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6

Make It Active

PLANNING INTERACTIONS IN THE NEW VIRTUAL CLASSROOM

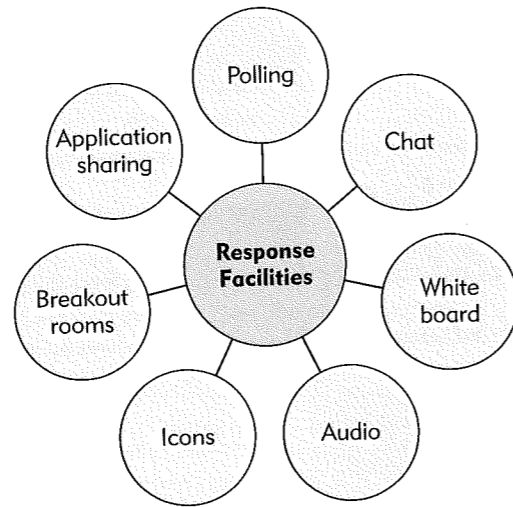
DEVELOPING INTERACTIVE VIRTUAL CLASSROOM SESSIONS is the single most important investment you can make for successful events! From attention to motivation, all of the major learning events described in Chapter 2 are aided by effective interactions. Make frequent and relevant participant interactions a top priority! In this chapter and Chapter 7 we show you how.

In this chapter we overview the interactive features available in most virtual classroom tools and highlight some tradeoffs among them. You will learn how to plan interactions that support each of the psychological events of learning as well as four types of interactions: demographic, behavioral, attitudinal, and knowledge.

Interactive Options in the Virtual Classroom

Virtual classroom software tools actually offer instructors **more opportunities** for frequent learner interactions than do most traditional classroom settings. Frequent and effective use of these response facilities is the single most important technique for successful virtual events. Figure 6.1 summarizes the major response facilities available in most virtual classroom tools, including

Figure 6.1. Response Facilities in the Virtual Classroom.



polling options for multiple-choice-type questions, text chat, the white board for text and graphic input, audio for verbal responses, icons such as a happy face to communicate feelings, breakout rooms for small group work, and application sharing for software practice.

Polling

The polling feature provides buttons that participants click to indicate their selection of two to five response options for a multiple-choice or yes-no option question posted by the instructor. In some virtual classroom tools, the polling options are accessed through a separate window or pod. Typically, the instructor sets up these polls ahead and activates the polling window at the appropriate time in the session. Figure 6.2 shows an example of this type of poll. In other tools, the polling buttons are always available as a part of the interface. The instructor will display a multiple-option question on a slide in the white board, and participants respond in the polling area in the interface. An example of this type of poll is shown in Figure 6.3. The polling buttons A through F are located in the upper-left corner of the

Figure 6.2. A Polling Question in Microsoft Live Meeting
Aggregates Results with Bar Graphs.

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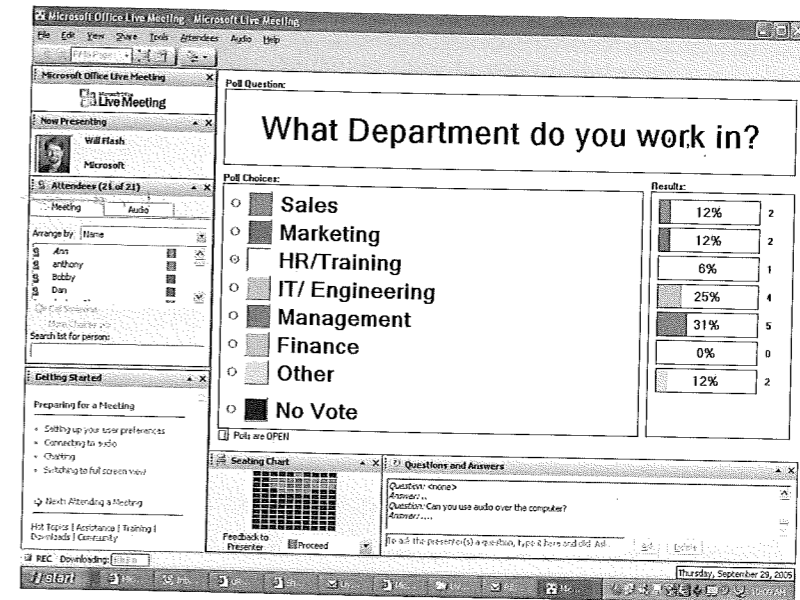
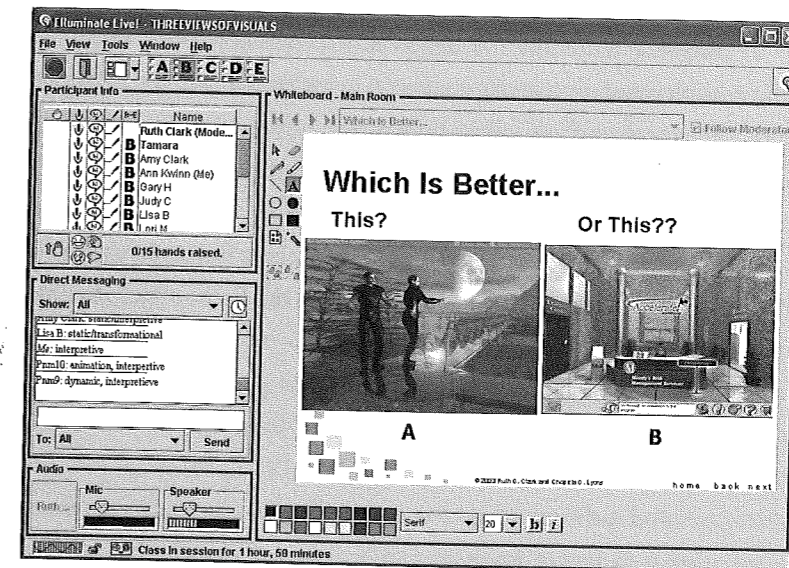


Figure 6.3. A Polling Question Uses Visual Response Options.



interface. The instructor can choose to let everyone see all of the responses in the participant information window, as in Figure 6.3, or can keep individual responses hidden from the participants if greater anonymity is desired. Some tools automatically display polling results aggregated in chart form, such as the bar chart in Figure 6.2.

Some advantages of polling include the speed and ease of administration of questions, the opportunity for all participants to respond, and the ability to display responses, either by individual participant and/or in an aggregated format. Polling options work best for structured interactions—such as questions with two to five response options. As instructors, we easily fall in the habit of writing multiple-choice questions with text, but keep in mind that the white board also supports visual question alternatives, as shown in Figure 6.3.

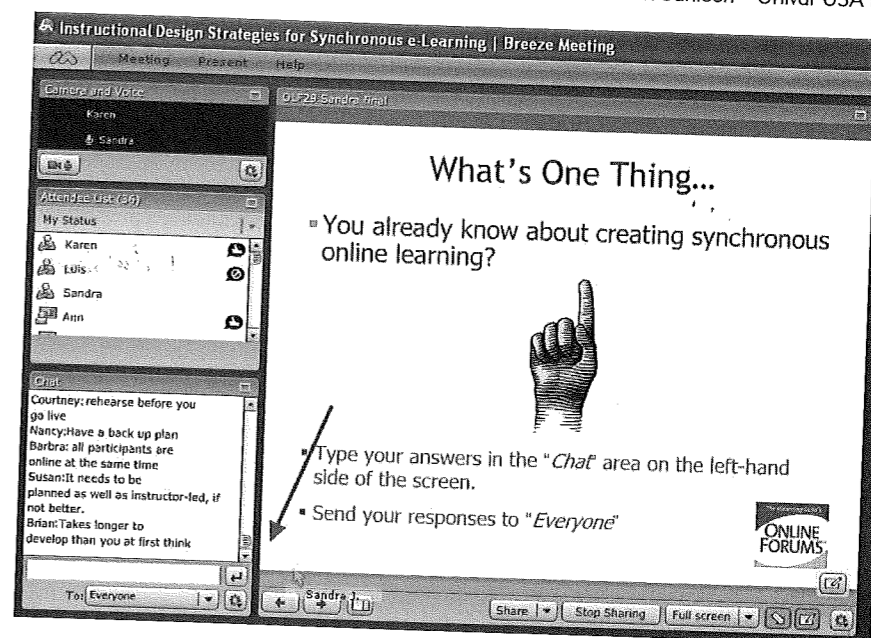
Chat

Virtual classroom interfaces incorporate a chat window in which the instructor or participants can type short text statements. Each participant's name appears next to his or her statements, allowing easy identification of communicators. Like the polling option, the chat facility allows responses by all participants at the same time. Chat is a good option for questions requiring brief open-ended responses, for questions that require a brief constructed response rather than recognition of a multiple-choice option, or for multiple-choice questions with multiple correct answers. For example, in Figure 6.4 the instructor asks all participants to state one thing they already know about synchronous online learning. To maximize participation, we sometimes ask everyone to type in their answers but **not to press send** until the instructor says "Send." In that way, reflective learners have more time to consider their answers without the distraction from the first answers to appear in the chat window.

Chat also offers an opportunity for participants to ask questions during an instructional presentation in a less obtrusive manner than using the hand icon to ask a verbal question.

A disadvantage of chat is the limited amount of screen real estate dedicated to text messages in most virtual classroom interfaces. When the

Figure 6.4. Instructor Asks Participants to Respond in the Chat Window.
With permission of Sandra Johnsen Sahleen—Univar USA Inc.



response box fills, new text messages cause older responses to scroll up. If you have a large class, you may want to use some crowd control mechanisms to limit who sends messages. For example, you might ask everyone to type in an answer but only the women or only a certain division to actually send their answers. Alternatively, you may provide a workbook in which everyone responds and then, after a pause, call on only some participants to type in their answers. In skill-building training, use the chat feature when your class size is relatively small and you would like participants to respond with brief open-ended answers. This allows the instructor to readily track the accuracy of each person's response and make corrections as needed.

Most virtual classroom software tools allow participants to send public messages that everyone can see, as well as private messages visible only to those the sender selects. One way to use private messaging is to pair participants up to discuss an exercise or question by sending messages back and forth to each other. You can see how we used paired chat in a discussion

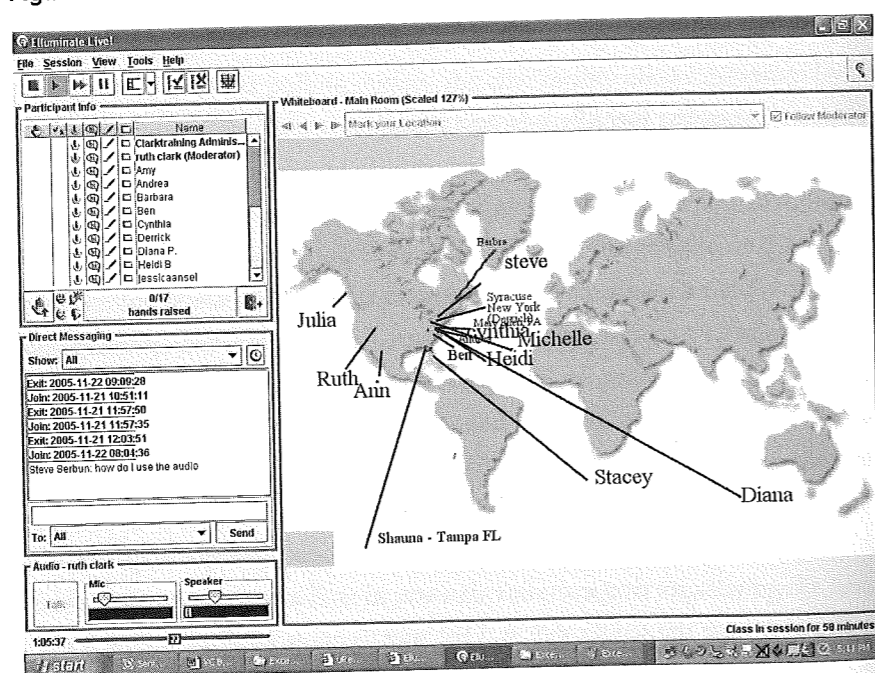
assignment in *The New Virtual Classroom* CD demonstration lesson on identifying business goals.

Because chat offers a seductive opportunity for participants to communicate with one another privately at any time during a session, we recommend setting some ground rules regarding its use. For example, we ask participants to use chat for on-task communication only during instructional activities—no passing notes in class!

White Board Input

Many instructors find clever ways to get participants engaged with the white board. Virtual classroom software allows instructors and participants to type onto the white board and to mark it with highlighters, pens, lines, boxes, and symbols. In Figure 6.5, participants use the marking and typing tools to show

Figure 6.5. Virtual Classroom Participants Mark Locations on a Map.



their physical locations on a map. This is a great icebreaker to use in your course introduction because it gives everyone a fun opportunity to gain experience with the white board tools and it helps to establish social presence. You can use the white board to reinforce discrimination of parts of a complex diagram by asking participants to highlight the equipment part where troubleshooting should begin or to identify the likely source of a fault. Of course, if you have a large class and everyone is marking on the white board, it soon becomes cluttered.

Unlike some of the other interaction facilities such as chat, the white board can allow anonymous input. If you want to pose a sensitive question or issue, ask participants to type short responses on the white board. At the end of each of our class sessions, we have an instant feedback white board divided into two sections headed with pluses and minuses. We ask participants to type their session comments anonymously into both sections.

Audio

Questions posed by the instructor either on the white board or verbally can be answered verbally by individual participants. The instructor can pose a question and ask participants to raise their hands, or the instructor can call on a participant. Calling on participants on a regular basis is as good a technique in the virtual classroom as it is in the physical classroom to ensure participant attention. A limitation of audio is that some tools allow only a single individual to talk at a time. In addition, unlike the previously mentioned response facilities, audio responses are transient, leaving no visual record. On the other hand, audio participation increases social presence and is the best option for longer open-ended responses (or participant questions) that would require too much typing to express in chat. We recommend using audio in conjunction with other response facilities. For example, after participants select their preferred visual options, shown in Figure 6.3, the facilitator asks participants to use audio to explain the reasons for their choices.

Icons

Most virtual classroom software offers various icons, such as a smiley face, applause hands, confused face, and many others, which allow instructors to get instant feedback regarding understanding or feelings. These are useful to identify understanding or confusion. For example, instructors can say: "Now that I've demonstrated this feature, let's go on to a practice. Click on the happy face if you are ready for practice or on the hand icon if you have questions." Or, if participants have been working on an exercise in a workbook, the instructor might say: "Work the exercise on page 32, and when you are done, click on the happy face."

Encourage participants to use the icons spontaneously as well. If participants agree with a statement or like an activity, they can click on the applause icon to show approval. For example, on our Excel demonstration lesson on *The New Virtual Classroom CD*, you can see spontaneous use of the applause option following a participant attempt to solve a problem in application sharing.

Breakout Rooms

A breakout room offers all or many of the above interaction features in a small group setting. With two to five participants in a breakout room, audio time is much more accessible to everyone. Breakout rooms can be used just as you would use them for any small group activity in the face-to-face classroom. For example, structured short case scenarios can be discussed and responses entered on the white board by the group scribe. The group spokesperson can summarize team discussions when everyone reconvenes in the main room. Or role-play exercises can be conducted in trios with one person serving as an observer. Guidelines for conducting the role play can be posted on the white board, and the observer can take notes in chat as the role play proceeds and give feedback via audio or white board following the role-play exercise.

We use breakout rooms in two of our CD demonstration lessons (business goals and interviewing) for small group discussions following a video case study. Participants in the interviewing lesson scribed some questions regarding the video case study on the white board during their breakout room

discussion. The instructor copied the breakout room white board responses and pasted them into the main room. This helped team spokespersons summarize their results during the debriefing in the main room.

Application Sharing

Most virtual classrooms allow instructors to launch a computer application in an "application sharing" window. If you use application sharing only for instructor-presented demonstrations, participant attention will soon drift. Instead, make demonstrations interactive by creating a series of completion examples that lead to a full practice exercise. In our Excel lesson on the CD, after giving a demonstration of formula use in the spreadsheet, the instructor starts an example by selecting the correct cell and typing in the equal sign. The instructor then asks the participants to use chat to type in the remainder of the formula.

Instructors can pass control of an application to individual participants. For example, in our Excel demonstration lesson, the instructor turns the spreadsheet over to one of the participants, asking her to demonstrate her solution. As the participant takes control of the application, her actions and explanations are seen and heard by everyone.

Interactions and Learning

In Chapter 2 we introduced the main psychological learning events that transform information from the instructional environment into long-term memory. One reason that interactions are such a powerful instructional method is that they can enable **all of the learning events**: support participant attention, activate prior knowledge, manage cognitive load, promote rehearsal and encoding, support transfer of learning, and promote learning management and motivation. In the next section we summarize how you can create interactions that maximize their psychological impact.

Support Attention with Frequent Interactions

Having to respond frequently to varied types of interactions in the virtual classroom in and of itself will promote learner attention. If every one to three

USERS SPEAK

Our advisory team reflects on interactivity in the virtual classroom

I've added increased activities to (a) keep participants' attention, as they tend to multi-task, and (b) to assess whether they are "getting it" or not—as I don't have the benefit of seeing their faces (and seeing the light bulbs or confusion). When appropriate (and when budget allows), I add multimedia to provide more pizzazz and to provide opportunities for interaction with content.

Mark Bucceri, Principal Education Specialist, Centra Software

We have designed courses to be more interactive and provide more opportunities for students to learn from each other. I have set up many sessions where users are presenting content and their findings rather than having me lead the discussion.

Zemina Hasham, Director, Customer Development, Elluminate Inc.

To accommodate the virtual classroom, we conduct more team teaching—collaboration with other teachers. We are more specific when giving directions. I have to find virtual resources. I don't limit myself. I need to think outside the box.

Diana Perney, Lead Teacher, Pennsylvania Virtual Charter School

minutes learners are asked to select a polling option, type into direct messaging, or are called on for an audio response, they will be less likely to multitask or drift. In addition, if your event includes one or two breakout rooms in which individuals work together in a small group, participation and attention will increase. Frequent interactions are the most important technique you can use to sustain attention in the virtual classroom.

Activate Prior Knowledge with Interactions

In Chapter 2 we reviewed the process whereby new incoming knowledge is integrated with existing mental models in long-term memory. Since this integration takes place in working memory, prior knowledge in long-term memory must be brought into consciousness in working memory. Interactive

reviews of previous lessons or experiences related to new content offer an excellent route to activation. For example, in our Excel sample lesson, the instructor interactively reviews cell-reference notations by asking participants to type into chat the location of spreadsheet data. In a class on employee performance management, the instructor asks each supervisor participant to summarize a recent problem he or she has faced. Interactions to activate prior knowledge are best placed at the start of a lesson or lesson topic.

Manage Cognitive Load with Interaction Staging

According to cognitive load theory (Clark, Nguyen, & Sweller, 2006), there are wasteful and useful forms of cognitive load. Load is wasteful when it does not lead to learning, such as when working memory is filled by irrelevant work or data. As a consequence, less capacity is available for learning. In contrast, useful cognitive load leverages limited working memory capacity for processes that lead to learning. In Chapter 8 we summarize a number of techniques you can use to manage cognitive load in the virtual classroom. In this section, we summarize a few techniques as they pertain to design and display of interactions, including (1) orienting participants to response tools, (2) providing clear and visible directions, (3) offering memory support, (4) avoiding extraneous interactions, and (5) gradually progressing from examples to practice.

Orient Participants to Response Tools During your first class session, display some quick introductory interactions that require all participants to use the most common response options in order to become comfortable with the virtual classroom environment. Introductory interactions can include such activities as: select a polling option to indicate your experience with the topic, type your class expectations onto the white board, use a marker tool to show your location on a map on the white board, type your software version into direct messaging, and/or introduce yourself via audio. These types of interactions can serve the primary purpose of introducing participants to each other and the secondary purpose of building familiarity with all of the virtual classroom response features.

Give Clear Written Directions Write directions that are simple and clear. Along with the question, provide response directions in text on the white board, as shown in Figure 6.4. For a multiple-choice polling question, place written directions in a consistent location on the white board, somewhat like this: *Respond by clicking on A, B, C, or D on the polling buttons.* Use audio for very simple directions, such as: *Raise your hand to explain the reason for your response.* For breakout room work, write out directions on the white board and copy them into each breakout room. If you are looking for certain categories of responses during breakout room work, put a template on the white board to guide the discussion and record team responses.

Provide Visual Memory Support If an exercise requires factual information or steps, display that information in text in a visually accessible format. For example, in Figure 3.6 a small box was drawn on the spreadsheet to display formula formatting rules. The formatting rules remain visible during the exercise as participants construct their first formula. As the lesson progresses, you may want to fade or remove the memory support—especially if the skill needs to be applied from memory on the job.

Avoid Extraneous Interactions Extraneous interactions require learners to respond in ways that do not directly support one of the learning events we have discussed. For example, some instructors try to liven up a lesson with a Jeopardy® type game. These may be fun, but in most cases, they merely require participants to respond from rote and fail to support the deeper mental processing that leads to job-relevant learning. The problem is not the use of a game but the use of a game that does not promote the type of knowledge and skills needed on the job.

Ease into Practice of Procedures Gradually Research has shown that learning of procedural steps is faster and better when the instructor starts with a demonstration, followed by several examples in which the instructor works part of the example and the participants complete it. As the lesson progresses, the instructor assigns more and more of the work to the learners. This technique, called *faded worked examples*, is described in detail in Chapter 8.

Promote Rehearsal and Encoding with Your Interactions

Mental rehearsal in working memory leads to learning. Learners can rehearse mentally without any overt activity. For example, while viewing an effective visual, learners mentally process it in ways that lead to learning. Learners rehearse explicitly when they respond to questions and engage in activities such as case studies in breakout rooms. Use interactions that lead to explicit rehearsals to ensure appropriate rehearsals and to help the instructor monitor participant understanding.

Some types of explicit rehearsal are better than others. Rehearsals that merely ask learners to repeat content or to identify previously presented content are low-level and do not lead to acquisition of job-relevant knowledge and skills. In a communications class, asking learners to type in the three stages of communication that the instructor presented is not an effective interaction because it merely asks participants to regurgitate information. Instead, plan interactions that emulate what learners will have to do on the job. Rather than list stages of communication, participants will need to apply those stages to diverse work scenarios. Providing participants with an interaction in which they must complete a dialog by responding to an audio or video statement is a more effective type of interaction because it builds job-relevant skills. Using breakout rooms for role-play exercises in which all participants take turns applying communication guidelines is another effective interaction.

When you review our CD lesson samples, you will see that all of the interactions are application level and that none require participants to respond from rote memory. Application level interactions help participants build job-relevant knowledge.

Promote Transfer with Effective Interactions

Transfer of learning means that knowledge and skills have been acquired in long-term memory in ways that allow participants to access or retrieve them back on the job. To ensure transfer success during training, instructors must embed the appropriate retrieval hooks or cues in the exercise.

For procedural tasks that are performed more or less the same way each time, provide practice environments that are very similar to those participants will use on the job. For example, if they are learning to fill in a

customer order screen, they should practice with screens that are identical to those they will use in the workplace.

In contrast, for principle-based tasks that will require judgment and adjustment to each work situation, promote transfer by giving learners a variety of different interactive experiences that require them to try out guidelines in diverse settings. For example, better learning transfer in a sales class will result from examples and practice exercises that incorporate varied product and customer scenarios.

Guide Learning Management with Interactions

Many research studies show that most students are **not good judges** of what they know and what they should study. Some students overestimate what they know, while others underestimate their skills. If you have a group of learners with diverse experience and skills, you can use a pretest to guide them to the most appropriate virtual classroom lessons. Pretests can be quite informal. You can direct potential students to a website with a pretest that includes both traditional test questions as well as job requirements' questions. The combined results can be used to provide recommendations regarding which virtual classroom sessions would be most appropriate. For example, those learners who indicate that their jobs require them to construct graphs and charts in Excel and who are unable to perform this task in a test question would be assigned to the lesson on graphs and charts.

Frequent interactions also help the instructor assess learner progress. The virtual classroom actually offers more opportunities to assess individual learner progress than is possible in the face-to-face classroom. Lacking the body language cues in face-to-face events that signal either understanding or confusion, virtual classroom instructors must learn to use participant responses to frequent interactions to "read" audience progress.

Four Types of Interaction

Most experienced instructors gravitate naturally to knowledge-type questions in the virtual classroom. However, we recommend three additional types of questions you can use to make your sessions active events. These are *demographic*, *behavior*, and *attitude*.

Demographic Interactions

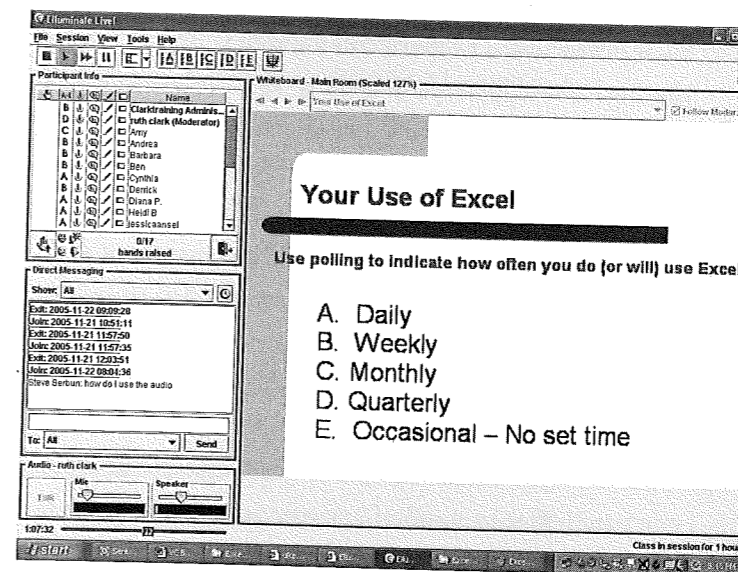
In any learning setting, it is useful for instructors to know about the relevant background of their participants as well as for participants to be introduced to their class colleagues. Learning about participants is especially critical in the virtual classroom, where instructors don't have the usual physical cues they use in face-to-face learning environments to know their participants. Demographic interactions reveal relevant attributes about participants, such as their work assignments, their job titles, their physical locations, their industries, and so forth. Use demographic interactions during session introductions to obtain relevant background on participants and to establish social presence. For example, in Figure 6.2, participants are polled regarding their department assignments. In Figure 6.5 participants identify their physical locations on a map.

Behavior Interactions

Behavior interactions ask about what participants have done, are doing, or will do. Like demographic questions, these types of questions are useful ways to learn about the participants' backgrounds. For example, in Figure 6.6 from

Figure 6.6. A Behavior Interaction Using Polling.

From the Excel lesson on *The New Virtual Classroom CD*.



our Excel demonstration lesson on the CD, we ask participants to indicate how often they are (or will be) using spreadsheets as part of their work assignments. If your class is going to include a follow-up project, the white board or chat can be used for participants to indicate what type of project they are planning. At the end of the class, a breakout room discussion can focus on how participants will apply new knowledge and skills on the job. All of these interactions are examples of behaviors that participants have done or will be doing related to course content.

Attitude Interactions

All too often, instructional professionals focus exclusively on knowledge and skills and neglect attitudes. Yet it is often attitudes that get in the way of learning or obstruct application of new skills on the job. Attitude questions reveal the opinions or feelings of your participants. For example, you might post three or four visual samples on the white board. These could be website samples, screen samples, product samples, etc. Then you could ask participants to indicate which samples they like best or to rate their preferences using symbols to "vote" for each option. We use a white board session satisfaction rating activity at the end of each of our virtual classroom events. Participants type anonymously what they perceived as effective or ineffective.

Knowledge Interactions

Most instructional professionals are well versed in constructing and administering knowledge-type questions. You can use knowledge interactions in the form of pretests to guide participant selection of the appropriate virtual session and as lesson lead-ins to activate prior knowledge or assess entry knowledge of your audience. Include knowledge interactions frequently throughout a training session to help the instructor and participants assess their learning progress. If the instructor sees that several participants are making errors, this is a signal to review the content. If the instructor detects one or two participants having problems, this is a signal to work with those participants individually to clarify misconceptions.

One way to make your knowledge interactions more engaging is to ask one participant to respond and ask other participants to give feedback on

the response. Obtaining participant feedback is especially useful when you use response facilities that only support a single participant response, such as audio or application sharing. Learner feedback is also a good engagement strategy for small group practice sessions in which one or two individuals are trying out a skill and other participants in the room comment via text chat.

The Bottom Line

There are tradeoffs among the various virtual classroom interaction options. However, for learning purposes, the specific response feature you use is less important than constructing interactions that lead to learning. Construct interactions that mirror the job to give your organization the best return on investment in the virtual classroom. Supplement knowledge questions with demographic, behavioral, and attitude interactions in order to establish social presence, learn about class participants, and acknowledge feelings and opinions as important correlates associated with applying new knowledge and skills.

On The New Virtual Classroom CD

In our How to Construct a Formula in Excel demonstration lesson, you will see the use of attribute, behavior, and knowledge questions using polling, chat, application sharing, and white board input.

In our Defining Business Goals and How to Plan an Interview sessions, you will see use of behavior and knowledge questions using audio, chat, polling, white board input, and breakout rooms.

For More Information

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