Using Active Learning Techniques to Engage Audiences in Oral Presentations

15

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Engaging - Speaking - Intent

15.1 Learning Outcomes

Active learning activities are designed to help participants interact and engage with others, as well as with the content being presented. Active learning has been shown to improve content retention while also increasing critical thinking (Anderson et al., 2006). Active learning activities can also be used in different settings and contexts to assess knowledge at different stages of a learning experience.

After completing this workshop, the participants will be able to apply the principles underlying audience engagement and active learning to design and deliver effective, engaging, participatory, and learner-centered presentations.

15.2 Teaching Context

In the workshop, participants learn about active learning techniques and how to use the BOPPPS (Bridge, Objective, Pre-assessment, Participatory learning, Post-assessment, Summary) model (Pattison & Day, 2006) to structure their presentations and engage their audience. Participants develop a short presentation on a topic of interest. They complete an outline of their presentation using a BOPPPS template. Later, they deliver the presentation to their fellow participants and receive feedback from their peers on whether the presentation was comprehensive, actively engaging, and inclusive of all participants.

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Ideally, this workshop would be run in a course where participants are expected to deliver an oral presentation and where one or more of the learning outcomes are tied to communication or audience engagement.

This workshop can be used for science students who are presenting in groups or individually. It can also be modified to reflect a relevant disciplinary format, such as a capstone project presentation, a public engagement event, or a professional conference.

15.3 Overview of the Teaching Activity

During this workshop participants are introduced to different methods of engagement for active learning, learn to recognize appropriate contexts and settings for each activity, learn to value the active involvement of participants in their own learning experiences, and begin the process of designing a thoughtful presentation using the BOPPPS model rather than simply putting slides together.

This entire learning experience is itself structured using the BOPPPS method as a way of demonstrating how to use the BOPPPS model and to showcase its effectiveness at engaging participants. The six elements of BOPPPS are:

1. *Bridge in*: Get the audiences' attention and motivate them to see why they should care about the topic of the presentation.
2. *Objective(s)*: Make the goal and objectives of the presentation clear to the audience.
3. *Pre-assessment*: Assess what the audience already knows about the topic.
4. *Participatory learning*: Get the participants actively involved in the learning process.
5. *Post-assessment*: Determine whether participants have achieved the objectives of the presentation.
6. *Summary*: Provide a takeaway message, and review the content provided in the presentation.

After the workshop, participants design a short presentation enhanced with discipline-specific active learning activities that will engage and motivate their audience. Later, they deliver their presentation with the new activities in place and solidify their learning by engaging in peer feedback.

15.4 Runsheet and Lesson Plan

The BOPPPS method for creating a presentation outline is a core component of the Instructional Skills Workshop (ISW), an internationally recognized teaching development program that is structured around participants delivering short presentations and receiving feedback from their fellow participants. We use the BOPPPS method as a simple way to design and deliver effective presentations while also encouraging the thoughtful application of active learning principles.

BOPPPS is a method of drawing participants into a presentation. It provides clear learning goals and engages participants with content leading to deep or long-lasting learning. The BOPPPS model also helps presenters become more confident and reflective in their teaching and presenting.

This workshop can be as short or long as you would like—it depends on the length of the activities you choose, how deeply you want to explore the pedagogical theory of active learning, and how much time you would like to allow for presentations and peer assessment.

The examples provided below are what we have used. We use "Presenter" and "Audience" as well as "Instructor" and "Student" titles. This is because, when an Instructor teaches their students to use this method, they are modelling "Presenter" practice. As participants, the students are modelling "Audience" practice. We also provide a "Workshop Instructor Example" (for how the teacher can present this in class) and "Science Presenter Example" (which may help students consider how to adapt BOPPPS to their presentation work).

<table>
<tr><th>Presenter (Instructor) does…</th><th>Audience (Students) do…</th><th>Resources</th></tr>
<tr><td>B - Bridge In

This can be an icebreaker activity, a question, or an interesting fact or story related to the presentation's content that stimulates discussion.

Workshop Instructor Example:
What are some characteristics of engaging presentations?

Science Presenter Example:
What is the most recent news around COVID-19 vaccines?</td><td>Complete Bridge In

Discuss the starting question using method of choice (e.g., group brainstorm with answers written on a board, virtually over Google Docs, or in small groups as a think/pair, share activity) (1).</td><td>Icebreaker, question, story, or fact to stimulate discussion.

10 min</td></tr>
<tr><td colspan="2">O – Objective(s)

Explain the workshop's objectives (note this is not a participatory activity, so student interaction is not included here). In this example, students are preparing for an upcoming talk in which they will use active learning (note Resources for this section).

Workshop Instructor Example:
By the end of this workshop, participants should be able to:

1. Recognize the importance of having a clear presentation structure with a plan for active engagement (e.g.,BOPPS).
2. Explain different parts of the BOPPPS presentation delivery model and associate proper active-learning strategies
3. Demonstrate their understanding of active-learning techniques by creating their own examples (2).

Science Presenter Example:

1. Recognize the importance of clinical information related to COVID-19 disease and immunization.</td><td>Assessment rubric and task description for their upcoming talks.

10 min</td></tr>
</table>

P – Pre-Assessment Before going too deeply into content, it's important to determine what your audience already knows about the specific topic you will be covering (in this case, active learning techniques). *Workshop Instructor Example:* Gallery walk – "List some ways in which you've engaged in active learning". (You could also use other active-learning activities to determine students' existing knowledge, such as a poll, a one-minute paper, or a give-one-get-one). *Science Presenter Example:* Poll (yes/no) question – "I know the difference between mRNA and viral vector vaccines".	*Complete Pre-Assessment Gallery Walk* In groups of about four, participants go to different areas of the room to discuss how they've engaged in active learning in their own studies. They record their ideas on paper or a whiteboard. Participants then move around the room listening to each group take turns presenting on what they've written. In the end, the instructor collects the suggestions and provides the full list of active learning methods to the group for use in their presentation planning.	Paper or whiteboard Marker pens 20 min
P – Participatory Learning Activity Every workshop needs at least one main activity where the participants directly engage with the topic (e.g., a case study, a discussion, a debate). *Workshop Instructor Example:* Presentation planning worksheet *Science Presenter Example:* Divide audience into four groups. Ask each to create a pro/cons list on one of the following vaccines: Pfizer, Moderna, Johnson and Johnson, and AstraZeneca.	*Complete Participatory Learning* Students are divided into their presentation groups and given a paper copy or Google Doc version of a presentation planning template with sections for each component of BOPPPS to structure their presentation. They plan their presentation together.	BOPPPS presenter's planning template 35 min

P – Post-Assessment Before ending the session, it's important to gauge the audience's understanding of the presented content. This could be a quick verbal check-in or a more formal exit activity. *Workshop Instructor Example:* Debrief conversation and worksheets *Science Presenter Example:* Ticket out the door (3) with two questions: What is one thing that you learned from my presentation? What is one thing that you are still unclear about?	*Complete Post-Assessment* Students complete review of the work they've done on the presentation planning templates. Each group shares a brief description of how they have structured their presentation while also putting this on a worksheet for submission. Fellow students provide feedback or suggestions – these are also recorded on the worksheet.	Debrief activity Worksheets to collect responses. 10 min
S – Summary Recap the main points and refer back to the session learning objectives (4). *Workshop Instructor Example:* Review the expectations for the upcoming presentations, including the rubric you will use to facilitate peer assessment. *Science Presenter Example:* Takeaway Slide with one Tweet summarizing the presentation.	*Complete Summary* Students comment on their understanding of the learning objectives and make concrete plans for their presentations. Students prepare (out of class) for their presentation in a later session (5).	Assessment rubric and task description for upcoming student talks (6) 5 min
Total duration in-class = 90 min + post-class group work on the presentations		

Notes

(1) In a think-pair-share (Kagan, 1994), the instructor/presenter poses a question or a statement and asks participants to think and reflect individually. Then they ask participants to pair up and share their ideas. Lastly, each pair is asked to share back with the larger group

(2) You can use Bloom's Taxonomy to select action verbs that align with your desired level of learning for the audience

(3) A ticket out the door activity (Fisher & Frey, 2004) asks participants to answer a specific question before leaving the presentation

(4) This is a good opportunity to review how the workshop itself was structured with BOPPPS
(5) When the participants reconvene to deliver their presentations, enabling effective peer feedback by providing participants with a peer feedback form. Depending on the time that participants have to complete the feedback form, you can include quantitative or qualitative questions using scales, rankings, or open-ended responses
Share the feedback form for student presentations before their presentations. Here are sample questions you can use:

   (a) The presentation followed a clear structure, such as the BOPPPS model
   (b) I was able to participate in this presentation
   (c) Rate the level of learner engagement in this presentation (1 through 7)
   (d) What is one thing you found particularly effective in this presentation?
   (e) What is one suggestion you could make to improve this presentation?

   After each presentation leave time for participants to complete the forms
   At the end of the presentations, help the groups get together and give them the written peer feedback to discuss. This immediate feedback lets groups reflect while they are still together. You, as the instructor, can also provide your own feedback and help them reflect on their peers' responses
(6) The assessment rubric and peer feedback form for the student presentations can use similar metrics

15.5 Top Tips for New Instructors

1. Groups larger than five can become unwieldy and prevent an even distribution of presentation tasks.
2. Peer evaluation becomes draining if participants are required to actively engage with too many presentations. In a large class, divide the presentations over several sessions.
3. If students are unfamiliar with a peer feedback model, allot time to review models for constructive criticism, or have participants develop a class contract together. This is a good opportunity to review the role of peer review in science.

References

Anderson, W.L., Mitchell, S.M. & Osgood, M.P. (2006). Comparison of student performance in cooperative learning and traditional lecture-based biochemistry classes. *Biochemistry and Molecular Biology Education, 33*(6), 387–393. https://doi.org/10.1002/bmb.2005.49403306387.

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Kagan, S. (1994). *Cooperative learning*. Kagan Cooperative Learning

Pattison, P., & Day, R. (Eds.) (2006). *Instructional skills workshop manual*. https://www.algonquincollege.com/profres/files/2013/11/Instructional-Skills-Workshop-ISW-Handbook-for-Participants1.pdf.

Further Reading/Exercises

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Website Links

Active Learning, Centre for Excellence in Learning and Teaching, Ryerson University. (https://www.ryerson.ca/content/dam/learning-teaching/teaching-resources/teach-a-course/active-learning.pdf). Accessed 25 Jan 2021.

Graduate Teaching Development Program, Ryerson University. (https://www.ryerson.ca/learning-teaching/ta-ga/professional-development-program/). Accessed 25 Jan 2021.

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