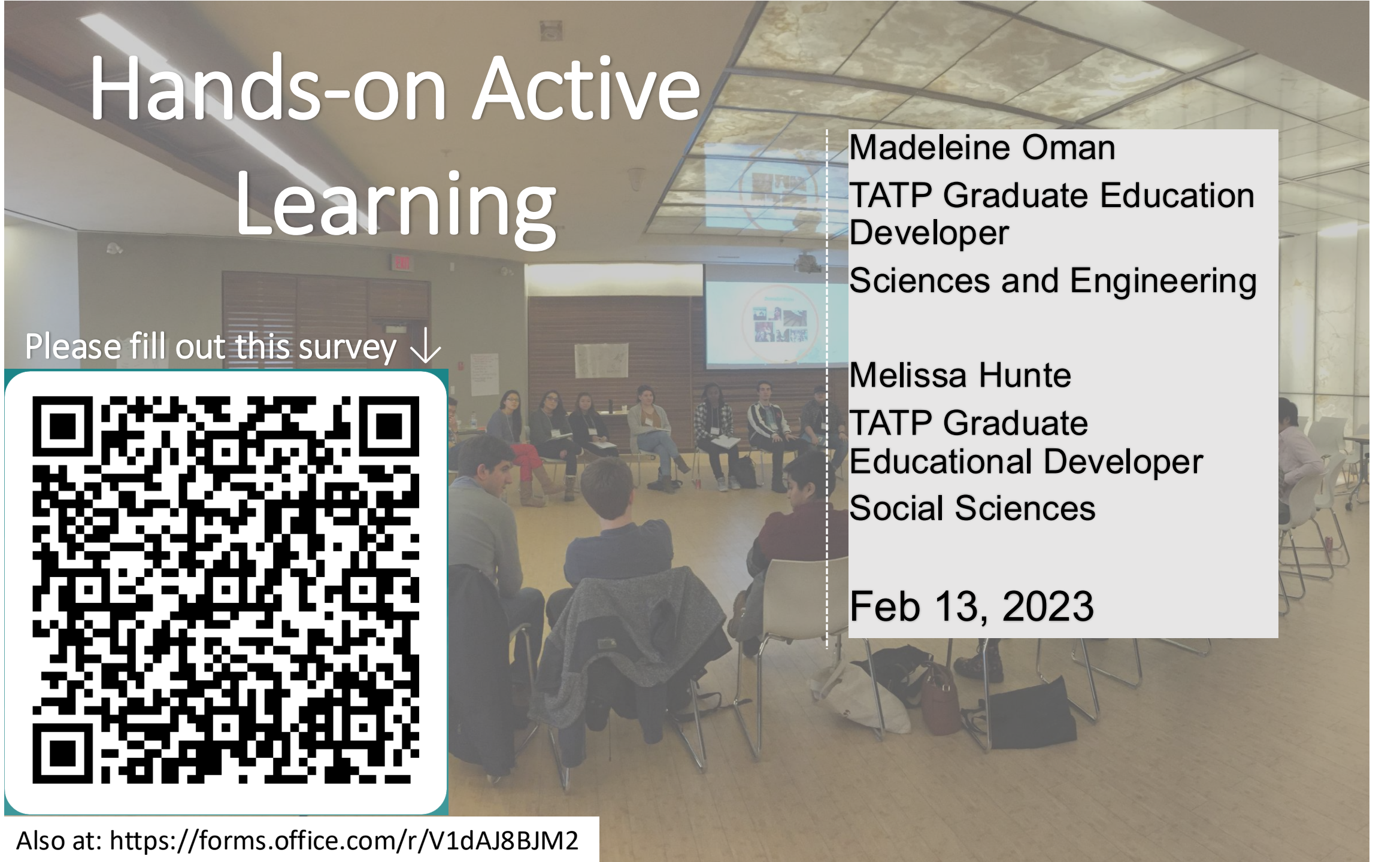
Hands-on Active Learning



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Feb 13, 2023

Please fill out this survey ↓

Also at: https://forms.office.com/r/V1dAJ8BJM2

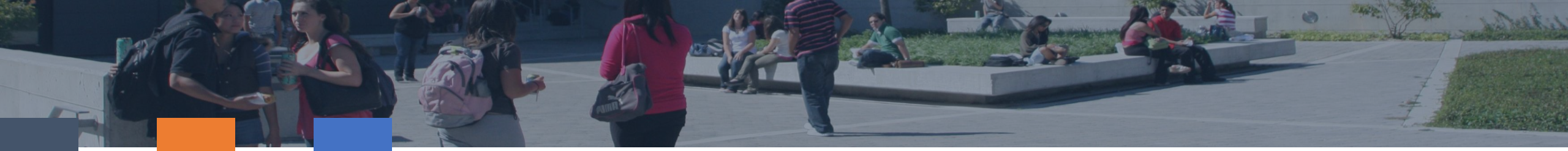
ACCESS CHECK

We understand access to be a shared responsibility between everyone in this space. We strive to create an accessible space that reduces the need for you to disclose a disability or impairment for the purposes of gaining an accommodation. In doing this together, we strive to welcome disability, and the changes it brings, into our space.

Questions:

Is there anything about the space that we should address now?

Are there any other access needs that might affect your participation in the workshop that we could also address?



Learning Outcomes

By the end of this session, you should be able to:

- Define what is active learning
- Analyze the evidence that support active learning
- Recognize challenges to implementing active learning
- Evaluate constraints to active learning
- Create and adapt active learning techniques
- Gather resources to further develop your active learning toolkit

Today's resources: Slide deck PDF, Further resources handout PDF



What is Active Learning?

OR go to Menti.com and enter code: 7456 7482



What is Active Learning?

Student-centered.

Connecting concepts to their own knowledge and experience and relating new ideas to old.

Engaging with the material and participating in a variety of ways.

Most effective when paired with well-integrated and meaningful reflective written activities.



Why Active Learning?

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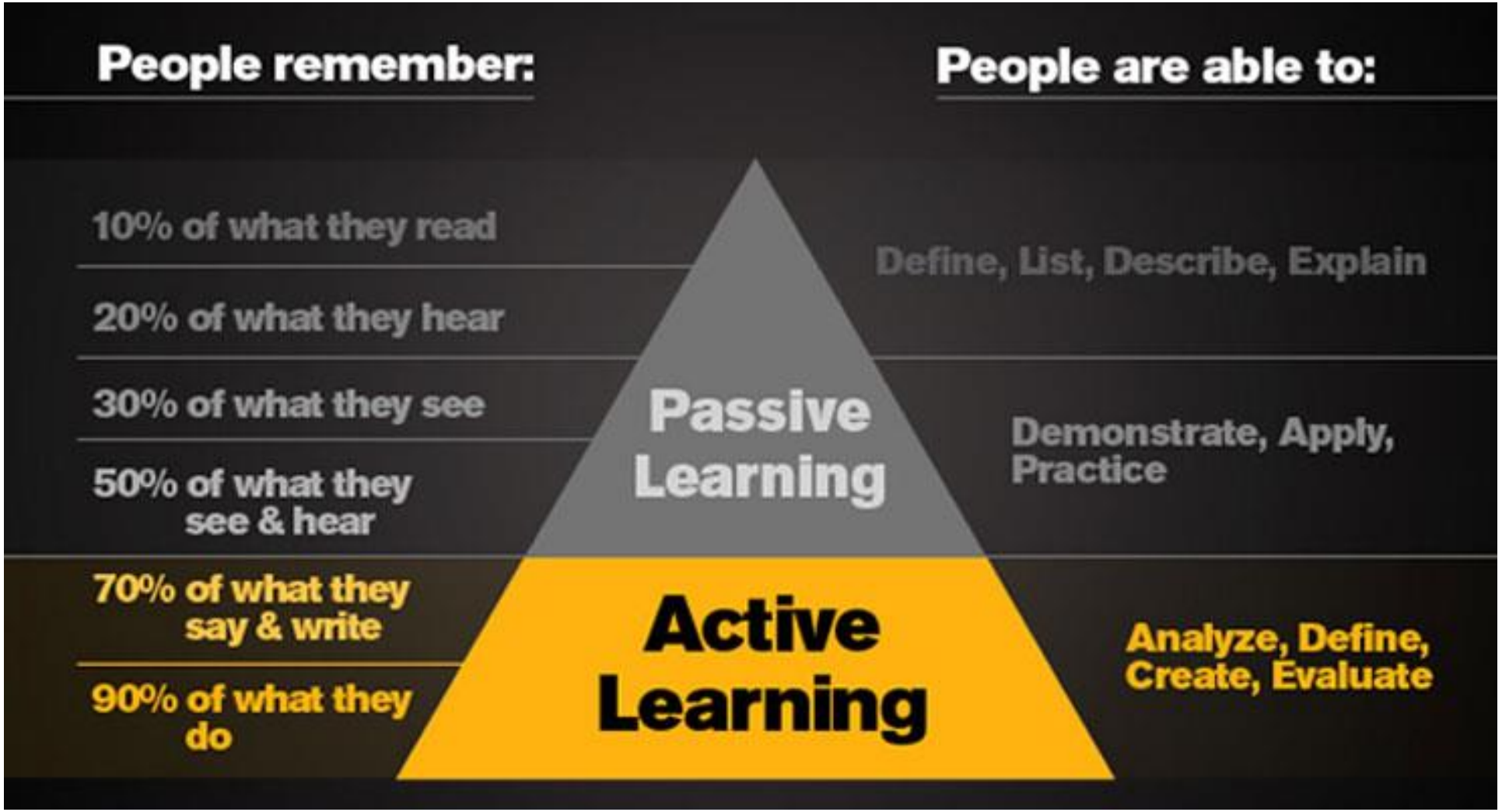


Arizona State University: https://teachonline.asu.edu/2013/03/how-does-active-learning-support-student-success/

Why Active Learning?

- For both the ARTS AND SCIENCE disciplines, Passing grades in traditional classes = 55%,
  - with active learning = 85%.

- In STEM, Active learning leads to increases in examination performance that would raise average grades by a half a letter
  - Failure rates under traditional lecturing increase by 55% over the rates observed under active learning



(iStock)

Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). "Active learning increases student performance in science, engineering, and mathematics." Proceedings of the National Academy of Sciences, 111(23), 8410-8415.
Mello, David and Less, Colleen A. "Effectiveness of active learning in the arts and sciences" (2013). Humanities Department Faculty Publications & Research. Paper 45.

Why Active Learning?

- In Physics, engaged students outperform passive students by two standard deviations.
- In COMPUTER SCIENCE, over 20% more students earned a C or higher when learning cooperatively
- In STEM, Active-research increased confidence 83% and career interest 68%.



Photo credit: https://myofficein.ph/killer-moves-to-boost-confidence-and-success-at-work/

Felder, R. M., & Brent, R. (1996). Navigating the bumpy road to student-centered instruction. College teaching, 44(2), 43-47.
Michael, J. (2006). “Where's the evidence that active learning works?” Advances in physiology education, 30(4), 159-167.
Russell, S. H., Hancock, M. P., and McCullough, J. (2007). “Benefits of undergraduate research experiences.” Science, 316, 548–549.



Activity 1: Think–Pair–Share

classroom | moderate | range of timing | pairs or groups

- Take a minute to think privately about the following question:
  - **"Why do you think Active Learning produces such results?"**

- Then take 2 minutes to discuss your thoughts with your peers at your table.
- Identify someone to share the group's responses with the class.

Active learning benefits…

information retention
(Lujan and DiCarlo, 2006.)

increased motivation
(Machemer and Crawford, 2007.)

deeper learning & relational thinking
(Biggs, 1999.)

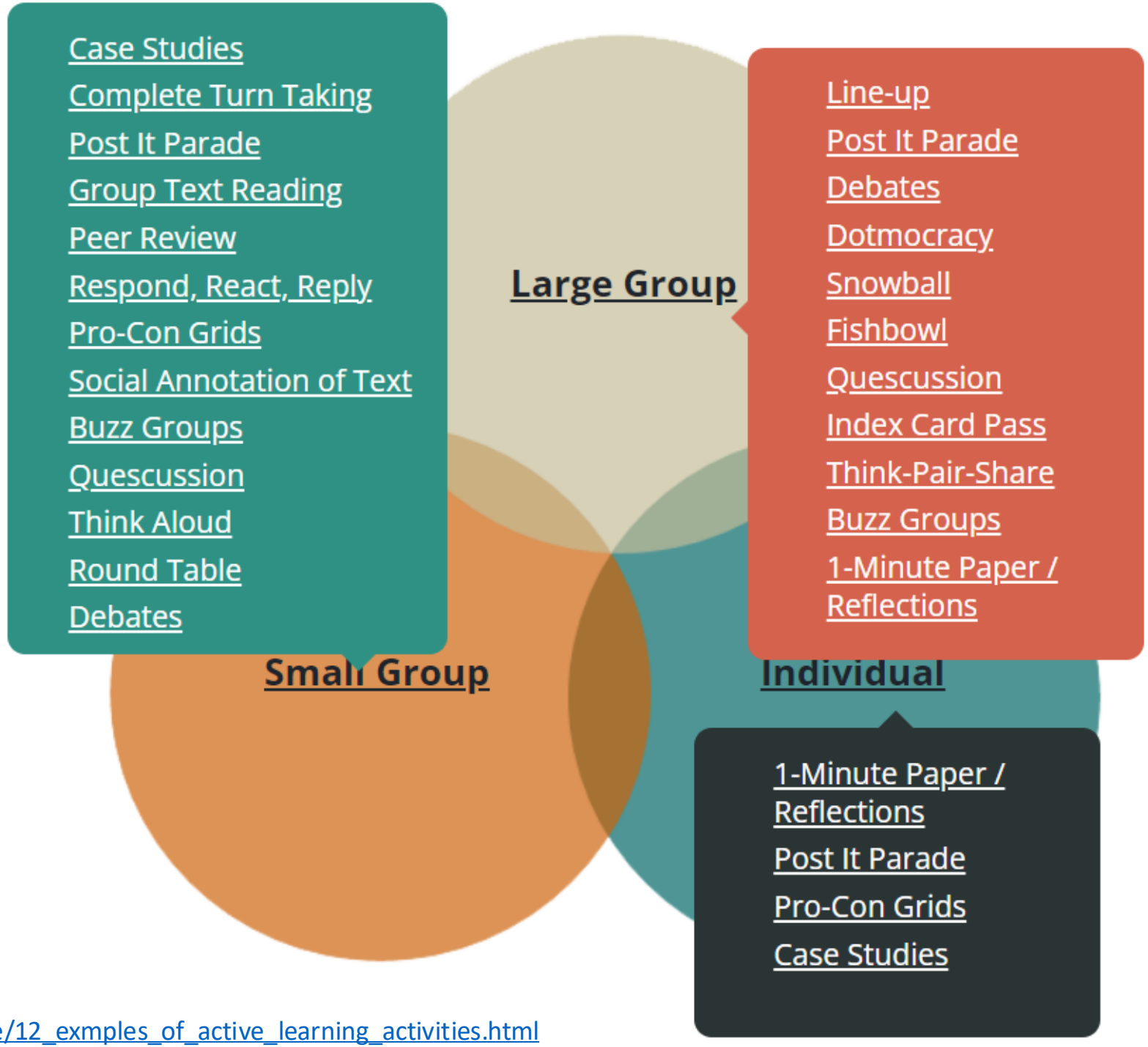
Increased confidence with class materials
(Cherney, 2008)

critical thinking skills
(Smith et al., 2005.)

self-directed learning
(Justice et al., 2007.)

improved in-class focus
(Roehling et al., 2011.)

Implementing Active Learning

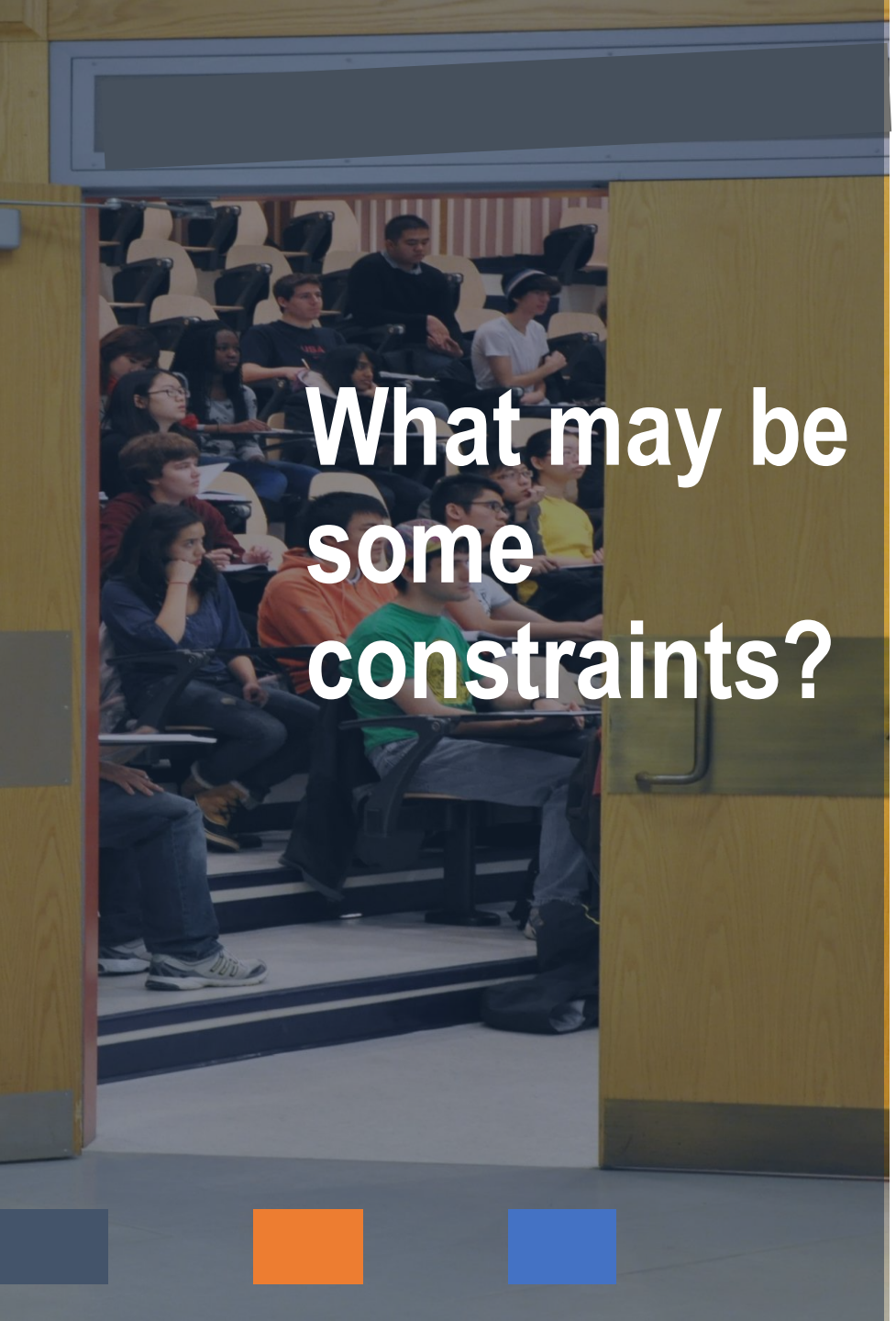


https://www.queensu.ca/teachingandlearning/modules/active/12_exmples_of_active_learning_activities.html

Customizing active learning to your classroom



https://forms.office.com/r/SZLz8K9rnz



What may be some constraints?

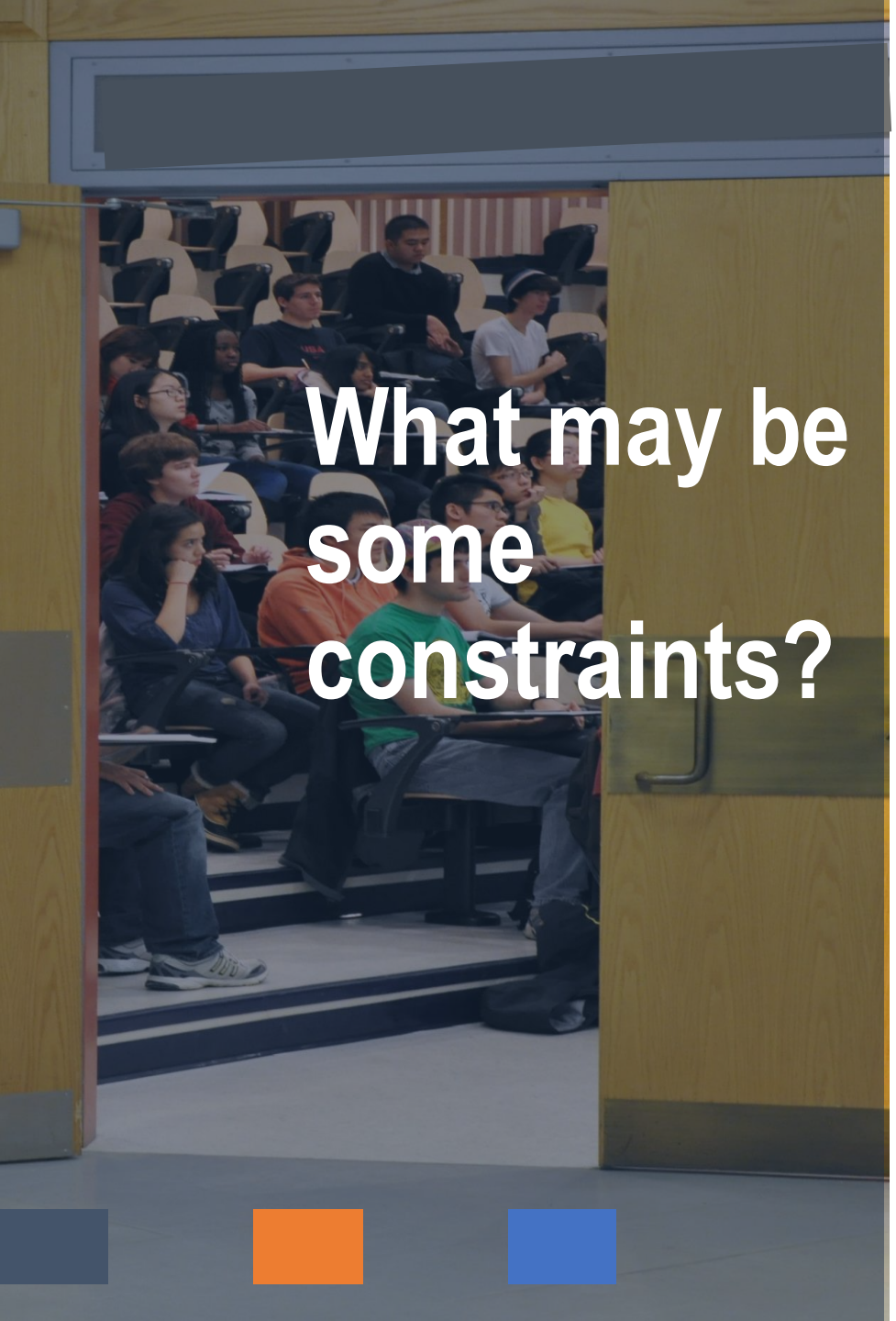
Activity 2: Fishbowl

Small or Large classroom | Anonymity| Individuals, Pairs, or Groups

Individually, consider what might be some of the constraints to active learning?



- Generate as many responses as you like.
- Write each response on a separate piece of paper.
- Place responses in “fishbowl”



What may be some constraints?

- *Time*
- *TA to student ratio*
- *Familiarity with the course and its contents as a TA*
- *Attitude and motivation of students*
- *Freedom to change your lab/practical*

Active Learning in Your Classroom

Over the next 5 minutes:

- Browse the TATP list of 18 active learning techniques.

As a group:

- Decide on one **active learning technique** to try in class.
- Decide on the **discipline or subject area** to which the activity would be applied.
- Develop a **learning goal**.

Example:

For a first year Geography course on colonialism in Canada, a spider web graphic organizer (technique #14) to help students compare Indigenous and settler perspectives on land, which is the focus of an assigned reading.

Also at https://qrco.de/bdiETi



Active Learning Facilitation Tips

- Be intentional and specific in your instructions for an activity
  - Keep instructions visible and handy for students (on the board, on Quercus, etc.)
  - Repeat instructions
- Check for understanding
- Allow sufficient time after asking questions (~10s)
- Assess student needs
- Set expectations
- Consider the space
- For group activities, assign different roles for each participant to ensure accountability
- Considerations for an inclusive learning environment: Facilitating for Equity, Access Checks, & Representation Matters.



Example active learning session

1. *Learning outcomes*
2. *Activity sequence*
3. *Check for understanding*
4. *Graphic plan*

Active Learning Session Plan

Class / Topic	Facilitators	Roor

1. Learning outcomes *Identify the skills and topics that will be the focus of the session (e.g. board work, notetaking)*	
2. Activity Sequence *Build your sequence of activities and match the activities to the different small group configurations (pair vs. cluster vs. group)*	

Example active learning session

1. *Learning outcomes*
   - Define what is active learning
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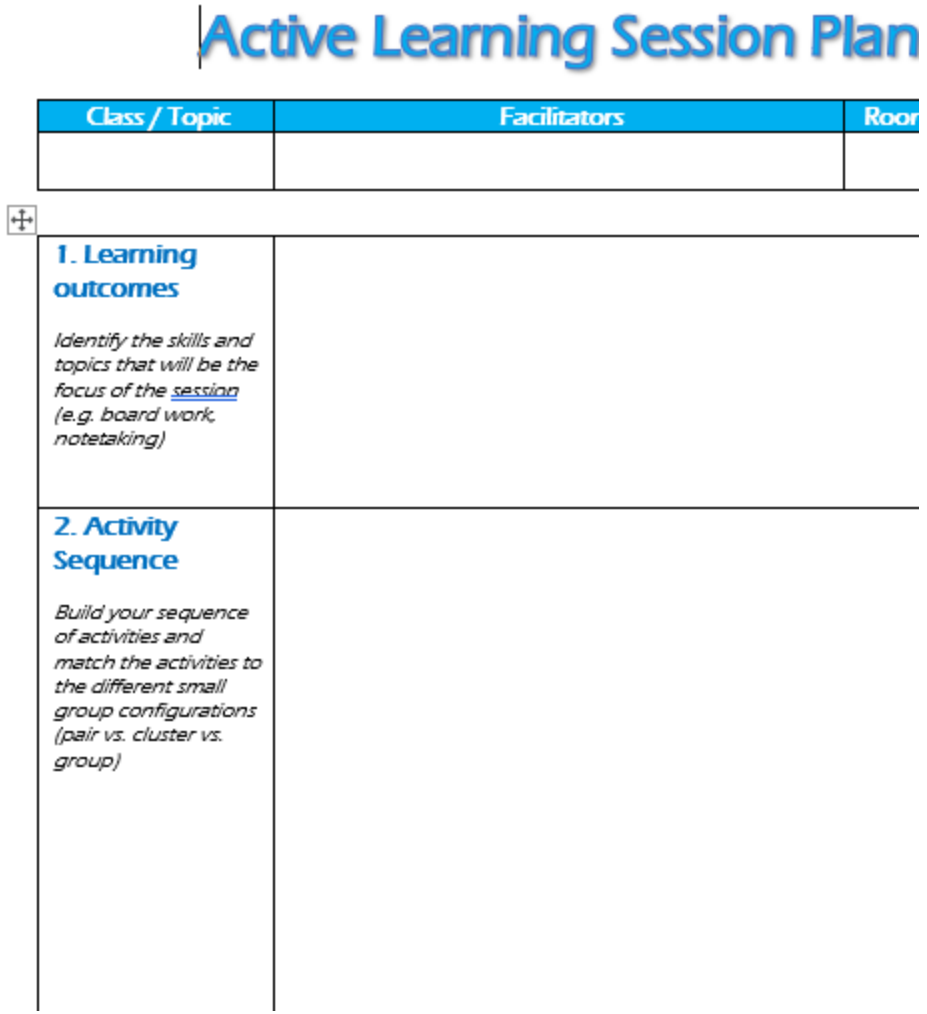

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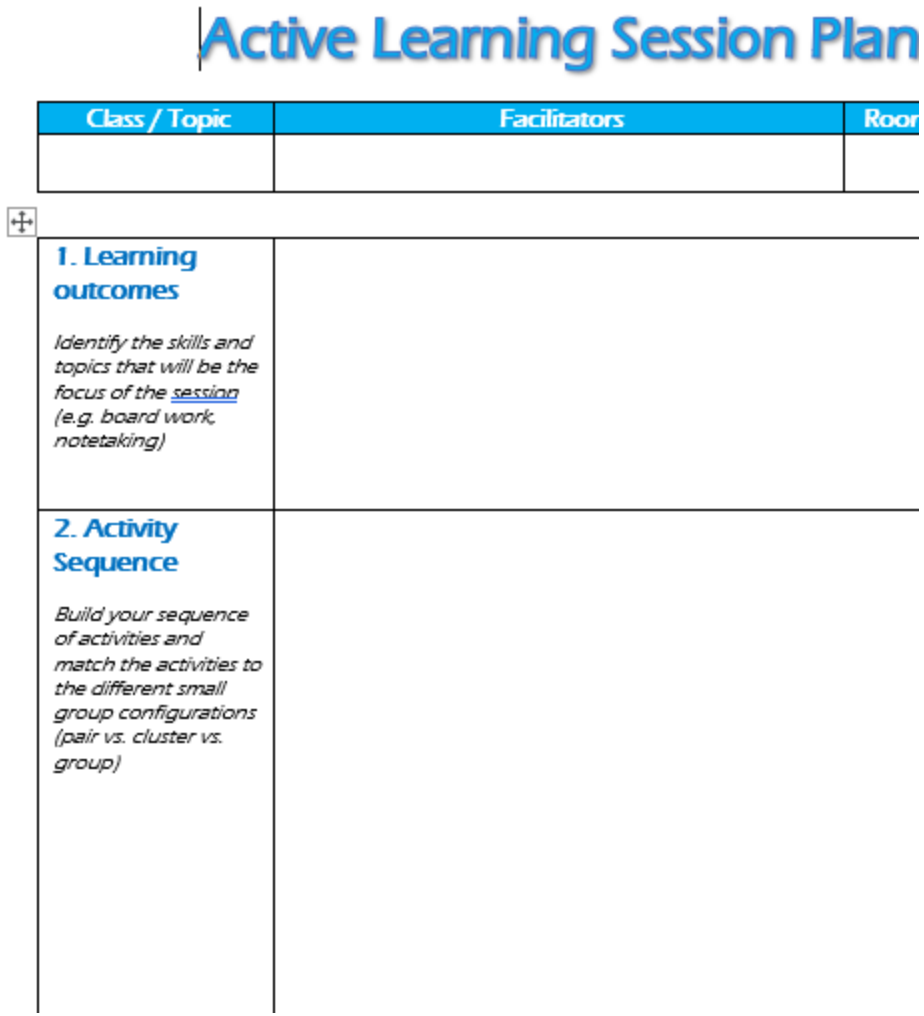
Example active learning session

1. *Learning outcomes*
2. *Activity sequence*
   - *Intro lecture style*
   - *Think pair share*
   - *Mentimeter survey*
   - *Lecture style : customizing the classroom*
   - *Fishbowl: what are constraints?*
   - *Group work: active learning techniques*
   - *Group take up & summary*



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Example active learning session

1. *Learning outcomes*
2. *Activity sequence*
3. *Check for understanding*
   - *Fielding questions from participants*
   - *Group work on the board*
   - *Surveys*

Active Learning Session Plan

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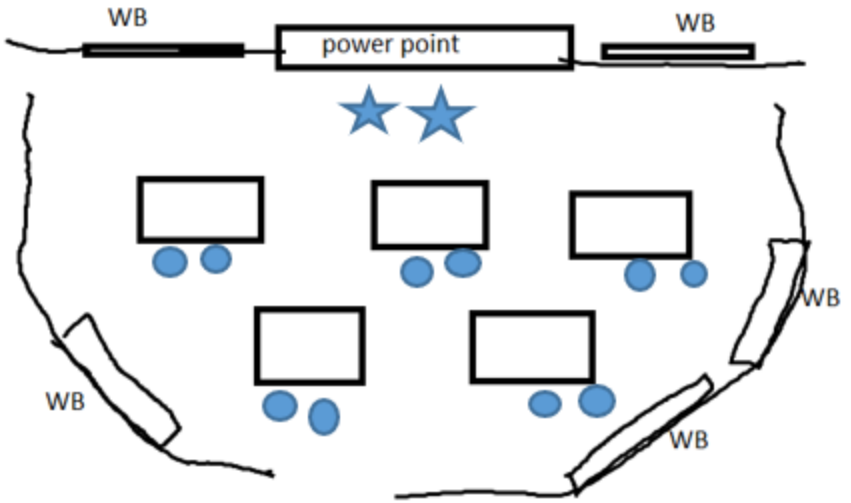

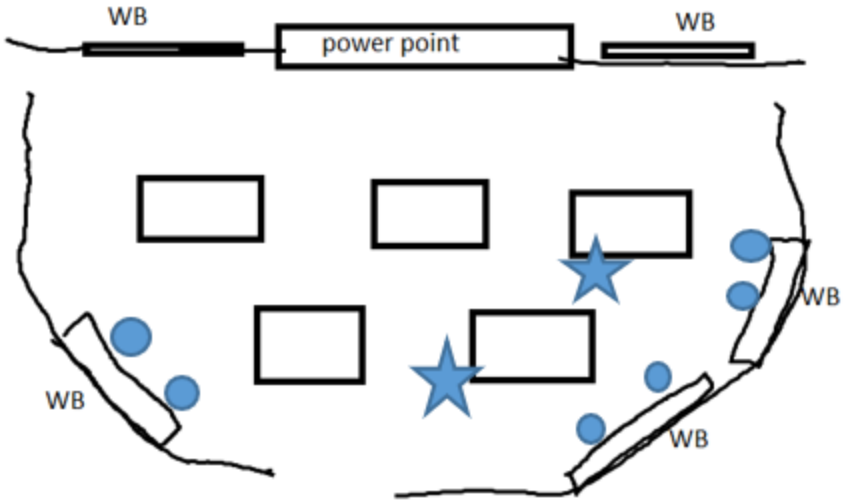



Creating your own session

- *In small groups, brainstorm a 10 min session*
- *Simple topic*
- *Focus on 1-2 techniques you want to try*
- *Resources available:*
  - *whiteboards, paper, markers (anything else?)*

1. *Learning outcomes*
2. *Activity sequence*
3. *Check for understanding*
4. *Graphic plan*

Active Learning Session Plan

Class / Topic	Facilitators	Roor

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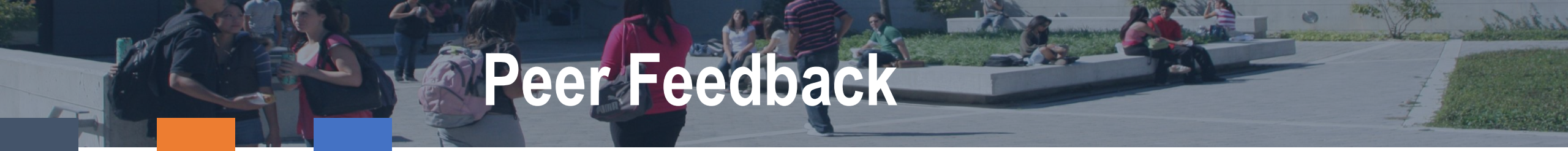
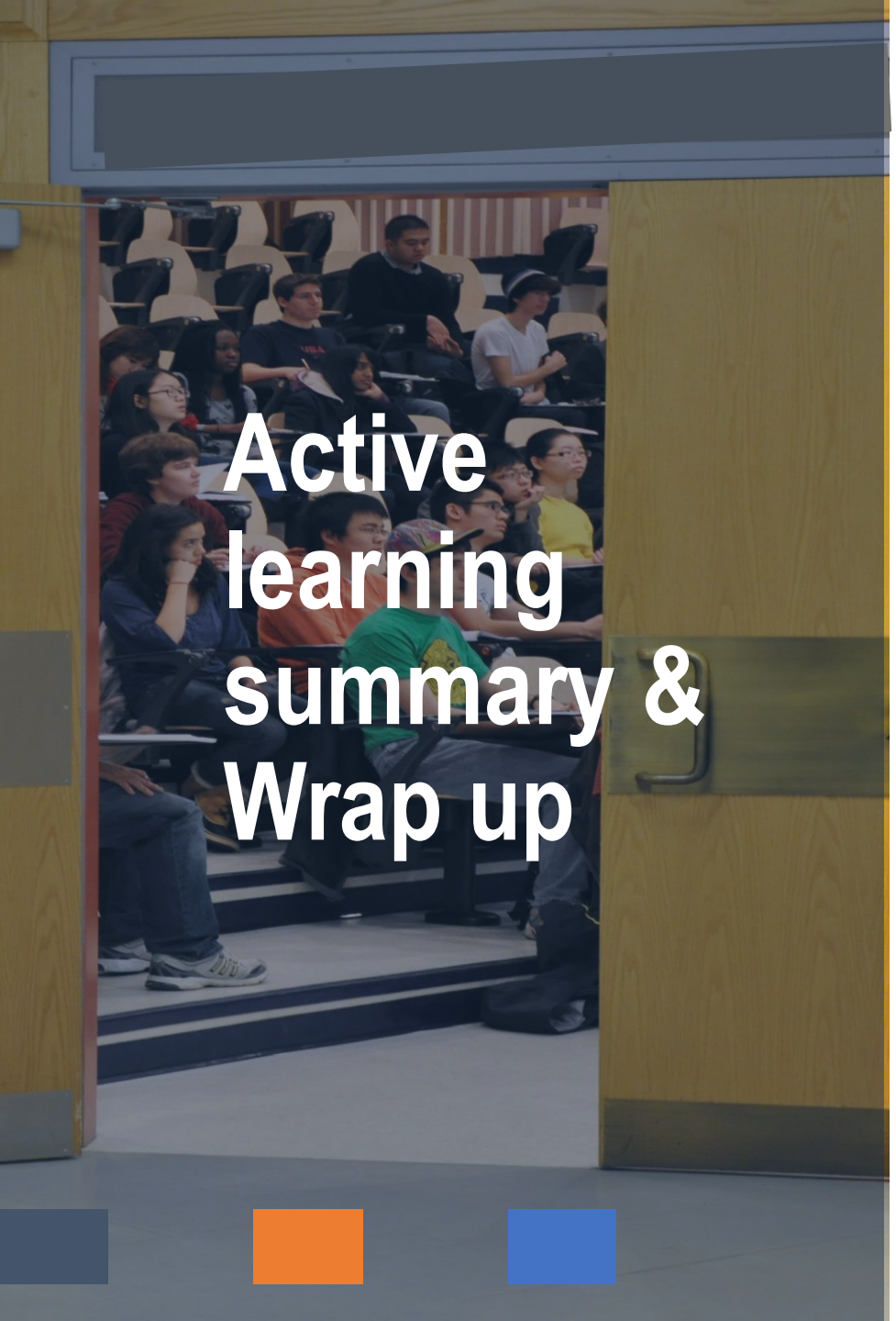


Peer Feedback

While you participate as students, observe the lesson. The following questions may be used as guidelines for feedback:

- **How did presenters check for understanding?**
- **Were there any limits to your participation?**
- **What could improve your learning experience?**



Active learning summary & Wrap up

- *Active learning is a student-centered approach to instruction that uses multiple forms of participation to improve student learning.*
- *Takes many forms*
  - *not always group work!*
  - *Looks different for each teacher*
  - *Isn't always possible*
- *Planning is key, however be open to the unexpected*
- *Reflection is vital to develop your toolkit*

Final Activity: Ticket out the Door

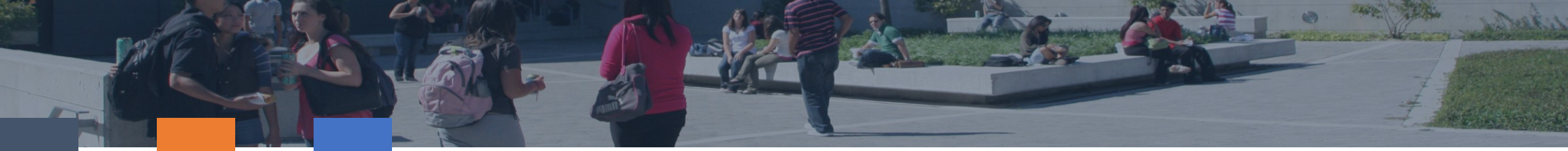
various settings | simple | low-risk| individual



Before you leave, please reflect on the following:

- **What did you enjoy most about the workshop?**
- **What can be improved?**

Please write your responses on a sheet of paper and leave it at the door on your way out.



Further Resources

Teaching Assistants' Training Program (TATP)

- TATP Website: tatp.utoronto.ca
- Upcoming Events: tatp.utoronto.ca/events
- TATP Questions: services.ta@utoronto.ca

Quercus

- Quercus Support Resources: uoft.me/qresources
- Divisional Support: uoft.me/qsupportcontacts
- Quercus Questions: q.help@utoronto.ca

Pursuing Professional Development

- TATP Workshops
- TATP Certificate Programs
- THE500 Teaching in Higher Education
- MyGDP at the School of Graduate Studies Centre for Graduate Professional Development
- Non-traditional professional experiences
- Building your teaching dossier

Save: lesson plans, handouts, quizzes, in-class observation reports, student evaluations, CI evaluations, and complimentary emails!

Questions?



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THANK YOU

tatp.utoronto.ca services.ta@utoronto.ca