An Instructional Design Case Event: Exploring Issues in Professional Practice

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Cases have been recommended as an important instructional tool for developing professional knowledge across disciplines. In this paper, we begin by defining case methods, a potentially valuable instructional tool for encouraging authentic, active learning. We describe our approach to the design and use of instructional design (ID) cases, and go on to report on the design and use of a Web-based ID case in a team case competition involving six universities. Students and most officials were enthusiastic about the use of ID cases and about this event. Team collaboration and competition were noted as motivating factors for students. The findings are being used to inform ongoing research and development, which is also described.

☐ Needs analysis! Why should we want a needs analysis? We already know what we want to do!" Five heads nodded in agreement as I looked around the table. I tried to read the expressions on the faces of the members of the Workplace Readiness Project Committee: irritation? speculation? boredom? hostility? This was my first meeting with the committee and my hopes for it going well were rapidly collapsing.

So begins a case on instructional design (ID), "The Trials of Terry Kirkland" (Hrabe, Larsen, & Kinzie, 1996). In the case, a novice instructional designer comes up against thorny professional practice issues for which she was not prepared. For students analyzing cases such as this one, cases provide an opportunity to explore professional issues while the students are still learning about design. Even when ID training includes applied design projects and reflection on relevant theories and techniques, the use of cases can ensure a more comprehensive preparation: a greater number of design issues are explored, in a broader array of environments, than would otherwise be encountered.

Building on the growing popularity of cases within education, and following recommendations by Graf (1991) and Ertmer and Russell (1995), we have been using case methods within instructional design classes (Lindeman et al., 1995; Kinzie, Larsen & Kent, 1996). Our most recent efforts involve development of ID cases and the use of the World Wide Web (or Web, for short) as a delivery medium, enabling use of the materials by students at any institution or by any interested individual. Further, we are exploring the combination of team collaboration and team competition during the case-analysis process. This paper will report on the evaluation

of a team case event held during the spring of 1996 with six universities across the United States. Our primary research question was, "Are cases a worthwhile medium for exploring and learning about instructional design?" We were also interested in whether team collaboration and competition would be valuable for the participants, whether the Web would prove an effective delivery medium, and whether our approach to case development would result in realistic cases sufficiently deep for encouraging exploration.

We begin by providing background information on case methods and techniques used to help students learn about instructional design practice. Then we describe the 1996 ID Team Case Competition, which was implemented with teams from six instructional technology programs across the United States. The competition case is described and the event methods detailed. Evaluative data are also presented, based on a follow-up survey of participants and event officials. We close with observations about the potential value of case methods and case events, and provide recommendations for future development.

Case Methods

Merseth (1996) provides an excellent review of the use of cases in teacher education. According to Merseth, there are three essential elements of cases: (a) they are real, (b) they require research, and (c) they provide material for discussion by users. She notes that cases have been used extensively for professional preparation in law, medicine, and business, where they typically involve a description of real events, or are simulations designed to provide controlled learning experiences. Other formats for cases are emerging, including story-based fiction written around a central theme or set of key issues but which is grounded in problems and challenges from the real world (Ertmer & Russell, 1995).

There are at least three different purposes for using cases: (a) cases as exemplars (i.e., to exemplify the desired principle); (b) cases as opportunities to practice analysis and to contemplate action (i.e., to practice decision-making and problem-solving); and (c) cases as stimulants for personal reflection (i.e., to encourage teachers to reflect on practice, often with teachers writing their own cases) (Merseth, 1996). Our use of cases most directly parallels the second purpose. Our cases are fictionalized narratives derived from real experiences and intended to help instructional design students think like professional designers when confronted with a "messy, context specific" situation. The problem-solving process that we suggest is based on the work of McNergney, Herbert, and Ford (1993), and requires students to identify facts and issues, to de-center and view events from different perspectives, to apply current professional knowledge and research, and to predict consequences of various courses of action. En route in this process, opportunities are provided for discussion, consensus-building, and action-planning.

Used in this way, case methods can help students to forge important connections between the academic and the experiential, between knowledge and practice (Cooper & McNergney, 1995). The effectiveness of case-based teaching is supported by Kleinfeld (1989, 1991), who has demonstrated that teaching with cases helps students to understand the meaning of events, increase their ability to frame educational problems, and improve their thinking regarding alternative courses of action. Grabinger (1996) has identified case-based methods as one way of providing rich environments for active learning; cases allow students to construct knowledge in an authentic environment, assume personal responsibility for learning, and work cooperatively to produce something of real value.

Learning About Instructional Design Through Case Methods

Instructional Technology (IT) majors typically learn instructional theories and design models and use them to guide their instructional design and development. Ideally, students apply what they learn to actual design projects, and so discover the strengths and limitations of design techniques and the undergirding theory. However, time is limited in most IT programs and

students can undertake only so many projects, thus restricting exposure to different professional practice settings, issues, and clientele.

To compensate for this limitation in breadth, some instructors design practice activities involving different design scenarios. An advantage here is that all students consider the same issues in consort, and discussions can be guided by the instructor to highlight the most important factors. A possible limitation with such practice activities is lack of depth—real-world complexity can be difficult to replicate in many activity formats.

Enter case methods. Cases can be a particularly useful tool in expanding students' breadth of experience, at the same time offering enough depth and complexity to provide realistic challenges. Cases can be analyzed in much less time than is required for a design project. Multiple cases can provide exposure to ID practice in business, industry, museums, schools, and the military, in addition to experience with different types of problems. The same case can be explored by individuals, teams, and entire classes. With all students facing the same challenges, instructors can more easily guide student learning.

Interest in case methods for exploring issues in instructional design and technology is growing. The Web-based "soap opera" episodes by Allison Rossett and colleagues (1997) describe the challenges faced by educational technologists at work within organizations. A book of ID cases is also in preparation, being edited by Ertmer and Quinn.

We advocate consideration of cases by teams of students, because of the benefits realized through collaboration and because professional practice within instructional design most often requires individuals to function effectively and creatively in a problem-solving team. This strategy has proven effective within previous team case events, where case scenarios provided rare opportunities for professional collaboration on solving real-life problems (Kent, Herbert, & McNergney, 1995). Ellsworth (1994) explains that collaborating students take on a more active role in the learning process. They become problem-solvers, contributors and discussants. The process of team collaboration can enhance the case experience, providing multiple points of view and offering individuals the opportunity to advance, and develop support for, their own perspectives.

We have combined team collaboration with inter-team competition. This approach is similar to the pairing of cooperative and competitive strategies advanced by Johnson and Johnson (1994), who suggest that this combination can be effective when the focus is on well-learned skills that need to be practiced (such as, in this case, applying ID skills to a novel case situation). Our collaboration/competition model is adapted from that advanced by Kent et al. (1995) who asserted that competition can help ensure rigor in education, particularly if judges render opinions on team performance that is linked to pre-established criteria:

> Setting performance standards and using such measures to gauge students' behaviors encourages programmatic rigor in education just as these activities do in other professional fields (p. 139).

The competition aspects of the case experience allow this activity to reflect the real world, where a design team must sometimes compete with others to identify the best possible solution. We also think that students bring an energy and focus to their team collaboration that might not be present without the element of competition, as students know that their team's performance will be evaluated alongside that of other teams. It is our opinion that competition can be a useful adjunct to collaboration, provided that the primary focus is on learning, not on winning.

Case Media

The first case format proposed to the education community was the print medium, which continues to be the most popular form (Shulman, 1987). Internet technologies, however, have provided new vehicles for delivering cases to learners.

We have devoted some previous efforts (Lindeman et al., 1995; Kinzie et al., 1996) to exploring the use of the Internet to provide both case materials and on-line environments for case discussions. We began (Lindeman et al., 1995)

with the use of MOOs, an acronym for MUD, Object-Oriented. A MUD is a Multi-User Dimension, an on-line environment peopled by users who synchronously interact with one another. In a MOO environment, "text objects" are created and left for users to find, read, and discuss. Our first goals involved creating an explorable professional practice environment, such as a suite of offices containing documents in filing cabinets, organization charts on the walls, and transcripts of meetings that could be "played back" (the text appears and scrolls up the screen during playback). While it was an interesting idea and one we may return to later, we found that, without experience and comfort in the MOO environment, case materials were too difficult for students to access and discuss.

In our next effort (Kinzie et al., 1996), we moved case materials to the World Wide Web and kept the case discussion online in the MOO. We found the Web well suited to case delivery, and to providing graphic, sound, and video media, in addition to text. Being able to open Web documents alongside the MOO discussion window helped students manage and discuss the materials. The MOO environment continued to present challenges, however, since it allows multiple threads of conversation to occur simultaneously in real time, a feature some students found frustrating and others found fascinating. We are interested in returning to this combination in the future, for we think there is important potential for allowing geographically disparate students an opportunity to meet and discuss cases online.

How We Write Cases

While our cases are fictional, we base them on real life. Our case development is a team effort, but there is usually a primary author for each case. The author bases the selection of working environment (within which the ID protagonist will operate) and stakeholder groups on his or her own professional experience. We think this prior experience is critical if the case is to be realistic. Once these decisions are made, the design dilemmas are selected. These dilemmas emerge from the ID experience of the primary author and the team members, and from the problems we know our alumni have faced when entering the world of professional practice. We especially try to include those problems for which standard ID theory and method alone are insufficient.

The author uses these design dilemmas to draft an outline of possible case events and a list of potential case materials. The team reviews these documents, and then meets to discuss and revise. The author then writes a draft of the entire case much as a writer would develop a screenplay, attempting to build realistic characters and believable conflict.

Case drafts undergo several cycles of review, discussion, and revision. During this time, we make final decisions on how the case materials will be presented. The format is determined (e.g., a journal kept by a designer, sprinkled with printouts of e-mail messages, design documents, etc.) and then the delivery media are defined (text, photo, illustration, audio, and/or video). The team begins production of the case materials, which typically includes coding the HTML (HyperText Markup Language) files that present the case documents on the Web, recruiting and either photographing or tape recording "talent" for photographs or audio and video clips, and then editing photographs and media clips. Once a functional version of the case materials exists, we go through two or three cycles of one-to-one and small group formative evaluation and revision. After a case has been released and used by a large group of students, we have been able to return to the case and make final modifications and improvements.

In the research reported here, we combined Web delivery of an instructional case with on-site team case meetings for discussion and response development. We also introduced the element of team competition along with team collaboration. And, perhaps most importantly, we invited others from the academic and professional community to participate. We asked the following questions:

- Are cases a worthwhile medium for exploring and learning about instructional design?
- Do case analysts find team collaboration and competition to be valuable?
- Is the Web an effective delivery medium?

- Does our approach to case development result in realistic cases that are sufficiently deep for encouraging exploration?

METHODS

Participants

Teams participating in the 1996 competition were from the following institutions: Arizona State University, Pennsylvania State University, and the Universities of Colorado-Denver, Minnesota, South Alabama, and Virginia. A total of 36 students participated, (20 female and 16 male). The students were from both master's and doctoral programs, and all had had some formal training in instructional design as part of their respective programs. Two of the teams participated as part of a course; for the other four teams participation was an extra-curricular activity. On the average, student participants reported having a significant amount of full-time work experience (between 5 and 10 years). They possessed a broad range of experience from a variety of professions, including teaching, career military, and corporate.

Officials included team sponsors and the provocateurs and judges nominated by each sponsor (each sponsor nominated one or more professionals for participation). Sponsors also nominated the student teams and relayed all event communications to team members. Provocateurs read team responses and composed a specific question for each team and a common question for all teams. Judges reviewed teams' case and question responses and completed a rating scale and written comments for each team.

Materials

"The Trials of Terry Kirkland" was developed for the 1996 team case competition (Hrabe et al., 1996). While fictional, this case is based on real issues and problems selected in advance by the case authors and imbued with actual experiences. The bulk of the case is delivered in an illustrated narrative, ostensibly written by an instructional designer. The relatively inexperienced designer has been brought into a high school to work with a group of teachers to develop a "workplace readiness" workshop. Events in the case are presented in a number of scenes that take place over the course of about five months.

The narrative is supplemented with a collection of twelve case ancillaries: text documents, charts, photographs, and audio and video clips. These ancillaries help to depict and add depth to the case events. Because we were concerned about whether participants would be able to access the audio and video clips, transcripts were provided for these materials in these media. The case may be examined at the following URL: http://teach.virginia.edu/go/ITcases.

Procedures

Teams were given two weeks to review the case, discuss it, and develop their response. A limit of six hours was placed on team meeting time, though no limit was placed on time for individual reading, thought, or writing. Teams were allowed to refer to any resource materials they desired, but were instructed to respond to the case without the participation of their faculty sponsors.

In developing their responses, teams were asked to address each of the following tasks:

- Identify the key issues present in the case;
- Consider the issues from different perspectives, including those of the key players in the case;
- Identify what professional knowledge team members have that would be pertinent (and what more they need to know);
- Develop a plan of action, picking up at the conclusion of the case;
- Hypothesize as to the possible outcomes of that plan.

Discussion of each of the above was limited to 250 words. The entire case response was required to be 1,250 words or fewer.

Following submission of their case responses, teams were sent two questions from event provocateurs (a team of three experts served as provocateurs). One question was a general case-

Figure 1 ☐ Table of Contents for the Web-based case, "The Trials of Terry Kirkland."

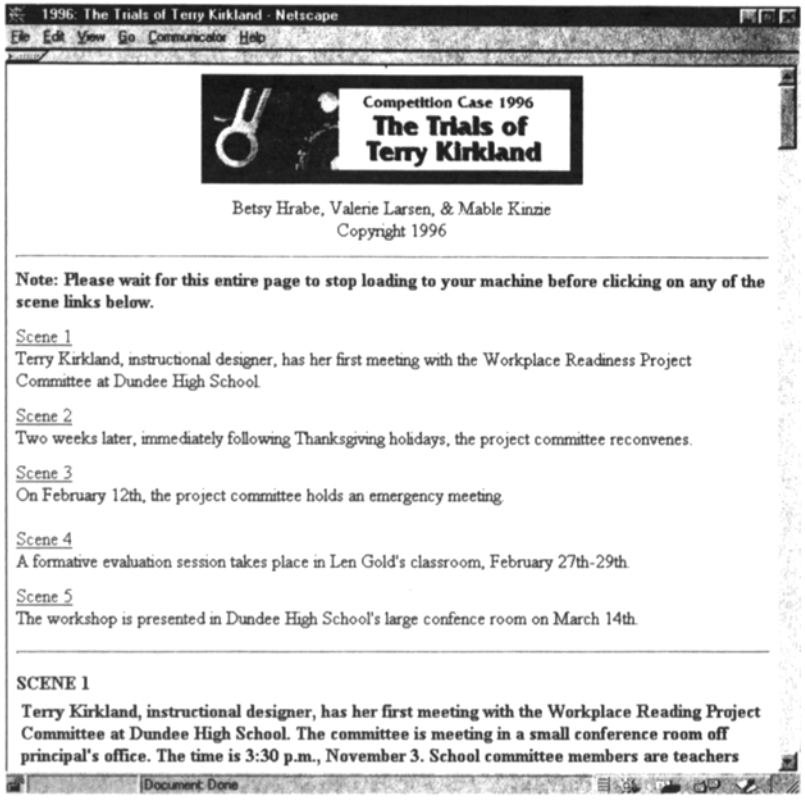

Figure 2 ☐ Scene One of the Web-based case, "The Trials of Terry Kirkland."

Figure 3 ☐ Scene Five of the Web-based case, "The Trials of Terry Kirkland."

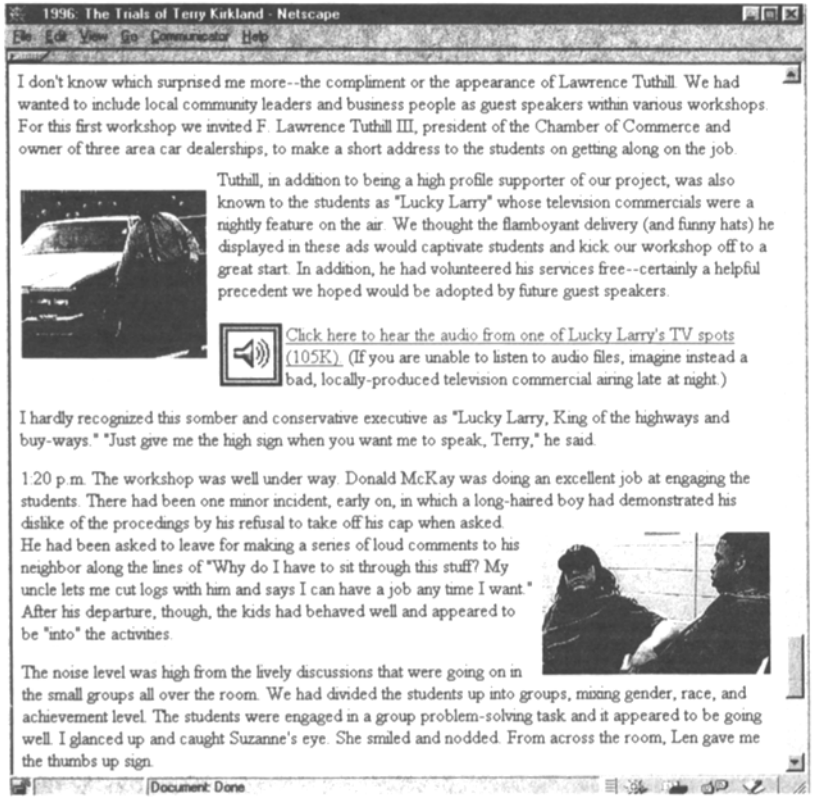

Figure 4 ☐ Ancillary case document Project management chart.

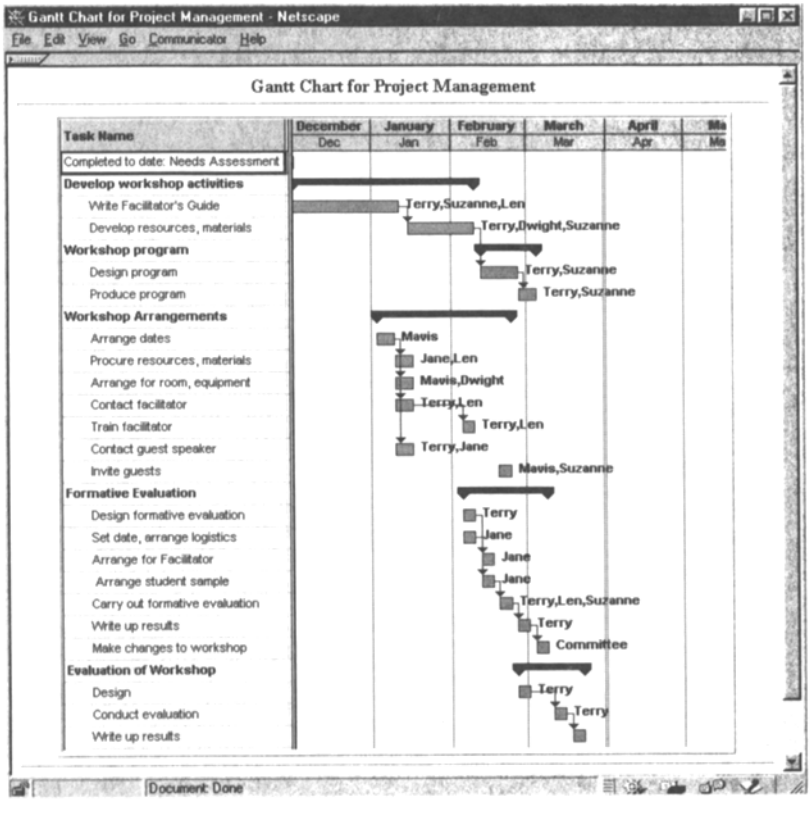

Figure 5 ☐ Ancillary case media: Audiotaped stakeholder interviews.

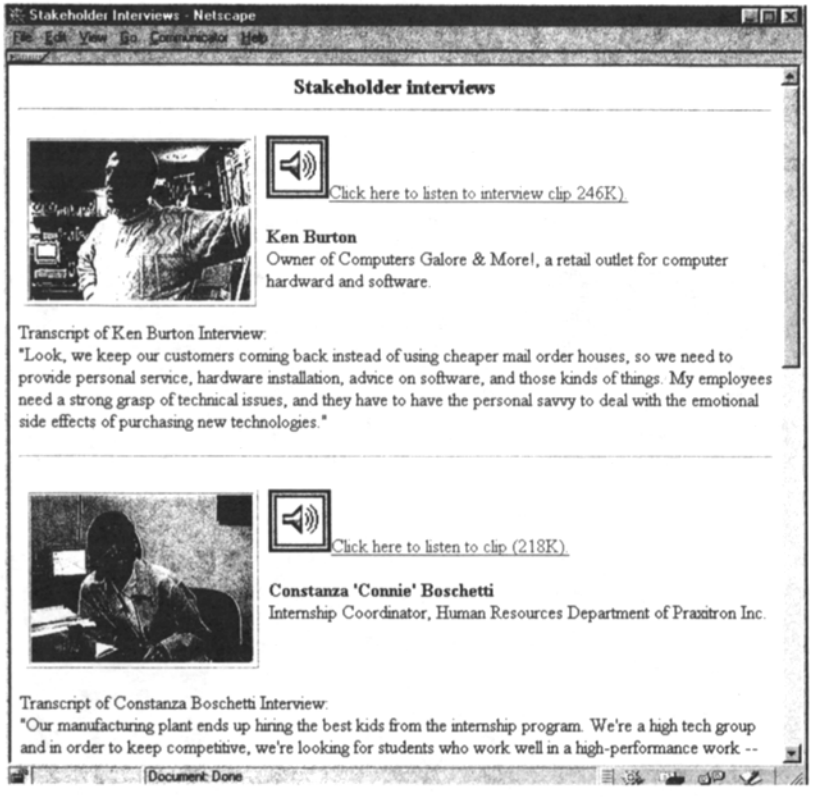

Figure 6 ☐ Ancillary case media: Videoclip of formative evaluation.

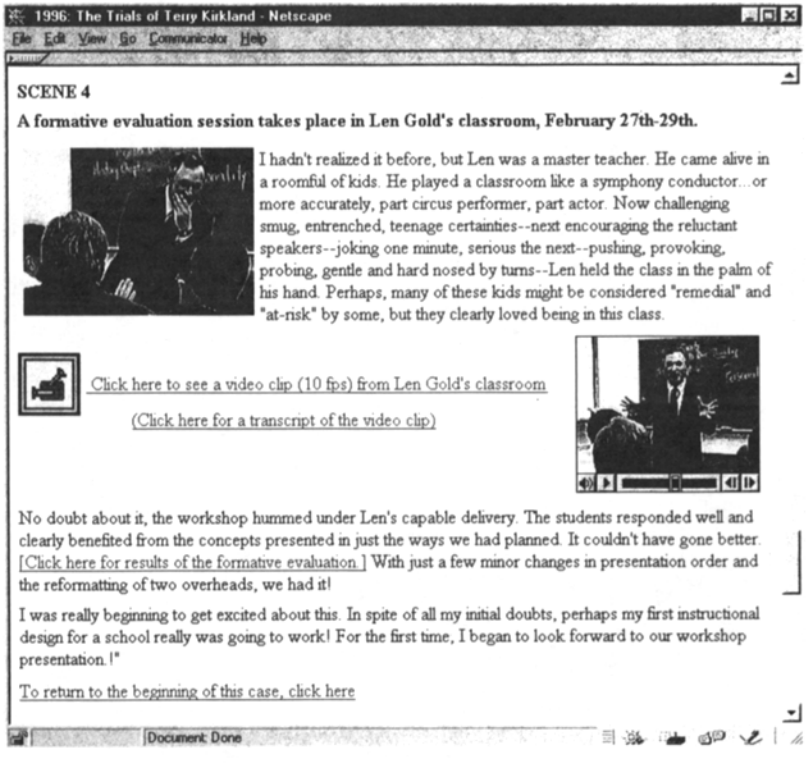

Table 1 ☐ Judge Rating Scale for Team Case Responses

1. The overall performance of the team was excellent.
2. The team identified all of the important issues in the case.
3. The team demonstrated an excellent ability to define relevant perspectives (e.g., instructional designer, teachers, students, administrators, community members, etc.)
4. The team demonstrated appropriate application of professional knowledge.
5. The team's projected actions were reasonable and appropriate.
6. The team effectively anticipated the consequences of actions.
7. The team's response to the COMMON question addressed the relevant issues and demonstrated insight into professional practice.
8. The team's response to the SPECIFIC question addressed the relevant issues and demonstrated insight into professional practice.

related question, and the second was developed in reaction to each team's analysis. Teams were allowed up to two hours (within a one-week period) to discuss and develop their response to both of the provocateur questions. Teams' question responses, along with their initial case response, were then sent to the five-member panel of judges. Individually, each judge reviewed the materials from each team, completed a rating scale for that team, and wrote evaluative feedback for the team. On tabulation of the judges' ratings, two winners were announced and their responses posted to the Web site.

Measures

Judges completed a rating scale to indicate the success with which each team addressed the five categories of case response and the issues raised in the provocateur questions. Table 1 contains a listing of these questions. Response was made using a four-point scale, with response options ranging from 1 (Strongly Disagree) to 4 (Strongly Agree).

When participants (students, sponsors, provocateurs, and judges) had completed their participation in the case event, we asked them to evaluate the experience by responding to a survey. Students responded to a survey made available for them on the Web; their responses were sent to us electronically through the use of Web forms. E-mail surveys were sent to team sponsors, provocateurs, and judges. While some of the survey questions varied according to type of participation, all participants were asked a common set of questions, which are displayed in Table 2.

In addition, students were asked to indicate the number of years they had held a full-time job (1–2 years, 2–5 years, 5–10 years, or more than 10 years). Students and team sponsors were also asked whether their team participated in the event for a class or for some other form of academic credit, and whether there were other factors that prompted their participation. Responses to this survey were analyzed using simple descriptive statistics (means and standard deviations) and simple qualitative analysis for the open-ended questions.

We also conducted 30–45 minute telephone interviews with participant volunteers after completion of the surveys. These interviews were tape recorded with permission and were later transcribed for analysis. Interviewees were all asked a series of standard questions but were encouraged to elaborate on their ideas and add any comments at will. Table 3 displays the interview questions we asked students and officials alike. Table 4 includes interview questions addressed to students only, while Table 5 contains questions directed to provocateurs and judges. In addition, we asked team sponsors whether this was a useful activity for their students to be involved in, and asked judges how they went about evaluating case responses. We use this data to more fully describe the effects of the case event.

Table 2 ☐ Survey Questions Answered by All Participants

Survey Question	*Response Type*
Prior to this event, had you ever used cases as a learning tool?	yes/no
If so, what was the content (ID, teacher education, law, medicine) and how did you use the case(s)?	fill in
How did you prepare for the case competition?	
Did you review the Web site?	yes/no
Did you read the practice case?	yes/no
Did you read any articles or other literature related to case methods?	yes/no
Others? Please describe.	fill in
How did you access the case materials? (Completely on-line, Only with print-outs, and Both on-line & printouts)	mult. choice
Did you download and watch/listen to the video and audio clips? (All, Most, Some, None)	mult. choice
Did you have any difficulties accessing the case materials?	yes/no
If so, please describe.	fill in
Which of the ancillaries below did you feel were necessary to your understanding of the case? (12 ancillaries listed)	check boxes
The use of the case study method is valuable in developing expertise related to instructional design. (Strongly Agree, Agree, Disagree, Strongly Disagree)	Likert scale
Participation in this case competition will help prepare students (helped prepare me) for future instructional design projects. (Strongly Agree, Agree, Disagree, Strongly Disagree)	Likert scale
Taking this experience as a whole, what worked? (or What was most valuable?)	fill in
What didn't work? (or What was least valuable?)	fill in
Do you have any suggestions for future modifications of this event?	fill in

Table 3 ☐ Interview Questions Answered by All Participants

What other activities have you engaged in to learn/help others learn the practice of instructional design?
Was the case realistic? If so, what contributed to the realism? The story? The media components? The supporting files?
Did the media (graphics, video, audio) contribute something to the experience (over text alone)? What was that contribution?

Table 4 ☐ Interview Questions Answered by Students

How did you organize your team's approach to the case analysis?
How did you assign responsibilities among team members?
How did you coordinate case analysis and response generation?
How many meetings did you have, and how long were they?
What kinds of discussions did your team have?
How did you deal with conflicting viewpoints within the team?
How did you feel about your case response?
Did knowing that it was going to be judged influence your approach to this activity?
How did you feel about the questions you received from the provocateurs?
How did you feel about the feedback you got from the judges?

Table 5 ☐ Interview Questions Answered by Provocateurs and Judges

How did you feel about the quality of the case responses?
What kind of sense were you able to get of each team's instructional design expertise, based upon their case and question responses?
How were the teams' responses different from one another?

Data Analysis

Quantitative data were analyzed with simple descriptive statistics (means, standard deviations, percentages). Qualitative data included responses to the last three (open-ended) interview questions and all interview comments. Before qualitative data were examined, we grouped all qualitative data from each participant together, to avoid any duplication of the sentiments expressed. (In other words, whatever opinions student A expressed in her response to the open-ended survey questions and interview questions were examined as a unit.) Conventional methods of qualitative analysis were employed: First the data were read a number of times. Tentative categories to describe the issues reflected in the data were identified, and these categories were applied by coding the data. The categories were revised in the process and the final coding of the data completed. Finally, all data within each category were studied to determine the nature and strength of the sentiments reflected within. Since the numbers of participants commenting on a given issue varied depending on the issue, raw numbers of respondents are reported rather than percentages. Where useful, direct (blind) quotes from the participants are included to better describe the outcomes.

RESULTS

Response Rates

We received survey responses from 21 out of the 36 students initially participating, with at least 4 students dropping out, suggesting a response rate of at least 65%. (Two of the teams volunteered information on drop-out to us. We did not ask other teams if any members had been unable to participate, so are unable to be more specific.) At least one student from each team responded. Surveys were received from 9 of the 12 event officials, yielding a response rate of 75%.

Following completion of the surveys, 12 students (38%) agreed to be interviewed, from five of the six teams, while 8 of the 12 event officials (67%) participated in interviews.

Reasons for Participation

The reasons participants gave for participating were varied: Seven students commented on their desire to learn more about instructional design through the case event and three noted that the competition aspects were very motivating—they were proud to represent their schools and reported giving team efforts high quality attention. One student wrote, "It seemed like a worthwhile adventure and it certainly exceeded my expectations." We did not detect any differences in sentiment between students who participated for a class and those who participated as an extra-curricular activity.

Preparation for the Event

All of the students and officials responding indicated that they had reviewed the Web site and the practice case that had been made available prior to the release of the event case. Further, the practice case had been discussed by 62% of the students. Readings relating to case methods had been completed by 67% of the students and 33% of the officials. Cases had been used previously by 43% of the students and 78% of the event officials; however only one of the students and four of the officials reported experience with cases on instructional design.

Use of Case Materials

The competition case was reviewed both online and with printouts by 95% of the students and 88% of the officials (however, many students indicated in the follow-up interviews that the bulk of their case work was done with printouts). Overall, students made use of some of the audio and video clips ($M = 2.15$, $SD = 1.09$, range = 1 [None] to 4 [All]): Three of the students made use of all of the supporting audio and video clips, four accessed most, six used some, and eight used none. The media access rate was somewhat lower for officials ($M = 1.50$, $SD = 0.53$), with four out of the nine using some of the media and the another five using none. Four students and two officials reported difficulty accessing the media as a result of computer setup problems (not enough memory, no audio capability, or software improperly installed).

We asked students and officials for their perceptions of the twelve case ancillaries—supporting documents or media designed to flesh out and provide detail to the case. We wanted to know if the ancillaries were necessary to their understanding of the case. Responses were on a 4-point scale (1 = not at all necessary, 2 = somewhat necessary, 3 = helpful, 4 = very necessary) and are reported here with student and official ratings combined.

The most useful ancillaries tended to be text based and those most directly linked to instructional design practices (Meeting Notes with Workshop Content, Goals, Objectives, and Evaluation Plan, $M = 3.59$, $SD = 0.63$; Results of Formative Evaluation, $M = 3.50$, $SD = 0.66$). An exception here was the Project Management Chart, which ranged just above somewhat necessary ($M = 2.27$, $SD = 0.92$). Ancillaries considered to be less useful included two of the media files: "Lucky Larry TV Spot" (video clip; $M = 1.92$, $SD = 0.89$) and "Mr. Tuthill's Address" (audio clip; $M = 2.16$, $SD = 0.85$).

Quality of the Case

Fourteen of the students and six of the officials took time to comment on their positive feelings about the case. Six respondents commented on the realism of the case, with remarks such as, "The variety of information seemed very reflective of the kind of data one would get in real life," and, "I could 'see' this actually happening!"

The depth and complexity of case events were generally thought to be effective for provoking student analysis and synthesis (11 respondents addressed this positive quality). One student commented, "Working on a case provided a way to review [my] entire course of studies." Most officials likewise found the case and the analysis process worthwhile. An official commented that she was certain to have learned as much as the students, while another wrote:

> The case study was successful in evoking a rich environment that included a number of possible courses of action. It provided a pretext for trying out theories and strategies, but just as importantly, noting where our theories came up short or fell completely silent.

One official, however, noted that the case evidenced a "predominance of secondary information, i.e., description of people instead of encounters with them," while another reflected on the limitations of cases: "Trying to be so realistic, you end up being somewhat fake."

A single respondent felt that the case provided "too much" ancillary material, while four others felt that the audio and video media were not necessary, as expressed in this comment: "Transcripts provided the information we needed." For one of the teams, Web access was primarily text based, making audio and video access problematic.

Consideration of the Case

Our interviews suggest that teams actually employed a variety of approaches to organization and response creation. At the outset of the competition almost all of the teams, communicating via e-mail, negotiated schedules to set up meetings and issued requests that team members come to the first face-to-face meeting having read the case. One team went further:

> . . . each of us on our own had addressed the questions and e-mailed them to each other. So there was an exchange of ideas before we sat down to discuss them.

Most teams actually met between two and three times as a whole group. The initial meetings were used for several purposes: organizational minutiae (e.g., numbering pages of the printed out case to facilitate later discussion), dividing tasks, and brainstorming ideas about the case. One team expressly used the initial meeting to take each other's measure.

> We focused initially on the practice case study and addressed those questions and that was helpful to us to establish the group dynamics. Everybody kind of showed themselves during that time, so we knew what to expect.

Two teams broke the case analysis task into "chunks" by questions (issues, perspectives, knowledge, actions, and consequences), meeting initially to divide the parts among team members according to their perceived strengths. "We discussed our strengths and decided, 'You know, I know more about this and I'd like to do this . . .'" Team members then went off and, working individually or in pairs, developed an answer to a particular part. These teams later came together to discuss these individual contributions or "negotiated responses via e-mail."

In a third team, members composed individual answers to all of the questions, then came to meetings for discussion. One writer/editor composed the entire response based on these conversations.

A fourth team used a very different strategy. These team members composed their entire response together, working at one computer:

> We had three hours to really discuss the case. We took notes the whole time in sort of bulleted form. Then we came back in the second three hours and composed—distilled out of our notes what we wanted to say and how we wanted to say it. In my opinion we were very efficient in the process.

Collaboration

Collaboration was an important factor in teams' perceptions of their own effectiveness. Fifteen individuals remarked on this, making comments such as, "What worked was having to enter into collegial dialog, negotiating, arriving at consensus"; "Working together with others who have different perspectives and information bases helped expand mine"; and "We had some *great* discussion; you would have loved it!"

The presence of conflict appeared to vary greatly among teams. In our interviews, two students indicated an absence of conflict on their teams, with one lamenting this fact: "I'd say that one problem was maybe that we were too similar—that may have restricted us." Other participants related that team conflicts, both potential and actual, seemed to evolve from differences in background and experience, educational training ("We weren't in a common frame of reference of what we were studying"), and writing styles, in addition to miscommunications.

Methods for dealing with differences in opinion ranged from ignoring outliers to incorporating ideas into the whole response in a compromise: "On issues where we could not come to closure, generally we included the input of both people." Most notable, however, was the enthusiasm expressed by some of the participants for the rough and tumble nature of discussions in which differences were ironed out:

> You know, everybody needs to go through that. That's so essential. What was neat about it was that we were quite a blend of personalities. You know, we all learned something from one another in this whole process and that's what it should be about.

> Because of the conflicting viewpoint, to bring the group to consensus we all had to have a good understanding of what was going on and that required getting deeply into the case. Two or three of the people said that they really liked this approach to working on it and getting the benefit of other people's ideas.

> And what ensued was good. I didn't have all the right answers. A lot of things I would have designed might have come undone had it not been for teammates. There are many things that they put in that I hadn't thought of. I don't care who wins this thing. I don't. But, I tell you straight out, I feel like I'm a winner already simply because I learned so much from it.

Competition

We wanted to hear from our respondents on another important aspect of the case competition—the competition itself. They had been

involved in a case event in which a winning response would be identified. How did that influence the team members, both in the quality of their participation and in the crafting of their response?

Students expressed positive attitudes towards competition, with many comments about its motivating effect:

I think that (the competition) was crucial to keeping everybody engaged. If there had been no competition, it would not have been a vicarious experience of relatively deep engagement with Dundee High School.

I think we had a team spirit, or a university spirit. We knew that there were other schools and that possibly they were coming from different theoretical perspectives or different influences of different professors and they may take a different approach. It aroused our curiosity.

Whether I like it or not, I think competition serves a purpose. We want to try to make things as cooperative as possible, but competition produces a different edge and that can be good when it's properly channeled. I think it's good for students to learn that the world involves competition.

When we asked how the respondents felt about being judged with one team's response being declared a winner, we received some interesting observations,

The judging may have influenced us in the beginning. But . . . we got lost in it. I think the competition just sort of took a back seat.

We are more interested as a group in seeing what other people have said. We don't really care how the judges say we did.

The fact that it was judged added immeasurably to its attractiveness as a competition case for me. In fact I'm not sure that I would have participated had it not been judged. I don't think I would have.

including one negative comment:

A competition means that somebody, the winner, does the thing the best. So let's say the objective is to learn. Let's say you learn, but you lose. I know that when I lose, I feel like I didn't learn.

An event official encouraged consideration of the benefits that competition and collaboration each provide, and asked, "How can the rules be adjusted to allow the best of both worlds?"

Case Responses and Event Outcomes

The three provocateurs developed specific questions for individual teams and a common question to be answered by all teams. The specific questions included:

There appeared to be tacit approval by all members of the committee and the community that a series of workshops was the most effective way of getting high school students to become empathetic, effective problem solvers. Do you agree? If so, justify large group workshops as the most effective approach. If not, describe instruction/learning experiences that may be more effective in accomplishing the objectives set forth by the Workplace Readiness Committee.

and

Please compare your own action plan against that proposed by the Workplace Readiness Project Committee. Will it fit within the constraints of the project (i.e., a small grant for a series of workshops)? How does your plan better address the target population? Is it grounded in the context of practical activity?

Meanwhile, all teams were posed the following common question:

It appears that one of Terry's major failings, as with so many instructional designers, was in not conducting any sort of context analysis to describe the organizational, socio-cultural context in which this process was to be played out. How should she have done this? What do you believe that she would have found? How would that have affected the design of the instructional/learning activities that were used to engage the students?

The five judges reviewed the team's (blind) case responses and responses to provocateur questions over a two-week time period. At the end of this time, they returned written comments for each team and the completed response rating form.

Team ratings on the evaluation items (1 = low, 4 = high) were averaged across the eight items and five judges. These average team rat-

ings ranged from a low of 2.79 (SD = 0.49) to a high of 3.3 (SD = 0.59), suggesting that all the teams did fairly well.

In general, the judges felt positively about the teams' overall performance (M = 3.10, SD = 0.40), and their ability to identify the important issues (M = 3.08, SD = 0.64), define the perspectives of key players (M = 2.96, SD = 0.77), apply professional knowledge (M = 3.08, SD = 0.63), specify future action (M = 3.02, SD = 0.70), and anticipate the consequences of the action (M = 2.82, SD = 0.51). They also felt that teams' responses to the provocateur questions (common question M = 2.80, SD = 0.58; specific question M = 2.96, SD = 0.41) demonstrated some insight into professional practice.

When we spoke with event officials, we pursued the relationship between teams' case responses and perceptions of the teams' design expertise. While definitive relationships were not found here (some officials felt the case responses were strong and others less so), some valuable insights were offered. Two officials reflected on the relationship between ID theories and training and the case responses they reviewed:

> The responses were kind of light weight.... They were trying too hard to show what they had learned, you know, glib stuff that you learn in a master's program in instructional design, without too much integration to the realities of the case.

> The case brought out the inadequacy of some of our theories.... Even if you try to apply all of that knowledge, there's still so much more you need to know in order to succeed. Are these things being taught in our classes? Maybe or maybe not. It's a stark assessment of our theories as we look at these rich cases. We would have to conclude that we are only partially giving students the tools that they need.

However, one official noted the difficulty in making assumptions about design expertise when teams had merely responded to the case and not developed an instructional design:

> I could get a sense whether they had concepts like needs assessment, evaluation, or context analysis but I couldn't really get a sense that they could design a program of instruction.

Design and Management of the Case Event

Several issues related to the design and management of the event emerged as important. A limit on time allowed for team meetings was seen as difficult by one student: "It takes a great deal more time than [six hours] to put a team together so that they function as a team." The limit on length of case response (1,250 words) was viewed as problematic by another: "Answers such as those we want from case-based learning cannot and should not be relegated to lists, cookbook-like two-sentence answers, or sound bites." However, the time and length limits were seen as positives by five other student respondents: "At first, I didn't like the word limitation or the strict time limits, but I think it's in our best interest." "We had to be succinct and to the point." "Setting time limits was a stroke of genius."

Noting the two stages of team response (case response, response to provocateur questions), a student added that "two levels of group input [are] far better than a one-time effort." The use of provocateur questions, while seen as a valuable concept, was not satisfying to three of the students: "The questions were not very challenging and did not provide an opportunity for additional analysis." "They looked like they had been written before our response." The need for better development of the provocateur's role was noted by two of the provocateurs: "I would have preferred a greater degree of interaction with my peers." "Time constraints were tough, but I wish I had been more proactive in discussing our questions with the other provocateurs. We could have been more instructive in our questions to the teams."

Several students and officials reported a desire for more sharing of case responses and discussions between sites. The top two case responses were posted to the Web site after judging was completed, but at least one student and one official wanted to read all of the case responses. The official commented that even though he hadn't been on a team, "I felt an urge to talk it over, wishing I could argue the key points of the case and my particular solutions. I wonder if student teams also felt a desire to debrief further."

The time within the semester for this case event was seen as a problem (students were involved in event activities during the month of April). Nine students commented on this, and eight of them suggested that the case event should occur earlier in the semester while one of them (on a quarter system) indicated that it should come later. Coordination of submissions and communications with the participants was viewed as effective, with respondents remarking on the enthusiasm of the event staff, and the quick turnaround for submissions.

From our perspective, it is true that there were large amounts of time required for case development and event coordination. It is also true that there were many individuals in a number of groups participating, and that the contributions of each had to be coordinated. While there were a few snags (mostly unanticipated last minute work loads for a few of the officials), the entire event took place as planned with no major crises.

Value of Participation

We asked students and officials two questions eliciting their opinions about the value of case methods and this case event (Likert response options were from 1 [strongly disagree] to 4 [strongly agree]). Students felt that the case study method is valuable for developing ID expertise ($M = 3.81$, $SD = 0.40$), a perception that was shared by the officials ($M = 3.56$, $SD = 0.53$). They also expressed enthusiasm for the value of this case event in preparing students for future ID projects (students $M = 3.62$, $SD = 0.50$; officials $M = 3.67$, $SD = 0.50$).

Most of the officials were positive, with several making enthusiastic claims:

> . . . probably the single instructional strategy innovation that could make the biggest difference in education,

and

> In my mind the case competition format is a watershed event in the history of teaching instructional design. . . . The case competition format allows students to really dig into a scenario and apply what they have learned about the instructional design process.

Another official expressed more skepticism about cases in general, arguing that cases should not substitute for real design experiences:

> Trying to represent reality, when reality is already there, many not be the best use of our energies.

DISCUSSION

Are cases a worthwhile medium for exploring and learning about instructional design?

According to our follow-up survey (response received from at least 65% of students and 75% of officials), the ID case competition was a valuable experience for those involved. In expressing their reasons for participating in the case event, students and sponsors alike noted the potential for learning about instructional design.

Students demonstrated enthusiasm in their participation. Prior to the event, all participants reviewed the Web site and a practice case, and nearly two-thirds of the students discussed the practice case. While cases had been used previously by somewhat fewer than half of the students and three-fourths of the officials, few reported specific experience with ID cases.

Teams employed a number of different approaches to their case analysis and response development process. Most teams met two or three times, with the initial meeting being used to develop action plans and to do some preliminary brainstorming. Some teams divided the case response, while in other teams all members answered all questions, either separately (coming together later to compare responses and develop the final response) or together (developing each portion of the case response within a meeting). There appeared to be little conflict, and when there was conflict it was resolved productively, with several participants noting that the conflict that did occur was a valuable part of the case analysis process.

While limits on team discussion time and response length were seen as restrictive by a few students, a number of others indicated their support for these guidelines, noting that they knew these limits were in their best interests and that

the limits encouraged focused meeting time and succinct responses. The implementation of the provocateur role left something to be desired for some of the students and provocateurs—students noted lack of specificity and challenge in the provocateur questions, while provocateurs wished for more discussion opportunity with their provocateur peers.

Judges thought that teams performed well in their case responses; all but two of the judges' thirty team ratings (five judges × six teams) on the overall performance item indicated agreement or strong agreement that team performance was excellent. Ratings on each of the specific criteria (identification of issues, application of professional knowledge, etc.) indicated general agreement that team performance was appropriate/effective.

In their consideration of team case responses, several officials noted what they perceived to be evidence of limitations in our field's ID models and in students' preparation, while the comments made by another suggested that it was difficult to make assumptions about design expertise since the teams had not been required to develop an instructional design in response to the case.

Nonetheless, all of the responding participants (students and officials alike) agreed or strongly agreed that case methods are valuable for developing ID expertise, and that participation in this case competition was valuable in preparing students for future instructional design projects.

Are team collaboration and competition valuable?

Our findings suggest advantages for the collaboration/competition model advanced by Johnson and Johnson (1994). Collaboration was an important factor in teams' perceptions of their own effectiveness. Students commented on the value of collegial dialog, negotiation, and consensus decisions. Many students noted the motivating aspects of the competition in their responses, commenting on their pride at representing their schools and the edge, or focus, that the competition brought to the case analysis experience. Similarly, the prospect of being judged was viewed positively by most of the students.

Is the Web an effective delivery medium?

The Web proved to be a useful medium for distributing the case materials, with most participants reporting that they reviewed the case both online and via printouts. The most useful ancillaries tended to be text based and those most directly linked to instructional design practices. Because we provided transcripts for all of the audio and video clips (we suspected that media access would be problematic), we were not surprised that usage of these media was so low. We considered these materials to be supporting in nature—materials included to round out and add realism to the case. As the Web develops, it is likely that multimedia access will become ubiquitous and media capabilities greatly expanded, making the Web an even more versatile tool. It remains to be seen, however, whether sufficient bandwidth will be available to make use of these capabilities.

Does our approach to case development result in realistic cases sufficiently deep for encouraging exploration?

Our results suggest that this is so—Most of the participants felt that the "Trials of Terry Kirkland" case was realistic—detailed, complex, and providing a number of courses of action. Cases are no substitute for actual ID project involvement, however. Several individuals noted the deficiencies of the case as compared to real design experience.

Limitations of these findings

It is possible that participants not responding to our survey had different feelings about their participation and about the value of case methods for instructional design. Participants were

contacted about the survey three times and about the interview twice, so we think that all who wished to contribute their perceptions were given the opportunity.

We know that participants felt positively about the value of this case-based experience, but we cannot know whether participation will actually improve students' future instructional design efforts, teamwork, or consulting skills. Inquiries considering the relationship of case methods to these longer-term outcomes will be important.

Future research and development directions

Do it again! We hosted a second ID case event during the spring of 1997, building on the successes of this first attempt and the excellent suggestions made by first-year participants (related manuscript in preparation). In the second event, we expanded the opportunities for collaboration both within and across sites with two cases, while still offering teams an opportunity for healthy competition. Three cases were offered: a Practice Case, a Discussion Case, and a Competition Case.

The Practice Case (we used "The Trials of Terry Kirkland" for this purpose) was available for any type of use at any time. To the case materials, winning case responses, and judges' comments previously described, we added a teaching note that includes a variety of questions to encourage case exploration and discussion. We have also added the perspectives of three experts on the case, so that students can consider some different points of view after developing their own response to the case.

The Discussion Case was provided in a similar Web format, and with it we asked the three participating teams (and a number of unofficial teams) to develop a needs assessment. Participating students were able to discuss the case with faculty and other students at their institution as they developed their case response in the form of an instructional design. Three provocateurs each assumed the perspective of one of the principals in the case, and read team responses, posing questions for teams to respond to from these "character" perspectives. The case and question responses from all teams were posted to the Web site, and discussion encouraged.

The Competition Case was also available in Web format. The five official (and additional unofficial) teams were asked to develop an instructional design in response to this case. We involved the provocateurs and judges early in the case event and charged them with defining the nature of their roles, to help ensure their contributions would be integral and effective. Despite our need to accommodate an additional case, we were able to move the dates to a slightly earlier point within the semester, to make student participation easier.

A third ID case event is underway as this issue of ETR&D goes to press. The case and event procedures can be reviewed, and event participants met, at: http://teach.virginia.edu/go/ITcases.

Use of audio and video media. We plan to continue experimenting with provision of multimedia-based materials in cases; multimedia has the potential to provide *encounters* with people instead of *descriptions* of them (as suggested by an official). As we do so, we will need to consider how to make these materials available to the widest possible audience. While transcripts provide the verbal contents of an interaction, they may not be able to provide a sense of underlying emotion or political charge that can be just as important.

Implications for the training of instructional designers

As has been the case across a number of other disciplines, we have found cases to be a useful vehicle for encouraging students to explore issues in instructional design. Students expressed enthusiasm for analysis of our Web-based cases, worked well in teams, and enjoyed the collaborative and competitive aspects of the case event. Students and officials alike thought that case methods are valuable for developing ID expertise and that participation in this event was good preparation for future ID projects.

We suggest that there is no substitute for actual design experience, but think that case analysis can be a valuable supplement. We sus-

pect that case experiences help expand the depth and breadth of novice designers' expertise. Future research will tell whether what is learned through case analysis is actually applied in the subsequent practice of design. □

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