Instructional Television Versus Traditional Teaching of an Introductory Psychology Course

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In this study we compared the effectiveness of an introductory psychology course delivered through instructional television (ITV) with the same course taught in a traditional classroom. We compared 3 groups of undergraduates, with 83 receiving traditional classroom instruction one quarter. The next quarter, new enrollees were split into 2 groups: One received instruction in an ITV studio with the instructor (n = 29); the second received televised broadcasts in a remote classroom on campus (n = 29). The 3 instructional formats produced similar outcomes in performance, attrition, and attendance. Likewise, attitudes toward the course were favorable and rarely differed by format. Student attitudes toward ITV were positively affected by exposure to the experience.

Distance learning technologies hold promise for increasing access to higher education for many people who, because of scheduling conflicts (e.g., working full time, taking care of children) or remoteness from a university, have been denied it. The fulfillment of this promise, however, rests on the ability of these diverse technologies to deliver a high quality product that compares favorably with a traditional university education. One particular distance learning technology, instructional television (ITV), first appeared more than 40 years ago (Dubin & Hedley, 1969). In its simplest form, ITV involves videotaping an instructor while he or she teaches a real or simulated class in a studio and transmitting these sounds and images, live or with some delay, through television to remote learners. It is possible to add many features to this simple structure, including two-way telephone links, two-way interactive video (see Andrews, Gouse, Gaulton, & Maddigan, 1999), and computer-assisted, on-screen graphics. Initially an interesting application of a new and exciting technology in the 1950s, ITV has recently become resurgent as a way of increasing educational access. With about two thirds of U.S. homes now wired for cable (U.S. Bureau of the Census, 1998) and many educational complexes now capable of sending and receiving closed-circuit, cable, and even satellite signals, ITV represents a potentially powerful educational technology.

The most consistent finding comparing traditional classroom instruction with ITV suggests no difference between the two in student achievement (Phipps & Merisotis, 1999). Reviews reflecting this conclusion date back to Dubin and Hedley (1969), who looked at 381 studies from the 1950s and 1960s. Reviews conducted since then (Clark, 1983; Cohen, Ebeling, & Kulik, 1981; Jamison, Suppes, & Wells, 1974; Wetzel, Radtke, & Stern, 1994; Whittington, 1987; Zigerell, 1991) have continued to find no differences. Although fewer studies have investigated the effects of ITV on attendance and attrition, most have found no adverse effects on these variables (Cohen et al., 1981; Whittington, 1987). Zigerell, however, found that attrition was a greater problem for some distant learners (e.g., those who were younger and less self-motivated) than for others.

The effect of televised instruction on student attitudes toward instructors, courses, and academic experiences has also been a target of research, and, as with the more objective measures, several studies have found no differences between ITV and traditional students (Cohen et al., 1981). Some researchers have reported that students prefer a traditional classroom (Davis, 1984; Ritchie & Newby, 1989), but these studies are balanced by others suggesting students prefer televised courses over traditional ones (Zigerell, 1991). The more equivocal findings in this area may reflect the diversity of attitudes assessed by different investigators.

A recent review commissioned by the American Federation of Teachers and the National Education Association (Phipps & Merisotis, 1999) may generate new and wider interest among educators in the evaluation of distance learning technologies. This report, which received coverage in the Chronicle of Higher Education (Blumenstyk & McCollum, 1999), reviewed the literature on distance learning since 1990 and concluded that the number of empirical studies addressing the effectiveness of distance learning was surprisingly small. Phipps and Merisotis further suggested “the overall quality of the original research is questionable and renders many of the findings inconclusive” (p. 3). Although they may have overstated their conclusions, these authors reasonably challenged investigators to provide more rigorous empirical research to address this important issue.

The purpose of this study was to compare the effectiveness of an introductory psychology course taught through ITV with the same course as it has been traditionally taught. Our quasi-experimental evaluation compared remote ITV students with traditionally taught students and with students who received live lectures in an ITV studio. In addition to assessing the effect of delivery format on the objective measures of performance, attrition, and attendance, we surveyed student attitudes that might be affected by the ITV format. Based on our review of the literature, we expected no differences in performance, attrition, attendance, or course satisfaction between ITV and traditionally taught students.
Participants

One hundred forty-one students participated in this study through enrollment in an introductory psychology course at California State University, Bakersfield (CSUB). Students came from three different classes. One group of 83 students, the traditional classroom students, enrolled in a Fall 1997 section of the course taught by the first author using a traditional lecture and discussion format. The other two groups of students came from two Winter 1998 sections taught by the first author. On the first day of instruction, winter enrollees were given the option of receiving their lectures live, in the ITV studio with the instructor, or remotely in an on-campus classroom wired to receive cable transmission from the studio. Twenty-nine students selected themselves into each of the ITV conditions: ITV live and ITV remote. Students remained in their selected condition throughout the quarter and could not attend the other section of the class.

Across the three conditions, 72.6% of the sample were women, with no significant differences in gender composition between conditions. The sample consisted of a heterogeneous mix of undergraduate majors, with those who were undeclared representing the largest number of majors (26.7%), followed by psychology (16.3%), biology (8.9%), and nursing (8.1%).

To assess whether our groups were comparable in scholastic aptitude prior to taking the course, we compared three standardized aptitude scores: the nationally normed Scholastic Aptitude Test (SAT) and two California State University freshman placement exams—the Entry Level Mathematics test (ELM) and the English Placement Test (EPT).

Procedure

Students in the traditional classroom condition received lectures in a 120-seat amphitheater lecture hall. In addition to lectures, which included overhead transparencies for audiovisual support, students participated in brief small-group discussions and were encouraged to ask questions and seek clarification during lectures as needed.

Students in the ITV live condition received lectures in an ITV studio with seating for 40. As in the traditional classroom, ITV live students participated in brief small-group discussions and were encouraged to interact with the instructor as needed during lectures. The studio was equipped with a computer and an Elmo visual presenter (Model EV–400 AF, Elmo Manufacturing Corp., Chatsworth, CA) an overhead projector that can present three-dimensional stimuli onto a screen) connected to two 36-in. television monitors at the front of the classroom. The instructor created computer-generated slides, which were adaptations of the traditional classroom's overhead transparencies, and presented these over the television monitors. An ITV technician in an adjoining room filmed the lectures by controlling the movement of three cameras mounted in the ITV studio. The technician decided which images (i.e., three views of the lecturer and classroom, computer-generated slides, visual presenter) went out over the ITV cable at any given time. Students in the ITV live condition essentially received a traditional classroom experience supplemented by the technological advantages of the ITV studio.

Students in the ITV remote condition met in an on-campus classroom away from the ITV studio. These students received lectures via ITV cable transmission to two 32-in. television monitors in the front of the classroom. A teaching assistant or nonteaching instructor proctored quizzes and exams, recorded attendance, monitored participation, maintained order, fixed technical problems, and kept small-group discussions on track. Students in this classroom were able to interact with the ITV instructor during lectures through an on-air telephone link to the ITV studio. However, technical problems and time delays made this interaction difficult, and this option was rarely exercised.

Measures

We assessed students across four broad outcome measures: attrition, attendance, academic performance, and attitudes toward the course. Attrition, attendance, and performance data were easily extracted from course grade books.

Attrition. We calculated attrition as the percentage of students who completed one quiz in the second week of classes but who failed to complete the course.

Attendance. We measured attendance in two ways. Most class sessions began with a quiz about assigned readings. We calculated one measure of attendance, quiz attendance, as the percentage of possible quizzes completed; this measure represented attendance at the beginning of each class session. Because a small number of students chose to leave class after taking their quiz, we also collected a second measure of attendance. Most sessions concluded with participation exercises, usually small-group discussions, for which students received points. The percentage of participation exercises completed, called participation attendance, represented a good estimate of attendance at the end of each class session.

Performance. We assessed overall performance in the course as the percentage of possible points that a student achieved. Students could receive points for quizzes, participation exercises, midterm examinations, an Internet assignment, and a final examination.

Attitudes and satisfaction. Students at CSUB routinely complete a standard questionnaire at the end of each course asking about the quality of the course and its instructor. To this questionnaire we added several items designed to assess students' attitudes toward ITV. Students voluntarily and
ANOVA by ranks statistic, items were analyzed using the Kruskal–Wallis one-way questionnaires did not approximate a normal distribution, collection procedures. Because participant responses to attitude analyses, ranging from 73 to 86, owing to different data collected.

Results

Comparability of Groups

We used an alpha level of .05 for all statistical tests. ANOVAs comparing the groups on scholastic aptitude showed no differences for SAT scores, \( F(2, 81) = 0.83 \), ns; ELM scores, \( F(2, 109) = 0.21 \), ns; or EPT scores, \( F(2, 97) = 2.40 \), ns. These findings suggest that our three groups were roughly equivalent for scholastic aptitude and that self-selection did not bias our sample with respect to this important variable.

Attrition, Attendance, and Performance

Attrition rates were low for all instructional formats investigated. Rates were 4.8%, 3.4%, and 3.4% for the traditional classroom, ITV live, and ITV remote conditions, respectively. Differences between groups were not significant, \( \chi^2(2, N = 141) = 0.16 \), ns. All subsequent analyses used only students who completed the course.

We conducted three separate ANOVAs to investigate the effects of instructional format on performance and the two measures of attendance. There were no differences in the percentage of total points achieved among students in the traditional classroom (M = 74.44, SD = 13.42), the ITV live (M = 74.87, SD = 12.64), and the ITV remote (M = 74.65, SD = 9.76) conditions, \( F(2, 132) = 0.01 \), ns. Likewise, instructional format had no effect on quiz attendance, \( F(2, 132) = 1.38 \), ns. There were, however, differences among the three groups in participation attendance, with students in the traditional classroom attending a greater percentage of the time (M = 85.70, SD = 13.48) than ITV live (M = 77.20, SD = 20.46) and ITV remote students (M = 75.82, SD = 16.45), \( F(2, 132) = 5.63, p < .01 \). A Student–Newman–Keuls follow-up test showed that the ITV live and ITV remote groups did not differ from one another in participation attendance.

Attitudes and Satisfaction

Total sample sizes for student questionnaire responses were smaller than those for performance and attendance analyses, ranging from 73 to 86, owing to different data collection procedures. Because participant responses to attitude questionnaires did not approximate a normal distribution, items were analyzed using the Kruskal–Wallis one-way ANOVA by ranks statistic, \( H \), corrected for ties. Table 1 summarizes participants’ responses to each questionnaire item. Although the Kruskal–Wallis statistic compares groups by ranks, Table 1 shows means for ease of interpretation.

Items 1 through 5 assessed students’ attitudes toward the instructor, Items 6 through 10 assessed attitudes about the course and instructional processes, and Items 11 through 15 assessed students’ social comfort and sense of university community. Of these 15 items, only 2 discriminated between ITV remote students and those receiving live instruction: one tapping students’ perceptions that the instructor “really cared about me” and the other assessing the value of in-class activities. The last 5 items of the survey assessed students’ attitudes toward technology and its use in the classroom. Students in all three conditions held favorable opinions toward educational technologies. Interestingly, students who participated in ITV, either in the live or remote condition, held more favorable attitudes toward ITV than those who did not.

Discussion

Consistent with previous studies, there were few differences in objective outcomes between introductory psychology students who received instruction from a live lecturer and those who received ITV instruction. Level of achievement was similar across all instructional formats. In addition, we did not find the higher levels of attrition that have been found in some past comparisons with distance learners (Zigerell, 1991). We did, however, find a small but significant difference between groups for participation attendance, favoring students in the traditional classroom. Nevertheless, because the two ITV conditions were similarly affected, the effect could not have been due to live versus televised instruction. A possible explanation for this result lies with a confounded variable: The traditional class met in the morning, the two ITV sections in the late afternoon. To the extent that fatigue or home obligations (e.g., parents picking children up from school) play a role in student absence, we might expect more early departures from late afternoon classes.

For most of the attitudes assessed, including views on the instructor, the course structure, the social academic environment, and general feelings toward technology in the classroom, students held equally positive opinions across the three instructional formats. Two exceptions to this finding (Items 5 and 8) illustrate the continuing need to work toward distance learning solutions that include both high tech and “high touch” (i.e., relationship-based; Naisbitt, 1984) components.

The clearest attitudinal finding in this study, mirroring an earlier observation by Wetzel et al. (1994), was that students’ feelings about ITV were positively affected by exposure.3 We did not address how exposure changed attitudes in this study. Perhaps unrealistic negative expectations were

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3An interesting complementary finding to ours is that faculty who have taught an instructional television course report enjoying the experience and wishing to do it again (Kendall & Oaks, 1992)—perhaps also an exposure effect.
Table 1. Student Attitudes About an Introductory Psychology Course by Instructional Format

<table>
<thead>
<tr>
<th>Item</th>
<th>Traditional</th>
<th>TV–L</th>
<th>TV–R</th>
<th>H*</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would recommend this instructor.</td>
<td>1.33</td>
<td>1.38</td>
<td>1.32</td>
<td>0.02</td>
</tr>
<tr>
<td>The instructor seemed enthusiastic about teaching the subject.</td>
<td>1.31</td>
<td>1.35</td>
<td>1.29</td>
<td>0.46</td>
</tr>
<tr>
<td>The instructor was supportive of students and not insulting or intimidating.</td>
<td>1.31</td>
<td>1.17</td>
<td>1.50</td>
<td>2.56</td>
</tr>
<tr>
<td>The instructor gave clear and helpful explanations.</td>
<td>1.50</td>
<td>1.54</td>
<td>1.60</td>
<td>0.01</td>
</tr>
<tr>
<td>The instructor really cared about me as an individual student.</td>
<td>1.82</td>
<td>1.75</td>
<td>2.56</td>
<td>6.50*</td>
</tr>
<tr>
<td>I would recommend this course.</td>
<td>1.36</td>
<td>1.58</td>
<td>1.37</td>
<td>0.67</td>
</tr>
<tr>
<td>The lectures helped me learn about psychology.</td>
<td>1.26</td>
<td>1.24</td>
<td>1.59</td>
<td>5.57</td>
</tr>
<tr>
<td>The in-class activities helped me learn about psychology.</td>
<td>1.55</td>
<td>1.76</td>
<td>2.19</td>
<td>8.48**</td>
</tr>
<tr>
<td>Discussions with other students in this class helped me learn about psychology.</td>
<td>2.21</td>
<td>2.29</td>
<td>2.23</td>
<td>0.07</td>
</tr>
<tr>
<td>I looked forward to class sessions.</td>
<td>1.86</td>
<td>2.12</td>
<td>2.43</td>
<td>5.05</td>
</tr>
<tr>
<td>The class had a sense of community and I felt like a part of the group.</td>
<td>2.31</td>
<td>1.94</td>
<td>2.19</td>
<td>1.01</td>
</tr>
<tr>
<td>When I had questions during class, I felt comfortable asking them.</td>
<td>2.14</td>
<td>2.47</td>
<td>2.30</td>
<td>0.86</td>
</tr>
<tr>
<td>When I had questions or concerns outside of class, I felt comfortable talking to the instructor.</td>
<td>1.74</td>
<td>1.81</td>
<td>2.21</td>
<td>3.74</td>
</tr>
<tr>
<td>I was able to meet new people in this class.</td>
<td>1.83</td>
<td>1.82</td>
<td>1.95</td>
<td>0.15</td>
</tr>
<tr>
<td>Cal State seems like a good place to get an education.</td>
<td>1.68</td>
<td>1.88</td>
<td>1.95</td>
<td>0.63</td>
</tr>
<tr>
<td>I look forward to more opportunities to learn using technology (e.g., televised instruction, computer-assisted instruction, Web-based courses).</td>
<td>1.95</td>
<td>2.29</td>
<td>2.14</td>
<td>1.04</td>
</tr>
<tr>
<td>In general, I like trying out new technologies (e.g., computers, the Internet, interactive television).</td>
<td>1.61</td>
<td>2.00</td>
<td>2.00</td>
<td>1.11</td>
</tr>
<tr>
<td>I (expect that) I would) learn better in a regular classroom than through instructional television.</td>
<td>1.73</td>
<td>2.57</td>
<td>2.68</td>
<td>9.63**</td>
</tr>
<tr>
<td>(I expect that) the instructional television format was (would be) easy to get used to.</td>
<td>2.64</td>
<td>2.00</td>
<td>1.95</td>
<td>8.73**</td>
</tr>
<tr>
<td>I would like to take (more) courses through instructional television.</td>
<td>3.36</td>
<td>2.25</td>
<td>2.43</td>
<td>12.81**</td>
</tr>
</tbody>
</table>

Note. Values are mean ratings where 1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree. Traditional = traditional classroom format; TV–L = instructional television format with live instructor; TV–R = instructional television format viewed from a remote classroom. *df = 2. aWording of item answered by TV participants. Parenthetical text added for traditional participants. bWording of item answered by traditional participants. Parenthetical text added for TV participants.

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

Our experience suggests that ITV can be an effective format for teaching an introductory psychology course. Despite the fears of some educators, our study and the literature in this area, imperfect as it may be (Phipps & Merisotis, 1999), suggest that students are not adversely affected by this alternative mode of teaching. In fact, our attitudinal data suggest that among the barriers to more frequent use of ITV may be ignorance and anxiety; students who try ITV often surprise themselves and find that they like it.

References

Secondary Traumatic Stress in the Classroom: Ameliorating Stress in Graduate Students

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In this article we discuss the importance of anticipating and addressing the emotional difficulties students experience in graduate-level courses on trauma and violence. Herman's (1997) model for treating survivors of trauma serves as a framework for recommendations for ameliorating secondary traumatic stress in the classroom; we draw on a variety of sources to suggest self-care strategies that students can use outside of the classroom. We also address the importance of self-care for instructors of classes on trauma and violence.

In this article, we discuss strategies for helping graduate students in clinical and trauma classes to cope effectively with the reactions they are likely to have while learning about violence and other trauma and working with clients who are dealing with such issues. Trauma impacts the lives of many Americans as a result of events as close to home as domestic violence, child abuse, and robbery, and as distant, for some, as Hurricane Hugo or the Columbine High School massacre. Natural and humanly caused traumatic events are common and individuals encounter such events almost daily, either personally or through the media. Mental health professionals often provide debriefing, crisis intervention, and therapy in the wake of such events.

Our goal is to discuss ways to integrate an awareness of student responses to emotionally difficult course material and to the traumatic experiences of clients in the graduate training of mental health professionals. We refer to such responses as secondary traumatic stress (STS; Figley 1995a). Our strategies and suggestions are particularly relevant to classes on trauma and violence, and the examples we discuss arise from our experiences in teaching these classes. However, it is important to note that these strategies can be applied to any course in which students are exposed to emotionally difficult material.

Notes

1. This study was supported by a Technology Grant (Fall 1997) from the Faculty Teaching and Learning Center at California State University, Bakersfield.
2. Portions of this article were presented at the 79th annual convention of the Western Psychological Association, Irvine, CA, May 1999.
3. We thank Carol Raupp, our co-instructor for this course, and the editor and anonymous reviewers for their suggestions on earlier drafts of this article.
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