DETAILED ACTIVE LEARNING STRATEGIES FOR THE CLASSROOM

THINK PAIR SHARE

What is Think Pair Share?

Think Pair Share is an active learning strategy that helps to facilitate class wide participation, critical thinking, debate, discussion, and collaboration. It is a useful strategy because it can be applied in almost any higher education teaching context, from a class of 4 to 400.

Think Pair Share encourages critical thinking of questions or new concepts taught and allows students to share and discuss their ideas with their peers in a comfortable setting. It also allows the instructor to monitor discussions to determine what they should do next in their teaching.

PROCESS

1. Pose a meaningful and open-ended question to the students. It can be related to course concepts, field work, experiences, etc.

2. THINK: As individuals, give students time to think about they would respond to the question. Encourage a quiet environment. Set a time limit you think works best. Generally, 2-3 minutes will give all students ample processing time.

3. PAIR: Once the time is up, have students get into pairs and discuss what they thought about for a time limit that works for your class. You don't always need to use pairs – groups of 3 or even 4 can work. You can also ask students to write down what they discuss.

4. Take this time to walk around the room and monitor or engage in discussions with the groups. This is a great opportunity for you to identify gaps in student understanding, clear up misconceptions, or build on student ideas.

5. SHARE: Once time is up, inform the groups they will be sharing as a class. If you wish, instruct the groups to appoint a speaker (this might help the more nervous students). Go around the room and have groups share what they discussed in relation to the question. If you choose, record the different responses. From here you can choose to facilitate a large class discussion,

move onto the next part of your class, close the class, or do whatever you see fit!

DOTMOCRACY

What is Dotmocracy?

Often referred to as “dot-voting” dotmocracy is an active learning technique that poses questions and reveals opinions. You can do an effective dotmocracy with a group of 10 to even 50 people. Dotmocracy is best done in a room where this space to move around and you have walls to hang up large sheets of paper.

PROCESS

1. SET UP: You will need large sheets of paper taped to the walls, with a prompt/prompts written on each sheet for students to respond to with their “dots.” This could be something you have been discussing for a while or a new concept you want students to explore from different perspectives. You will need something to be the “dots” that students use to indicate which statement they agree or disagree with – these could be stickers, markers or something else.

2. INSTRUCT: Tell students that the posters around the room include statements/responses to the question(s) you just posed. Instruct the students that they will go around the room and think about which perspectives they agree/disagree with the most. They will indicate their thoughts using colour-coded stickers/markers (e.g., green = agree, red = disagree).

3. FACILITATE: Take this opportunity to walk around the room with students to assess what and how they are thinking about the questions you pose. You can encourage debate, pose questions, or address any gaps during this period.

4. CLOSE: After a set amount of time look at each poster and open up a class discussion analyzing the responses. It is good to have a look at the posters and see which opinions/thoughts are more popular than others, and why.

Variations of Dotmocracy

• For a deeper version you could include multiple colours that indicate a spectrum of agreement (strongly disagree – agree – neutral – disagree – strongly disagree)

• To encourage critical thinking, you could have students vote with their dots and explain their choice by writing with a marker on the poster.

• Encourage students to discuss the different statements with their peers as they go through the posters or have them write their own responses on the poster.

• In closing, you can also lead the discussion into a debate or another activity.

MINUTE PAPER

What are Minute Papers?

Minute Papers are a student-centered active learning strategy that helps students reflect on their understandings. They also help the instructor(s) assess what students know and where gaps in understanding are. This allows the instructor to identify areas of need and adapt their teaching based on student feedback.

PROCESS

1. MATERIALS: All you will need are slips of paper. Blank index or flash cards work well. You could also ask students to rip a sheet of their own paper in half and give one half to a peer.

2. Determine what classes you would like to get student feedback on their learning. Perhaps there is a class where you will discuss a particularly challenging concept or an important topic.

3. INSTRUCTION: Take 3-5 minutes at the end of class to explain and administer the papers. Ask or write a question down for students to respond to. These can be specific to the content you explored that day, or they can be general questions such as “what was the most important thing you learned today?” or “What questions do you still have?” Explain responses should be a few sentences.

4. Distribute the papers and give students time to write the responses. Once they are done collect

these responses as students leave the room.

5. Ensure you give yourself/your team time to review the responses. Determine a strategy on how to best follow up. This may mean adjusting your teaching strategy, taking more time to review a concept, or discussing the feedback with the class.

Variations on Minute Papers

• You can use these anywhere! In class, on a field trip, after an activity, etc.

• Can be modified to be done at the beginning or middle of a class as well.

• You can read aloud some responses/questions and discuss as part of the class

BUZZ GROUPS

What are Buzz Groups?

Buzz groups are a simple active learning strategy that fosters collaboration and helps generate new ideas on a specific topic or question being discussed. This helps instructors assess student participation and learning in small groups.

PROCESS

1. SET UP: Make sure you have around 10 – 20 minutes for this strategy. Pose a question or discussion topic to the class. Then, break the class into small groups (3-5 students).

2. INSTRUCTION: Tell each group they will have some time to generate ideas around the topic or a response to the question. Once time is up, have each group share their answer or one idea with the whole class. Record these answers or ideas on the board or somewhere else.

3. CLOSE: Consolidate the ideas generated by the groups with a larger discussion or revision and close the activity.

Variations on Buzz Groups

• You can also use buzz groups if you want students to generate an argument to a question or prompt.

• This activity can be used anytime during a lesson. Just make sure if you are using it at the beginning or middle you connect it to the next part of your lesson.

• Group sizes usually range from 3-5 people. Keep in mind larger group sizes can limit participation from each student.

• You can adjust time for group discussions depending on the topic/question and students' knowledge of it.

CONTINUUM LINE

What is the Continuum Line?

Known also as the "Line-Up" or "Social Barometer" this is a great large group activity that helps generate discussion, clarify concepts, and get students thinking about their own perspective in comparison to others. This is an excellent activity for opening discussions about "grey-area" concepts where opinions can differ.

PROCESS

1. SET UP: You will need a medium to large space for this activity. An open space is ideal, but not required as students will be moving around.

2. INSTRUCTION: Tell the class that the room is a continuum, with one wall being the "strongly agree" side and the opposite wall being the "strongly disagree" side. Now, present an issue or open question where students must decide the extent to which they agree or disagree with the prompt. Tell them to move to their 'position' along the continuum.

3. Once students have found their positions on the continuum, take some time discussing the prompt and the similar or different positions students have taken.

4. This can be repeated for a variety of prompts, issues, or open-ended questions.

5. CLOSE: Once you are done with all the prepared prompts, have students go back to their normal arrangement and continue or close the lesson.

Variations on the Continuum Line

• This activity usually takes 10 minutes or much more depending on the group size and number of prompts – make sure you budget your time appropriately.

• Once students take their positions on the continuum you can have them discuss their perspectives with each other, have a larger class discussion where they present their opinions, or both! Though be mindful some students may feel uncomfortable publicly demonstrating their opinion.

• Ensure you are able to facilitate the discussion respectfully, especially if discussing potentially sensitive topics. If this is the case, you may want to instruct students that if a certain topic is too overwhelming, they can step out or choose not to participate and just listen.

PLUS, MINUS, INTERESTING (PMI)

What is Plus, Minus, Interesting (PMI)?

Initially developed as a thinking technique, this is a great active learning strategy that enables critical thinking and is incredibly easy to do as there are no limitations in terms of materials, space, or group size. This strategy helps instructors assess students' knowledge and thinking when it comes to any concept. As such, it is most beneficial to use at the end of a lesson or unit.

PROCESS

1. MATERIALS: You will need a worksheet with three columns in it: Plus, Minus, and Interesting. Alternatively, you can write this on the board as well.

2. INSTRUCTION: Tell students they will be evaluating a concept/idea you have been discussing. This could be a text, piece of art, music, video, scientific process, mathematical approach, clinical approach, and much more. Distribute the worksheet with the three columns to students.

3. Explain each column and what students need to fill in. Under positive, students list all 'good' things about the concept or idea. Under negative, students list all the 'bad' things about the concept or idea. Under interesting, students should jot down anything else they think is worth noting or any questions they still have about the concept.

4. CLOSE: End this activity by collecting the worksheets or initiating a class discussion. Now the instructor should be able to assess their students' understanding of the concept.

Variations on PMI?

• This is a great activity to use along with other active learning strategies to address one concept. For example, you could couple this activity with a Think Pair Share.

• This activity is usually done individually, but you could have students do it in small groups.

• Ensure you take 10 or so minutes to allow students time to complete this activity.

MIND MAPS

What are Mind Maps?

Mind Maps are an excellent and very popular teaching technique. In particular, they can help facilitate discussion, improve collaborative thinking, connect concepts, and break down larger concepts or ideas.

PROCESS

1. MATERIALS: Students just need some type of writing surface and writing instrument.

2. INSTRUCTION: Mind maps can be integrated in teaching in so many ways and at different points of a lesson or course. Ask students to draw and identify connections between various concepts discussed in a single class, or across multiple classes, by drawing a schematic map. This map could include key ideas, terms or sketches, with lines drawn between these entries to indicate relationships.

3. CLOSE: You can end the mind map activity in a variety of ways as well. If you want to assess

students' understanding, consider collecting the mind maps.

Variations on Mind Maps

• You can dedicate as much time as you want to mind maps depending on the concept, students' knowledge, and the context of your lesson. They could be a 10-minute activity to a class-long activity. You can even make a mind map an assignment.

• You can easily integrate mind maps in other activities, such as having larger class discussions, having group presentations, etc.

• In addition to writing, students can develop a metaphor or draw images to simplify and explain a given concept.

• Consider sharing mind maps that students have made with each other to prompt further discussion and critical thinking.

JIGSAW

What is a Jigsaw?

Jigsaws get students moving and interacting with each other as they learn from one another. This is an excellent strategy to promote confidence, leadership, information management skills, and presentation skills.

PROCESS

1. SET UP: Decide on a concept or topic you want students to explore. Ensure you either have multiple topics that are related to each other or one concept that is complex enough that you can break down into sub-topics for students.

2. INSTRUCTION: Split students into medium sized groups (3-5 is ideal). These are their home groups. Assign each student in the group a number aligned with the relevant topics. For example, if the larger concept was "Education" you might have 1 = Teaching Strategies, 2 = Students' Perspectives, 3 = Learning Sciences, etc.

3. Now, have students split from their home groups and join a group where each person has the same number (i.e., Group 1, Group 2, etc.). These are the “expert groups.”

4. In these expert groups, give students time to research and learn everything they can about their assigned topic.

5. After some time, have students return to their home groups (formed at the beginning) and each student has to share what they have learned from their expert group.

Variations on the Jigsaw

• Depending on the size of groups and complexity of the topics/concepts ensure you allow ample time. In general, this activity can take anywhere from 20 – 40 minutes.

• When students return to their home groups from their expert groups to discuss ideas, you can have one student record everything that has been learned/discussed and collect this

• Alternatively, you could also have all groups do a short presentation on what they’ve learned to the class

WHO AM I?

Who Am I? is an activity that provides students with the opportunity to use their content knowledge to identify a significant concept, idea, theory, person, place, or object related to course content. This activity requires students to develop an understanding of course content and think through key concepts by asking questions. This practice in asking questions and thinking about elements of course material can help students’ comprehension. By forcing students to ask questions to come up with the answer, Who Am I? improves student learning and recall of course material.

PREPARATION

Prior to using Who Am I? identify a list of significant concepts, ideas, theories, people, places, or objects related to the course content. It is helpful to include information or items used in prior

material to help students to integrate information. Write down the ideas on index cards that students can draw.

PROCESS

• Select a student (or group of students) to draw a card with a concept, idea, theory, person, place, or object on it.

• Allow a couple of minutes for selected students to reference readings or other materials to prepare to answer questions.

• Students in class ask questions of the selected student in order to determine who or what was on the card selected. The questions must be phrased to allow for only a “yes or no” response.

• After each question, the student or group of students asking the question may guess or pass.

EXAMPLE

In an Assessment and Evaluation course, you might create index cards with concepts such as “Formative Assessment”, “Summative Assessment”, “Essential Employability Skills”, and “Rubrics” etc. and then use this activity as a review of these key concepts.items or information for students to use to solve the problem. You might literally put the items on a table or provide a list. The items might be objects (e.g., lab equipment) or information (e.g., equation or formula) that can be used to figure out a solution. It is also useful to provide red herring items that likely will not be useful but will require students to think about their possible use.

ANTICIPATION GUIDE

Anticipation Guide is an activity that asks students to respond to a series of questions and to make predictions prior to reading assigned text in order to activate prior knowledge and increase curiosity. This process helps students think about ideas and concepts prior to reading about them. By asking students to respond before reading, instructors are able to focus students’ attention on significant concepts as well as prepare them for reading. This activity encourages and motivates students to read closely and critically think about what they are

reading.

PREPARATION

First, identify the major points that you want students to gain from the reading. Next, write up 8–10 statements that will challenge students to think about the concept. The goal is to get the students to make predictions about the material they are about to read. Typically, the questions or statements are dichotomous. You may write them using a true/false, fact/opinion, or yes/no format.

PROCESS

• Share the Anticipation Guide with the class.

• Ask the students to respond to each question and be prepared to share their responses and also to be prepared to explain the logic behind their answers.

• Next, have the students read the assigned text.

• Time permitting, you can have the students re-evaluate their answers in light of the information they learned from the reading.

GUIDED NOTE-TAKING

Guided Note-Taking uses the concept of scaffolding to provide students with a structure for taking notes during a lecture. Scaffolding is a fundamental aspect of learning. It is the process by which individuals learn new information by building on what is known. Guided Note-Taking provides students with a format for active listening, and research suggests that being active can improve learning. Students have specific questions to answer or blanks to fill in, and this can improve their willingness and ability to pay attention. Through scaffolding, students identify the most important concepts introduced and begin to make distinctions between these concepts and less important ones. The information missing from the note-taking structure is only provided during lecture, Guided Note-Taking shows students which information is most

valuable and gives them an incentive to come to class and pay attention. Thus, this can also have a positive effect on class attendance (which typically improves performance).

PREPARATION

Create a note-taking structure that students can "fill in" during a lecture. If you post notes prior to class, simply leave out critical information. If you use PowerPoint or Prezi, remove key words and phrases and insert blanks in their place. Of course, this technique is greatly enhanced if you remove concepts and insert conceptual questions. Simply removing individual words alone tends not to prompt the desired level of thinking. Explain to students that you are using this technique to enhance learning and that your hope is that they will come to class in order to "fill in" the information that is missing from the outline.

PROCESS

• Provide students with the note-taking structure, whether ahead of time by email or Web or in class as a handout.

• Present your lecture on course content using the same note-taking structure.

• As information is presented during the lecture, ensure the students are filling in missing content to complete the guided notes. You may do so by asking key questions or even asking specifically, "Based on what you have learned, what do you think goes in this space?"

EXPERIENCE-TEXT-RELATIONSHIP

This activity begins by asking students about their Experiences with a topic, then asking questions from an assigned text, and concludes by asking Relationship questions that help students bridge their own experience and the knowledge from the text. Experience-Text-Relationship proves particularly useful in activating students' background knowledge of a class topic and relating new information to this prior understanding. Helping students think through their own experiences in relationship to a reading can assist with students developing

frameworks to understand new content. This process also elaborates the connection of the text information and provides additional retrieval cues to the newly learned material.

PREPARATION

To start the activity, select a reading to apply the Experience-Text-Relationship framework. The goal of your questions should be pulling out the students' views and interpretations as part of a discussion of the text.

PROCESS

• During the Experience phase, ask questions about the students' background and prior knowledge of the topic.

• Next, have students read a particular passage or section of the reading. Resume the discussion by asking students to identify themes in the text, important points, or confusing areas that can be clarified.

• Finally, ask questions that invite the students to draw connections between the themes and concepts from the text and their own experiences.

EXAMPLE

In a Teaching Methodologies course, you might select a reading related to Universal Design for Learning (UDL). To begin, you could start a discussion to activate students' background knowledge about the topic and determine if they have any familiarity with the UDL principles. You could then ask students to read the article and provide a few guiding questions to encourage active reading. Once students finish reading the article, you could ask them to relate the content of the article to their personal experiences implementing UDL principles or experiencing them as a student.

SELECT A SENTENCE

In Select a Sentence, the instructor asks each student or group of students to identify one

sentence that they believe contains a significant idea for the class topic. The instructor takes each of the sentences, pulls together themes, and helps students think through the main ideas of the class. This activity assists students in identifying key concepts from reading and analyzing ideas across readings to improve understanding of course content. Select a Sentence can be used for dense or heavily theoretical content with which students often struggle or to compare different approaches or viewpoints across readings.

PREPARATION

Prior to the use of the Select a Sentence activity, identify key themes along with supporting sentences. It is not necessary for the students to pick the same sentences that you do but having a list prior to class provides two benefits. First, you will be better prepared to pull out themes from the sentences students do provide. Second, if there are areas that are important and students do not identify them, you have specific examples to bring to the discussion.

PROCESS

• Ask students individually or in groups (depending on the size of the class) to identify a sentence that contains a significant idea or concept (three to five minutes).

• One by one, ask students to share their sentence. Write down key phrases or ideas on the board. Group the phrases by theme.

• After collecting all of the sentences, help students see the major themes from all of the sentences identified. You may use lectures, discussions, or other means. The goal is to help students see how individual sentences and readings can be analyzed to develop an understanding of larger concepts.

EXAMPLE

In a Leadership course you might ask students to read a chapter about Leadership Styles and identify a sentence that contains a significant idea. As students share their sentences you can identify the major themes which can lead to a discussion about effective leadership.

LECTURE BINGO

The instructor creates a bingo card with terms that will be discussed in a lecture. During the lecture, students listen for the terms and mark them accordingly on their bingo cards when the terms are used in the lecture. This technique is particularly useful when the content is factual, conceptual, or early in a block of material when students have little foundational knowledge of the information.

Lecture Bingo also promotes active listening, which is a process that requires the listener to go beyond surface-level listening for information. Instead, this type of listening typically requires additional action on the part of the receiver of information to indicate that he or she has heard. Lecture Bingo gives students a specific task: to listen for specific concepts and to make a physical motion when they have heard them. This task not only helps them focus their attention but also to actively interact with content.

PREPARATION

When using Lecture Bingo, you will first need to create a bingo card, with five cells across and five cells down. Mark the center with “free space.” Populate the rest of the card with terms you will use in your lecture. (Note: There are many free Internet-based, bingo-card-generating programs.) For example, http://print-bingo.com/print-bingo-cards.php provides a free template with up to five cards.

Create one Bingo Card for each student or within a group. Vary the arrangement of the terms on each card you create to ensure that each student receives a unique card (or that only a few of the students have the same card if you have a large lecture class). Next, decide how students should mark their responses. You can copy the cards so that students mark off the appropriate space as they hear the term. If you plan to reuse the cards, however, consider using tokens (such as poker chips) that students can use to cover the spaces but not permanently change the

cards. You can also laminate the cards and have them use colored stickers to mark their responses.

PROCESS

• Announce the activity and distribute the bingo cards to the students.

• Inform students that they should mark the corresponding space when they hear the term mentioned in the lecture. Tell them how they should mark their responses.

• As participants collect five vertical, horizontal, or diagonal dots in a row, they yell “Bingo!

• Conclude the game as one person wins or, alternately, continue the lecture, allowing as many students as possible to yell “Bingo.”

• An alternative is to put students in groups and the teacher calls out the terms until a team announces “Bingo.” Once the team announces Bingo, they will need to call out the terms and give a brief overview of each.

CIRCLE OF VOICES

Circle of Voices encourages students to participate and engage with one another as they work in groups of four to six to address a given challenge. In this activity, the teacher poses a question with multiple answers or interpretations. Within each group, students share their answers or insight into the question. Circle of Voices encourages equal participation and allows every student to express an idea.

Circle of Voices provides a structure for cooperative learning and provides a vehicle for all students to participate and interact with one another (Kagan, 1994). By providing structure to the interactions, this technique facilitates the opportunity for students to join in course discussions and actively participate in the class in a meaningful way.

PREPARATION

Begin preparation by identifying a question or set of questions to seed the group discussions.

Next, consider the benefits and challenges of assigning readings around the discussion topic prior to class. These readings may be comprised of required textbook chapters, journal articles secured for this activity, or even popular press information identified by the students. Having prior readings provides perspectives that help provide useful material for group discussions.

PROCESS

• Explain the amount of time to be devoted to the Circle of Voices idea generation, specify how the group will record responses, and note whether you will collect Circle of Voices responses or only a summary of the final group considerations.

• Have the students form groups of ideally four to six people.

• Pose the concept or question for the groups to consider.

• Going around the circle, each member of the group provides their answer to the question.

• Students can go around the circle multiple times considering the original question, or you can pose an additional prompt after a set time period.

• At the conclusion, have a spokesperson from the group report on the answers generated by the group.

EXAMPLES

• Here is an example of a discussion question from a Biology Class: What would kill you first and why? Lack of oxygen to the brain? Or lack of oxygen to the heart?

• Biochemistry: If the following mix of molecules were purified using size exclusion chromatography, what would be the order in which the molecules pass through the opening in the bottom of the column? Mixture containing: hemoglobin, 65,000 Daltons; myoglobin, 17,000 dal- tons; myosin, 180,000 daltons.

• What type of activities would be best suited for large classes?

WHAT IF

With this technique, students examine an actual event, whether recent or from the distant past, and discuss how the outcome that surrounded the event might differ if one crucial condition were changed. Students move away from summary and even critical analysis toward creative thinking and discussion about course-related content.

Imaginative inquiry is an approach to teaching and learning that harnesses students' power of imagination to create meaningful and challenging learning experiences (Egan, 2005). The notion for this activity is that with the rise of industrialism, our curriculum and teaching methods have become too objective based, too rote, and too standardized. Rather than teaching and testing for memory of objective facts, higher education should instead be teaching students to think creatively, to learn to do and to "make." Beyond foundational knowledge, colleges should also help students develop skills and demonstrable outcomes in creative thinking (Fink, 2013).

PREPARATION

In advance of using the What If activity, you will need to select a suitable course-related event. Next, identify one variable to change or have students discuss which variable to change themselves. Finally, determine the level of formality of the discussion and how long students will have to think about the event prior to engaging in the discussion.

PROCESS

• Announce the activity and tell students the parameters of the discussion.

• Provide students with time to prepare.

• Have students form small groups to discuss the implications of the changed variable on the event and aftermath.

• Debrief as a class and consider other potential impactful variables.

EXAMPLE

• What if Dolly, the famous cloned sheep, had been successfully produced on the first try? Students in science disciplines can speculate about scientific elements of this event; students in

agriculture courses can focus on the immediate impacts in food production; students in ethics courses could examine the balance of world-wide patterns of food production v. individual identity; students in political science could focus on government funding issues; and so on (WAC, 2014).

• What if a welder who was welding on a big plate from a dump truck using the ground as a platform, decided he was tired of bending over so he started using 55-gallon drum that was on the worksite instead? Students would take turns sharing different outcomes.

MILLING

Milling prompts students to respond to a set of questions about a given unit of content for items they know and to poll each other for information about questions that they cannot answer. Helping students to develop the skills to answer when they know and seek answers from others when they need assistance is a valuable approach in lifelong learning.

Students are at different levels of academic development, even with closely related content, and sometimes the one-size-fits-all approach does not bring about the best learning. Milling provides students with the opportunity to demonstrate competence at different levels at different times. The notion is that when the questions are too easy students get bored. When the content, or presentation of the content, is too difficult, the proposition is that students become frustrated and tune out.

PREPARATION

Select an assignment for students to complete as homework, such as a reading or video lecture. Next, create a list of related questions that students should be able to answer after having completed the assignment. The list should contain a mixture of easy, moderately difficult, and difficult questions. It may include definitions, multiple-choice questions, incomplete sentences, or short essays. Practice responding to the questions yourself to get a sense of the time frame

students will need to complete the Milling activity (they will need longer than you do to answer the questions).

PROCESS

• Announce the activity and the time frame that students will have to complete it.

• Provide students with the question list.

• Ask students to complete the list by filling in the answers to the questions as well as they can.

• Ask students to mill around the room, finding other students who could answer the questions they could not. Encourage students to help each other.

• Reconvene as a full class and discuss the answers.

• Supply any answers that any students do not yet have.

• Alternatively, this could be completed in partners or groups.

EXAMPLES

• A variety of questions can be used such as MC, short answer, fill in the blanks.

• What marketing era or eras we are in now in terms of the Marketing Era and Relationship Era?

• Most professional brand valuation firms consider the impact of brand's contribution to overall profitability to measure brand equity, rather than softer emotional metrics, such as likability – do you agree with this profit-focused approach?

• The 4 P's of marketing are

_____

CLUSTERING

Identifying connections among concepts and teaching someone newly learned information is helpful for both understanding and later recall. Clustering involves having students transfer factual or conceptual information to each other while looking for connections and links between concepts and ideas. Clustering is similar to a physical model of a concept map, with individuals

holding a single concept and then grouping that concept together with similar or related concepts.

PREPARATION

Develop a list of factual bits of information or conceptual statements around a single topic that can be grouped into different subcategories. Put each concept or statement on a separate index card. Shuffle the deck of cards so that linked ideas are not all grouped together.

PROCESS

• Have students draw a card from a container or hand out one card per student.

• Give students two to three minutes to look up information about their concept or statement if needed to ensure everyone understands the card they are holding.

• Ask students to move around the room, comparing their cards with other students' cards and explaining their card to others as needed.

• When students find links between their statements, they form a cluster.

• Students continue moving around the room, adding individuals to their clusters as appropriate.

• When each student has found a cluster, students determine whether they need to be broken into sub-clusters.

• Students give their clusters a name and a description.

• Students introduce the cluster to the rest of the class, explaining why they have formed a cluster.

• Students record their clusters, either on the board or a flip chart. They may then explain any relations they see between clusters.

• The following boxes depict file cards with various topics to cluster together. (Or not)

CONCEPT MAPS

Concept Maps are drawings or diagrams showing the mental connections that students make

between a major concept stressed in class and other concepts they have learned. This technique provides an observable and assessable record of the students' conceptual schemata (the patterns of associations they make in relation to a given focal concept). Concept maps allow you to discover the web of relationships that your students bring to the task at hand-their starting points-and compare their understanding of relevant conceptual relations to your own. By literally drawing the connections they make among concepts, students gain more control over their connection making.

PREPARATION

Select a concept that is both important to understanding the course and relatively rich in conceptual connections to use as the stimulus or starting point for the Concept Map. Before class, create your own concept map to determine if the topic lends itself to the mapping process.

PROCESS

• Have your students draw their own maps, either individually or in groups. Give them the directions and show a simple example of a concept map.

• Begin the process by brainstorming for a few minutes, writing down terms and short phrases closely related to the stimulus.

• Draw a concept map based on your brainstorming, placing the stimulus in the center and drawing lines to other concepts. It can look roughly like a wheel with spokes, or it might take other forms such as a geographical map, a hierarchical chart, a flowchart, etc.

• After sketching in the primary associations, move on to add secondary and even tertiary levels of association, if appropriate.

• You can compare the students' maps to your own, being aware that they might come up with different elements and relationships.

RSQC2 (RECALL, SUMMARIZE, QUESTION, COMMENT, AND CONNECT).

RSQC2 is an assessment strategy that encourages students to recall and review class information comprehensively. In so doing, it allows the instructor to compare students' perspectives against his or her own. Students who are less skilled at organizing information and applying it to the supporting RSQC2 is a technique that provides both the student and the teacher with formative feedback. The Recall, Summary, and Question sections are amplifications of the One Minute Paper. The Connect feature is key because it forces students (and the instructor) to confront course structure.

PROCESS

• Recall - Students take two minutes to recall and list in rank order the most important ideas from today' lesson or a previous day's class.

• Summarize - Then they take another two minutes to summarize those points in a single sentence in order to "chunk" the information.

• Question - Next, students are asked to write one major question that they want answered.

• Comment - Students now add a comment regarding their confidence in or wariness of the specific course content.

• Connect - Finally, students identify a thread or theme to connect this material to the course's major goal.

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SAMPLE FORM: RSQC2

Recall:

_____

Summarize:

_____

Question?

_____

Comment:

_____

Connect:

_____

INTERACTIVE LECTURE

Interactive lectures are classes in which the instructor incorporates engagement triggers and breaks throughout the lecture, so students participate in an activity that lets them work directly with the material. Interactive lectures begin with an attention-getting introduction—maybe music, a cartoon, or even a provocative question— followed by 10- to 15-minute lectures. Then, in groups of two or three, students actively process content by talking about it, writing about it, and working on a sample test item or even a short problem-based scenario. Even though these interactions are brief, they help students grasp, apply, and analyze the content rather than just memorize it. These short, interactive "think tanks" also reset students' attention span for the next 10- to 12- minute content chunk. End your interactive lectures with an assessment measure, like a one-minute paper on the muddiest point.

PROCESS

• Be comfortable with your instructional material.

• Plan on short mini-lectures supported by student activities. (No more than 20 minutes)

• At the start of the lecture, raise a question to be answered by the end of the hour, or use another type of "attention getter," such as a personal anecdote or by telling a funny story or joke.

• Provide an overview of the lecture (or its learning objectives).

• List the main points or areas to be discussed on the chalkboard or a piece of poster paper. This

is your lecture's "roadmap" and students can refer to it as you lecture.

• Explain the relationship of the lecture's topic to the real world and the students' daily lives, as well as to previous lectures and materials.

• Have students complete exercises, work sheets, case studies etc.... to make sure that they are engaged in their learning.

• Present your lecture in an interesting manner. For many students, memorable lectures are those that are presented by teachers who have effective presentation skills.

• Vary their voice projection (such as raising and lowering their voices), enunciate clearly, and speak at an appropriate pace (such as slowing down and repeating Important points).

• Walk up and down the aisles and get close to students if and whenever possible.

MUDDIEST POINT

The Muddiest Point is just about the simplest technique one can use. It is also remarkably efficient, since it provides a high information return for a very low investment of time and energy.

The technique consists of asking students to jot down a quick response to one question: "What was the muddiest point in _____?" The focus of the Muddiest Point assessment might be a lecture, a discussion, a homework assignment, a play, or a film.

PREPARATION

• Determine what you want feedback on: the entire class session or one self-contained segment? A lecture, a discussion, a presentation?

• If you are using the technique in class, reserve a few minutes at the end of the class session. Leave enough time to ask the question, to allow students to respond, and to collect their responses by the usual ending time.

• Let students know beforehand how much time they will have to respond and what use you will make of their responses.

PROCESS

• Pass out slips of paper or index cards for students to write on.

• Collect the responses as or before students leave. Stationing yourself at the door and collecting "muddy points" as students file out is one way; leaving a "muddy point" collection box by the exit is another.

• Respond to the students' feedback during the next class meeting or as soon as possible afterward.

POST-IT NOTE PARADE

This activity is a way for the instructor to get a general sense of what sort of questions, concerns or ideas the students may have. It's also a great way to generate a take-away (the list of questions, ideas, or concerns posted by the students).

PROCESS

• Students are provided with a question or prompt for which they need to generate ideas, solutions, etc.

• Give each student a few post-its, and have them write out 1 idea per post-it.

• Students then post the post-its on the chalkboard or wall. Depending on the question or prompt, it may be useful to have them place the post-its in areas to group them by topic, question, chronologically, etc.

SNOWBALL

PROCESS

• Present an idea, question, or issue to students. Each student first thinks about the idea/question/issue for one minute, with the goal of generating at least three reactions, comments, answers, etc.

• Two students then come together with their lists and try to come up with three things they agree on.

• The pairs of students then join with another pair, and try to come up with three things they agree on. Repeat for as many iterations as desired.

• Eventually, bring the class together as a group to hear what the students have decided are the three most important issues, questions, ideas relevant to the topic discussed.

INDEX CARD PASS

PROCESS

• Give each student an index card. Ask them to write down one question they have from a reading, or a question more specific to your needs.

• Students then exchange cards, making at least 4 passes (or more!). If they get their own card back, they can keep it or they can make an extra pass.

• Have students get in groups of 3-4. Each student should read their index card, and as a group pick one index card question they want to address. Students should then discuss possible answers to the question.

• After students have had time to discuss, pick a few questions to discuss as a group.

COMPLETE TURN TAKING

PROCESS

• Each student should be asked to bring a couple of questions to class. These can either be questions to clarify, issues they think were left unresolved, or ideas or positions not yet considered.

• Have the entire class arrange themselves in a circle. Alternatively, students can be in small-medium size groups.

• One student reads a question aloud. The student to their left then has one minute of uninterrupted time to speak and give their thoughts. This person signals that they are done speaking by saying, “OK, I’m done.”

• The next person to the left goes, has one minute of uninterrupted time to speak, and signals they are done by saying, “OK I’m done.” Finally, the third student to the left goes, following the same pattern.

• After three people have had a chance to speak, the conversation is opened up to the whole group for two minutes of discussion.

• The next student gets to ask a question, and this cycle continues.

RESPOND, REACT, REPLY

PROCESS

• Break students up into small groups.

• Provide students with a prompt. The prompt can be a targeted question, written passage/text, or argument.

• Each student then responds to the prompt on their own in writing. After each student has had a chance to write their response, have them read and share their response with the group.

• Each student then reacts to each of the other group members’ responses.

• Then, the student replies to each of the reactions to their own response.

POINTERS

• In creating your prompt, make sure it cannot be answered with a simple “Yes/No.” Try to create questions that will generate discussion.

• Be sure clear expectations and structure are provided to the students (e.g. how long responses/reactions/replies should be, as well as the structure they should take; how this activity will be evaluated; reminders of classroom rules; etc.).

PRO-CON GRID

PROCESS

• Pick a topic that lends itself to the idea of making lists of pros and cons/advantages and

disadvantages for some issue (see pointers for suggestions). Break students up into small groups.

• Have the groups come up with at least three points for each side. Additionally, let students know whether they should be putting their lists together in point form or full sentences.

• Once students have had time to complete the activity, bring the class back together to share and discuss points on each side.

POINTERS

• This activity can help students in developing analytical and evaluative skills. It also requires students to go beyond their initial position and reactions, and come up with points of discussion for the other side of the issue. Finally, it also requires students to weigh the points of competing positions and claims.

THINK ALOUD

PROCESS

• Choose 2-3 paragraphs of new text for students to read.

• Students work in pairs (student A gets text 1, and student B gets text 2).

• One student reads a passage of text aloud, and while reading they stop frequently to "think" aloud. The reader stops after every few sentences, and reflects on what they have read. (This process is awkward, and weird for most. Let students know this, and that it is ok!)

• Model this activity very briefly for students with a sample text.

• Once student A finishes their text, student B then performs their think aloud. Give students 15-20 minutes to perform this part of the activity.

• Bring the class back together as a group. Go over each of the texts, then perform a think aloud as a class, asking students to contribute what they were thinking about at each point.

• Finally, conclude class with a "Meta-moment": ask students what they thought of the activity, and what they will take away to their next reading. (This can take the form of a 1-

minute paper!)

CROWDSOURCING

PROCESS

• Tell your students that you will write onto the whiteboard everything they know, or think they know, about a given topic. You can have them call out the information or, for a more orderly approach, have them raise their hands before speaking (or use the mitten discussion activity described above).

• For example, on the first day of Shakespeare course, the instructor might ask students to share everything they know about that author. One student might comment that he was born in the sixteenth century. Another student might say that he lived at the same time as Queen Elizabeth I. Another might add that he wrote Hamlet, Macbeth, and Romeo and Juliet. Even if a student contributes something that's incorrect – such as, "Shakespeare visited North America" – the instructor writes it down on the whiteboard.

• The activity continues until the students can't think of anything further, or until the topic is sufficiently explored for the time being.

• The instructor then asks the students to organize the information into categories – such as Shakespeare's life, his plays, sixteenth century politics, and so on.

• The instructor then comments on the various pieces of information that students have contributed, making connections, elaborating, and correcting any errors.

GIVE ONE, GET ONE

This activity is designed to help students access prior knowledge. It promotes connection between students and allows the teacher to also get some feedback about prior learning. This activity can be easily scaled up by inviting students to connect with the people in the vicinity of where they are sitting. It will be important to be clear to students how many people they should connect with and the procedure that they should use to determine who to connect

with.

PROCESS

• Have students fold a piece of paper lengthwise to form two columns and write “Give One” at the top of the left-hand column and “Get One” at the top of the right-hand column.

• Ask students to brainstorm a list of all the things they already know about the topic they will be studying by writing the items down in the left-hand column. You may want to give them a specific number of bullets to guide the amount of responses.

• After making the list, have students stand and find a partner. Each person should “give one” of their ideas by saying it out loud. Partners take turns sharing.

• Have students write any new information they get from these discussions in the “get one” column of their lists, along with the name of the person who gave them the information.

• Students should rotate around the room, talking to two or three partners.

• Once everyone has given and received information, the whole class can discuss the information students have listed.

QUIZ/TEST QUESTIONS

PURPOSE

Students are asked to become actively involved in the creation of tests and quizzes. The examples they come up with maybe assigned for extra value or used on a regular class schedule to provide feedback to the student regarding whether they understand the content or not. In asking students to think up exam questions, we encourage them to think more deeply about the course material and to explore major themes, comparison of views presented, applications, and other higher-order thinking skills.

Beyond simply using example questions as a quiz or test, ask the students to evaluate the question submitted; in discussing questions, they will significantly increase their engagement of the material to supply answers. Students might be asked to discuss several aspects of two

different questions on the same material including degree of difficulty, effectiveness in assessing their learning, proper scope of questions, and so forth.

TIP

This activity can be adapted for large scale classrooms with the use of small groups. Small groups can work together to generate the questions. The small groups can share with the larger groups either by sharing in the larger group or by posting their questions to an online discussion board. Follow up by the instructor can happen in the next class or online through a generation of a composite document.

FLASH REVIEW

It can sometimes be difficult to gauge the different areas that students need clarification on. This activity provides you with an opportunity as an instructor to determine different areas of the course content that are causing 'blockages' for students. Once the blockages have been determined, you can address them with the class.

PROCESS

• Create a list of 10-15 questions based on major themes/ideas of course content.

• Integrate the open-ended questions into a simple PowerPoint Presentation and set the slides to transition at a 20 (to 30) second interval.

• Instruct students to get into pairs and to discuss the correct answer for each question as it emerges.

• While the slides are progressing, circulate through the classroom and listen to the discussion that the students are having about each question. Make a note of places where they are having difficulty, where there are blockages.

• Back in the larger group, ask students to share the ‘answers’ and to indicate areas where they feel that they need clarification.

• Address the areas that they need clarification from what they have shared and/or from what you heard while you were circulating.

• Follow up with a list of the questions and the answers generated through the activity, as well as areas for further support and send the materials to students as an email or post them online