Instructions: Assembling the Puzzle Pieces

In the following slides, find your assigned framework and read the information given.

After reviewing the information, find your group's questions slide. Record your responses to the questions on your slide. 20 minutes

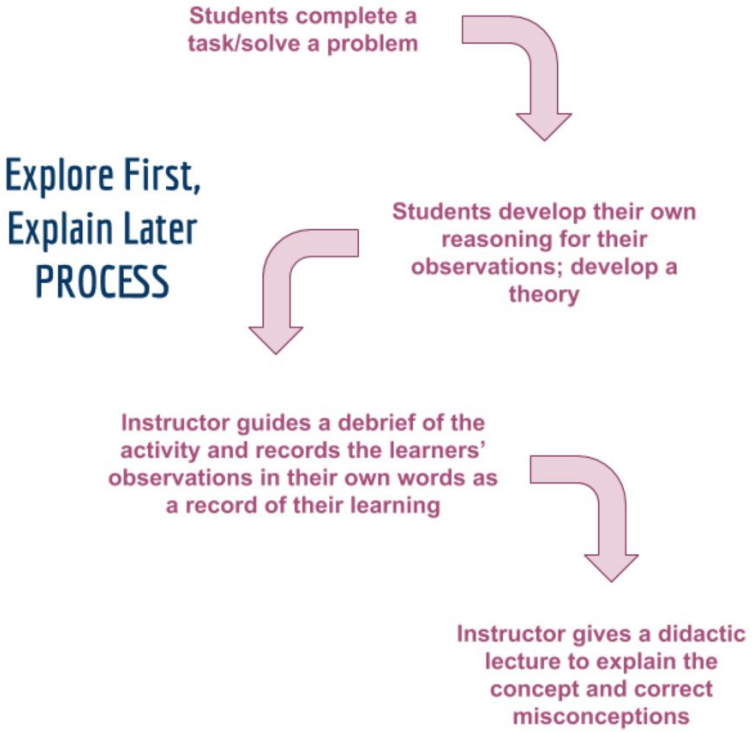
Assign roles to your group members to assist in structuring your discussion:

- Timekeeper
- Recorder
- Reader
- Manager

Explore First, Explain Later

In many traditional classrooms, the instructor begins the class with a lesson and then gives the students time to apply or digest what they have learned. For example, you may teach a specific mathematics approach and give the students a list of questions that allows them to practice. In the “Explore First, Explain Later” model, instructors are encouraged to flip this; instead, give your students the opportunity to **construct the knowledge** that they are supposed to be learning by figuring it out on their own. This is an opportunity for the learners to make mistakes, use their prior knowledge, and make educated guesses. This type of knowledge construction may be most effective if students can work together to develop their theories.

The instructor can end the lesson by summarizing what the students learned. This type of learning is effective if the instructor leads a group debrief of the students’ observations and records it as a class note. The instructor can use leading and guiding questions to help the learners come to the correct conclusions. The instructor can then provide a short didactic lecture to explain the concept in more detail and to correct misconceptions.



GROUP 1 - Explore First, Explain Later QUESTIONS

1. **Why do you think this framework could be effective in helping learners to construct knowledge?**

Allows students to be creative and resourceful; encourages active learning component; draws on students prior knowledge; can work as an ice breaker; a good way to introduce a topic and for the students to share their prior knowledge and strengths with each other

2. **What challenges do you think this framework could present to students and instructors?**

Students: There may be learning objectives where this framework is not as well suited and students may get frustrated if they have to little knowledge about the subject; could be demoralizing if students are not successful

Instructors: can be time consuming; may require some additional instructor support; may not suit all learning styles/needs

3. **Identify Kolb's Learning Cycle OR the Zone of Proximal Development in this framework.**

ZOP - this framework would give the instructor a good sense of where students are at and what amount/degree of instruction they will need to provide afterwards

Kolb's - doing (example: boiling the egg), thinking (brainstorming ideas together and how to move forward/problem solving)

4. **How can you consciously encourage student motivation in this framework?**

Create an environment initially where students don't always have to have the right answer; build positive, trusting relationships with students; checking in with students and providing hints/pointers so the students don't get frustrated with the activity in case they get stuck; it may feel exciting for the students to have opportunity for trial and error

5. **Describe how at least two active learning strategies can be effectively used in this framework.**

Debating the problem to be solved (for example: many different ways that one can boil/cook an egg)

Snowball - start with a small group of 2 people and groups gradually get bigger until you end up with the professor at the end debriefing

GROUP 2 - Explore First, Explain Later QUESTIONS

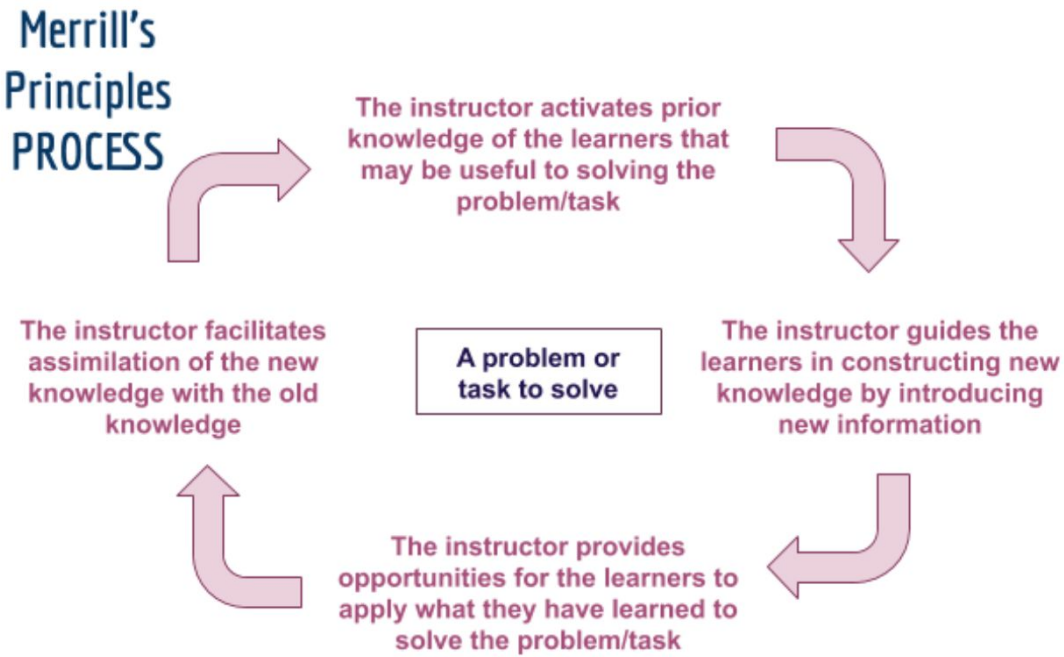
1. **Why do you think this framework could be effective in helping learners to construct knowledge?**
   a. Trial and error helps you figure out what works--and what doesn't
   b. Practical involvement at first often makes learning the theoretical more accessible
2. **What challenges do you think this framework could present to students and instructors?**
   a. If exploration doesn't yield any encouraging/ positive results, that could lead to frustration and decrease motivation to learn

3. **Identify Kolb's Learning Cycle OR the Zone of Proximal Development in this framework.**
   a. ZPD: can be modified with things like training wheels/ type of bike
   b. Kolb: DO: ride bike ; OBSERVE: think about the sensations and experience of riding the bike; THINK :
4. **How can you consciously encourage student motivation in this framework?**
   a. Let them know it's okay--even good--to try and fail at something (words of affirmation — growth mindset)
   b. Collaboration and learning with others; seeing others succeed and fail alongside you!
   c. Take breaks from learning the thing by doing other things — injecting fun into the experience, keeping mood elevated
5. **Describe how at least two active learning strategies can be effectively used in this framework.**
   a. Jigsaw (have kids teach each other)-->weekend camps for kids
   b. Buzz groups
   c. Roleplay
6. **Develop a lesson example about how to ride a bike using this framework. Be sure to consider:**
   a. **How students learn (Kolb's and/or ZPD)**
   b. **How you will motivate your students**
   c. **What active learning strategies you will use**

Merrill's Principles

In lesson and activity planning according to Merrill's Principles, the instructor plans the lesson and lesson topic around a central real-world problem or task for the students to solve. The instructor begins by activating the students' prior knowledge and help identify what experiences and insights they have that may contribute to solving the problem. The instructor then can demonstrate and help learners to **construct new knowledge** in a way that connects this knowledge to what they already know. After introducing new knowledge, the instructor must create structured opportunities for the learners to apply the new knowledge to the problem at task through practice, making mistakes, and learning from them. Last, the instructor must facilitate the integration of this new knowledge and application of knowledge into the learners' understanding though reflection, discussion, or synthesis.

Adapted from SH!FT Disruptive Learning.



GROUP 3 - Merrill's Principles QUESTIONS

1. Why do you think this framework could be effective in helping learners to construct knowledge?
   - Hands on / engaging
   - Builds on prior knowledge - ZPD - from toast to tostadas
   - Integrating knowledge
2. What challenges do you think this framework could present to students and instructors?
   - No background information to build on
   - Requires engagement from students
3. Identify Kolb's Learning Cycle OR the Zone of Proximal Development in this framework.
   - ZPD
4. How can you consciously encourage student motivation in this framework?
   - What is the students intrinsic/extrinsic motivation for engagement
   - Empower Agency
5. Describe how at least two active learning strategies can be effectively used in this framework.
   - Jigsaw - by having students teach their solutions to each other, it encourages them to work more on solving them
   - Round robin
   - Snowball - sit together and figure out what worked and what didn't
6. Develop a lesson example about making breakfast using this framework. Be sure to consider:
   a. How students learn (Kolb's and/or ZPD)
   b. How you will motivate your students - groups of skills sets - those who know how to use a stove = leaders
   c. What active learning strategies you will use

GROUP 4 - Merrill's Principles QUESTIONS

1. **Why do you think this framework could be effective in helping learners to construct knowledge?**

Starts with what students know and adds to their existing knowledge base while providing guidance. Works to combine new with old.

2. **What challenges do you think this framework could present to students and instructors?**

The students might not all have the same experiences or previous knowledge. Ie- starting off with a lower baseline knowledge might prove difficult. You also need to have some type of knowledge on not only the solution, but also the initial problem at hand.

3. **Identify Kolb's Learning Cycle OR the Zone of Proximal Development in this framework.**

Kolb's: Starts with "Abstract Conceptualization", then "Do"- come together to figure out a solution to the problem, Concrete Experience/Feeling & Reflective Observation done simultaneously as instructors allow for active learning, mistakes to be made, and then reflection.

4. **How can you consciously encourage student motivation in this framework?**

Building on prior knowledge makes it relevant to students. Working through the task as 'problem solving' connects prior knowledge to new knowledge.

5. **Describe how at least two active learning strategies can be effectively used in this framework.**

Fishbowl, Snowball- allows students to voice their thoughts and share previous knowledge. Round Robin- given prepared response which helps to repeat cycle and build off of each other . Debates

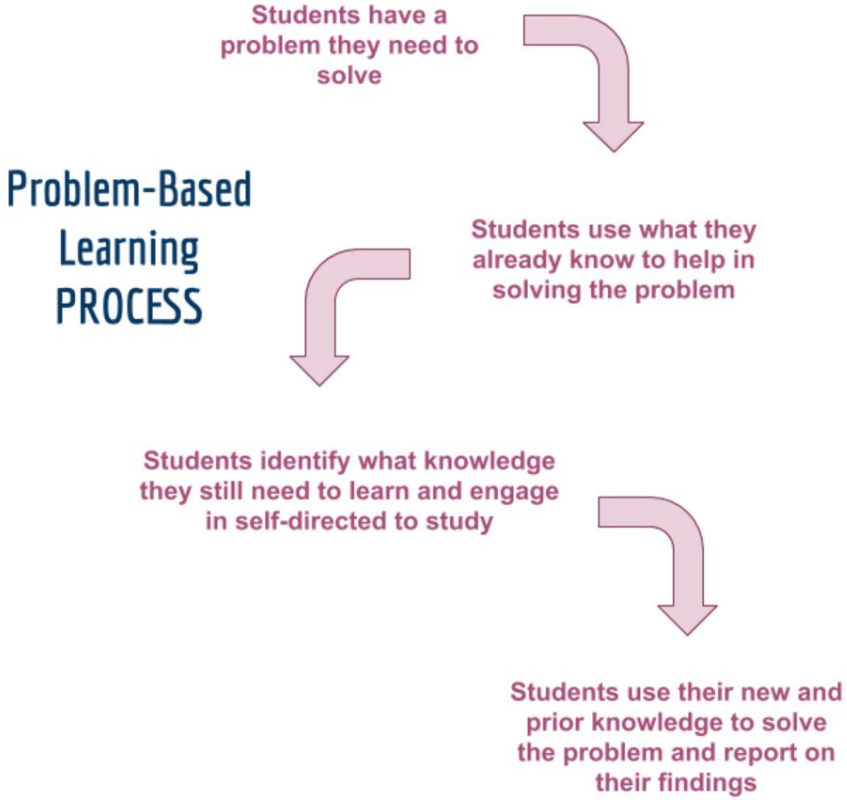
6. **Develop a lesson example about how to set the dinner table using this framework. Be sure to consider:**
    a. **How students learn (Kolb's and/or ZPD)**
    b. **How you will motivate your students**
    c. **What active learning strategies you will use**

Problem-Based Learning

Problem-based learning is most often a collaborative approach to learning, where students work in groups to solve an open-ended problem that is usually a case study. In many traditional classrooms, the instructor begins the class with a lesson and then gives the students time to apply or digest what they have learned. But in the problem-based learning framework, the students must reflect on what they already know about any underlying issues related to the problem, determine what they need to learn and where they can find the tools and information needed, evaluate possible ways to solve the problem, and finally, solve the problem and report on their findings. In the “Problem-Based Learning” model, students not only **construct the knowledge** that they need to solve the problem, they also direct their own learning and take responsibility for their learning

In this case, the instructor’s role is to provide guidance as needed and connect the learners with resources or materials that they may need to solve the problem. The role of the instructor is a facilitator and as the learners become stronger in problem-based learning, the instructor becomes less active.

Adapted from the Center for Teaching Innovation at Cornell University.



GROUP 5 - Problem-Based Learning QUESTIONS

1. **Why do you think this framework could be effective in helping learners to construct knowledge?**
    a. They can help each other find goals and work through the problems
    b. This is a very personalized approach where students must assess their limitations and to address them as a means to construct solutions.
    c. Students are motivated as they are gaining knowledge on their own, which can be very satisfying
2. **What challenges do you think this framework could present to students and instructors?**
    a. Students need to have some sort of background knowledge to be able to solve the problem and the amount of knowledge needed may be hard to assess
    b. Students may be overwhelmed by the information they don't know that is needed to solve the problem
    c. Students need to spend lots of time and money for learning
    d. Students can be motivated to achieve their goals by this frame work

3. **Identify Kolb's Learning Cycle OR the Zone of Proximal Development in this framework.**
    a. The ZPD is in this framework as they will go outside the knowledge they already have to solve this problem. The instructor can give guidance if the students reach out for help.
4. **How can you consciously encourage student motivation in this framework?**
    a. Ensure students know the activity is to problem solve and gain their own knowledge so they don't feel overwhelmed when they do not automatically know the answer
    b. Assure students that they can come to the teaching team if they need any help or guidance
5. **Describe how at least two active learning strategies can be effectively used in this framework.**

Round robin - useful for brainstorming ideas on how to proceed with the problem step by step, gathering background knowledge from everyone, etc.
Buzz groups - students can discuss the problem in small groups and then reconvene in a larger group to discuss

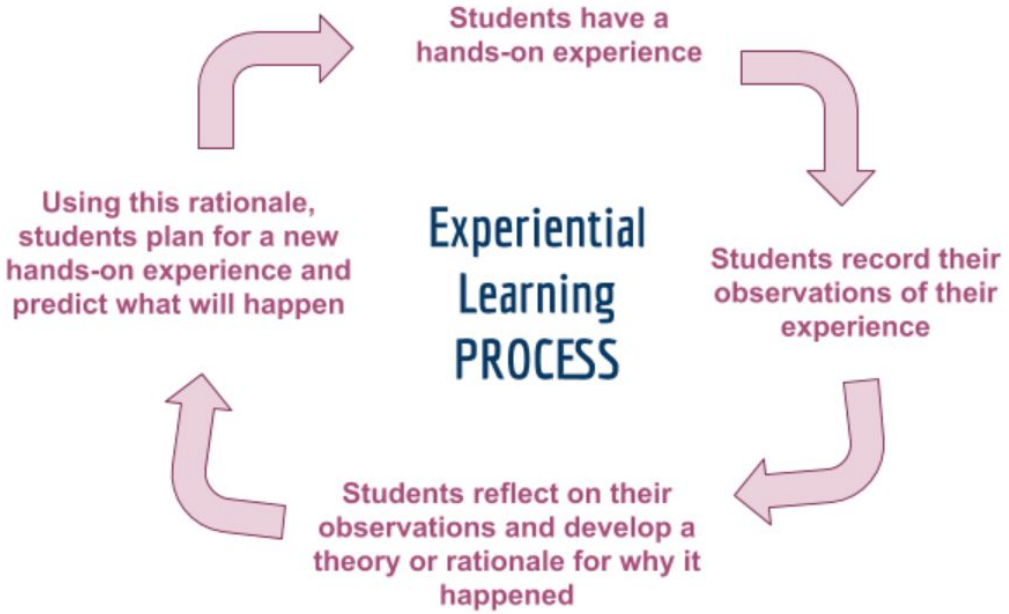
GROUP 6 - Problem-Based Learning QUESTIONS

1. Why do you think this framework could be effective in helping learners to construct knowledge?
    - Learners feel they are more involved in their learning - discovery on their own terms
2. What challenges do you think this framework could present to students and instructors?
    - If a learner doesn't have a solid knowledge base to start with, learners may get overwhelmed/lost with new information being presented to them
3. Identify Kolb's Learning Cycle OR the Zone of Proximal Development in this framework.
    - Kolb's Learning Cycle - use the student's previous knowledge to analyse the problem (DO), observe the lack of information or what need to be completed (Observe), Analyse to fill possible gaps (THINK), and have new knowledge (PLAN)
4. How can you consciously encourage student motivation in this framework?
    - Making it exciting/intriguing - role play or put yourself in a particular perspective
5. Describe how at least two active learning strategies can be effectively used in this framework.
    - Debates - present groups with a situation and have them each form an argument - find strengths/weaknesses in the other groups arguments
    - Roleplay - to engage students into the task at hand - make it a more hands on experience

Experiential Learning

In higher education, experiential learning often refers to getting students outside of the traditional classroom and focusing on the practical rather than simply the theoretical. Examples could include field studies, laboratory experiments, studio arts, work/study programs, and internships. These steps involve learners engaging in a real experience, making observations of that experience, and collecting data from that experience. Learners then analyze what they observed and reflect upon what it means. Then, using what they learned, learners can engage in a new experience and with a different intended outcome. An important part of this framework though is that having only the practical component of an experience or only the theoretical component of an experience is not enough. In order to **construct knowledge**, learners must reflect on their observations and develop a theory or rationale, from which new outcomes could be deduced in a new experience.

The role of the instructor in experiential education can be to provide opportunities for learners to reflect on their experiences and guide them to develop their own theories or rationales using leading and guiding questions.



Adapted from "Experiential learning in higher education" by John A. DeGiacomo.

GROUP 7 - Experiential Learning QUESTIONS

1. **Why do you think this framework could be effective in helping learners to construct knowledge?**
   The physical experience is more engaging. Reflection allows students to think about the process and feel more engaged with the questions that they might have.
2. **What challenges do you think this framework could present to students and instructors?**
   Time constraints can make the activity slower, access to resources and space to undergo with activity. In community engagement projects it's sometimes difficult to create sustainable and responsible relationships with the people in the community.
3. **Identify Kolb's Learning Cycle OR the Zone of Proximal Development in this framework.**
   ZPD can be facilitated with peers and the instructor in the process of doing and in the process of reflecting.
4. **How can you consciously encourage student motivation in this framework?**
   It's an exciting activity that lets people be part of a process that is active (not passive), it's a lived experience. It's an opportunity to work with others. It's a process of discovery.
5. **Describe how at least two active learning strategies can be effectively used in this framework.**
   1. Roleplaying: thay have to be immersed in their role, which might provide an opportunity to research. It invites students to use their imagination.
   2. Fishbowl: While it's not so active, it provides room for reflection and discussion.

GROUP 8 - Experiential Learning QUESTIONS

1. **Why do you think this framework could be effective in helping learners to construct knowledge?**

1) People learn well when experiencing the lessons you want them to learn

2. **What challenges do you think this framework could present to students and instructors?**

2) With virtual learning there are a few barriers to practical/experiential learning. For example, the ability to conduct chemical experiments is often limited to the laboratory, making the necessary “hands-on” component unattainable. Also, with students learning from various places around the world the ability to access materials may be limited.

3. **Identify Kolb’s Learning Cycle OR the Zone of Proximal Development in this framework.**

3) Kolb’s:

1. Watch - watch the instructor do the exercises/stretches first
2. Think - think how to maneuver your body to do the exercises without hurting yourself
3. Do - do the exercise
4. Feel - feeling strong and relaxed after a workout

4. **How can you consciously encourage student motivation in this framework?**

4) By checking in and guiding them as needed. By providing guidance and organization you can steer the students towards thinking critically about what they have just experienced and how they can apply this new learning to a different task in the future.

5. **Describe how at least two active learning strategies can be effectively used in this framework.**

5) Jigsaw (hands-on experience), Gallery Walk (hands-on experience), Role Play (hands-on experience)
Gallery walk (looking at Olympic athletes perform - helps visualize how to execute each step without hurting yourself)
Fishbowl- students record their observations of the experience