

# Use Of Video-Based Cases As A Medium To Develop Critical Thinking Skills In Health Science Students

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## ABSTRACT

*One learning strategy that, at present, has not been widely used in graduate Physical Therapy education is “video based cases”. The use of visually unfolding case-based experience provides students a unique opportunity to experience real patient scenarios in their classroom environment. The purpose of this paper is to provide data on student perceptions of usefulness of the video based case experience in promoting their ability to organize, prioritize, and integrate content knowledge for the development of effective critical thinking skills.*

**Keywords:** video based cases, learning strategy, critical thinking

## INTRODUCTION

Healthcare practitioners face an enormous challenge in organizing, prioritizing, and planning systematic strategies for effective patient intervention. Similarly, educators often find it difficult to provide health science students rich learning experiences that promote the development of critical thinking skills needed for effective patient care. Physical therapy educators have utilized numerous learning strategies including journals, practice patterns, problem-based learning, case studies, and hypothesis-oriented algorithm for clinicians (HOAC) (Shepard et al., 2002) to help students organize, prioritize and plan systematic strategies. One learning strategy that at present has not been widely used in Physical Therapy education is “video based cases”. The use of the visually unfolding case-based experience provides students a unique opportunity to experience real patient scenarios in their classroom environment. Students use the information obtained from their video observation to organize and prioritize patient care information and design plans of care. When utilizing a video based case strategy to promote learning, the educator plays an important role in assisting the student to actively create links between previously acquired knowledge and the development of new knowledge. The active learning required in the video based cases supports the development of critical thinking skills.

## PURPOSE

The purpose of this paper is twofold; first, to provide data on student perceptions of the usefulness of video based cases in promoting their ability to organize, prioritize, and integrate content knowledge for the development of effective critical thinking skills, and second, to demonstrate the actual use of a video based cases experienced in the classroom.

## RESEARCH QUESTION

Do students perceive that the video based cases enabled them to better organize, prioritize and integrate patient care information and design plans of care?

## **HYPOTHESIS**

Students perceived that video based cases helped them better organize, prioritize and integrate patient care information and design plans of care.

## **METHODS**

### **Subjects**

Doctor of Physical Therapy (DPT) students (n= 24) enrolled in a neurorehabilitation course (Management of Neuromuscular Problems).

### **Procedures**

Doctor of Physical Therapy (DPT) graduate students enrolled in a neurorehabilitation course participated in two video case-based experiences as part of their class experience; one instructional video case, the other an assessment tool video case. The instructional case-based video was observed in class using an open discussion format experience that was student driven with instructor mentorship and direction (focus on student active learning). After this initial in class experience students had the video available to them for the remainder of the semester so that they could independently review the video as needed to further foster their own learning. The second case-based video was used as an assessment tool by the course instructors during midterm as a practical examination. This case-based video enabled the students to observe a real life client and therapist interaction for a period of 15 minutes. Based upon each students observation they were required to develop treatment goals and objectives, formalize and carry out a treatment intervention strategy, and develop and instruct the examiner in a home exercise program for which they received a grade.

At the end of the semester, the students were asked to voluntarily complete an anonymous post-course online survey assessing their perception of the usefulness of the case-based video learning technique in promoting their ability to organize, prioritize, and integrate content knowledge for the development of effective critical thinking skills necessary for the integration of patient care information and the designing of patient plans of care. While this survey has not been validated, it is used as a standard procedure within the program yearly to gather information on student perceptions specific to this topic.

### **Study Design**

A quantitative post-test exploratory survey design was used to address the research question. The dependent variables were the survey responses regarding perceptions and the independent variable was utilization of the video case-based learning experience. Survey data analysis included the generation of percent agreement scores.

## **RESULTS**

Tables 1 to 3 demonstrate percent agreement using a 5-point Likert scale of students' perceptions on several questions regarding the use of video case-based learning experience in the areas of organizing, prioritizing and integrating information. Although the subject pool was limited to 25 DPT students, as noted by the responses in Table 1-3, the students perceived that the video based case learning technique enabled them to better organize, prioritize and integrate the material presented in the course.

Table 1: Students' Perception of Video-Based Cases in Areas of Organizing, Prioritizing and Integrating (Percent Agreement)

	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
<b>Organize</b>					
Question 5 <i>Helped me develop my material organizational skills</i>	38.1 (n 8)	57.1 (n 12)	4.8 (n 1)	0	0
<b>Prioritize</b>					
Question 13 <i>Helpful when working with my patient during one day affiliation</i>	38.1 (n8)	57.1 (n12)	4 (n 1)	0	0
<b>Integrate</b>					
Question 6 <i>Helped me integrate concepts with various neurological conditions</i>	62 (n13)	38 (n8)	0	0	0
Question 11 <i>Challenged me to think of alternative ways to explain neurological conditions</i>	28.6 (n 6)	47.6 (n 10)	14.3 ( n 3)	4.8 (n 1)	0

Table 2: Students' Perception of Video-Based Cases in Areas of Communication (Percent Agreement)

Communication	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
Question 4 <i>Improved oral communication skills</i>	23.8 (n 5)	57.1 (n 12)	14.3 (n 3)	4.8 (n 1)	0
Question 7 <i>Communicate with patients</i>	28.6 (n 6)	61.9 (n 13)	4.8 (n 1)	4.8 (n 1)	0
Question 8 <i>Communicate with rehabilitation specialist</i>	28.6 (n 6)	47.6 (n 10)	19.0 (n 4)	4.8 (n 1)	0
Question 12 <i>Sharing information with classmates</i>	38.1 (n 8)	42.9 (n 9)	9.5 (n 2)	4.8 (n 1)	0

Table 3: Students' Perception of Video-Based Cases in Areas of Knowledge (Percent Agreement)

Knowledge	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
Question 2 <i>Valuable when learning concepts</i>	47.6 (n 10)	47.6 (n 10)	4.8 (n 1)	0	0
Question 9 <i>Improved understanding of topic</i>	57.1 (n 12)	42.9 (n 9)	0	0	0
Question 10 <i>Improved retention of material</i>	52.4 (n 11)	33.3 (n 7)	9.5 (n 2)	0	0

## CONCLUSION

While the data obtained from this limited educational experience cannot be generalized, it offers some insight into the usefulness of the video based case learning technique. Further work will be needed to explore its usefulness in a larger student population and across diverse educational material. However, for health care students such as therapists, nurses, and physicians who are learning to provide direct care to patient populations without the ability to actually engage with patient populations throughout their entire educational experience the use of case-based videos provides a medium for educators to introduce more realistically real world scenarios early on. These video based cases can be used throughout the student's educational experience and may offer a more visual stimulating and indepth experience then the traditional paper case learning experiences.

## AUTHOR INFORMATION

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