

SELECTION OF STUDENTS FOR PHYSICAL THERAPY
EDUCATIONAL PROGRAMS

SUMMARY

PART A: DEVELOPMENT OF A PROCEDURE
FOR STUDENT SELECTION AND EVALUATION
OF PERFORMANCE OF THE PHYSICAL THERAPIST

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INTRODUCTION

The delivery of health care in the United States has become a critical national issue. The public is clamoring for services which should be available but frequently are not. Severe shortages of properly qualified health personnel and inadequate facilities are cited among the causes for this situation.

Although health personnel are in short supply and adequate facilities may be lacking, there are many other factors which add to the complexity of the issue. For example, there has been an enormous growth in population in the last two decades. Some of the growth is due to early marriage and an increase in the birth rate. Some other factors which have contributed to the expanding population are advances in technology which save lives and prolong them; the discovery of new drugs and different uses for known drugs; vastly improved pre- and post-operative care as well as pre- and post-natal care; virtual elimination of some diseases through mass inoculation programs; development of sophisticated and relatively safe surgical procedures for all age groups; and improved nutritional standards.

There is a growing belief that every individual in our society, regardless of his socioeconomic status, is entitled to adequate health care. That health care to which society claims a right includes the maintenance of health and the prevention of disease or impaired function, as well as the care necessary during and following illness or subsequent to injury.

When an individual is the victim of a sudden, devastating illness or injury, the highest priority is given to preserving his life. Once this is accomplished satisfactorily, his purpose is to return to his place in society. If there is no residual impairment of function, he may do so without making use of professional services other than those which were necessary in saving his life. On the other hand, moderate or severe loss of function may require him to have weeks, months, or years of specialized health care before he can resume a productive role in society. One of the specialities required may be Physical Therapy.

... Physical Therapy is a health science which concerns itself primarily with the motor abilities of man and his ability to function in his environment. Physical Therapy encompasses the assessment of the individual's status through the use of special evaluative procedures, interpretation of the results of that assessment, and the planning and direction of a program based on the needs of the individual (Johnson, 1971).

As one of the health sciences, Physical Therapy is essential to man as he seeks to overcome catastrophic illness or injury and chronic disorders or to remain in good health. Man's struggle for survival is aimed toward the control of his environment. But there are many forces, such as illness, injury, and aging which can act to prevent or interrupt his ability to do so. When man is subjected to a force which removes

the control of his environment from him, either temporarily or permanently, his survival as an independent being may rest largely on the availability of specific health care at appropriate times.

Interest in Physical Therapy as a career has grown steadily in the past two decades as evidenced by the increase in the number of institutions offering educational programs in Physical Therapy, the number of students enrolled in educational programs, and the number of graduates. In 1950 there were 31 institutions offering educational programs in Physical Therapy as compared to 52 in 1970 (Table 1). In 1950, there were 490 graduates from the 31 institutions and in 1970 there were 1363 graduates from 51 of the 52 institutions (Physical Therapy, 1971). Those numbers represent a 68 percent increase in the number of institutions and a 185 percent increase in the number of graduates. In spite of the marked increase in the number of educational programs in Physical Therapy, there are not sufficient places available to accommodate the increasing number of qualified applicants.

TABLE 1
FINAL YEAR ENROLLMENT IN EDUCATIONAL PROGRAMS
AND
GRADUATES IN SELECTED CALENDAR YEARS
1950 - 1970

Year	Number of Institutions Offering Programs	Number Enrolled in Final Year	Number of Graduates in Calendar Year
1950	31	*	490
1955	35	748	710
1960	40	739	673
1965	43	991	890
1970	52	1676**	1363**

*Not available

**Represents 51 of the 52 institutions

Graduate Physical Therapy Curriculum

Establishment of the Graduate Physical Therapy Curriculum at Case Western Reserve University resulted from the growing interest in Physical Therapy as a career and the need for an increased number of highly qualified physical therapists. The program was based on the premise that Physical Therapy is one of the health professions and as such it must produce practitioners who can share responsibilities with other members of the health professions. Therefore, it was assumed that physical therapists are entitled to educational opportunities equivalent to those provided in other health professions, such as medical social work, clinical psychology, speech pathology, medicine, etc.

A proposed curriculum in Physical Therapy was accepted by the Graduate Council of the University in February, 1958. In September, 1960, the first student was admitted for the two-year program of study for the Master of Science.

The Curriculum was divided into three phases which covered two academic years and one summer. Phase I was a study of the normal structure and functions of the body; the basic principles in the administration of Physical Therapy procedures; and the development of basic skills in the application of Physical Therapy procedures. Phase II included a study of abnormal structures and functions of the body and the application of Physical Therapy principles and procedures to abnormal conditions. Phase III included the submission of a thesis; introduction to organization, administration and supervision; curriculum development and principles of teaching; the interrelationships of professional personnel; and the transition to full clinical participation. Although the major portion of clinical education occurred during Phase III, the clinical experience began during the first semester of Phase I and continued with increasing breadth and depth throughout all phases.

Each graduate of the Curriculum was expected to accept employment for one year in a hospital department which had been approved by the faculty for this purpose. It was the opinion of the faculty that this was an essential phase of the educational experience provided for students in this program. That year was included to provide the new graduate with adequate supervision as well as the opportunity to increase the knowledge and skills acquired as a student. Periodic evaluations were made during that first year to furnish the faculty with valuable information about the strengths and weaknesses of the program and an appraisal of each graduate in his first employment.

Philosophy. The Faculty of the Graduate Physical Therapy Curriculum, Case Western Reserve University accepted and supported the following philosophy:

Man is endowed with certain rights and privileges. He is entitled to respect for his person and to maintenance of his dignity. As an individual he occupies a position in his family, community,

and place of employment. Each individual has obligations to himself and to society.

Impairment of normal function alters man's role in society. His role may be altered temporarily or permanently and in providing service to him it is necessary for the physical therapist to comprehend the implication of disability to the individual. Physical therapy is represented in the evolving concept of comprehensive health care. As a member of a health profession working cooperatively with the physician and other health personnel, the physical therapist has a unique privilege in helping persons attain important elements and components of personal independence. A physical therapist participates in health care by evaluating patients' capacity for physical performance and selecting and administering appropriate physical measures and activities.

The needs of society continually modify the demands imposed on the health professions. As a result, there is a shifting of roles and responsibilities within the professions and from one profession to another. The role of the physical therapist is a dynamic and evolving one. To enable the physical therapist to contribute maximally to health care, education must equip him to examine his role, to modify it appropriately and to participate in it fully. Education must prepare the physical therapist to accept the increased responsibilities of the profession in service, research and education. This preparation is best provided at the graduate level.

The basis of graduate education is the willingness and the desire on the part of the student to read, to think logically, soundly and creatively and to assume considerable responsibility for his own education. To do so the student must have the maturity to exercise good judgment and self-discipline. He must also have the necessary educational background and academic abilities.

Graduate education provides opportunities which prepare individuals to progress into positions of responsibility and leadership. The application of knowledge is directly dependent upon the acquisition and understanding of principles from general and professional education. The learning process and the integration of knowledge, skills and attitudes by the student is facilitated by horizontal and vertical coordination of the learning experiences. Learning occurs most efficiently when experiences are designed to meet the needs of individual students and when the student-teacher ratio is consistent with the level of student development.

The concept of professional responsibility is best developed by precept and example of the faculty, both clinical and academic, and other members of the professional community. Although the student has responsibility for his actions, the faculty has responsibility for providing an environment that is conducive to the acquisition of the knowledge, skills and attitudes necessary for a high level of performance. Effectiveness is increased and expertness is developed through continued learning. The responsibility for continued learning rests with the individual.

Objectives. Based upon the philosophy accepted and supported by the faculty of the graduate Physical Therapy Curriculum, this program of study was designed to include opportunities for the student to develop:

1. Willingness to accept the patient as a person, as a member of society and as the focal point of health care.
2. Readiness to accept responsibility for the welfare of the patient entrusted to his care.
3. Readiness to contribute maximally to health care as a physical therapist.
4. Acceptance of objectivity and systematic planning as basic methods for making decisions.
5. Willingness to become involved in the current social, political, and economic aspects of health care.

Selection of students

Selection of students with the potential to achieve the stated objectives of this educational program was a major concern of the faculty prior to acceptance of the first candidate for admission. Soon after the establishment of the Graduate Physical Therapy Curriculum, the faculty agreed that the procedure for the selection should determine whether the candidate possessed those personal qualifications or biographical experiences necessary for assumption of the responsibilities in the role of the physical therapist.

Education must equip the physical therapist to examine his role, to modify it appropriately, and to participate in it fully. Educational programs must prepare individual persons. The responsibilities and duties

of a profession, once identified as the most appropriate, are assumed and performed by individual persons. It is an individual person who provides the health care services. The right person must be admitted to the right educational program if the health care needs of society are to be met effectively and economically. Methods must be devised to predict potential for success of given individuals in given health occupations.

In student selection, it is important to be able to predict with some confidence the success of the individual in the profession he is entering. This is of special importance today with the limit on enrollments in educational programs and unlimited need for health personnel.

THE PURPOSE OF THE STUDY OF STUDENT SELECTION

The purpose of the study was to improve the methods used in the selection of students for educational programs in Physical Therapy. The primary goal was to develop instruments that could be used to improve the process of identifying those persons who are most likely to become outstanding physical therapists.

In achieving that goal, it was necessary to identify the critical dimensions of the effective performance of the physical therapist. Critical incidents were collected and from those incidents certain categories of behavior were determined. These categories formed the bases for the establishment of the critical job requirements which were necessary to evaluate job performance. To determine if outstanding physical therapists possess similar personal qualifications or biographical experiences, a Biographical Information Blank was designed.

This report is concerned with an overview of the development of techniques for the selection of candidates for educational programs in Physical Therapy. Another portion of the study dealt with evaluation of the selection process used by the faculty of the Graduate Physical Therapy Curriculum. The results of that portion of the study have been reported separately by DiStefano, Johnson, and Pinkston (August, 1971).

The results of another part of the study which focused on a method for recruitment of candidates for educational programs in Physical Therapy, have been reported by Johnson, Pinkston, and DiStefano (August 1971).

COLLECTION OF CRITICAL INCIDENTS

For this study the method selected to identify the job requirements, performance parameters and selection rationale was the critical incident technique described by Flanigan (1952). The critical incident technique is a procedure for collecting observed behaviors which have special significance and meet systematically defined criteria. An incident is defined as an observable human activity which is sufficiently complete in itself to permit inferences and predictions to be made about the person performing the act. To be judged critical, an incident must occur in a situation where the purpose or intent of the act is clear to the observer and the consequences of the act are sufficiently definite that there is little doubt concerning its effects. The essence of the technique is that only simple types of judgements are made by the observer and only reports from qualified observers are included.

The study team developed an Incident Collection Form which was used to obtain initial data from physical therapists at a sample of hospitals in various locations. Since the critical incident interview is the basis for data collection, ten interviewers, all staff of Psychological Research Services, were trained to conduct the interviews.

Each interview was conducted in a Department of Physical Therapy at a hospital or health care center on a schedule arranged with the physical therapist in charge of the department. Each interview took place during a period of time approximately one hour in length. The interviewee was asked to recall a recent incident in which the behavior of a physical therapist was effective. After the incident of effective behavior was recorded, a similar question was used to collect a sample of an ineffective behavior. Other incidents of effective and ineffective behaviors were requested for the duration of the interview.

Critical incidents were collected from 16 hospitals or treatment centers in the following cities: Cleveland, Ohio; Chicago, Illinois; Boston, Massachusetts; Durham, North Carolina; and Los Angeles, California. The question of possible regional differences in behavior was considered and the data reviewed to determine if such differences did occur. Although there were differences in data collected from each hospital, no systematic differences between geographical areas were noted.

Approximately 142 interviews yielded 640 critical incidents. The high percentage of responses, an average of over four incidents reported per interview, is attributed to (1) initial contacts made by the physical therapists on the team, (2) interest of the interviewees in the study, and (3) training and background of the interviewers.

While no statistical analysis was attempted, the method of successive analysis of the data indicated that no new major categories of behavior were introduced by the addition of incidents beyond the first 400. Approximately 200 incidents established the main categories. The remainder of the 640 incidents verified those main categories and provided additional component behaviors. The categories of behavior were formed along the lines of performance and were the bases for the critical job requirements established for the purpose of evaluation job performance.

The technique of developing critical job requirements from critical incidents eliminates those aspects of the job which are seen as routine behavior. The incidents requested samples of effective and ineffective performance, not routine behavior. Incidents related to areas outside of the clinical performance, such as professional association, management, or administration, are excluded by this technique. Those areas are not reported by physical therapists as being significant to effective or ineffective

job performance as clinicians.

The basic data, the incidents, are clear, efficient descriptions of the behavior of physical therapists. After those incidents were collected and classified, the next goal was to define performance along a continuum for the purpose of evaluation. The third goal was to define the underlying traits of the job for purposes of selection and preparation of personnel. The definition of the critical job requirements, the performance rating scale, and the analysis for selection and preparation were developed independently but based on the same pool of critical incident data.

CRITICAL JOB REQUIREMENTS

There were available a large number of specific component behaviors from which the related areas within each of the critical behavior categories were identified. The major emphasis in the critical incidents collected was the relationship of the physical therapist with the patient. While the critical incident technique does not lend itself to statistical analysis, there is importance in the fact that nearly 80 percent of the reported incidents were related to that category, that is, Patient Relations. This heading, then, was the major one. The other categories, titled Supportive Personnel and Communications With Other Personnel, while important, are limited in scope and effect. It would be possible to be an effective physical therapist and never work with other professionals or with supportive personnel. But, it is impossible to be an effective physical therapist if patients are never seen. There is no intent to imply that physical therapists who are primarily teachers or administrators are not effective physical therapists. Rather, this job description is applicable only to the clinical physical therapist.

The job of the physical therapist was defined in terms of the important or critical behavior categories described in the collected data. Within each of those categories, Patient Relations, Supportive Personnel, and Communications With Other Personnel, related areas were identified. A description of the related areas within each of those three critical behavior categories elaborated the specific behavior.

Patient Relations

Patient Evaluation. Patient evaluation includes the initial referral evaluation, continued observation during treatment, and formal evaluations at the end of treatment or at specific times during treatment. The evaluation may be a specific task, requiring a formal, written report or it may be an observation leading to a continuation or modification of a treatment process. This behavior differs from the treatment process of patient contact in that the emphasis is on the skill and judgment used in doing something different or making a change. Evaluations where no change in treatment is indicated are also included in this category.

Patient Contacts. This area defines the treatment situation in which the physical therapist provides direct care of and supervises the treatment of a patient.

Patient Instruction. Communication with and instruction of the patient are necessary requirements in the physical therapist's job. Most treatment involves the patient being aware of what is being done. Communicating and instructing are particularly important when dealing with special classes of patients such as the very young, the very old, or those with minimal functional capability. This category includes instruction of the patient while he is in the treatment facility and the instruction for continued treatment or exercises away from the treatment center. While instruction of the patient normally involves the physical therapist and the patient, it may also include the family or any person responsible for maintaining or providing treatment.

Concern For Safety. All activities related to the safety of the patient and to reaction when an emergency develops are in this category. Typical behaviors are related to work habits and knowledge of safety procedures, including judgment in avoiding circumstances in which the patient could be injured.

Modification and Improvement of Techniques and Equipment. Equipment or procedures must sometimes be modified to suit the needs of a particular patient. The physical therapist may need to improvise equipment from what is available because of economic reasons or to save time. Performance in this area involves a knowledge of the dynamics of the equipment or procedures and the needs of the individual patient being treated.

Supportive Personnel

Relationships With Supportive Personnel. The physical therapist works with supportive personnel, including assistants, aides or orderlies. Sometime those personnel do not work for or report to the Physical Therapy Department; therefore, special skills are required in maintaining good working relationships. This category includes all situations in which the physical therapist interacts with supportive personnel.

Communications With Other Personnel.

Communications With Other Professionals. The physical therapist shares responsibility with others for the total care of the patient. He must be able to receive and understand written and verbal communications from physicians, nurses, and other personnel. He must be able to communicate information to those personnel by written clinical records, evaluation reports and verbal reports.

Participation in Education of Physical Therapy Students. Participation in education of students of Physical Therapy is a special function which is not a responsibility of all physical therapists. It involves considerable judgment and skill which are different from the core work of the physical therapist. Degrees of performance in this role must be stated in general terms.

PERFORMANCE EVALUATIONS

Performance Rating Scales

The goal of a process for selecting students is to predict future performance on a job. The on-the-job performance which is predicted is called the criterion. The first step in defining the criterion for the physical therapist was to establish the major dimensions of job behavior, that is, the critical job requirements. The next step was to measure variability along those job-related dimensions. The most direct, and most often used, criterion measure involves the judgment of a knowledgeable person about the performance of an individual. Therefore, the judgment is usually made by a supervisor.

The approach selected for this study was to use the specific component behaviors reported in the critical incidents as a basis for the development of the Component Behavior Rating Scale. The component behaviors are those individual bits of behavior which form a specific area, e.g., Patient Evaluation. They may be taken directly from the critical incident reported, in the exact words of the person relating the incident. Component behavior items were reviewed by the study team, duplications were removed, and the list was reduced to 34 items. Although the component behaviors are reported in a positive form, they may reflect a report of an incident involving ineffective behavior.

The Performance Rating Scales, Component Behavior Scales, developed for use in this study appear as Appendix A. Raters were asked to assign a letter grade, ranging from low to high, on each of the component behavior scales. Marginal or inferior performance was represented by the letter grade of "D" and outstanding performance as "A+". If a listed behavior was not applicable to a particular physical therapist, or if it had not been performed or observed in the past four weeks, the rater was instructed to draw a line through the scale and not to rate on that scale.

Data Collection

Selected treatment centers throughout the United States were chosen from an inclusive list of hospitals and treatment centers published by Hospitals, journal of the American Hospital Association. The physical therapist in charge of the department was contacted personally by mail and asked to participate. Directors of Physical Therapy from 95 treatment centers agreed to participate in the study.

The study sample consisted of physical therapists having no more than five years' experience.

The sample was limited to that group for a variety of reasons. For example, the physical therapist with more than five years' experience may be serving in an administrative position. In the 95 centers, the number of physical therapists eligible to participate in the study ranged from one to 25. The demographic characteristics of the sample are important only because they show that all sections of the country were represented.

A total of 517 packets, each consisting of the Performance Rating Scales – a Graphic Rating Scale and the Component Behavior Rating Scale, the Biographical Information Blank (BIB), and separate answer sheets, were distributed to the physical therapists in charge of departments. The data were used only in those instances in which both the rating of the supervisor and the Biographical Information Blank were returned. A total of 340 usable packages was returned. The 70 percent return is somewhat higher than normal for mail surveys and that may be due to the interest of the participants which resulted from soliciting their interest in participation in advance of the study.

Data Analysis

The method of analysis was a statistical technique called the coefficient of correlation (r). This is a single number which tells to what extent two things are related or to what extent variations in the one go with variations in the other. The " r " may vary from +1 (a perfect positive correlation) to -1 (a perfect negative correlation). These numbers show how two things may vary together; however, a cause and effect relationship is not implied.

The 34 independent component behavior items contained in the Component Behavior Rating Scale were inter-correlated. The correlations were positive and ranged from $r = .24$ to $r = .95$. Inspection of the items revealed that this large variation might have resulted because the items were samples of specific, observably different behaviors. The rater was not required to abstract or integrate a number of observed incidents but could rate the individual on each different aspect of the job.

Factor Analysis of the Component Behavior Scales indicated the presence of three statistically significant factors. The naming of those factors is an inference from the characteristics of the items or scales that define the factor. We chose to name those three factors as follows:

- I. Patient Care
- II. Communication With Staff
- III. Understanding Patient's Needs

Factor I, Patient Care, is loaded most heavily on items related to performing initial evaluations and observing the patient's condition during treatment. It is most directly concerned with the interaction between the patient and the physical therapist. It involves concern for the well-being of the patient and evaluation of his response to treatment. The factor loads positively and high on most of the 34 scale items

and may be thought of as a general rating of overall performance. Items most highly related, or weighted with that factor, were selected to represent that factor. That factor accounted for 63 percent of the total scale variance.

Factor II, **Communication With Staff**, is loaded most heavily on items related to administrative practices, communication with doctors and nurses, and working with subordinates such as aides, orderlies, and other supportive personnel. That factor accounted for 12 percent of the variance.

Factor III, **Understanding Patient's Needs**, involved concern for safety of the patient, caution in making decisions, maintaining work area clear of hazards, and effectiveness in emergency situations. That factor accounts for 7 percent of the variance.

Following the factor analysis, the next action was to determine how much of the three factors contributed to the total performance score. A Wherry-Doolittle Linear Multiple Regression Analysis was performed, using the three factors, with weights determined from the factor analysis, to determine how each factor would weigh in predicting the total score. The analysis indicated that the only significant factor was Factor I: Patient Care.

The 11 items making up Factor I were designated as the Patient Care Scale and are shown in Table 2. That scale was designed for use as the performance criterion for the evaluation of the BIB. Scores on that scale were normally distributed with a Mean of 63.4 and a Standard Deviation of 28.5 (N=356). Low scale scores indicated good or superior performance and high scores indicated marginal to average performance. The scale reliability or consistency was measured using as a test of internal consistency of the items the Kuder-Richardson Formula 20. The reliability correlation for the scale was estimated at .82.

DEVELOPMENT OF THE SUPPLEMENTARY INFORMATION BLANK

Biographical Information Blank

Research in personnel selection has long been oriented towards the use of biographical facts for prediction of job success. This concept is a natural result of the commonly held belief that the past behavior of a person is a good indicator of future behavior. Those biographical facts are typically secured by use of a standardized form known as a Biographical Information Blank (BIB). The data form is generally composed of a series of multiple choice items which permit the respondent to describe himself in terms of demographic, experiential, or attitudinal variables presumed or demonstrated to be related to success in educational or occupational pursuits. The items generally call for factual data but attitudes, feelings, and value judgments are often included.

The BIB has demonstrated a particular advantage when used to supplement test data rather than to replace test batteries. It may be used to obtain and quantify data directly without the bias of a

TABLE 2

FACTOR I: PATIENT CARE SCALE

-
1. Performs an initial evaluation of the patient on referral.
 2. Observes and evaluates patients's condition during treatment. Is alert for any signs of distress or abnormal reactions.
 3. Develops confidence and established rapport with patient.
 4. Does not leave a patient in doubt about his schedule status.
 5. Gives patient a feeling of achievement by encouraging progress and noting improvements.
 6. Does not allow failures or incidents to disturb patient's confidence in his ability.
 7. Plans progressive treatment program for patients.
 8. Gets most efficient response from patient.
 9. Uses knowledge of patient's pain threshold in giving treatments.
 10. Uses good judgment in scheduling patients. Does not schedule so many that treatment is insufficient or undue waiting required.
 11. Provides full instructions at a level the patient understands.
-

testing situation. In a combined battery, biographical data add a small but significant improvement in prediction. Factual data can be measured directly without requiring interpretation either in completing the Blank or in the analysis of the results.

Physical Therapy Biographical Information Blank

In selecting items to make up the Physical Therapy Experimental BIB (Pinkston & Margolis, 1970), there was an attempt to reflect specific behavior patterns which were necessary for good performance in Physical Therapy. A number of items were selected to reveal scholastic skills and interests because it was clear to the investigators that a physical therapist needs an academic orientation to become proficient in academic areas such as the physical and biological sciences. The core items which were used in the BIB were obtained from a research instrument developed by Otis and Laurent (1951).

Six specific job-related areas were included in the Physical Therapy Experimental BIB Form:

Academic achievement (attitudes and behaviors related to the school situation)

Activities requiring eye-hand coordination and finger dexterity (sports, playing musical instruments, etc.)

Personality adjustment (attitudes and behaviors related to home, relationship with peers, family background, etc.)

Physical condition (which could affect work attendance or stimulate interest in medical profession)

Work-related behaviors and attitudes

Working with children or handicapped individuals

An attempt was made to include items which reflected an assumed orientation and behaviors that seemed to be required of a physical therapist. However, the BIB items were not from actual job or training activities and were not related directly to the job. The indirect or heuristic approach was used because it had the advantage of greater latitude and offered the possibility of choice among the items. The final BIB consisted of 177 items.

The Patient Care Scale developed as the performance criterion was used to differentiate between good and marginal performance on the job and, ultimately, to evaluate items on the BIB. Each physical therapist who was judged on the Component Behavior Rating Scale and who completed a BIB received a total score obtained by summing scores for the eleven items on the Patient Care Scale. The total sample was placed in rank order by score, and an odd-even distribution was made to form two groups matched in terms of the criterion score distribution. This method of dividing the total sample in half assured that the means and standard deviations on the performance ratings would be equivalent for each group. The first group, identified as Group A, was used as the primary group for item analysis. The second group, identified as Group B, was used as the holdout group, and was used primarily in the cross-validation of items selected based on the item analysis of the Group A response.

Group A was further divided into a top 30 percent and a bottom 30 percent. The top group represented the superior physical therapists as indicated on the performance evaluation. In the analysis, this one is called the high sub-group. The bottom 30 percent represented the marginal to average performing physical therapists and is called the low sub-group. The basis for the item analysis of the BIB is the difference in the percentage of each sub-group selecting a particular response to an item when compared to a statistical model.

The "t-test" used in this study related the difference between the proportions of high and low physical therapists who responded to an item on the BIB to the range of differences expected in a normal or theoretical population. The larger the obtained difference on an item, the less likely that difference occurred by chance alone. Thus, the larger the difference in proportions of physical therapists who selected an item, the larger the "t" or the more likely the item differentiated between high and low physical therapists. The higher the "t-value" associated with the item the greater its significance.

Items which produced a "t-value" of 1.66 or more were identified. This number has a degree of statistical significance which suggests that chance alone would account for this variation only 1 time in 10. This level of significance assumes that 9 out of 10 times that item would distinguish between high and low groups of physical therapists.

The data of Group B were analyzed in the same manner with the following modification: items were retained if they discriminated high and low physical therapists in the same direction and magnitude as in Group A. Each identified item was given a score weight according to the magnitude of the "t" score obtained as shown in Table 3.

TABLE 3
"t" VALUES AND ASSIGNED WEIGHTS

"t" Values	Significance Level	Weights
1.66 to 1.97	.10	1
1.98 to 2.59	.05	2
Over 2.60	.01	3

This method of analysis assured that those items selected on the BIB which could predict the superior performing physical therapists 90, 95, and 99 percent of the time were retained. A total of 17 positively weighted items were selected by this item analysis. Those items were described in Table 4. Weighting assured that each item, when scored and summed for each individual, contributed to the total score of the 17 items in proportion to its predictive power. Ten items received a weight of 1, six a weight of 2, and one a weight of 3.

Validation

A Pearson Product-Moment Correlation compared the performance criterion scores of Group A (high- and low-rated physical therapists) with a summary of weighted scores on the 17 significant BIB items. The correlation obtained for Group A was a measure of concurrent relationship. There was a significant correlation ($r = .46$) between the criterion scores of high-rated physical therapists and their BIB scores. Table 5 summarizes those correlations for Group A.

Cross-validation

The 17 BIB items obtained from the procedure described above were also used in the cross-validation analysis. The procedure used for cross-validation was to obtain a set of weights for the test items (the item analysis) for one population and test the items for their discriminability on a second population. Cross-validation procedures were necessary to determine if the correlation would remain significant when the most variable part of the sample, the middle 40 percent, was included in the correlational analysis. Group B was used for cross-validation. Performance ratings were correlated to BIB scores for the physical therapists in that group, using the approach described by Mosier (1951). This approach counteracts the loss of significant items and, as an abbreviated procedure, it also decreases computation time.

Separate item analyses were obtained for Groups A and B. The set of weights obtained for Group A were applied to Group B to obtain a correlation coefficient that closely approximated the true predictive power of the weighted items. The correlation coefficients of both groups were averaged, and the correlation coefficients were combined. This was done by returning to the original data and summing the scores from both groups into a single correlation. This procedure allows for the variability of measurement within each of the samples. This final r ($r = .41$) is the most reasonable estimate of the maximum possible correlation between an individual's scores on items and his criterion or performance ratings. It is apparent, then, that the .46 correlation for Group A is somewhat high because the less variable high- and low-rated physical therapists alone were represented. The cross-validation analysis shows that the .38 correlation for Group B is probably somewhat low. Realistically, the differences in correlations for the sample sizes involved are not important, as all are statistically significant at or beyond the $p < .01$ level (See Table 5).

These correlations are higher than the correlations obtained for a BIB in a previous study

TABLE 4
 FREQUENCY OF SUB-GROUPS SELECTING SIGNIFICANT ITEMS

		Group A		
	Item on BIB	HI %	LO %	Significance Level
1.	I have found my studies in school very interesting.	.35	.19	**
3.	With respect to the marks I made in school, my parents were very pleased.	.63	.50	*
8.	By the time I had graduated from high school, I had been a member of the student council.	.42	.31	*
10.	During my high school years, the thing I was able to do with the least effort was to make the honor roll.	.67	.48	***
11.	During my last few years in high school, the grades I received were above average to superior.	.90	.72	***
12.	My usual standing in high school was in the top 5 percent.	.45	.21	***
14.	By the age of 20, I had taken lessons in or could play two or more instruments.	.50	.25	***
18.	I would prefer the betting situation where chances were 5 in 6 to win \$360.	.27	.13	**
21.	I regard puzzles as absorbing.	.23	.11	*
25.	If I were nearby when a friend of mine was bitten by a snake, my first reaction would be to induce bleeding in the wound and to get out the poison.	.39	.25	*
26.	While growing up, I had responsibility for care and feeding of three or more animals.	.55	.35	**
29.	When I earned my first money on a steady job, my age was less than 12 or over 21.	.18 .07	.02 .01	*** *
30.	When I was growing up, most of the things I wanted were permitted if I could get them on my own.	.44	.26	**
34.	I would most enjoy doing a difficult job well.	.40	.23	**
36.	On a job, I would dislike most lack of a chance of progress.	.25	.04	***
37.	By the time I was 20 years old, the amount of time I had spent on a farm was a short time during vacations or more than five years.	.57	.47	*
38.	I admire most Air Force Pilots.	.35	.11	***

***p<.01
 **p<.05
 *p<.10

TABLE 5
CORRELATION OF CHECKLIST CRITERION WITH BIB SCORES

	r	N
Group A (scored for highs)	.46*	101
Group B (scored for highs)	.38*	170
Group B (scored for highs & lows)	.37*	170
Mosier's Validation Groups A & B combined	.41*	271

***p<01**

(Gobetz, 1954). Gobetz validated a BIB on male and female students to the criterion of clinical practice ratings ($r = .21$ & $r = .27$ for males and females, respectively). He correlated the clinical practice ratings to work performance ratings of the same graduates one year later. The intercorrelations between these two ratings are low, $r = .35$ and $r = .29$ for women and men, respectively, and the correlation of the BIB to criteria ratings was low. This is a problem which we avoided by going directly to performance ratings on the job and by using a sample of physical therapists with no more than five years' work experience.

The 17 BIB items which were demonstrated as being predictive of good performance as a physical therapist are listed in Table 4. That table also shows the proportion of the high and low sub-groups of Group A selecting the item. The statistical significance of the item is listed as well as a reference to the number of the complete item in the modified BIB now called the Supplementary Information Blank.

Supplementary Information Blank

The Supplementary Information Blank (SIB)(Appendix B) includes both the 17 items from the BIB which differentiated significantly between the marginal and superior performing physical therapist and 21 other items which did discern high- from low-rated physical therapists but which were not statistically significant in the original sample. Those 21 other items do warrant further analysis and are included for further research possibilities.

Profiles

Based on an analysis and grouping of the items which differentiate the very successful physical therapist, a profile or pattern may be devised from the BIB data. The superior physical therapist may be characterized as follows:

- Has been recognized for achievement in school work by being elected member of the student council, on the school honor roll, or in the top five percent of the class.
- Got along well with parents. Parents permitted him to obtain things he desired if he could get them on his own and were generally pleased with his accomplishment in school.
- Is challenged by novel experiences. He finds studies interesting; regards puzzles as absorbing and enjoys doing a difficult job well.
- Will not take large risks with money and has either earned first money before age 12 or after age 21.
- Cares about animals. Has had several pets and lived for a time on a farm.
- Has hobbies requiring finger or manual dexterity such as playing one or more musical instruments.
- Interested in helping people and knows correct first aid procedures.

The less successful or marginal physical therapist, in terms of performance, also has a pattern of typical responses which may be characterized as:

- . Has little academic achievement. During the last few years in school, grades were average and he was not one of the top five percent of his high school class.
- . May not be really concerned with people. For example, he has not learned correct first aid procedures.
- . Not interested in animals. Has spent little or no time on a farm and has few pets.
- . Interested in social prestige. Has been a cheerleader or member of social clubs in high school. Is engaged in theatrical productions.
- . Regards novel experiences as frustrating.
- . May take risks with money.

These profiles are based on the biographical data related to the performance evaluation scale. They are interesting and potentially informative but must be used with caution and discretion. We prefer to consider them as hypothetical values upon which the selection of Physical Therapy students may be more thoroughly investigated.

EVALUATION OF CANDIDATES FOR EDUCATIONAL PROGRAMS IN PHYSICAL THERAPY

Development of a Procedure for the Selection of Physical Therapy Students

Prior to the initiation of this study, at the request of the Director of the Graduate Physical Therapy Curriculum, personnel in the Psychological Research Services devised a preliminary test battery which was used as one criterion in the selection of candidates for entry into the Graduate Physical Therapy Curriculum. The tests selected for that battery (Table 6) were used as the basis for auditing an individual applicant. That is, each applicant's capabilities were related to job requirements. There were no minimum scores or weights placed on individual tests or biographical data. The results of the testing program were used as part of the overall appraisal of the candidate.

Based on the critical job requirements and the performance rating scale developed from this study, attitudes, skills, and aptitudes which were identified as important several years ago by the faculty of the Graduate Physical Therapy Curriculum have been verified, in general, as important.

Those attitudes, skills, and abilities have been categorized as:

- . **Social Skills**
- . **Intellectual Abilities**
- . **Interest**
- . **Mechanical Aptitude**
- . **Drive and Ambition**
- . **Emotional Stability**

TABLE 6

**SELECTION TEST BATTERY
ADMINISTERED TO APPLICANTS TO THE
GRADUATE PHYSICAL THERAPY CURRICULUM
CASE WESTERN RESERVE UNIVERSITY**

Bennett Mechanical Comprehension

Comprehension of fundamental mechanical principles.

Gordon Personal Inventory

Self-description of four personality characteristics: cautiousness, original thinking, personal relations, vigor.

Gordon Personal Profile

Ascendency, responsibility, emotional stability, sociability.

Edwards Personal Preference Schedule

Self-description of fifteen personal needs such as achievement and nurturance.

MacQuarrie Test for Mechanical Ability

Eye-hand coordination.

Psychological Research Services Classification Test

Learning ability – testing general information held and verbal and numerical problem-solving ability under speeded conditions.

Strong Vocational Interest Inventory

Similarity of interest held to women (men) employed in a variety of occupations, particularly some “social welfare” ones such as physical and occupational therapy.

Watson-Glaser Critical Thinking Appraisal

Logical and analytical abilities to handle complex verbal materials.

From the component behaviors identified in the critical incidents collected for this study each of those categories was described in terms of the requirements of the job of the physical therapist and the characteristics needed by the physical therapist to perform in that job.

Description of Categories Related to Attitudes, Skills, and Abilities and Proposed Evaluation Measures for Each Category

Each functional area is described in relation to the necessary job knowledge and aptitude of the physical therapist for the job. Selection tests and types of biographical data are listed and briefly explained. These are standard tests, test scales, or specific biographical information from the SIB (Appendix B).

Social Skills. The physical therapist works in a setting which is highly people-oriented. He must be responsive to the needs of patients while getting maximum effort from them without appearing to place them under undue stress. He must work for long periods of time in close contact with a patient who is often depressed due to his physical condition or disability. In addition, he must work closely with other professional personnel, often under less than optimum conditions. He must accept general or specific directions from physicians and direct the activities of supportive personnel. Those supportive personnel often are not directly responsible to the physical therapist. Skill in dealing with people under those conditions and accomplishing the necessary work is a special skill which requires considerable experience and maturity.

Of particular concern is the relationship of the physical therapist with the patient. The core job of the physical therapist is the treatment of the patient, both physically and emotionally. He must relate easily to the patient, evaluate the emotional and physical condition of the patient during examinations and treatment, and show restraint and consideration to the patient even when the patient is depressed or emotionally upset. He must be a teacher and supervisor to the patient while maintaining a balance between real concern and professional involvement. He must communicate effectively with the patient both in words and in his total relationship to the patient. He must encourage the patient's efforts, but he cannot allow failure or lack of achievement to go unnoticed. He must be firm in establishing the requirements based on the patient's needs but flexible in enforcing those requirements.

The physical therapist works as one member of a treatment team with the goal of total care for the patient. He must relate to other professionals, often under difficult and trying conditions. The effective physical therapist must know and understand that interpersonal conflict is to be expected and he must have sufficient professional confidence and trust in his own ability to function in these circumstances.

Social skill traits may be estimated by the following portions of the Physical Therapy test battery:

- **Gordon Personal Profile: the social ascendancy and social interest scales**

- **Gordon Personal Inventory: the personal relationship (P) scale and the vigor (V) scale**
- **Edwards Personal Preference Schedule: the nurturance, intraception, and affiliation scales**
- **Supplementary Information Blank (Appendix B): high school activities (items 4, 8, 16); self-confidence (19, 20, 22); relations with others (17, 23, 24, 25, 35); parental approval (3)**

Intellectual Abilities. The physical therapist should have above average intellectual ability. This skill is required to facilitate the learning in the various academic areas such as anatomy, psychology, physiology, and physical sciences. He must be able to learn terms and concepts and, then, integrate those into procedures and practices. The work is never routine, or simply an application of set procedures, but requires an understanding of principles and application. The physical therapist is required to communicate with patients who have a broad range of intellectual ability. Therefore, he should be able to communicate at a level that is appropriate for the patient. These intellectual skills are measured by the following items in the tests included in the battery:

- **Psychological Research Services Classification Test: total score**
- **Watson-Glaser Critical Thinking Appraisal: total score**
- **Supplementary Information Blank (Appendix B): scholastic orientation (items 1, 5, 6, 7, 9, 10, 11, 12) and study habits (items 13, 15, 33)**

Interest. The interest profile of the physical therapist should be high in the medical, technical, and in the service-to-people areas. He should be interested in animals and working with young children and may have spent some time in his youth working on a farm. He tends to admire people who are working in dynamic and interesting jobs. He must work with other health care professionals and should have interests which are common to the other fields. The interest profile of Physical Therapy applicants may be estimated by the following portions of the test battery:

- **Strong Vocational Interest Blank: The medical and social service general areas and the physical therapy occupational scales. There should also be some high scores in Category I and V (men scales) and VI and X (women scales).**
- **Supplementary Information Blank (Appendix B): school activities (10); hobbies (14); care of animals (26, 37); perception of leadership (38)**

Mechanical Aptitude. This trait is divided into two areas, the perception of forms and mechanics, and manual and finger dexterity. The manipulation of the patient's extremities requires a perception of mechanical relationships as well as the strength and dexterity to make adjustments and evaluations. Physical strength is desirable but not necessary, as a good knowledge of mechanics and anatomy can allow even for the smallest physical therapist to manipulate and control the movements of the largest patient. Knowledge of mechanical principles is particularly necessary for work with prosthetic devices and much of the equipment used in exercising. Some related knowledge of physics is required, particularly in the areas of thermodynamics and basic electrical principles. Mechanical aptitude and physical

dexterity may be estimated by the following tests of the battery:

- . Bennet Mechanical Comprehension Test
- . MacQuairie Test of Mechanical Ability
- . Supplementary Information Blank (Appendix B): interest in mechanics (items 5, 6, 7); hobbies (14)

Drive and Ambition. One of the characteristic traits of the Physical Therapy applicant is a strong desire to succeed. As in most professional areas, this strong drive or ambition is needed to overcome the frustrations and problems in education and in entry in the field. The motivation of the Physical Therapy applicant should be oriented towards growth and directed to the job. He should gain satisfaction from factors such as achievement, responsibility, and recognition. Certain biographical items may be used to estimate the content and strength of that motivation:

- . Supplementary Information Blank (Appendix B): challenge of work (items 1, 21, 27, 28, 31, 32, 34, 36); energy level (items 16, 29); self-confidence (items 18, 20)

Emotional Stability. The job of the physical therapist places him in constant exposure to human emotion and pain. The physical therapist is required to have ego strength and well-developed emotional balance. This trait is not easily measured by standard tests but may be investigated in an interview or general appraisal. The following tests in the battery may be helpful:

- . Gordon Personal Profile
- . Edwards Personal Preference Schedule
- . Supplementary Information Blank (Appendix B): dealing with personal problems (items 2, 19); others' problems (23, 24, 25, 30)

Suggested Procedure for Evaluation of Candidates for Educational Programs in Physical Therapy

Evaluation of a candidate for admission to an educational program in Physical Therapy should include an assessment of his:

- . Intellectual Abilities
- . Social Skills
- . Interests
- . Mechanical Aptitude
- . Drive and Ambition
- . Emotional Stability

There is evidence to indicate that the results of a selected battery of tests can be important in the assessment and selection of a candidate who can successfully meet the requirements of a given educational program and who can function as a professional in the manner outlined by the program (DiStefano, 1971). Therefore, we suggest that the results from the following battery of tests be considered as one criterion in the selection of students for an educational program in Physical Therapy:

Bennett Mechanical Comprehension

Gordon Personal Inventory

Gordon Personal Profile

Edwards Personal Preference Schedule

MacQuarrie Test for Mechanical Ability

Psychological Research Services Classification Test (or equivalent test)

Strong Vocational Interest Inventory

Watson-Glaser Critical Thinking Appraisal

Administration and interpretation of the battery of tests would require the services of a psychologist since many of the tests are restricted and may not be administered except by the qualified psychologist.

Further, we suggest that the procedure for selection include:

- Administration of the Supplementary Information Blank (Appendix B) and careful examination of the responses to those 17 items which were demonstrated as being predictive of good performance as a Physical Therapist (Table 4)
- A carefully designed interview with each candidate
- A thorough evaluation of previous academic performance

The results of the psychological, aptitude and interest tests supplemented by biographical data, information gained from a personal interview, and a review of previous academic performance provide the foundation for a fruitful process of student selection. Except for the utilization of the Supplementary Information Blank, which provides certain specific biographical data, this is the approach that has been used successfully at the Graduate Physical Therapy Curriculum, Case Western Reserve University.

Minority Applicants

The subject of testing of minority applicants has not been addressed in this research. The sample we used has included representatives of minority groups; however, no attempt was made to identify those groups or to look at those data separately. The effects of tests developed for majority populations on minority groups need to be evaluated. To do this would require maintaining separate records of test scores and analysis to determine if the scores were biased in favor of one group or the other. We have defined job performance and have listed tests which could predict the various areas of performance. The question of how well those tests predict for minority or majority populations is an empirical question which requires further research.

CONCLUSIONS

The purpose of the study was to improve the methods used in the selection of students for educational programs in Physical Therapy. The consequence of identifying those candidates with the potential to perform effectively as physical therapists in the improvement of the quality of health care.

Results of the study demonstrated the importance of establishing and using a prescribed procedure in the selection of candidates for Physical Therapy education. The Supplementary Information Blank can be used, with reasonable confidence, as an instrument to identify those individuals who are most likely to become effective physical therapists.

The Patient Care Scale, (Table 2), which was based on the component behaviors identified in the critical incidents, can be used to evaluate individual performance during the period of clinical education or in early employment. In addition, the Component Behavior Rating Scale (Appendix A) could be used for similar purposes.

This study can be used as a model for further investigation into the process of student selection. It has been a major undertaking which has identified some aspects of that facet of the role of the physical therapist which relates directly to patient care. Yet to be explored in depth are those facets of the role which relate to administration, supervision, consultation, research, and teaching.

APPENDICES

APPENDIX A

PERFORMANCE RATING SCALE: Behavioral

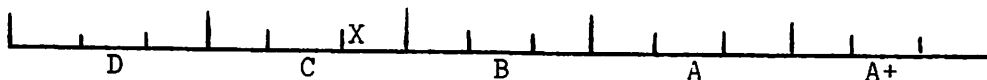
COMPONENT BEHAVIOR RATING SCALE

The following component behaviors have been identified by Physical Therapists as being representative critical behaviors of the job. Please rate each Physical Therapist on each item, following the instructions below. Where more than one therapist is being rated, please go through each item for each therapist, i.e. rate all on item 1, then 2, etc. As a basis for your rating consider the past four (4) week period, or a typical four (4) week period.

- (1) Rate each therapist for each item on the scale below the item. The scale is labelled from low to high, with "D" representing marginal or inferior performance, "C" average, "B" above average, "A" superior, "A+" outstanding.
- (2) Between each of the letter grades on the scale are three division marks, to allow for fine distinctions between ratings.
- (3) Place an "X" between the scale marks, as shown in sample I below.
- (4) Use "D" for performance that is marginal or in the lowest 20%.
- (5) Use "A+" for performance that is outstanding or in the highest 20%.
- (6) Where a behavior has not been performed in the four (4) week rating period, or is not in the scope of the job of the therapist being rated, draw a line through the scale as shown in sample II below.

Sample I

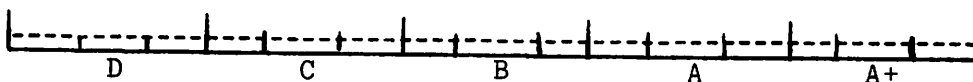
Provides only tasks the patient will perform successfully.



Interpretation: Therapist is slightly above average in providing only easily performed tasks for patient.

Sample II

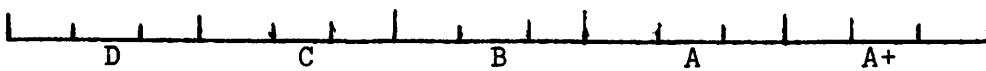
Discusses alternate treatment approaches with patient.



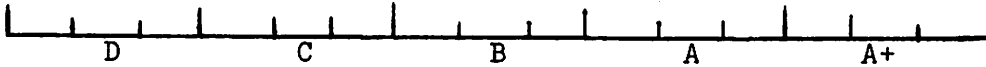
Interpretation: Policy or administrative practice discourages allowing patients to chose treatment.

APPENDIX A - Continued

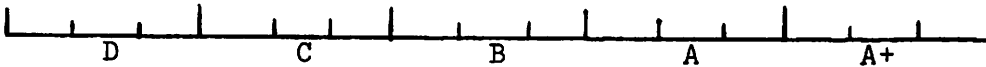
1. Performs an initial evaluation of the patient on referral.



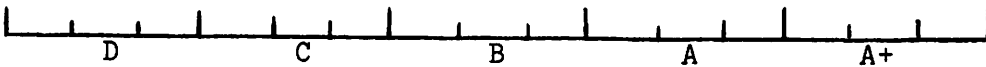
2. Modifies examination procedures where patient's condition requires different approach.



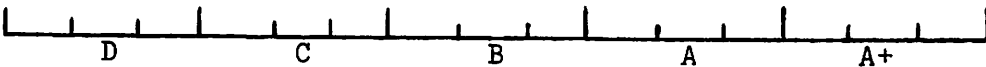
3. Observes and evaluates patient's condition during treatment. Is alert for any signs of distress or abnormal reactions.



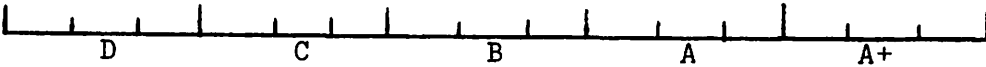
4. Is responsive to patient's emotional condition.



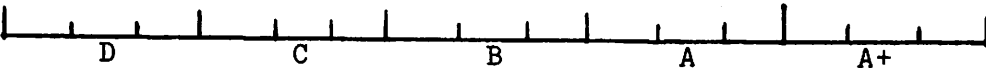
5. Provides initial tasks that the patient will be successful in performing.



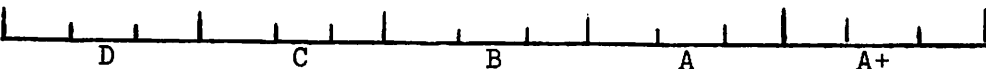
6. Develops confidence and establishes rapport with patient.



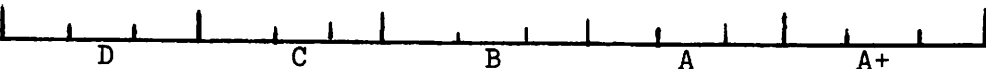
7. Takes initiative in relaying information regarding patient care.



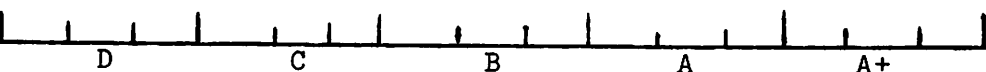
8. Understands patient's medical record. Questions areas that are not clear or which might indicate a restriction on treatment.



9. Does not leave a patient in doubt about his schedule status.

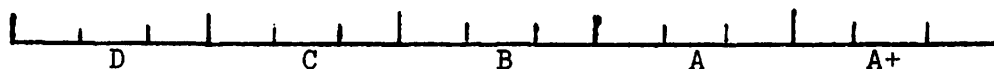


10. Gives patients a feeling of achievement by encouraging progress and noting improvements.

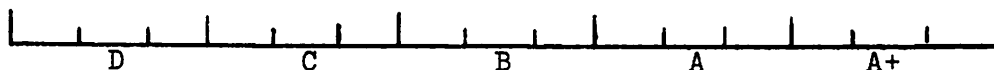


APPENDIX A - Continued

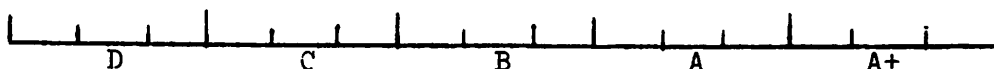
11. Does not allow failures or incidents to disturb patient's confidence in his ability.



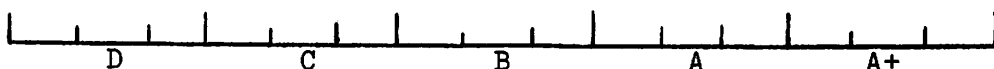
12. Anticipates physical failures.



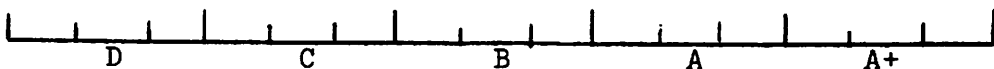
13. Plans progressive treatment program for patients.



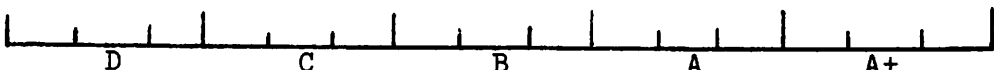
14. Gets most efficient response from patient.



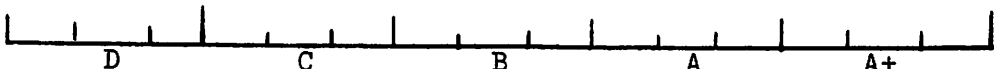
15. Uses knowledge of patient's pain threshold in giving treatments.



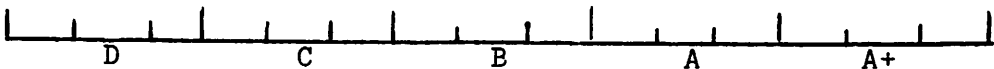
16. Exhibits a firm and determined attitude towards patient's treatment, particularly where the patient must exert himself to achieve results.



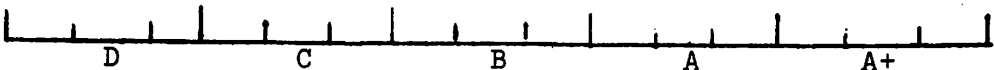
17. Uses good judgment in scheduling patients. Does not schedule so many that treatment is insufficient or undue waiting required.



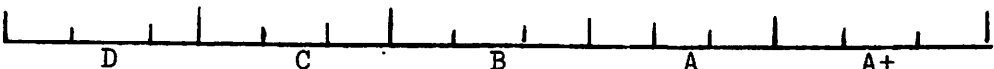
18. Provides full instructions at a level the patient understands.



19. Uses non-verbal instructions and demonstrations when required.

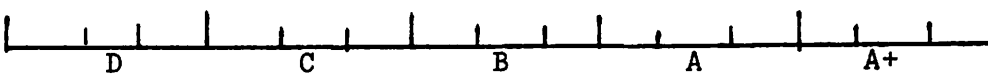


20. Discourages unrealistic expectations of the patient through instruction and explanation of what is possible.

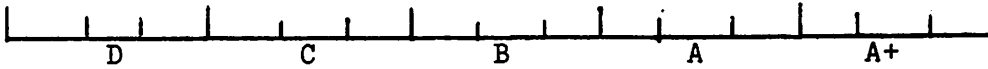


APPENDIX A - Continued

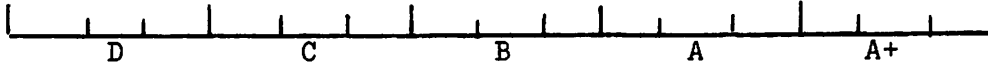
21. Maintains work area clear of hazards.



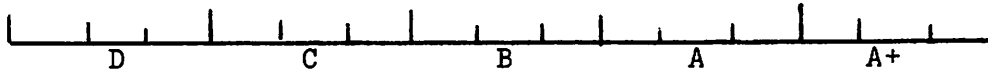
22. Uses safe operating procedures in treatment room.



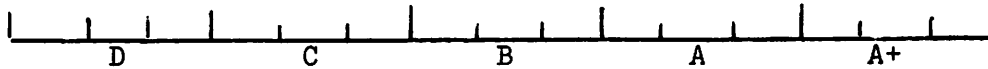
23. Effective when potential emergency situation develops.



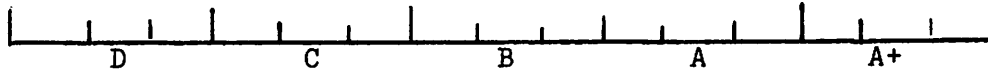
24. Modifies and improvises equipment and procedures effectively.



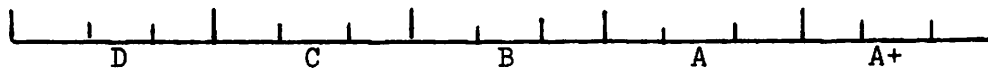
25. Willing to perform extra duties.



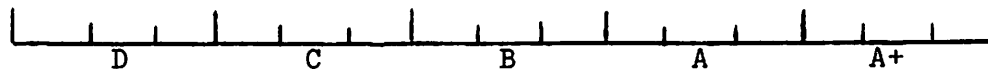
26. Contacts physician where additional or different treatment would be beneficial to patient.



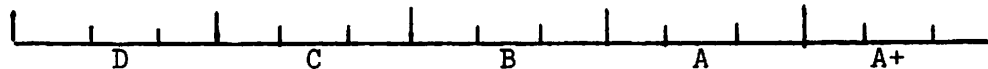
27. Maintains patient's records and reports patient's response to treatment.



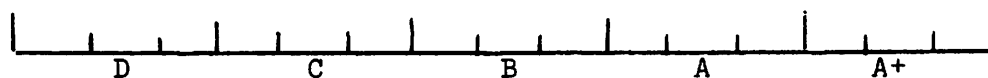
28. Makes the physician aware of problems in a way that avoids confrontation.



29. Shows mutual, professional respect for other professionals on the treatment team.

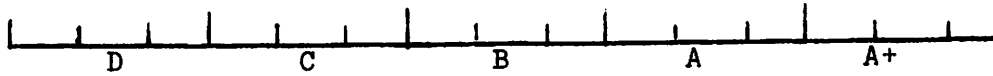


30. Takes a positive approach in making other professionals aware of contributions that can be made by Physical Therapy discipline.

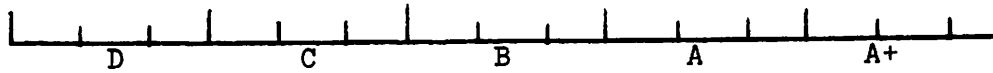


APPENDIX A - Continued

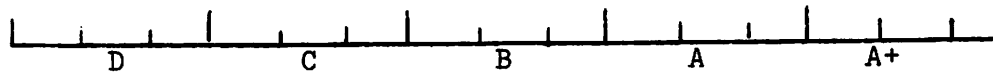
31. Confident in own technical skill and judgment and able to communicate this confidence.



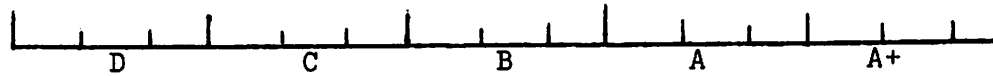
32. Takes time to complement supportive personnel for good work.



33. Explains reasons behind unusual requests of supportive personnel.



34. Assigns specific duties and jobs to supportive personnel.



APPENDIX B
SUPPLEMENTARY INFORMATION BLANK

Instructions

NAME _____ SOC. SEC. # _____ DATE _____

This blank consists of a number of questions about yourself and those with whom you come in contact. The items refer to attitudes or experiences you may have had while growing up. Questions concerning your parents should be answered in terms of step-parents or guardians, if this is appropriate to your situation.

There is no time limit, but do not spend more time than necessary on any one question. Please answer every question by drawing a circle around the appropriate response. If for any question there is no answer that is appropriate for you, please choose the response that most nearly applies.

Please mark only one answer for each question unless otherwise indicated.

Graduate Physical Therapy Curriculum
and
Psychological Research Services
Case Western Reserve University
Cleveland, Ohio 44106

APPENDIX B - Continued

SCHOOL

1. I have found my studies to be
 - A. very interesting
 - B. usually interesting
 - C. interesting occasionally
 - D. boring
2. During my high school days, when I found my studies difficult to understand, I would usually
 - A. ask teachers, parents, or friends for help
 - B. pay closer attention during class
 - C. plan and carry out background study
 - D. study until I solved them regardless of the time required
 - E. never find my studies too difficult to understand
3. With respect to the marks I made in school, my parents
 - A. were very pleased
 - B. were satisfied but thought I should do better
 - C. did not care about marks as long as I did my best
 - D. did not care about marks as long as I passed
 - E. paid very little attention to my marks
4. When I was in high school, I was most active in
 - A. individual sports competing against myself (e.g. archery, golf, bowling, swimming)
 - B. individual competitive sports (e.g. tennis, badminton, boxing)
4. (Continued)
 - C. team sports (e.g. baseball, volleyball)
 - D. I was not very active in sports
5. The high school subjects which I took and liked very much were (mark as many as apply)
 - A. agriculture
 - B. art
 - C. biological sciences
 - D. bookkeeping
 - E. chemistry
 - F. civics
 - G. English or literature
 - H. foreign language
 - I. history
 - J. mathematics
 - K. mechanical drawing
 - L. music
 - M. physical education
 - N. physics
 - O. religion
 - P. shop
 - Q. shorthand
 - R. speech
 - S. typing
 - T. none of these
6. In my last six years of school, I have done my best work in (mark as many as apply)
 - A. agriculture
 - B. art
 - C. biological sciences
 - D. bookkeeping
 - E. chemistry
 - F. civics
 - G. English or literature
 - H. foreign language
 - I. history
 - J. mathematics
 - K. mechanical drawing

APPENDIX B - Continued

6. (Continued)

- L. music
- M. physical education
- N. physics
- O. religion
- P. shop
- Q. shorthand
- R. speech
- S. typing
- T. none of the above

7. In my last six years of school, I have done my poorest work in (mark as many as apply)

- A. agriculture
- B. art
- C. biological sciences
- D. bookkeeping
- E. chemistry
- F. civics
- G. English or literature
- H. foreign language
- I. history
- J. mathematics
- K. mechanical drawing
- L. music
- M. physical education
- N. physics
- O. religion
- P. shop
- Q. shorthand
- R. speech
- S. typing
- T. none of these

8. By the time I had graduated from high school, I had been (mark as many as apply)

- A. chairman of an important student committee
- B. cheerleader
- C. class officer
- D. editor of a publication
- E. leading actor of a play
- F. manager of an athletic team
- G. manager or director of a school play

8. (Continued)

- H. member of an athletic team
- I. member of a debating team
- J. member of the student council
- K. member of a young peoples group in church
- L. patrol leader or group leader
- M. president of an honorary club
- N. president of a school club

9. While in school, I won a scholarship, fellowship, assistantship, or prize because of ability in

- A. academic work
- B. athletics
- C. writing or speaking
- D. music
- E. art
- F. none of these

10. During my high school years, the things I was able to do with the least effort were (mark as many as apply)

- A. earn recognition in athletics
- B. make the honor roll
- C. gain membership in social clubs
- D. win a leading part in a school play
- E. become a member of the debating team
- F. get in a musical organization
- G. receive a responsible job on a school publication
- H. win popularity contests
- I. none of these

APPENDIX B - Continued

11. During my last few years in school, the grades I received were
- A. superior
 - B. above average
 - C. average
 - D. below average
 - E. poor
12. My usual standing in high school was in the
- A. top 5 percent
 - B. upper third, but not top 5 percent
 - C. middle third
 - D. lower third
 - E. I do not know
13. During my last two years of high school
- A. I did not do much studying because I did not want to
 - B. I did not do much studying because of other activities
 - C. I did not do much studying because it wasn't necessary
 - D. I studied hard but only before examinations
 - E. I studied regularly throughout the school year
14. By the age of 20, I had taken lessons in, or could play
- A. two or more instruments
 - B. one instrument
 - C. no instrument
15. I consider the best period for efficient study the time
- A. after classes in the afternoon
15. (Continued)
- B. before classes in the mornings
 - C. at night or evening
 - D. over the weekends
 - E. during study periods at school
- SELF
16. When I get up in the morning
- A. I am up, out, and raring to go
 - B. I am slow but I make it
 - C. I feel as though I could use another eight hours of sleep
17. As a young person, when I did something well, I valued most of the praise of
- A. a friend
 - B. a teacher
 - C. my parents
 - D. someone else
 - E. I did things well for my own satisfaction
18. Please indicate which of the following betting situations you would prefer if you were to wager \$300 of your own money.
- A. 1 chance in 6 to win \$1800
 - B. 2 chances in 6 to win \$900
 - C. 3 chances in 6 to win \$600
 - D. 4 chances in 6 to win \$450
 - E. 5 chances in 6 to win \$360
 - F. I would not consider betting under any circumstances

APPENDIX B - Continued

19. When I feel that I have been treated unfairly, I usually
- attempt to find out why
 - shrug it off
 - develop an interest in something else
 - do not, thereafter, trust the person or persons responsible
 - talk it over with someone you trust
 - I have never been treated unfairly
 - worry about it for a long while, but never mention it to anyone
20. How self-confident are you about your abilities?
- much more self-confident than average
 - somewhat more self-confident than average
 - about average in self-confidence
 - somewhat less self-confident than average
 - much less self-confident
21. I regard puzzles as
- interesting
 - frustrating
 - absorbing
 - time wasting
 - tiring
22. When as a young person I had made a public speech, I usually felt that
- I could have done better if I had not been so nervous
 - I made a good speech even though I was nervous
 - I did not make a good speech even though I was at ease
22. (Continued)
- I made a good speech and was at ease
 - I did not make any public speeches
- OTHERS
23. When someone around me is disturbed by a problem, I usually
- leave them alone and offer no advice
 - try to make some suggestions
 - sympathize with them
 - try to work out a solution for them
 - try to change the subject
24. When I see someone who is bleeding profusely, vomiting, or sick, I
- feel ill
 - walk away
 - help the person
 - ask someone else to help the person
 - none of these
25. If I were nearby when a friend of mine was bitten by a snake, my first reaction would be to
- kill the snake to avoid more harm
 - call a physician
 - apply a tourniquet
 - chill the wound area with ice or other coolant
 - suck out the poison

APPENDIX B - Continued

26. While growing up, I had the responsibility for the care and feeding of
- A. three or more animals
 - B. one or two animals
 - C. no animals
- WORK
27. It is important to me that work is
- A. constantly challenging
 - B. occasionally challenging
 - C. non-challenging
28. the one area in which I have improved most in recent years concerns
- A. technical knowledge
 - B. life perspective
 - C. learning to relax
 - D. human relations skills
29. When I earned my first money on a steady job from someone other than my family, my age was
- A. less than 12
 - B. 13 to 15
 - C. 16 to 18
 - D. 19 to 21
 - E. over 21
 - F. not applicable
30. When I was growing up, most of the things I wanted were
- A. denied me by my parents
 - B. permitted if I could get them on my own
 - C. given to me by my parents
 - D. given to me by someone other than my parents
31. I consider the major motivating force in my life to be
- A. responsibility for work done
 - B. recognition for achievement
 - C. challenge of work
 - D. security
 - E. level of position
 - F. salary
32. I feel that the thing I would like best in a job would be
- A. promotion and pay according to ability
 - B. satisfactory vacations
 - C. good supervision
 - D. freedom to make decisions
 - E. working for myself
33. I consider my best period of efficient work is
- A. early in the morning
 - B. mid-morning to noon
 - C. afternoon
 - D. early evening
 - E. late at night
34. Of the following, I would most enjoy
- A. doing a difficult job well
 - B. sharing something with a friend
 - C. winning others over to my point of view in an important decision
 - D. helping someone who is less fortunate than I am

APPENDIX B - Continued

35. Which one of the following qualifications do you feel is most important for a supervisor in an occupation such as physical therapy
- A. ability to deal effectively with people
 - B. knowledge of effective administrative procedures
 - C. ability to size up a situation and act accordingly
 - D. technical knowledge
 - E. none of these
36. In a job, I would dislike most
- A. confusion
 - B. inefficiency
 - C. personal bad feelings
 - D. lack of a chance of progress
37. By the time I was 20 years old, the amount of time I had spent on a farm was
- A. none
 - B. a short time during vacations
 - C. about 1 year
 - D. 2 to 5 years
 - E. more than 5 years
38. Whom do you admire most (rank in order by numbering 1 through 6)
- _____ Air Force pilot
 - _____ college professor
 - _____ physician
 - _____ lawyer
 - _____ high school teacher
 - _____ businessman

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ABSTRACT

This is the final report on one segment of a study on Selection of Students for Physical Therapy Educational Programs. This portion of the study included the development of: critical job requirements for physical therapists, performance evaluation, rating scales, and a Supplementary Information Blank. Included in this report is a suggested procedure for the selection for educational programs in Physical Therapy.

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SUMMARY

**PART A: DEVELOPMENT OF A PROCEDURE
FOR STUDENT SELECTION AND EVALUATION
OF PERFORMANCE OF THE PHYSICAL THERAPIST**

**(Contract No. 373-T
Rehabilitation Service Administration,
Social Rehabilitation Service,
Department of Health, Education and Welfare)**

by

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23 AUGUST 1971

**Graduate Physical Therapy
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