



Online Learning Best Practices: A Guide to Optimizing the Online Learning Environment

Introduction/Statement of Purpose: The purpose of this document is to suggest best practices for Orthopedic Trauma Association faculty and/or instructors who will teach and facilitate group sessions via online learning platforms.

The goals of teaching are to instill knowledge and to promote higher-level thinking.

Principles for promoting higher-level thinking include:

- Interactivity
- Problem solving activities through thought provoking presentations
- Knowing your audience and meeting their needs
- Application of previous knowledge¹

Instructors can achieve these goals of teaching by using online learning platforms.

Benefits of online learning include:

- Convenient in regard to location
 - A participant can join from mobile phone or computer from any location
- Brings people together from broad geographic areas with diversity of thought
- Likely as effective as traditional in-person learning^{2,3}

A statement about professionalism

- The online learning environment is improved through a professional approach
 - Use a quiet space with good lighting
 - Avoid backlighting or any lighting that prevents audience from seeing the presenter's face
 - Minimize auditory and visual distractions

- Consider silencing cell phones and other devices
- Turn off desktop notifications on your computer
- Avoid embarrassing moments by being dressed to be seen publicly

The principles of interactivity, use of problem solving activities, and application of previous knowledge can be applied to online learning environments to leverage its benefits:

- Interactivity
 - Communicate expectations for interactivity at the beginning of an online session⁴
 - Will the session be a didactic lecture, a interactive discussion, or a combination of both?
 - Will there be time for Questions and Answers? Or will they flow through a chatroom?
 - A reminder to faculty when answering questions that come through a chatroom to ensure the person asking the questions is not identified. Rather state “A question on Open reduction...etc” instead of identifying the person asking the question.
 - Will there be group “breakout” periods?
 - Video use required for all faculty
 - Encourage or require video use for participants
 - Video use required for participants to obtain CME or other credit for attendance (for example, resident courses for which attendance is mandatory)
 - Audience response systems can improve learning⁵
 - Example from the Orthopaedic Trauma Association Online Learning Series “Fracture Night in America”
 - When deciding on operative fixation strategy for a distal tibia fracture, does the audience support plate or nail?
 - Ask a person who supported one method to explain his or her reasoning
 - Moderator needs to be encouraging and skilled at promoting dialogue
 - Use a list-based (random) system to select participants to speak
 - Inform participants ahead of time this method will be used
 - Pre-session assignments allow learners to have prepared remarks ready, which can minimize fear of being “put on the spot”
 - Avoid lengthy presentations from any one speaker
 - Shorter presentations preferred for didactic lectures-no more than 5-7 minutes
 - Encourage use of “Chat” function
 - Delegate a faculty in the session to monitor the “Chat” function

- Refer to comments/questions from the chat during session to encourage use
- Follow up on unanswered questions in “Chat” room through e-mails to the person with question
- Alternatively, send a summary of take home points to all participants. Within this summary, include answers to questions.
- Problem solving activities
 - Gain input from various participants when working through a case
 - Break into small groups and reconvene with best answers to a problem (for example, operative planning for a given fracture)
 - Set a time limit so participants can expedite conversation accordingly
- Application of previous knowledge
 - Demonstrate benefit of session by stating that new knowledge will be applicable to participants¹
 - Pre- and post-test
 - Well-suited for residents and/or other trainees

Additional Best Practices

- Planning
 - Learning objectives (desired end goal)
 - Mandatory practice: list three (3) objectives on one slide at the beginning of a session
 - Title this slide “Objectives”
 - Share presentation with faculty before a session to receive feedback and make appropriate edits
 - Measure achievement of these objectives
 - Use a survey at the end of a session to gauge participants’ progress in regard to learning objectives
 - Know the audience
 - What is the knowledge base and skill level of participants?
 - The moderator should share participant knowledge base and skill level with other participating faculty
 - Mandatory practice: list a summary of key points at the end of a session
 - Consider pace and timing of a presentation
 - Do not fear silence. Use moments of silence to allow digestion or interpretation of a teaching point.
 - Slide design
 - Minimize long segments of text with the slides used should have no more than 3-4 lines

- Use large font
- Use clean font-Ariel or Calibri versus the squiggly font in Times New Roman and others
- Use animation feature so that successive words or images appear concomitantly with verbal aspect of lecture or discussion
- Make use of accessible and easy-to-use technology¹
 - Zoom is one of many potential platforms
- Provide contact information (for example, e-mail address) on a slide so that participants can continue conversation or ask further questions after the presentation. Encourage participants to contact faculty to promote learning as an endeavor that does not end when a lecture ends.

Conclusion: By using these best practices, Orthopedic Trauma Association faculty and/or instructors can leverage the online learning environment to promote efficient learning.

Additional Resources

1. “Teaching Remotely.” The Derek Bok Center for Teaching and Learning. Harvard University. <https://bokcenter.harvard.edu/teaching-remotely>. Accessed 7 September 2020.
2. “Tips for Teaching Online.” The Wharton School, The University of Pennsylvania. <https://online.wharton.upenn.edu/blog/tips-for-teaching-online/>. Accessed 7 September 2020.

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1. Pilcher J, Bradley DA. Best practices for learning with technology. *J Nurses Prof Dev*. 2013;29(3):133-137. doi:10.1097/NND.0b013e318291c220
2. Dillon, Kristin; Dworkin, Jodi, PhD; Gengler, Colleen; Olson, Kathleen. Journal of Family and Consumer Sciences; Alexandria Vol. 100, Iss. 3, (Sep 2008): 28-33.
3. Einspruch EL, Lembach J, Lynch B, Lee W, Harper R, Fleischman RJ. Basic life support instructor training: comparison of instructor-led and self-guided training. *J Nurses Staff Dev*. 2011;27(3):E4-E9. doi:10.1097/NND.0b013e318217b421
4. “Communicating Expectations.” The Derek Bok Center for Teaching and Learning. Harvard University. <https://bokcenter.harvard.edu/communicating-expectations>. Accessed 7 September 2020.
5. Fils J, Bhashyam AR, Pierre Pierre JB, Meara JG, Dyer GS. Short-Term Performance Improvement of a Continuing Medical Education Program in a Low-Income Country. *World J Surg*. 2015;39(10):2407-2412. doi:10.1007/s00268-015-3145-y