



# EVIDENCE-BASED IDEAS FOR VIRTUAL CLASSROOM EXPERIENCES

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[Note: Tips for redesigning face-to-face experiences for the virtual classroom originally appeared in [Learning Solutions](#) on June 2, 2020.]

## INTRODUCTION

*“Improving online learning will have the most direct impact on students’ future wellbeing, engagement, and motivation.”*

—Anna Jackson, 2020, reporting on Pearson-Wohnke research on student experience

Learning Guild surveys conducted in [March and May of 2020](#) showed that the preponderance of face-to-face (F2F) workplace training and academic education, if not cancelled altogether, quickly shifted to delivery via virtual classroom tools such as Zoom, WebEx, and Adobe Connect. In the popular press this shift was described in terms like “crisis learning via technology” and “emergency remote teaching”. Organizations, facilitators, schools, and teachers scrambled just to deliver the most basic experiences; many recognized that “emergency remote teaching” doesn’t necessarily mean “good instruction”. Anecdotally, in the spring and summer of 2020 the change often looked like hours of video-only meetings or events with presenters reading slides ported over from face-to-face courses. While many in L&D spent the past few months just trying to get by, we are now looking at a future in which F2F instruction is unlikely to regain its prominence (Torrance, 2020). This report seeks to outline evidence-based ideas about what supports good instruction in the virtual classroom environment and tips for implementing those practices. Now that we are doing it on a larger scale, perhaps permanently, how can we do it better?

The effect of changes didn’t reverberate only on the organization/facilitator/teacher side. [Reporting on research](#) from Pearson and Wohnke, Jackson (2020) refers to “things we lost in the fire”. In a survey of college students:

**41%** struggled to manage their wellbeing in the absence of face-to-face engagement with friends, peers, and lecturing staff

**34%** said that learning in a new way and format had been challenging

**34%** were struggling with managing their own time and schedule in the absence of a campus-taught timetable

**34%** said that it was difficult to find quiet and space to study in their current living environment

**29%** found isolation difficult

While research was with college students, it is fair to generalize similar findings to an adult-workforce population, with many workers suddenly moved to remote work or facing job loss, often with new childcare and homeschooling duties.



## LITERATURE: CHALLENGES

Something striking from the review of the literature: Seeing a huge body of work becomes irrelevant in one fell swoop. Most of the research on virtual classroom practices is comparative (Is online better than face-to-face? Is asynchronous better than synchronous?) or discusses a hybrid model (some students attend in person while others are remote) or blended<sup>1</sup> approach (in which a learning experience incorporates both in-person and remote time), or looks at participant characteristics (age, gender). Many authors looked at whether instructors or learners “liked” or “accepted” the technology. While such a sudden collapse may happen following a new discovery in science, I don’t recall ever seeing anything like this in education or workplace-related training literature. Nearly overnight, organizations wanting to undertake training/education initiatives were either forced to do it online or not at all, and it didn’t matter whether one delivery method was better than another, more convenient for one group or another, or what age anyone was. And there wasn’t going to be any hybrid or blend of in-person and remote formats. Conversations about whether virtual classroom training is convenient were no longer germane; a 2018 study asking whether learners “accept” webinar-tool-based instruction seems almost quaint now.

Another issue in the literature: Nearly all discussion of supporting success of the virtual classroom approach focuses on important but generic ideas. There is lots of talk of making it “interactive”: use polls, ask questions. Or involving learners: invite them to use the chat tool or click a thumbs-up emoticon. Examining what made instruction “good” seemed to be tied to the amount of interaction or participant satisfaction scores—with very few specifics on approaches that support performance outcomes. There is also an enormous focus on myriad worries regarding technology, which is no longer relevant for many organizations now, as there is no other choice.

### What matters? What the evidence says

Per Will Thalheimer (2006), in crafting an effective learning experience, it’s not the delivery modality that matters most but the methods of instruction used. As noted above, a good deal of the literature compares this-to-that elements of F2F and virtual approaches, but little of it discusses good instructional design practices or effectiveness of various interaction treatments. (Wang & Hsu 2008; Bernard et al. 2009; Gegenfurtner et al. 2014; Gegenfurtner et al. 2019).

As this report seeks to explain, sound instructional strategies coupled with effective facilitation help to provide an optimal virtual classroom learning experience.

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<sup>1</sup> “Blended” instruction is now often used synonymously with “digital”; that is, a mix of experiences and tools, with no face-to-face interaction at all.

## Underpinnings

### Social presence/instructor presence

A critical but sometimes overlooked aspect of an online learning experience is social presence—the feeling of connectedness among and between facilitators and learners. (Sung & Mayer 2012; Bickle et al. 2019; Martin 2019; Oh et al. 2018). It's comprised of intimacy and immediacy; in more pedestrian terms, the degree to which someone online is perceived to be a “real person”. This in turn influences the quality of virtual interactions and outcomes. Elements that contribute to social presence include things like conversational tone, friendliness, smiling (which can come through via tone of voice, even if not visible), giving quick responses, small group discussions, introductions, activities that encourage collaboration, and opportunities for sharing/self-disclosure. Social presence is an element outside the confines of the virtual classroom space through asynchronous activities such as assignments that encourage reflection, one-on-one meetings with facilitators, or use of discussion platforms.

An excellent piece from Dikkers, Whiteside & Lewis (2012) defines social presence as five overlapping elements that motivate people to take active roles in their own and their peers' online learning experience (p. 23):

1. **Affective association:** Addresses the emotional connections in the course and examines emotion, humor, sarcasm, paralanguage, and self-disclosure.
2. **Community cohesion:** The extent to which participants see the group as a community. Expressed by greetings and salutations, referring to each other as a community, and referencing each other by name.
3. **Interaction intensity:** The level of interaction among participants, including direct quotes, paraphrasing, complimenting, and asking questions.
4. **Knowledge and experience:** Sharing of additional resources and experiences.
5. **Instructor involvement:** The extent to which the instructor is an invested, active partner in the learning community.

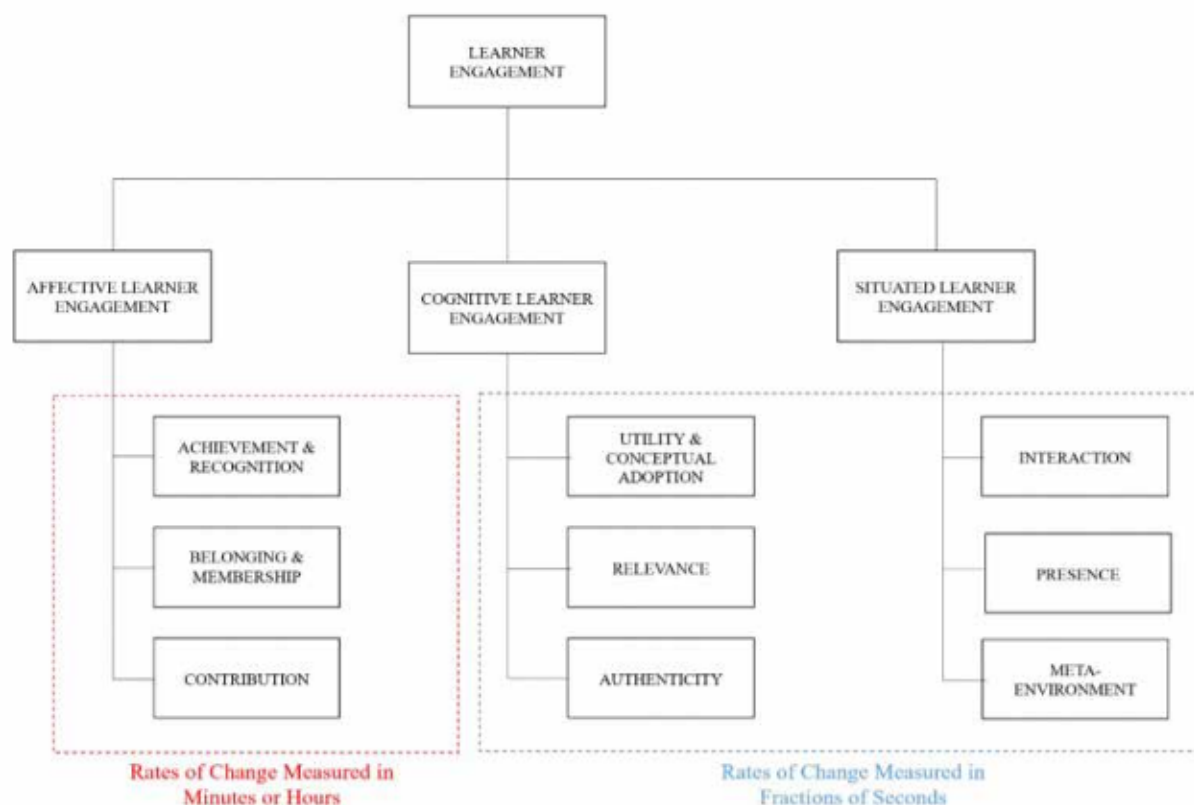
Instructor presence is specified as a “combination of instructional design, facilitation of discourse, and direct instruction” (Noseworthy & Boswell, 2016, p.41), that “plays a large role in the effectiveness of the online classroom” (p.48). This begins before a learning experience starts: pre-course communications set a tone, and the instructor's decisions about writing style, word choice, and types of information shared contribute to the instructor's online persona and the degree to which they are perceived as human. Support offered and approachability and availability of the instructor contribute to presence during the course of



an experience. Finally, a contributor to presence involves chronemics, the speed with which the facilitator acknowledges comments or reactions, responds to requests for help, returns assignments, etc. (Noseworthy & Boswell 2016; Zilka et al. 2018).

### Situated cognition

In his dissertation on learner engagement, Dye (2019) works from the holistic framework of situated cognition, which posits that learning and thinking happen in the moment—not as just a matter of storage and retrieval—and are interdependent with context, people, and culture. Ultimately performance depends on applying knowledge in different situations, not just through acquiring conceptual information. Dye examined the interplay of situated cognition and learner engagement and found that “data consistently supported the concept that learner engagement was not fixed throughout a learning experience, but rather changed—often quite quickly, both as a consequence of the learner and the environment.” A learner’s experience is not static but can change even moment to moment. He offers this overview [Figure 1] of factors that can affect learner engagement across minutes or hours (p.44):



**Figure 1: Rates of change (or dynamism) based on the qualitative data associated with a recurring theme that learner engagement changed over time**

Thus, the facilitator in the virtual setting must monitor and attend to mood, shifts in interest, and level of interaction among participants—some of which may not, because of the technology, be as readily visible as that of the face-to-face (F2F) environment.

## INSTRUCTIONAL METHODS THAT SUPPORT LEARNING

Absent human bodies, particularly when using tools that do not provide a video gallery view of participants, it can be easy for a facilitator to fall into pushing slides and doing little more than talking for hours on end. Resisting that temptation will help pave the way to use of evidence-based approaches for enhancing the learning experience. For starters, work to build in strategies shown to improve learning outcomes regardless of delivery modality, such as realistic practice, spaced repetition of key learning points, and feedback (Thalheimer 2006). Beginning from a base of sound instructional design and providing facilitators with detailed instruction and preparation will help deliver a learning experience that achieves desired results.

### Realistic practice

It is critical that a learning experience provides learners with tasks and decision-making opportunities that are relevant, authentic, and meaningful (Thalheimer 2006).

#### Examples

- A role play in which the learner practices interacting with an angry caller, a salesperson uses a discussion planning model for overcoming objections, or a healthcare worker uses interview techniques to get more information about a patient's complaint. Tool features can be employed to match reality: for instance, a customer service representative manning a chat line might practice only using the tool's chat feature.

Sample role play guide: Offer instructions such as: "I'm going to ask Kate to role play with me. The rest of you will be observers. As observers, listen for how the agent tailors the message, creates constructive tension, and how s/he takes control. Type your thoughts on this in the chat pods seen here as you are listening." Then engage in the role play; commenting appropriately on the partner's performance and participant responses. Debrief the experience.

- An exercise in creating realistic documentation, completing forms, or following a process. For instance, show a video clip of a small shop fire and have participants write down information needed for a radio report (arrival on scene/building area/size/height/number of stories, description of problem, crew assignments, resources needed, etc.)
- An application-sharing activity in which participants take control of the screen and practice using features of a software, such as creating pivot tables in Excel or using a new feature of Snagit.

- Using the breakout function, assign small groups realistic tasks to work on together such as developing a product pitch, creating a business plan, or redesigning a process.
- Have participants in breakout rooms write their own scenarios for difficult conversations with employees. Then trade off so that another group uses the scenarios in practice exercises.
- Show a video clip of a difficult interaction and have participants respond to questions such as “What would you say next?” or “How will the employee likely respond?”
- Medical education uses actors as patients for doctors-in-training to interact with. Instead of having participants just role play with one another, bring in people from the outside to assume the roles of customers, potential clients, etc.
- Leverage the affordances of the virtual classroom to provide realistic practice: If a customer service representative in a call center will interact with customers only by phone, have role play participants turn off their video cameras.
- Remember that not all of the session time has to be spent inside the virtual classroom. Participants may need to read material, complete workbook assignments, or practice with items such as the machines they are learning to repair, lab equipment they are learning to use, or software they are learning to use.

### Spaced learning

It's important, too, that the realistic practice and recall tasks take place repeatedly, across time. This is shown to be effective in encouraging long-term retention and helps prevent forgetting. (Thalheimer 2006; Thalheimer 2012). Research shows that spacing practice across time (also known as interleaving or distributed learning) produces better learning outcomes than offering it as part of a mass single experience. Per Thalheimer 2006, “One way to utilize spacing is to change the definition of a learning event to include the connotation that learning takes place over time.” (p 4). Thalheimer notes that the word “repetition” is not limited to just literally repeating learning points; repetition can take varied forms.

### Examples

1. Verbatim repetitions.
2. Paraphrased repetitions (changing the wording slightly).
3. Stories, examples, demonstrations, illustrations, metaphors, and other ways of providing context and example.

4. Testing, practice, exercises, simulations, case studies, role plays, and other forms of retrieval practice.
5. Discussions, debate, argumentation, dialogue, collaboration, and other forms of collective learning (Thalheimer 2006, p.6).

Note that these activities don't all necessarily have to occur within the confines of a virtual event; some might work as asynchronous activities. [The 2006 piece from Thalheimer](#) offers detailed information on the number of repetitions needed and the spacing (longer is better) required.

## Feedback

Multiple studies have found feedback valuable to long-term retention of learning: Pashler, Cepeda, Wixted, and Rohrer (2005) showed a nearly *five hundred percent* increase in one-week retention when feedback was given compared to when it was not. Feedback has been shown to be particularly effective when given in response to incorrect answers. Feedback in turn enables correct retrieval practice, which ties back to the benefits provided by repetition and spacing. (Thalheimer 2005; Thalheimer 2017). Feedback can take many forms, such as automatically-generated responses to quiz questions or requests for additional learner response or reflection ("Can you say more about why you would choose to fire the worker even though she will likely sue for wrongful termination?"), during debriefing of an activity or personalized written, audio, or video feedback, including that offered outside the class session.

Feedback shouldn't be treated as a distinct, separate undertaking: It ties into the other elements (after all, opportunities to give feedback depend on the learner being given opportunities to practice). Used thoughtfully and integrated into an experience, it can contribute to building presence and a sense of community. From Liebold & Schwarz (p. 36-37):

Feedback practices were identified multiple times in relation to online teaching success. Specific teaching competencies include communicating expectations for learner performance, grading that is visible to learners, providing prompt feedback, giving feedback that is helpful and enhances learning, and providing clear, detailed feedback on assignments (Bigatel et al. 2012). Helpful feedback builds the instructor-learner relationship through positive interactions. Feedback is a critical aspect of online educator practice because it promotes the learning experience.



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## SUPPORTING FACTORS

A number of factors support the foundation of good instructional design—realistic practice, spacing, and feedback. These include things like quality of interactions, facilitator skill development, production support, and other considerations regarding tools, and even concerns around scheduling.

### Moving from face-to-face to virtual delivery: Design considerations

Instructional designer [Jennifer Newton](#), whose specialties include helping clients move face-to-face experiences to the virtual classroom format, offered these tips (Bozarth 2020):

- Document now what you're doing F2F. Have manuscript-format lesson plans, slides with speaker notes, etc. on file. If nothing else, make videos of good facilitators delivering the material. This will give those charged with re-designing something to work from and is especially helpful if the program is heavily dependent on facilitated conversation and in-the-moment notetaking.
- Spell out key points of discussions/facilitation. Not just “discuss the Pareto Principle”, but specific questions to ask, points to highlight, etc.
- If facilitator documentation doesn't exist, say: “Let's put your slides into [webinar tool]. I want you to teach me.” And then capture that.
- The output will be only as good as the input. Access to a good facilitator experienced with the material can help fill in blanks in the written materials and help with rethinking ways of making activities work in a different environment.
- Based on the response to COVID-19, we may be seeing changes to the way we interact. We will not be flying salespeople all over the country for meetings, and doctors are offering virtual appointments. Now is the time to go ahead and start thinking about alternate options.
- When designing new F2F programs, consider developing at least a bare-bones virtual version. How would the flip charting, debates, and group activities be adapted for another environment?
- Visual design is critical. Apart from well-designed slides you may need more. The computer screen may be the only view the learner has for the entire experience.
- Remember: If you can do it virtually, you can do it F2F. The reverse is not always true. Making a habit of developing new programs for virtual delivery will put you in a better position to provide them in other formats later.

- In two recent cases driven by workplace shutdowns in response to COVID-19, quality was sacrificed because there was no flexibility about the delivery schedule. Does the training really have to happen exactly as originally scheduled? Is sticking to that schedule worth the cost to quality?
- Figure out what resources exist in your organization. What tools and people are available?
- Content is abundant; don't recreate the wheel. Don't design a class if the same material exists on Google. Newton: "I've written the same goal-setting training two dozen times for companies that insist their content is special."
- Start considering what you will do about content that is difficult to deliver even F2F—driving a new model of a car, for instance. Do you need to look at investing in something like an immersive virtual reality experience?
- Recognize that you can't be married to the F2F design. Just because it worked well that way doesn't mean it will work well another way. You need to be flexible enough to say, "What can we do differently to obtain the same goal?"
- Use this time to re-skill your classroom facilitators. Find a company that will teach them how to deliver virtually. Note that this is not a "train-the-trainer" workshop on the content, but on the skill set required to be effective online. While you're redesigning, your facilitators need to be prepping themselves.
- Be reasonable about time frames: Two days will rarely be enough to obtain a quality product.
- If possible, have the designer serve as the technical producer; that way changes can be made on the fly. If serving as producer isn't possible, at least have them sit in on the first virtual delivery.

McDaniels & Barnicle (2016), on shifting from face-to-face to virtual classroom format:

"In addition to making pedagogical choices that took advantage of the technology, we made choices that we would make in any face-to-face setting. Most of these choices took advantage of and emphasized the importance of the learning community." (p. 115)

## Interaction: Quality matters

Virtually all the literature around effective virtual classroom delivery includes the phrase: Make it interactive. Little of it, however, goes beyond general advice such as “use polls and ask questions”. An internet search for activities for the virtual classroom offers hundreds of “icebreakers” and fun games with no learning point. While some might argue that these can add some social presence and offer a break, they take up time and by their very nature usually have little relevance to the point of the instruction.

Interaction takes four basic forms that play important roles in supporting learning:

1. learner to content interaction
2. learner to instructor interaction
3. learner to learner interaction
4. learner to technologies interaction (Martin et al. 2012; Moore 1993; Hillman, et al. 1994).

Roblyer & Ekhaml (2000) designed a four-dimensional rubric for assessing the interactivity of online teaching based on four criteria: social goals of interaction, instructional goals of interactions, types and uses of technology, and impact of interactive qualities on student learning. See the Appendix for the rubric.

## Examples

Instead of just asking yes/no questions or offering click-button quizzes:

- Have participants share their screen with an image or website and offer something to discuss.
- Use annotation tools to point out warehouse safety hazards, draw a process map for improved recruitment process, outline the layout for a socially-distanced trade fair, or sketch a flow chart for more efficiently responding to customer inquiries.
- Be careful of learner-instructor interaction at the expense of learner-learner interactions. Use debates, paired chat activities, and small group work to encourage participants to engage with each other.
- Offer an invitation for reflection or elaboration on a point as a chat activity.
- Run a scavenger hunt related to the content: In a design class ask participants to look around their offices or homes and find an example of something with great design.
- Use video clips as discussion starters, as the format for a test, or as a way of offering an explanation from another presenter just to give a break from you.

- Periodically review the participant chat area for questions, an interesting new line of thought, a comment worth further exploration, or an opportunity to provide some review of material.

Another common recommendation is “use polls” with extensive information about the technical aspects of setting them up, but not much in the way of using them beyond multiple-choice quizzes.

**Some ideas for using the polling tool:**

- Check the group’s pulse: Are people clear on material? Do they need a break?
- Use on-the-fly polls to vote on chat questions or topics to explore more fully.
- Polls are anonymous, so leverage that. Offering choices like “I’m having trouble understanding this” or “I’d like to review the last module before we move on” helps learners say they don’t understand something without identifying themselves.
- Ask: “How would you evaluate your confidence that you can successfully complete the task?” Offer answer choices like “Completely confident”, “Tentatively confident”, etc.
- Use them as a tool for providing spacing/repetition: “Welcome back from lunch. Here’s a list of this morning’s main topics. Is there anything you’d like to review?”, followed by a list of key points.
- Offer cases followed by poll choices for “How would you respond?” or “What is this an example of?”
- Ask questions about material on the slide being displayed—such as images or graphs.

Keep in mind that polling tends to be closed-ended—choose this or that. Chat is probably more appropriate for open-ended questions.

**Move beyond the virtual classroom walls: Blended (aka digital) learning**

In past days of eLearning, “blended” usually referred to an experience including a mix of face-to-face and online instruction. As many organizations shift—at least for now—to an all-remote world, “blend” more often means using a variety of technologies. Offering asynchronous activities can help to provide realistic practice (for instance, learners enrolled in a medical test-administration class may need to go offline to practice with lab equipment), offer time for reflection and extended conversation, and fill in the gap between formal, scheduled synchronous events. It can also provide a respite from what popular media currently calls “Zoom fatigue”, with learners already spending many hours a day in virtual



work meetings. The 2018 Learning Guild research report [\*Blended Learning in Practice\*](#) (Hofmann) identified four factors important to blended learning success (p.3):

1. Using needs analysis in alignment of learning outcomes with both organizational and individual learner needs
2. Designing to meet the needs of adult learners
3. Addressing the needs of a diverse audience, with different levels of expertise and mastery need in learners
4. Managing the interaction of content and learners

In planning a blended approach take a look at what supports attainment of the performance objectives: Does the learner need to be with others, need real-time interaction with an instructor and/or peers, need to work collaboratively on a product, etc.? Or will the learner need to interact mostly with the content and/or need time for reflection and additional practice on their own? What will give the learner the opportunity for deep processing of new learning? A carefully crafted blended approach can offer the best of both worlds and provide an optimal experience for the learner—and, ultimately, the organization.

### Facilitator preparation

While the foundation of a learning experience may rest with its design elements, a great deal of its success rests with the facilitator. A review of the academic literature reveals emphasis on training facilitators about the specifics of using particular tools; that is, how to enable permissions, turn sounds on and off, create a poll, and do basic troubleshooting, with much less emphasis on the skills needed for effective facilitation in the virtual environment. Beyond the aforementioned “make it interactive” advice, there is little about development of skills that will encourage meaningful interaction or enhance presence. Creating a welcoming, inclusive environment, establishing rapport, effectively managing discussions and group energy, building consensus, and listening—as well as multitasking and managing time while also managing technology—require somewhat different skills than does the traditional physical environment. Training, practice, and feedback in these areas will help ensure a successful experience.

It is unusual to find instruction-related research focused on populations outside of higher education institutions, but in her 2019 dissertation Susan Mintz explored the experience of workplace learners—engineers—enrolled in technical training offered via the virtual classroom. A criteria for participation was that subjects were not new to the virtual classroom format so they could offer comparisons of different experiences. Subjects had a good deal to say about instructor skill: “While presentation skill was seen as important, facilitation skill in this modality was perceived as critical. The latter either determined a poor learning



experience [or] the perception of a positive learning experience. Equally critical was the instructor's ability to engage with the learners throughout training whether by course design or instructional prowess" (p 91).

Participants described facilitation skills that make the virtual experience effective, and recognized that the skills required for effective virtual instruction differed from those needed for face-to-face. "Participants refer to satisfaction with online training based on the instructor's facilitation skills fostering discussion and communication with and between learners [and] frequently comment during interviews that the ability of an instructor to transition from traditional classroom teaching to online synchronous teaching is critical for the learner" (p.94). Bickle et al. (2019, citing Luan, Fung, Nawawi & Hong 2005) note that experienced instructors are perceived to have more social presence and might be better choices if a shift to the virtual format is at hand.

In addition to fluency with the virtual classroom proper, facilitators—especially those who will be including other technologies—need digital fluency skills. To be digitally literate, virtual facilitators must do much more than master the virtual classroom tool set. They must continuously investigate and learn new technologies and experiment with how they might be incorporated into a digital conversation (Hofmann 2015).

As noted earlier, feedback is a critical part of providing an effective learning experience; giving that feedback can prove challenging for facilitators. Fortunately, it is a skill that can be developed. Lieberbold & Schwarz 2015 reference Jamison's (2004) research that compared facilitators who had received training in giving feedback with those who had not:

The learners who received feedback from facilitators that participated in education on how to give feedback had significant differences from the control group. Learners of trained feedback facilitators were more engaged in learning, had higher levels of learner self-efficacy, and reported learning enjoyment (Jamison, 2004). The skill of providing online feedback is worthy of development in faculty (p. 37-38).

### Scope: Group size and session length

A challenge with many popular virtual classroom tools is they are often marketed as "webinar" products and touted for their capacity to accommodate hundreds of participants. While that may be true, opportunities for quality interaction and relationship building decreases as participant numbers go up. Akcaoglu & Lee, 2016, report on the positive outcomes of being in small learning groups, particularly online, as these are

...more conducive to making connections among students and promote a sense of community (Rovai, 2001; 2002). When placed into discussion groups, information overload and repetitiveness decrease (Qiu, Hewitt & Brett, 2014) and the amount of higher-order thinking and learner outcomes increases (Hamann et al., 2012; Wickersham & Dooley, 2006). In addition, being in smaller groups positively impacts students' communication experiences in terms of their perceptions of the appropriateness and accuracy of messages and their willingness to participate and interact with others (i.e., openness; Lowry et al., 2006) p. 3.

The COVID-19-related scramble to move sessions online has brought with it an attachment to sticking with face-to-face protocols, including session length. There has been a stunning increase in the use of 6- and 8-hour virtual training sessions, sometimes due to organizations insisting that training shifted to an online format still be delivered according to the previously established face-to-face schedule (Bozarth, 2020). InSync Training's Jennifer Hofmann says client requests for design, delivery, and/or production of sessions lasting 7 or more hours went from 29 in all of 2019 to 378 in the first half of 2020 alone (Torrance, 2020, citing data from Jennifer Hofmann). In personal communication in July 2020, Hofmann reported having just received a request for 410 6-hour sessions to be delivered in September through November—in addition to long sessions already scheduled. Even with breaks, 6 to 8 hours is a long time to sit mostly looking at a computer screen. The literature is not much help here: What literature exists that addresses this topic at all tends to look at “webinar” type sessions of less than 90 minutes; Zoumenou et al. (2015) reporting best practices based on an extensive literature review pronounced 1 hour the optimal length. (Note: A 2019 report on a study by Gegenfurtner & Ebmer found that “longer” webinar length correlated with improved performance but the authors do not define that length—they only refer to webinars lasting 30 minutes or “a few hours”.)

Of special concern about session length is the matter of spaced practice, noted earlier as critical for retention and, hence, performance. As noted earlier, scheduling a learning experience across multiple sessions to allow repetition and practice across time might be better than containing it to one lengthy session (Thalheimer 2006).

## Scheduling

A key element of [learning experience design](#) is empathy for the learner—putting oneself in the learner's shoes. Thinking about how a session might fit in with and affect a learner's day is a component of creating a good learning experience. This brings up considerations in addition to the matter of session length. A participant in Mintz's (2019) dissertation research noted that time of day also matters: While the ability to connect across locations may be regarded as a benefit of the technology, it can pose problems for participants.

One of the things that typically happens is you will have an instructor who's located somewhere within the US, and we are operating on different time zones. So you've got people on the East Coast, and you've got people on the West Coast. I'm on the West Coast. What would happen is we would have to adjust to the people that are closest. The classes would typically start at 7 am which is ok. I'm normally an early riser. But then they would end sometime around 3 pm. So what was the problem with that? I would have part of my day back, but what would happen is I would end up working the rest of the day. If I needed more time to practice, if I needed time for labs, I would take time. By 2 pm I would be back to work because I would have too much work still remaining. (p.67)

### Using recordings

Recorded webinars were originally intended mostly for viewing by those who missed a session, with the idea they could just be viewed later. This precludes any active participation as viewers can't engage in chat, respond to polls/quizzes, meet other participants, ask questions, or get feedback. For some learners, the recording has become a way to skim through uninteresting content or quickly get to material of particular interest. Consider ways you can leverage virtual classroom session recordings as a component of a virtual experience or as an asynchronous activity:

- Think of them as sustainable learning objects: Edit them and use them in a flipped instruction approach.
- Break recordings into single topics or something akin to chapters and offer them as short-form lessons.
- If an experience was exceptionally well-facilitated use the recording—or snippets from it—as an exemplar in training other facilitators.
- Use it as a self-evaluation tool for facilitators to review after the fact.
- Offer clips from past experiences as a way of revisiting content and spacing learning.
- Take advantage of the product as a way of recording short videos apart from the learning experience proper: Capture short clips of key staff or stakeholders, customer testimonials, software demonstrations, etc.

## Use a producer

The producer's job is to be sure that the software, content, presenters, and learners can get up and running and have a relevant, successful session (Barr & Brodero, 2012, citing Hyder 2007). They can also help to facilitate activities such as moving to breakout rooms or alert the facilitator to any questions or other issues appearing in participant chat. Using a technical producer for sessions thus frees up the facilitator to focus more fully on the learners and the experience (Mercer, 2018).

## About the tools

This review of the literature showed that while tools all seem to have their own quirks, most technology-related problems in virtual classroom settings had more to do with issues on the user end (McDaniels & Barnicle, 2016). Some of this was familiarity and skill level, which can be overcome with training, but problems with poor internet connections and devices with poor audio can make a significant, ongoing difference in the success of an experience. Such problems for one user can affect others in the session, as the person having trouble may be asking for others to repeat information or may be participating with a technology 'stutter' that makes it hard for others to follow.

## Know your tools

For going on two decades now, the author has offered online presentations on the creative use of virtual classroom tools. This is product-agnostic; while features of particular tools are sometimes noted (for instance, WebEx has a participant-controlled pointer tool; Adobe Connect has separate "pods" for offering additional screens or activities) the presentations focus primarily on features available in most webinar-type tools—chat, whiteboarding, screen sharing, etc. Inevitably someone in a session complains that their product doesn't do whatever is being demonstrated—even though it does. Often the user never explored the product or doesn't realize a feature needs to be turned on. It's important for facilitators to know the tools they are using—and for designers to find out what features will be available to the facilitator.

## HIPAA compliance and accessibility

HIPAA (Healthcare Insurance Portability and Accountability Act-USA) compliance: Lieser et al. 2018 found that "no webinar technology guaranteed HIPAA compliance without additional subscription fees. We felt it was important to highlight this finding, as HIPAA compliance may be an essential feature for medical education and effective professional collaboration" (p. 5).



Accessibility: Products vary in their ways of making experiences available to all users. Features range from closed captioning and keyboard accessibility to low vision and screen reader support. Be aware, though, that none of this addresses issues like points illustrated by visuals as with slides. Some learners may need additional accommodation, for instance, being provided with the slide deck in advance, and for that deck to include descriptions of images.

## CONCLUSION

As we evolve our practice from emergency remote teaching to what may well be our new way of working, designers, subject matter experts, and facilitators face many new challenges—and opportunities. Paying attention to instructional strategies we know are effective, and supporting those with strong facilitation and support, will help our move. The goal: Making the virtual classroom experience not just “as good as” but finding ways to make it “better than” the old standard of the live event.

## ACTIVITIES

Although it can be argued that activities like icebreaker-type games might contribute to social presence, many sites offering ideas for making virtual training active don't go much beyond non-instructional suggestions or generic advice.

A few sites offering ideas for making instruction itself more interactive outline specifics of conducting an instructionally-focused activity or suggesting using tools in creative ways:

[Making Online Learning Active](#)

[6 Creative Webinar Formats to Make You Stand Out from the Crowd](#)

[Get and Keep Learners Engaged in a Virtual Classroom](#)

[Nuts & Bolts: Rocking the Virtual Classroom—What About That Whiteboard?](#)





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## RECOMMENDED READING

A few articles and other items that are especially readable or offer practical examples or advice:

Dikkers, A., Whiteside, A. & Lewis, S. (2012). Get Present: Build community and connectedness online. *Learning & Leading with Technology* 40 (2), 22-25. Available at: <https://files.eric.ed.gov/fulltext/EJ991230.pdf> Exceptionally helpful piece on building social presence.

Hofmann, J. (2020). Get and keep learners engaged. *Learning Solutions*, March 3. Available at: <https://learningsolutionsmag.com/articles/get-and-keep-learners-engaged-in-a-virtual-classroom>

Liebold & Schwarz, (2015). The art of giving online feedback. *The Journal of Effective Teaching* 15 (1), 34-46. Available at <https://files.eric.ed.gov/fulltext/EJ1060438.pdf> This is a very readable piece with specific examples of feedback.

Lieser, P., et al. (2018). The Webinar Integration Tool: A Framework for Promoting Active Learning in Blended Environments. *Journal of Interactive Media in Education* 17, 1-8, DOI: <https://doi.org/10.5334/jime.453> Where so many articles offer vague advice like “make it interactive”, Lieser et al. provide detailed ideas for using virtual classroom features toward a number of ends.

Noseworthy & Boswell is a useful, very readable piece on supporting learners in the virtual classroom through instructor presence. In Kelly A. Flores, Kurt D. Kirstein, Craig E. Schieber, and Steven G. Olswang (Eds.), *Supporting the Success of Adult and Online Students*. Seattle: City University of Seattle. <http://repository.cityu.edu/bitstream/handle/20.500.11803/585/SupportingTheSuccess.pdf?sequence=2&isAllowed=y>

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## APPENDIX: RUBRIC FOR ASSESSING INTERACTION

**Table 1: Roblyer and Ekmahl (2000) Rubric for Assessing Level of Interaction**

Adapted from <https://www.westga.edu/~distance/roblyer32.html>

**RUBRIC DIRECTIONS:** The rubric shown below has four separate elements that contribute to a course's level of interaction and interactivity. For each of these four elements, circle a description below it that applies best to your course (or other learning experience). After reviewing all elements and circling the appropriate level, add up the points to determine the course's level of interactive qualities (e.g., low, moderate, or high).

|                                |              |
|--------------------------------|--------------|
| Low interactive qualities      | 1 - 7 points |
| Moderate interactive qualities | 8 -14 points |
| High interactive qualities     | 15-20 points |

| Scale<br>(see points below)                                      | Element #1<br>Social Rapport-<br>building Activities<br>Created by the<br>Instructor   | Element #2<br>Instructional<br>Designs for<br>Learning Created<br>by the Instructor   | Element #3<br>Levels of<br>Interactivity<br>of Technology<br>Resources   | Element #4<br>Impact of<br>Interactive<br>Qualities as<br>Reflected in<br>Learner Response   |
|--|--|---|--|--|
| <b>Few interactive<br/>qualities<br/>(1 point)</b>               | The instructor does not encourage students to get to know one another on a personal basis. No activities require social interaction, or are limited to brief introductions at the beginning of the course. | Instructional activities do not require two-way interaction between instructor and students; they call for one-way delivery of information (e. g., instructor lectures, text delivery). | Email, text, private chat, or other technology resource allows one-way (instructor to student) delivery of information (text and/or graphics). | By the end of the course, all students in the class are interacting with instructor and other students <i>only</i> when required.  |
| <b>Minimum<br/>interactive<br/>qualities<br/>(2 points each)</b> | In addition to brief introductions, the instructor provides for one other exchange of personal information among students, (e.g., written bio of personal background and experiences).                     | Instructional activities require students to communicate with the instructor on an individual basis only (e. g., asking/responding to instructor questions).                            | Email, listserv, bulletin board or other technology resource allows two-way, asynchronous exchanges of information (text and/or graphics).     | By the end of the course, between 20-25% of students in the class are initiating interaction with the instructor and other students on a voluntary basis (i.e., other than when required). |

|  |   |  |   |  |
|--|---|--|---|--|
| <b>Moderate interactive qualities</b><br><b>(3 points each)</b>      | In addition to providing for exchanges of personal information among students, the instructor provides at least one other in-class activity designed to increase social rapport among students.               | In addition to requiring students to communicate with the instructor, instructional activities require students to work with one another (e. g., in pairs or small groups) and share results within their pairs/ groups.                                     | In addition to technologies used for two-way asynchronous exchanges of text information, chatroom or other technology allows synchronous exchanges of written information.  | By the end of the course, between 25-50% of students in the class are initiating interaction with the instructor and other students on a voluntary basis (i.e., other than when required). |
| <b>Above average interactive qualities</b><br><b>(4 points each)</b> | In addition to providing for exchanges of personal information among students, the instructor provides several other in-class activities designed to increase social rapport among students.                  | In addition to requiring students to communicate with the instructor, instructional activities require students to work with one another (e. g., in pairs or small groups) and share results with one another and the rest of the class.                     | In addition to technologies used for two-way, asynchronous exchanges of text information, additional technologies (e. g., teleconferencing) allow one-way visual and two-way voice communications between instructor and students.                          | By the end of the course, between 50-75% of students in the class are initiating interaction with the instructor and other students on a voluntary basis (i.e., other than when required). |
| <b>High level of interactive qualities</b><br><b>(5 points each)</b> | In addition to providing for exchanges of personal information among students, the instructor provides a variety of in-class and outside-class activities designed to increase social rapport among students. | In addition to requiring students to communicate with the instructor, instructional activities require students to work with one another (e. g., in pairs or small groups) and outside experts and share results with one another and the rest of the class. | In addition to technologies to allow two-way exchanges of text information, visual technologies such as two-way video or videoconferencing technologies allow synchronous voice & visual communications between instructor and students and among students. | By the end of the course, over 75% of students in the class are initiating interaction with the instructor and other students on a voluntary basis (i.e., other than when required).       |
| <b>Total for each:</b>   | <b>pts.</b>   | <b>pts.</b>  | <b>pts.</b>   | <b>pts.</b>  |
| <b>Total overall:</b>  | <b>pts.</b>   |  |   |  |

## ABOUT THE AUTHOR



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