationships exist between academic scores and fieldwork performance.

Demographics were not evaluated in this study. Some of these variables, age at entry, for example, may be related to maturity and motivation. Future research may be needed to examine a variety of demographic variables, especially in studies with adult students.

Most studies on student selection, including this study, show relationships between cognitive tests, academic performance and successful program completion. Other things being equal, a student with a high grade point average or high cognitive test scores may not become a superior health professional. This suggests research to develop minimal cognitive entrance measures and to develop measures to evaluate other qualities that might be useful to help predict successful healthcare professionals.

REFERENCES

- Aldag, J. C., & Martin, M. F. (1975). Physical therapist assistant selection and academic success. Physical Therapy Journal, 55(7), 747-750.
- Balogun, J. A. (1987). Predictive validity of the Allied Health Professions Admission Test. Physiotherapy Canada, 39(1), 39-42.
- Balogun, J. A., Karacoloff, L. A., & Farina, N. T. (1986). Predictors of academic achievement in physical therapy. Physical Therapy Journal, 66(6), 976-980.
- Bartz, A. E., (1988). Basic statistical concepts. New York: Macmillan.
- Bennett, M., & Wakeford, R. (1983). Selecting students for training in health care. A practical guide to improving selection procedures. (WHO Offset Publication No. 74). Geneva, Switzerland: World Health Organization. (ERIC Document Reproduction Service No. ED 233 135)
- Bistreich, A. M. (1981). Predicting grade point average, withdrawal, and graduation from four allied health programs at Miami-Dade Community College Medical Center Campus. Fort Lauderdale, FL: Nova University. (ERIC Document Reproduction Service No. ED 140 925)

- Bridle, M. J. (1987). Student selection: a comparison of three methods. Canadian Journal of Occupational Therapy, 54(3), 113-117.
- Byl, N. N. (1988). Prescreening admissions criteria and academic success in baccalaureate-certificate program in physical therapy. Journal of Physical Therapy Education, 2(1), 13-17.
- Cisneros-Blagg T., & Blagg, J. D., Jr. (1983). Selecting personality and demographic variables: Academic success in radiography programs. Radiologic Technology, 54(5), 372-376.
- Cocanour, B., & Peatman, N. (1988). Predictors of success in a baccalaureate physical therapy program. Journal of Physical Therapy Education, 2(1), 27-29.
- Cross, K. P. (1988). Adults as learners. San Francisco: Jossey-Bass.
- Dietrich, M. C. (1981). Putting objectivity in the allied health student selection process. Journal of Allied Health, 10(4), 226-239.
- Dietrich, M. C., & Crowley, J. A. (1982). A national study of student selection practices in the allied health professions. Journal of Allied Health, 11(4), 248-260.
- Domholdt, E. (1987). Legal bases for challenging professional school admissions decisions. Journal of Physical Therapy Education, 1(1), 5-9.
- Douce, F. H., & Coates, M. A. (1984). Attrition in respiratory therapy education: Causes and relationship to admissions criteria. Respiratory Care, 29(8), 823-828.

- Enright, M. J. (1972). Student selection and evaluation. In E. J. McTernan & R. O. Hawkins, Jr. (Eds.), Educating personnel for the allied health professions and services (pp. 153-161). St. Louis: C. V. Mosby Co.
- Flanigan, K. S. (1985). A model for the evaluation of respiratory therapy program admissions criteria. Respiratory Care, 30(5), 334-338.
- Gates, A. G., & Creamer, D. G. (1984). Two-year college attrition: Do students or institutional characteristics contribute most? Community/Junior College Quarterly, 8, 39-51.
- Gramet, P., & Terracina, L. (1988). Qualitative and quantitative variables in a selective admissions process. College and University, 63(4), 368-373.
- Gross, M. T. (1989). Relative value of multiple physical therapy admission criteria in predicting didactic, clinical, and licensure performance. Journal of Physical Therapy Education, 3(1), 7-14.
- Hawkins, R. O., Jr. (1989). Student recruitment, selection, retention, and evaluation. In N. E. Farber, E. J. McTernon, & R. O. Hawkins, Jr. (Eds.), Allied health education. Concepts, organization, and administration (pp. 161-176). Springfield, IL: Charles C. Thomas.
- Hedl, J. J. (1987). Attrition in an undergraduate program in allied health education. Journal of Allied Health, 16(3), 219-228.

- Heilman, T. L. (1991). Academic predictors of success in medical laboratory technician students. Laboratory Medicine, 22(2), 124-129.
- Houston, C. A. (1977). Virginia West Community College's health technology admissions evaluation system. Roanoke, VA: Virginia West Community College. (ERIC Document Reproduction Service No. ED 154 871)
- Jensen, S. C. (1989). Predictors of success for allied health students. Journal of Studies in Technical Careers, XI(4), 297-303.
- Kavanagh, L. K. (1981). Admission criteria for a college-based radiologic technology program: Relationship of entry levels to subsequent performance in selected program courses. Radiologic Technology, 53(2), 113-117.
- Levine, S. B., Knecht, H. G., & Eisen, R. G. (1986). Selection of physical therapy students: Interview methods and academic predictors. Journal of Allied Health, 15(2), 143-151.
- Mokros, J. R. (1984). Hidden inequities can be overcome. VocEd Journal, 59(4), 39-41.
- Oliver, D. H. (1985). The relationship of selected admission criteria to the academic success of associate degree nursing students. Journal of Nursing Education, 24(5), 197-206.
- Oliver, E. E. (1980). Establishing admissions policy. In C. J. Quann & Assoc. (Eds.), Admissions, academic records, and registrar services (pp. 26-59). San Francisco: Jossey-Bass.

- Pape, C. D., & Casey, J. P. (1986). A retrospective view of selective admission of physical therapist assistants. Journal of Studies in Technical Careers, VIII(2), 105-112.
- Peat, M., Woodbury, M. G., & Donner, A. (1982). Admission average as a predictor of undergraduate academic and clinical performance. Physiotherapy Canada, 34(4), 211-214.
- Petty, N. H., & Todd, A. (1985). A model to improve the success rate of students in selected health career programs in the North Carolina community college system. Raleigh: North Carolina State Dept. of Community Colleges. (ERIC Document Reproduction Service No. ED 267 186)
- Posthuma, B. W., & Sommerfreund, J. (1985). Examination of selection criteria for a program in occupational therapy. The American Journal of Occupational Therapy, 39(7), 441-445.
- Rezler, A. G. (1983). Student selection and admission. In C. H. McGuire, R. P. Foley, A. Gorr, R. W. Richards, and Assoc. (Eds.), Handbook of health professions education (pp. 202-233). San Francisco: Jossey-Bass.
- Roehrig, S. M. (1988). Prediction of licensing examination scores in physical therapy graduates. Physical Therapy Journal, 68(5), 694-698.
- Roesler, J. S., & Armstrong, R. A. (1981). Correlates of performance in the dental hygiene program. (OSA Research Bulletin, v22, n5). Minneapolis, MN: Office for Student Affairs. (ERIC Document Reproduction Service No. ED 212 234)

- Scott, E. (1978). The utilization of a biographical inventory and other non-cognitive factors to discriminate among successful and nonsuccessful students in selected allied health disciplines at the community college level. Unpublished doctoral dissertation, University of Houston.
- Southerland, A. R. (1986). Access versus selectivity in the community college. Horizons Issues Monograph Series. (Report No. ISBN-0-87117-163-55). Washington, D. C.: American Association of Community and Junior Colleges. (ERIC Document Reproduction Service No. ED 273 346)
- Vargo, J. W., Madill, H. M., & Davidson, P. R. (1986). The pre-admission interview as a predictor of academic grades and fieldwork performance. Canadian Journal of Occupational Therapy, 53(4), 211-215.
- Winkler, N. T., & Bender, C. E. (1989). Statistical evaluation of admission criteria for a radiography program. Radiologic Technology, 61(2), 125-129.
- Young, L. J., & Fellows, A. L. (1981). Dental hygiene student attrition. Journal of Dental Education, 45(6), 357-359.

APPENDIXES

APPENDIX A

REFERENCE FORM

PHYSICAL THERAPIST ASSISTANT

I, _____, am an applicant to the Tulsa Junior College's Physical Therapist Assistant Program. As a part of the application procedure, I request that you complete the following information about me, and send this form directly to:

Physical Therapist Assistant Program
Allied Health Division
Tulsa Junior College
909 South Boston Avenue
Tulsa, Oklahoma 74119

My applicant status may depend upon your prompt reply. Thank you for your cooperation.

Applicant Signature Date

=====

Name of Respondent _____ Position _____

Address _____
Street City State Zip

1. I have known this applicant as:
a student _____ a friend _____
an employee _____ a co-worker _____
a volunteer _____ other (specify) _____
2. I have known this applicant for _____ years and/or
_____ months.
3. I have served as the applicant's:
teacher _____ friend _____
advisor/counselor _____ co-worker _____
supervisor/employer _____ other (specify) _____

4. Please provide your objective opinion of this applicant's characteristics in the following areas of performance by circling the number rank which best applies.

- A. Interpersonal skills (as relates to applicants level of)
 assertiveness & confidence
 enthusiasm
 ability to motivate others
 patience, empathy, courtesy & respect toward others
 positive attitude toward self & others

excellent			average				poor			
10	9	8	7	6	5	4	3	2	1	0

- B. Communication Skills (as related to applicants level of)
 effective listening
 appropriate vocabulary
 clear, direct response
 eye contact
 clear, concise writing/reporting
 clear, concise speaking
 accurate explanation of concepts, ideas, instruction

excellent			average				poor			
10	9	8	7	6	5	4	3	2	1	0

- C. Intellectual Skills (as relates to applicants level of)
 use of personal skills and resources
 application of knowledge
 creativity in problem solving
 rapid grasp of concepts
 processing variety of information

excellent			average				poor			
10	9	8	7	6	5	4	3	2	1	0

- D. Personal Development (as relates to applicants level of)
 reliability, dependability, responsibility
 independence, self-reliance
 goal-setting, goal achievement
 emotional maturity, stability
 problem analysis and solving

excellent			average				poor			
10	9	8	7	6	5	4	3	2	1	0

Please provide your impression of the following by circling the number rating which best applies:

A. Applicant's motivation toward career

excellent			average				poor			
10	9	8	7	6	5	4	3	2	1	0

B. Applicant's General Health

excellent			average				poor			
10	9	8	7	6	5	4	3	2	1	0

6. Please provide your opinion of this applicant's strong and weak points.

A. Strengths

B. Weaknesses

APPENDIX B

CLINICAL OBSERVATION RECORD

Applicant Information:

Upon completion of the observation requirement the applicant should be able to generally describe the nature of physical therapy practice and to state why he/she does or does not want to become a Physical Therapist Assistant.

APPLICANT NAME _____ DATE _____

PHYSICAL THERAPY FACILITY OBSERVED: _____

SIGNATURE: _____

Clinician Information

The purpose of this observation requirement is to acquaint the applicant with the nature and scope of the Physical Therapy Profession, and expose him/her to a variety of physical therapy practice settings.

*NOTE: The following information must be completed and signed by a Registered Physical Therapist:

Number of Observation Hours: _____

Please check the most generally accurate answer:

1. Applicant made appointment to observe and arrived promptly. Yes ___ No ___
2. Applicant's appearance was appropriate. Yes ___ No ___
3. Applicant's behavior was appropriate. Yes ___ No ___
4. Applicant observed attentively and with interest. Yes ___ No ___
5. Applicant's questions and comments indicated an attempt to learn about the field of Physical Therapy. Yes ___ No ___

Comments: _____

Signature _____ Date _____

Please return this form directly to:
Rita Zeman, PT
Physical Therapist Assistant Program
Tulsa Junior College - Philips Bldg.
909 South Boston
Tulsa, Oklahoma 74119

VITA

Rita Zeman

Candidate for the Degree of
Master of Science

Thesis: THE RELATIONSHIP OF SELECTED ADMISSION CRITERIA
TO THE ACADEMIC SUCCESS OF PHYSICAL THERAPIST
ASSISTANT STUDENTS

Major Field: Occupational and Adult Education

Biographical:

Personal Data: Born in Benkleman, Nebraska, April 27,
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Professional Experience: Chief Physical Therapist,
Thomas County Hospital, Colby, Kansas, 1972 to 1977;
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