Models and Tactics for Engaging Learners and Promoting Active Learning

Three diagrams help to explain and predict learner engagement, including a model illustrating (a) flow state (b) learning engagement, and (c) Yerkes-Dodson Law of human arousal and performance.
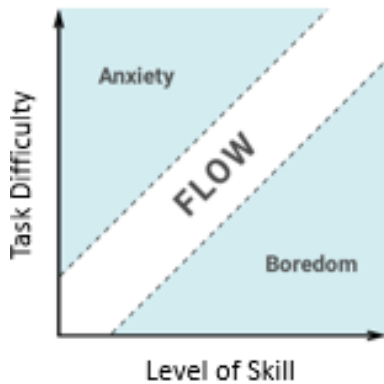

Figure 1. Factors affecting flow state

Figure 1 depicts the relationship between task difficulty and the skill of the person performing the task. According to Csikszentmihályi (1990) Flow Theory, task difficulty must match a person's skill level to promote a state of flow.

Figure 2 indicates that learner engagement is based two distinct factors, the design of: (a) the learning resource, and (b) the learning activity. According to Learner Engagement theory (Collins & McNaught, 2002) a resource that is multisensory and interactive, coupled with a learning task that is also interactive will result in a highly engaging learning experience.
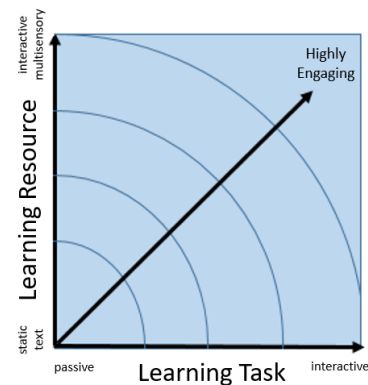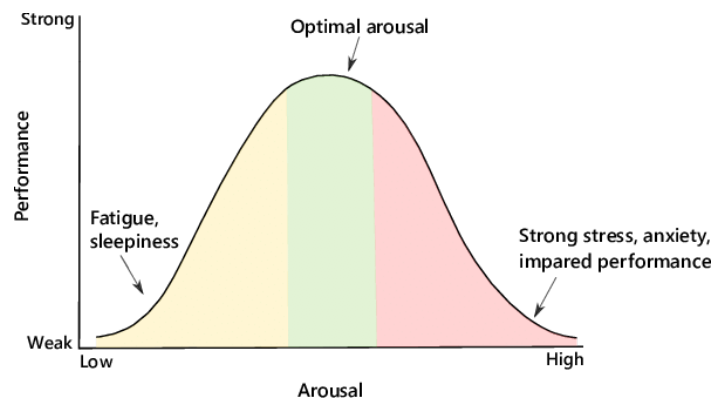

Figure 2. Learner Engagement Model

Figure 3. Yerkes-Dodson inverted U depicting the curvilinear nature of human behavior

Yerkes-Dodson Law dictates that human performance increases, but only with optimal levels of mental arousal. When levels of arousal become either too high or too low, performance decreases. Keller (1996) utilizes the law to also suggest that optimal levels of attention, relevance, confidence, and satisfaction enhance learner performance. In other words, if a learner perceives too much or too little attention, relevance, confidence or satisfaction, their performance will decrease (e.g., learners with too much or little confidence). The curvilinear relationship between a stimulus and human behavior differs from the theories modeled in Figures 1 and 2 that suggest mental constructs, such as engagement and flow, act in a linear manner.

From 5E Instructional Model (BSCS, 2005)

To Engage Learners	To Promote Exploration
• Demonstration • Unusual or counter-intuitive events • Provoking pictures, objects, sounds, • Free Write • Question and Answer • Problem Creation • Brainstorming • Sense of Mystery	• Perform an investigation • Observe natural events • Read authentic resources collect info • Review the work of others • Solve a problem • Construct a model or framework • Watch video • Handle manipulative • Explore Internet sites • Read interesting, provoking passages

From ARCS Model of Motivational Design (Keller, 1987a, 1987b)

Perceptual Arousal - What can I do to capture students' interest?
- <u>Sensory effects</u> - Use pictures, objects, sounds, smells, and tastes that gain learners' attention.
- <u>Absence of distraction</u> - Use all stimulus materials judiciously

Inquiry Arousal - How can I stimulate students' curiosity?
- <u>Active responding</u> - Engage the learners' interest by using question-response-feedback interactions that require active thinking.
- <u>Problem creation</u> - Allow learners to create their own problems to solve and judge their solutions or present the consequences.
- <u>Sense of mystery</u> - Present problem solving situations in a context of exploration and partial revelations of knowledge.
- <u>Unusual content or events</u> - Use unusual, contradictory, or bizarre content.

Interactive Techniques compiled by Yee (2019)

Tactics for Engaging Large Groups
1. <u>Picture Prompt</u> - Show students an image with no explanation, and ask them to identify/explain it, and justify their answers. Or ask students to write about it, or to name the processes and concepts shown.
2. <u>Updating Notes</u> - Take a break and encourage students to compare their class notes so far with other students, fill in gaps, develop joint questions, and most importantly, update and rewrite their notes.
3. <u>Choral Response</u> - Ask a one-word answer to the class at large; volume of answer (graphically depicted by Word Clouds or numerically depicted by responses to pool) suggest degree of comprehension, interest, or approval.
4. <u>Grab a Volunteer</u> - After a minute paper (or better: think pair share) pick one student to read, interpret and/or explain another student's answer.
5. <u>Questioning</u> - The instructor replaces lecture by peppering students with questions, always asking the next question in a way that guides the conversation toward a learning outcome. Variation: A group of students writes a series of questions as homework and leads the exercise in class.

Tactics for Engaging Small Groups
1. **Pass the mike** - Whoever has the mike must answer your question. They then pass it on to the student of their choice.
2. **Three Port Interview** - Pose the following question to the entire class: "What do you think are the three biggest issues related to__." Choose students to share their 3 responses to the question for one minute.
3. **Infographic** - Students use online services (https://visual.ly/view) to create an infographic that combines flowchart logic and visual presentation

4. **Concept Mapping-** Students write keywords onto sticky notes and then organize them into a flowchart. Could be less structured: students simply draw the connections they make between concepts.
5. **Word Journal** - First, summarize the entire topic on paper with a single word. Then use a paragraph to explain your word choice.
6. **Objective Check** - Students write a brief essay in which they evaluate to what extent their work fulfills an assignment's objectives.
7. *Student Storytelling* - Students are given assignments that make use of a given concept in relation to something that seems personally relevant (such as requiring the topic to be someone in their family

Tactics for Engaging Pairs
1. **Storytelling Gaps** - One partner relays a story that summarizes learning in the chapter so far, but leaves out crucial fine information (such as dates that should have been memorized). The partner listens and records dates silently on paper as the story progresses and then updates the first person.
2. **Do-Si-Do-** Students do partner work first, then sound off by twos. All of the 2's stand up and find a new partner (the l's are seated and raise their hands until a new partner comes), then debrief what was said with the first partner. Variation: Later, all the 1's come together in a large circle for a group debrief, while the 2's have their own circle.
3. **Forced Debate** - Students debate in pairs, defending either their preferred position or the opposite of their preferred position. Variation: Half the class takes one position, half the other. The two halves line up, face each other, and debate. Each student may only speak once, so that all students oaboth sides can engage the issue.
4. **Optjmist/Pessimist-** In pairs, students take opposite sides of a conversation. This technique can be applied to case studies and problem solving as well.
5. **Teacher and Student** - Individually brainstorm the main points of the last homework, then assign roles of teacher and student to pairs. The teacher's job is to sketch the main points, while the student's job is to cross off points on his list as they are mentioned, but come up with 2-3 ones missed by the teacher.
6. **Peer Review Writing Task** - To assist students with a writing assignments, encourage them to exchange drafts with a partner. The partner reads the essay and writes a three paragraph response: the first paragraph outlines the strengths of the essay, the second paragraph discusses the essay's problems, and the third paragraph is a description of what the partner would focus on in revision.
7. **Student Pictures-** Ask students to bring or draw a pictures to illustrate a specific concept to their working groups.

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