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# EFFECTS OF THE VIDEO CASE STUDY APPROACH IN PREPARING PARAMEDIC PRECEPTORS FOR THE ROLE OF EVALUATOR

by

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A DISSERTATION

Presented to the Faculty of

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GRADUATE COLLEGE
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# EFFECTS OF THE VIDEO CASE STUDY APPROACH IN PREPARING PARAMEDIC PRECEPTORS FOR THE ROLE OF EVALUATOR

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University of Nebraska, 1999

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Accurate field evaluations are critical in determining paramedic students' competency to provide patient care. Most educational programs provide minimal preparation for preceptors who conduct field evaluations. The National Paramedic Curriculum does not address the skills needed by evaluators, and requirements to be a preceptor/evaluator vary from state to state. The importance of these issues is indicated by the lack of Emergency Medical Services literature regarding the evaluation process. There is an apparent need to demonstrate the effectiveness of field evaluations based upon: 1) valid performance criteria and 2) consistency (reliability) among evaluators.

This study sought to determine the effects of using a video case based teaching approach in preparing paramedic preceptors for the role of evaluator. The research design was experimental using a pre to post test comparison of control versus experimental group to determine the effects of the case based intervention. Pre and post test scores were analyzed using ANOVA. Analysis of the pre- to post test differences revealed significantly higher scores for the experimental group in the categories containing complex behaviors (communication, assessment and knowledge). There was no significant difference between groups in the categories containing simple, easily observed behaviors (reliability and cooperativeness).

This study demonstrated that the case study method can foster consistency among evaluators by allowing them to evaluate student behaviors similar to the way they are evaluated in real life. Integrating examples of each rating criteria with the case study method can increase consistency of evaluations among preceptors.

This study also sought to determine differences between preceptor and faculty expectations for when students should demonstrate acceptable clinical performance as they progress through the field practicum and the importance placed on characteristics that demonstrate professional role socialization. The research design was survey. Survey categories (general, assessment, intervention and communication skills; professional characteristics) were analyzed using the independent measures *t* test. There was no significant difference between preceptors and faculty on any of the survey items.

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# CHAPTER ONE: INTRODUCTION

Paramedicine, like most health care fields, is a performance-oriented discipline requiring that knowledge and competence be demonstrated through applications in practice, as well as through objective testing. However, a search of the Emergency Medical Services (EMS) literature reveals a profound lack of information regarding both critical behaviors for entry level paramedics and the process of evaluating paramedic students on patient interactions in the field setting. It is no longer feasible or ethical to assume that knowledge-based objective testing is a predictor of practical field competence in EMS programs.

With the certificate of completion, the paramedic educational program is acknowledging that the graduate is capable of providing competent medical care at an entry level in the pre-hospital (field) setting. The field evaluations are a reflection of the student's ability to put theory into practice. Thus, a student's successful completion of the course is contingent on acceptable field evaluations. It is therefore, imperative that educational programs: 1) develop an evaluation process that reflects valid performance criteria and 2) assure a high degree of reliability among the evaluators.

Due to limited numbers of faculty in most educational programs, the in-hospital clinical experience component is usually evaluated by direct observation using designated physician or registered nurse preceptors. By contrast, the more important field experience component is usually evaluated by designated paramedic preceptors within the local service programs. Students ordinarily enjoy working with preceptors in the practice setting. They assist students in role socialization and building self-confidence (Ferguson

& Calder, 1993). The student/preceptor relationship allows the student the opportunity to observe and model the preceptor's behaviors in real world practice. This relationship provides the student with an apprenticeship experience to develop professionally under the guidance of those considered to be expert practitioners in their field. However, this relationship may also result in a halo effect during the evaluation process due to familiarity with students.

In-hospital clinical rotations (supervised by registered nurses or physicians) do not allow students to be in the role of decision-maker regarding patient assessment and medical intervention. Rather, the student accompanies the nurse or physician preceptor, assists with patient evaluation and performs the procedural tasks required by the patient's condition that are within the paramedic scope of practice. By contrast, because field experience is supervised by paramedic preceptors functioning as part of area EMS service programs, it is a more credible environment for assessing the competencies necessary for practice by paramedics. Field experience does require the student to demonstrate the ability to take charge of a call, determine the patient's medical status and demonstrate appropriate prioritization of interventions for care in both emergent and non-emergent situations.

As a point of definition, clinical competence relative to physicians and nurses refers to professional practice within the office, clinic or hospital setting. However, within the context of this study, the term clinical competence refers to professional practice of paramedics in the pre-hospital (field) setting.

## Background of the Problem

The U.S. Department of Transportation is responsible for developing the educational curriculum for paramedics. The current Emergency Medical Technician-Paramedic: National Standard Curriculum (U.S. Department of Transportation, 1985) is considered outdated. The Department of Transportation has revised the curriculum. However, the projected implementation date of this new curriculum is 2000. Even with a 2000 projected implementation date, many states will require legislative revisions to adopt the new curriculum. Thus, realistically, the new curriculum will probably not be in place until 2002 or 2003.

This curriculum is the only national document available that sets standards for education (thus areas of practice) for paramedics. The concentration of the current curriculum lies in cognitive knowledge areas and procedural skills. The new curriculum continues that concentration. It increases the required training to 1500 hours, expands the number of allowable non-emergency procedures in order to interface with the "prevention" philosophy of managed care and expands the required cognitive knowledge base of pathophysiology.

The current curriculum requires 230 hours of in-hospital clinical training with specialty areas designated. The new curriculum specifies what medical conditions students should "see" during training, but does not differentiate between the clinical and field areas as to where those observations should occur. Both the current and new curriculum requirements for the field training component are somewhat limited, specifying in general terms only that students need adequate field experience to

demonstrate competency. Neither curriculum defines any criteria for either what is adequate or what constitutes competency.

The curriculum does contain a description of the role of the paramedic. This is the description utilized in the major paramedic textbooks to introduce students to the paramedic profession (Sanders, 1994). This description can be found in Appendix A.

The concentration of the current curriculum on cognitive knowledge and procedural skills is understandable when viewed from the perspective of the curriculum's publication date of 1985. At that time, paramedicine was a new allied health field. Its focus was teaching the knowledge and skills necessary for the paramedic to deliver an adequate radio report to a physician at the hospital and complete the tasks necessary to institute the orders given by that physician. Paramedics served as the intermediary to begin physician ordered medical care prior to arrival at the hospital.

Over the last few years, in a significant number of areas nationwide, this practice has evolved into a system in which physician approved, protocol (algorithmic) treatment is initiated on the paramedic's impression with no radio contact with a physician required. This evolution to independent analysis and decision-making requires the paramedic have additional skills to accurately interpret data collected in the assessment, to form a correct impression of the patient's problem(s), to provide appropriate interventions and to evaluate effects of those interventions (Janing, 1994).

Thought processes necessary for paramedics to formulate a field impression equate to thought processes necessary for physicians to formulate a medical diagnosis. These thought processes have been variously termed throughout the literature as "critical

thinking" (Miller & Malcolm, 1990; Bell, 1991), "knowing-in-action" (Schon, 1987), "reflective judgment" (King & Kitchner, 1994), "lateral thinking" (Girot, 1992) and "clinical reasoning" (Norman & Schmidt, 1992).

In addition to changes in the communication aspect of paramedic practice, rapid advances in medical technology and understanding of disease processes have outdated many cognitive areas of the curriculum (e.g., pharmacological treatments) and many procedural skills. Current drugs are not addressed in this curriculum. Drugs that are covered in the curriculum have not been used for years. Procedures have been expanded and new ones added as the field of paramedicine has grown.

The allowed procedures (including pharmacological agents carried) vary from service program to service program. Protocols and procedures vary according to system type (fire department or private company) and community need (rural or urban and level of medical care available). Protocols and procedures are identified by the medical director of the individual service program. This contributes significantly to the lack of standardized behaviors.

The American Medical Association's, Joint Review Committee on Educational Programs for the EMT-Paramedic also sets standards for paramedic education. Although Joint Review Committee accreditation is not mandatory in most states, the Committee is viewed as a standard setting organization for paramedic educational programs. This group recommends that critical entry level behaviors be developed at the local systems level (personal communication, P. Von der Hyde, May, 1994). Thus, there are no real published standards from this accrediting body.

Lacking specific behaviors and guidelines from either of these groups, educational programs are left to their own devices or the varying standards set by individual states to determine behaviors for evaluations, the requirements for successful completion of the field component and who will be allowed to evaluate the students' performance. With this current set of conditions, it is not surprising there is little available in the literature regarding the evaluation process.

Validation of evaluation methods to determine cognitive knowledge through the use of written and oral testing has been well established throughout medicine, nursing and paramedicine as witnessed by the board examinations for medicine, licensing examinations for nursing and certifying examinations for paramedicine. There have also been many studies conducted on the development of clinical performance evaluations. These studies have looked at components of clinical evaluation, rating scales and inter-rater reliability using both standardized examinations and direct observation as means of evaluating clinical performance within medicine and nursing (Harper, Norman, Rand & Feightner, 1983; Bondy, 1984; Maxim & Dielman, 1987; Meetz, Bebeau & Thoma, 1988; Roberts & Norman, 1990; Metheny, 1991; Noel et al., 1992; Orchard, 1992; Ferrell & Thompson, 1993; Winckel, Reznick, Cohen & Taylor, 1994). The results of these studies have identified several problems in all three areas (components, rating scales and inter-rater reliability). Of particular interest is the study by Orchard (1992). She categorizes several distracters that affect evaluation of performance including: 1) the variables selected to measure performance; 2) the evaluator's preparation in the use of the program's evaluation form and 3) the evaluator's use of personal experiences as the basis

for interpreting student performance.

Most paramedic educational program faculty agree that minimal attention is given to preparing paramedics for the preceptor/evaluator role. Educational programs usually require a mandatory orientation program for new preceptors. This orientation includes: 1) philosophy of the educational institution and background of the educational program; 2) a cursory review of the program's specific evaluation form and 3) an in-depth review of the rules regarding completion and return of the form to the program so the student will receive credit for the field practicum shifts. The majority of programs spend minimal time discussing criteria for rating choices.

In selecting and preparing preceptor evaluators, consideration of varying paramedic experience levels usually goes no further than assuring that the requirements (which vary from state to state) for years of experience to be a preceptor are met. No program (to the author's knowledge): 1) uses case scenarios to provide practice evaluations; 2) reviews case scenarios with program faculty nor 3) utilizes faculty as "preceptors" for the new evaluators. Requirements for ongoing review with experienced preceptors vary. The programs that do have ongoing review with experienced preceptors usually require them to return on a yearly basis only for updates on program requirements or changes in the evaluation form.

The minimal amount of time and emphasis placed on preceptor preparation and evaluation is reflected in the lack of EMS literature regarding this subject. Most EMS literature is confined to clinical aspects of out-of-hospital care. There is very little literature with emphasis on educational issues.

Most program faculty express concern regarding lack of preparation of preceptors and the resultant effect on the evaluations of student performance in the clinical setting. They believe demands on faculty time due to teaching commitments results in lack of time to adequately prepare preceptors as evaluators. This concern is reinforced by the results of an earlier study which revealed a significant difference in inter-rater agreement when comparing the ratings of two faculty members and the ratings of each faculty member with the paramedic preceptor, all of whom were evaluating student performance during direct observation (Janing, 1999).

Personal experience and organizational culture affect an individual's perceptions/ values (Ferguson & Calder, 1993; Brandt, 1996). Perceptions and values subsequently affect the interpretation of student performance. Ferguson and Calder (1993) suggest that practitioners value the processes of their practice situations while educators value more idealistic professional characteristics such as cognitive skills, the ability to problem solve, and the ability to provide emotional support to patients. Paramedic preceptors are practitioners. Their focus is on management of patients in the pre-hospital setting and how well that care is delivered within the constraints and guidelines established by their organization. As educators, faculty are more focused on the students' ability to meet the professional standards of paramedicine and the academic standards of the educational institution.

Orchard (1992) suggests that using personal experience as the basis for interpreting student performance may lead to an evaluation of how the preceptor would provide patient care rather than an evaluation of how the student is providing the care according

to the evaluation guidelines. Preceptors tend to evaluate student performance based on personal experience and perceptions while faculty evaluators are more likely to evaluate students based on their performance of the behavior. Faculty are also more likely to give consideration to the number of patient encounters the student has experienced (Janing, 1999). Differing values and perceptions of performance may lead to different expectations between preceptors and faculty regarding when, in the course of the training program, students should demonstrate competency on the various skills required for entry level practice. Evaluations based on comparing student performance to how the preceptor would give care suggest preceptors might expect the students to competently perform some complex skills (assessment and management of critical patients) earlier than faculty would expect that level of performance.

Personal experience also has a significant effect on the learning process in general. This is well documented in the literature (Benner, 1982; Schon, 1987). Learners build new knowledge within the context of previous experience. Thus, experience also affects proficiency of practice and the reasoning process (Benner, 1982; Benner & Wrubel, 1982a; 1982b; 1982c; Benner, 1983; King & Kitchner, 1994). Based on these findings, many areas of medicine are turning toward the experiential curriculum and case based teaching in order to give the students their initial exposure to real world practice and increase the likelihood that cognitive information will be transferred into memory in a contextual form that will be easier to retrieve when that patient condition is encountered again.

## Purpose of the Study

The purpose of this study is two fold. The primary purpose is to assess the effects of using the case based teaching approach in preparing paramedic preceptors for the role of evaluator. This will be determined by comparing scores of preceptors on a pre- and post test evaluation using a scripted video of a student/patient encounter. The secondary purpose is to determine if there is a difference between paramedic preceptors and faculty evaluators regarding: 1) expectations for demonstrating acceptable clinical performance by paramedic students as they progress through the field practicum and 2) importance of characteristics that demonstrate professional role socialization.

This study includes the following hypotheses:

Hypothesis One: Paramedic preceptors receiving the case-based teaching approach to prepare them for the role of evaluator will score significantly higher on the video post test than paramedic preceptors who are not prepared for the role of evaluator using the case-based approach.

Hypothesis Two: Results of the Expectations of Paramedic Student Competency survey, will show that paramedic preceptors expect students to demonstrate acceptable clinical performance at a significantly earlier stage of the field practicum than do faculty.

Hypothesis Three: Results of the Expectations of Paramedic Student Competency survey, will show that faculty place significantly greater importance on the more idealistic professional characteristics while paramedics place significantly greater importance on the characteristics that reflect the philosophy and processes of their organizational culture.

# CHAPTER TWO: LITERATURE REVIEW

The ultimate goal of paramedicine, like medicine and nursing, is to improve the patient's medical outcome. This requires paramedics who are adequately prepared to collect data, interpret findings correctly, apply treatment interventions appropriately and evaluate the effects of the interventions. To attain this goal, educational programs must assure their graduates are able to meet the requirements for competency at a minimum entry level. This requires that field performance evaluations done on students are as credible as the validated multiple choice and skills examinations used in the classroom and on the certification examination to evaluate cognitive and psychomotor knowledge.

Although the written examination is easy to administer, cost effective and is perceived as objective, it assesses few components of clinical competence (Barrows, Williams & Moy, 1987; Miller, 1990). Attempts to achieve high correlation between clinical performance and performance on multiple choice examinations, even those using higher level questions, have proven unsuccessful (Quattlebaum, Darden & Sperry, 1989; Peitzman, Nieman & Gracely, 1990; McGaghie, 1993).

In addition to procedural skills, patient outcome is significantly affected by the abilities to recognize priorities, communicate with others and recognize one's own limitations to prevent undue harm in the practice setting (Girot, 1992). Students need considerable experience to improve their competency in each of these areas. However, these capabilities are often illusive and difficult to define. Past experience with field preceptors has shown the evaluation of these capabilities to either be ignored during the evaluation process or rated on the basis of the evaluator's personal interpretations of

performance or personal relationship with the student (Janing, 1999). When preceptors were contacted by faculty to discuss evaluation rating patterns that were significantly different than the student's other evaluations (e.g., either higher or lower), reasons given by the preceptors included: 1) the student's ability to "short cut", thereby reduce field time and perform like a "real" paramedic; 2) the student did not perform as well as (or performed better than) other students; 3) a desire not to hurt the student's feelings because he/she is a nice person and 4) the student has an "irritating" personality, therefore lacks communication skills and should not be functioning in the field.

Experience following the primary education program is critical to improving the abilities of paramedics. The educational setting provides limited exposure to patients. Therefore, extensive real world practice experience is necessary to recognize and meet the needs of a variety of medical and traumatic conditions and improve competency past the entry level. As practitioners accumulate clinical experiences, those experiences influence their perceptions of all aspects of EMS, including educational aspects. Thus, their perceptions of what are acceptable requirements for them to function as a preceptor/ evaluator and their performance of those requirements will be influenced by their changing perceptions.

Acceptable performance expectations for students are often compared and equated to the preceptor's personal abilities (which have increased with years of practice experience). Past experience also influences the preceptor's perception of the criteria and rating guidelines. They may believe that some of the criteria/rating guidelines are not appropriate or necessary and that some behaviors are not included that should be

evaluated. In effect, some preceptors may believe the educational program's desired method of evaluation is lacking in some areas.

Since there is a profound lack of information regarding clinical evaluation in the EMS/prehospital setting, this chapter will review the literature regarding clinical evaluation in the professions of medicine and nursing to determine what problems have been identified and what approaches might be adapted to improve clinical evaluation of paramedic students performance in practice.

The teaching approaches used to prepare the practitioner for the role of evaluator are also critical to the practitioner's: 1) acceptance of the need for the educational program's desired evaluation process; 2) the ability to learn the skills required for the evaluation process and 3) the acceptable performance of those skills. Therefore, this chapter will also review the literature covering various teaching methodologies that incorporate adult learner characteristics and needs in order to develop a preparation program that should increase the likelihood that preceptors will complete the evaluation process according to the desired method of the educational program.

## Evaluation of Clinical Performance

Evaluation of clinical performance continues to be an area of concern in medicine, nursing and EMS. Several factors appear to account for the lack of validated clinical performance evaluation methods. These can be categorized as those factors related to the evaluation format, form design, criteria and the evaluator.

Format Factors: Direct Observation

The traditional method for evaluating clinical performance is direct observation by experienced preceptors. This format allows the student to be viewed in the contextual setting of real practice. However, evaluation by the process of direct observation has some inherent problems. Evaluation forms are often completed at the end of a rotation and are based on recollections of events (Winckel, Reznick, Cohen and Taylor, 1994). In a 1985 study by Neufeld and Norman (cited in Roberts & Norman, 1990), it was noted that direct observation evaluations are based primarily on the interpersonal relationship between the student and evaluator, resulting in a halo effect.

Lack of specific criteria for evaluation also appears to have an adverse effect on the objective evaluation of clinical performance through direct observation. Determination of a student's ability to recognize important information and to solve problems are goals of clinical evaluation. However, these are nebulous concepts and open to a variety of interpretations. Without specific behavioral criteria, these concepts are difficult to document.

Clinical evaluation of internal medicine residents failed to discriminate among levels of competence or document problems (Noel, et.al., 1992). However, as Pietzman, Nieman and Gracely(1990) note, preceptors believe they can recognize borderline or above average students. Identification of important information and problem solving may be aspects of clinical performance that are evaluated, but a student's evaluation is more likely to be based on more concrete signs such as eagerness to work, demonstration of the attributes of team work, demonstration of modeling the preceptor's approach and