Videotaped Versus Live Instruction in Demonstrating Evaluation Skills to Occupational Therapy Students

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This study compared the effectiveness of videotaped and live instruction in demonstrating a developmental evaluation to occupational therapy students. Twenty-three students were randomly assigned to either the videotape or the live instruction group. While the videotape group watched a 25-minute commercially available videotape demonstrating the Milani-Comparetti Motor Development Screening Test, the live group received the same information from an instructor. A written examination that assessed student knowledge of the purpose and procedures of the evaluation tool served as the pretest and posttest. After the posttest, the students were asked to answer questions regarding their learning experience.

Results indicated no difference in test scores between the two groups. Although both groups rated the learning experience as good, all students stated a preference for live over videotaped instruction because of the opportunity to ask questions and interact with the instructor. These findings suggest that although videotaped instruction may be an effective teaching method, there may be ways to enhance student satisfaction with its use.

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Methodology

The subjects were 23 first-year occupational therapy students enrolled in a sensory motor development course. The students were randomly assigned to either the videotape group \( (n = 12) \) or the live instruction group \( (n = 11) \). The two groups were then separated into different classrooms. Two guest instructors were trained to provide either the Videotaped or the live demonstration and to administer the pretest and posttest.

The 12 students in the videotape group watched a 25-minute commercially available Videotape that described and demonstrated the Milani-Comparetti Motor Development Screening Test \( (\text{Trembath, Kliewer, & Bruce, 1976}) \). The 11 students in the live group observed an instructor describe and demonstrate the same test during a 25-minute session. To ensure equivalency in the two groups, the instructor studied the videotape beforehand and presented the exact information in the same manner. One difference in the live presentation was that the evaluation procedures were demonstrated on only one child, whereas several different children were used in the videotape. For both groups, students were asked to hold questions until after the posttest to prevent one group from receiving more information and review than the other group.

Knowledge of the purpose and procedures of the Milani-Comparetti test was assessed by a written examination designed for the study and given directly before and after the videotaped or live instruction.

The examination contained 20 multiple-choice and matching questions.

After completing the posttest, the students rated their learning experience on a 5-point Likert scale and answered the following four questions:

1. What did you like best about the learning experience?
2. What did you like least about the learning experience?
3. Make any comments about the teaching method used.
4. Which do you prefer: videotaped or live instruction? Why?

Each group was given 1 hour to complete the study.

Results

The pretest and posttest scores of the two groups are presented in Figure 1. A two-way analysis of variance with repeated measures \( (\text{Wilkinson, 1987}) \) used to analyze the scores indicated no difference between the two groups \( (p = .59) \) (see Table 1). Both groups demonstrated a statistically significant improvement in test performance from pretest to posttest \( (p < .001) \). A low positive correlation existed between the pretest and posttest scores for the Videotape group \( (r = .41) \) and the live group \( (r = .27) \), which indicates the presence of a desirable learning effect over trials of the written test. The low reliability values were not entirely unexpected; they may be due to a considerable amount of guessing by the students on the pretest.

The range of probability values for the questions on the written examination were generally acceptable and the test reliability, as assessed by the Kuder-Richardson 20 formula \( (\text{Saltz & White, 1974}) \), was quite good (see Table 2).

Both the videotape group \( (\bar{x} = 4, SD = .603) \) and the live instruction group \( (\bar{x} = 4, SD = 1.183) \) tended to rank the learning experience as good \( (p > .05) \). These ratings correlate poorly with the posttest scores due to the high degree of homogeneity among students regarding satisfaction with the two instructional methods.

Table 1

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>( \bar{x}^2 )</th>
<th>( r )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mode (videotape/live)</td>
<td>1.49</td>
<td>1</td>
<td>1.49</td>
<td>0.29</td>
<td>0.59</td>
</tr>
<tr>
<td>Test (pre/post)</td>
<td>239.93</td>
<td>1</td>
<td>239.93</td>
<td>47.69</td>
<td>0.00</td>
</tr>
<tr>
<td>Mode \times Test</td>
<td>0.28</td>
<td>1</td>
<td>0.28</td>
<td>0.05</td>
<td>0.82</td>
</tr>
<tr>
<td>Within groups</td>
<td>211.28</td>
<td>42</td>
<td>5.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>452.98</td>
<td>45</td>
<td></td>
<td></td>
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</tbody>
</table>
Table 2
Statistical Assessment of Written Examination Results

<table>
<thead>
<tr>
<th></th>
<th>Videotape</th>
<th>Live</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pretest</td>
<td>Posttest</td>
</tr>
<tr>
<td>Mean p values</td>
<td>0.517</td>
<td>0.737</td>
</tr>
<tr>
<td>(±0.31)</td>
<td>(±0.25)</td>
<td>(±0.30)</td>
</tr>
<tr>
<td>KR-20 values</td>
<td>0.488</td>
<td>0.564</td>
</tr>
</tbody>
</table>

Note: Each examination contained 20 questions. KR-20 = Kuder-Richardson 20 (formula).

Although both groups rated their learning experience as good, all of the students stated that if given a choice, they would prefer live over videotaped instruction. The most commonly stated reason for this preference was the opportunity to ask questions immediately if something was unclear. Students also felt that interaction with the instructor through eye contact, questions, and discussion enhanced interest and attention. Some students would prefer live demonstration because it is more realistic than an edited videotape. They thought, for example, that with a live demonstration, they could learn strategies for dealing with a child who is shy or uncooperative. Such a situation would be unlikely to appear on an edited videotape.

Additional comments made by the students were helpful in evaluating the usefulness of the two teaching methods. The videotape group liked seeing the demonstrations on a variety of children within a short amount of time. However, they did not like the limited interaction with the instructor in the tape and felt that this made it more difficult to pay attention. They also strongly disliked being unable to ask questions during the demonstration. The live group liked seeing the actual demonstration on the child. Although they were not allowed to ask questions, students in this group still commented favorably about being able to interact with the instructor and the child. Some students in the live group disliked the restriction on asking questions and felt that the instructor's pace was too fast.

Discussion

The study results indicate that a videotaped demonstration (as measured by a written examination) is as effective as a live demonstration in teaching occupational therapy students the purpose and procedures for administering a developmental assessment. These results provide useful information for the instructor who must schedule sufficient time for scholarly activity while providing quality instruction. By using videotaped demonstrations, the instructor can save time and energy. Moreover, the instructor can present a greater variety and number of patients in a shorter amount of time than is possible in a live demonstration. The use of videotapes limits the amount of time that patients have to perform and possibly become embarrassed in front of a group. When using tapes, the instructor can openly discuss patients' behaviors or therapy procedures. Such discussions are often not appropriate with the patient present.

Although the benefits of videotaped instruction have been documented, it is not effective when it is used as the only means of teaching. It appears to be most effective when used in combination with other teaching methods (Armsey & Dahl, 1973).

Because students disliked the restriction in the amount of interaction possible with videotaped demonstrations, an interactive component could be introduced. For example, the instructor could stop the videotape to clarify or highlight information or to stimulate discussion. Also, students could be encouraged to ask questions during and after the showing of the tape. Lastly, because students seem to prefer live demonstrations, it may be most effective to use both live and videotaped demonstrations throughout a given course. Live demonstrations could be planned for those patients who can easily be brought into the classroom, whereas videotaped demonstrations might be the most helpful for those patients who cannot easily be brought into the classroom. Further research could address the value of these approaches.

A limitation in the use of videotapes is the possibility that a commercially produced videotape demonstrating a particular skill is not available. One solution to this problem would be for faculty members to develop their own videotapes. Poole (1986) used unedited videotapes of children to teach normal child development and found these videotapes to be more realistic than commercially available ones. In addition, videotapes without narration (such as those used by Poole) encourage students to observe and analyze behavior independently rather than having explanations and conclusions provided for them.

Study Limitations

One threat to the internal validity of this study was that intrasession history was not completely controlled because different instructors were used. In addition, the live demonstration was presented in an unnatural manner in that no questions were permitted. This limited the amount of interaction that usually occurs between the students and the instructor.

Another limitation was the fact that the posttest measured newly acquired knowledge rather than skill. Although acquiring knowledge is the first step in learning a skill (Purtilo, 1984), it may be beneficial to repeat the study and measure a change in skill level.

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Conclusion

The results of this study provide further evidence that students learn equally well with either videotaped or live instruction. The present study expanded on previous studies by using a teaching method other than lecture, namely, demonstration. The results also indicate that although students were equally satisfied with both teaching methods, they tended to prefer live over videotaped demonstrations.

Future research could explore why students prefer live over videotaped demonstrations and how the time-saving factor affects instructors. Furthermore, studies could compare (a) videotaped and live demonstrations when an interactive component is added to both and (b) the value of edited versus unedited videotapes. Information derived from these studies could help occupational therapy educators to more efficiently balance their roles as scholars and teachers.

Acknowledgments

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References


