CASE STUDY: LEARNING THEORIES

Teacher: Arnie Duncan
Case Study: Jeff Judd

SECTION 1 & 2: IDENTIFYING THE TEACHING STRATEGY WITH VIDEO INSTRUCTION

I. ANTICIPATORY SET – Land Drill (2 hours)

1. Teacher and Case Study meet in a room where teacher has set up 3 stools, 1 broom, and 1 line to represent the arrangement of a sailboat that is ready to tack.

2. Teacher begins by asking Case Study to explain how the Hōkūle‘a sailing canoe makes turns in the ocean and what Native Hawaiians knew about the ocean and wind. (Information Processing Theory – Contextualization – INFORMATION PROCESSING THEORY VIDEO: CONTEXTUALIZATION – HISTORY)

3. After a brief discussion, teacher then asks Case Study to read through steps of the land drill to himself/herself or to state step using picture as a guide.

4. Teacher then asks Case Study to describe steps of land drill or draw pictures. (Information Processing Theory – Drawings)

5. Teacher evaluates level of Case Study’s conception of tacking, and then takes the Case Study through each step that the Case Study is not proficient at and slowly reads over the steps with the Case Study. Teacher does this several times. (Information Processing Theory – step-by-step instruction)

6. To train Case Study to respond to each time the drill is done, the Teacher says, “Time to turn” (Behaviorism: Classical Conditioning – Procedural Signal)

7. Teacher calls out “Time to Turn” and has Case Study demonstrate the land drill by himself/herself first. Again, teacher evaluates proficiency of Case Study’s land drill ability.

8. Teacher demonstrates a nonverbal signal to tack port (left) or right (starboard). Arm is extended fully and waved up and down to the turn desired. This signal lets everyone on the boat that they should pay attention for the turn. Teacher and Case Study use this signal every time when practicing tacking. (Behaviorism: Classical Conditioning – Attention-getter – BEHAVIORISM VIDEO: ATTENTION-GETTER - SECRET WORD)

9. Teacher then takes the Case Study through each step and models each step and holds corresponding cards with the commands written out. (Constructivism – Scaffolding -
Teacher has Case Study perform each step until Case Study can do the step with ease.
10. Teacher then models to the Case Study the entire drill. Teacher then has Case Study perform entire drill. Teacher provides feedback (Behaviorism: Operant Conditioning – Positive Practice)
11. Case Study practices drill over and over until entire drill can be done with ease (Information Processing Theory – Rehearsal)

II. MAIN ACTIVITY – Tacking the Sailboat (5 hours)

1. After completing the land drill, the teacher has the Case Study practice the land drill on the actual sailboat while the sailboat is docked to the pier.
2. Teacher then provides feedback on Case Study’s technique. (Social Cognitive Theory – Feedback - SOCIAL COGNITIVE THEORY VIDEO: GIVING FEEDBACK)
3. Practice on sailboat continues until Case Study demonstrates ease of tacking maneuver for both starboard and port tacks.
4. Teacher takes sailboat out into the open ocean. Winds should be mild (10-15 knots).
5. In open water, teacher models how to do a port tack. (Social Cognitive Theory – Modeling)
6. Teacher asks Case Study to describe steps in the port tack just shown. Teacher then demonstrates a starboard tack and again asks the Case Study to describe the steps involved.
7. Teacher asks Case Study if he/she is ready to perform the maneuver. Teacher provides Case Study with specific indicators of progress. (Social Cognitive Theory – developing self-efficacy)
8. Teacher then tells Case Study that the Teacher will buy lunch if tacking maneuver is done successfully. (Behaviorism: Operant Conditioning – Rewards)
9. If Case Study is ready, then Case Study performs a port tack. (Constructivism – Situated Learning)
10. After port tack, teacher asks Case Study to evaluate his/her performance. Short discussion follows.
11. Case Study then performs a starboard tack. Again discussion of evaluation is done.
12. Case Study then repeats performance until ease of maneuver is demonstrated at the “meets proficiency” level of the rubric.
13. If Case Study cannot demonstrate proficiency, then teacher asks Case Study to recognize aspects to work on. (Social Cognitive Theory – developing self-regulation)
14. Teacher then ends lesson by bringing boat back to dock.

III. CLOSURE – Performance of Evaluation and Independent Practice
1. At the dock, the teacher and Case Study use the rubric to discuss overall performance of each criteria.
2. Case Study writes down aspects of the tacking maneuver that is not at proficient. If the Case Study reaches proficiency, then the main activity is repeated in moderate winds (15-20 knots).
3. Teacher tells Case Study to practice the land drill for at least a half-hour and focus on aspects that are not proficient.
### SECTION 3: DEFENDING THE TEACHING STRATEGY

#### LEARNING THEORY #1: BEHAVIORISM

**The CLASSICAL CONDITIONING TEACHING STRATEGY** (Procedural Signal) “Time to Turn” (step I.6) is effective because according to the Woolfolk text (2014) the stimulus “Time to Turn” has been made contiguous (associated) with starting the tacking procedure.

This classical conditioning of two events occurs when one stimulus that has no meaning (Neutral Stimulus - NS) is associated enough times with another stimulus that does have meaning (Unconditioned Stimulus - US) and replaces it to produce a response from someone (Unconditioned Response - UR). When this occurs the neutral stimulus has been conditioned (Conditioned stimulus - CS) and the response has been conditioned (Conditioned Response - CR).

In my lesson, the statement “Time to Turn” is the NS, which has no meaning, but because I associated my repeated asking of my Case Study to get ready to tack the sailboat (US) with the statement, the statement “Time to Turn” became meaningful. Now all I have to do to get my Case Study starting the tacking procedure is to say “Time to Turn” instead of making a long request that might be misunderstood. Below, I use a diagram to make this classical conditioning easier to understand:

**Before Classical Conditioning:**
- Teacher asks the Case Study to start tacking procedure (US) = Case Study starts tacking procedure (UR)

**During Classical Conditioning:**
- “Time to Turn” (NS) + Teacher asks Case Study to start tacking procedure (US) = Case Study starts tacking procedure (UR)

**After Classical Conditioning:**
- “Time to Turn” (CS) = Case Study starts tacking procedure (CR)

**The OPERANT CONDITIONING TEACHING STRATEGY** (Rewards) of buying my Case Study lunch if successful in tacking the boat (step II.8) is effective because according to the Woolfolk text (2014), a person learns when s/he associate his or her behavior (operants) with a consequence.

This consequence either increases the behavior (reinforcement) or decreases the behavior (punishment). If the behavior increases when a stimulus is added, then it is called positive reinforcement. If the response increases when a stimulus is taken away, then it is called negative reinforcement. The same idea holds for punishment.

In my lesson, I want my Case Study to tack a sailboat safely and efficiently, so I want that behavior to increase, so I added “lunch” as the stimulus to increase that action (positive reinforcement). I plan to do this every time, which is a continuous reinforcement schedule and this should result in a rapid learning of tacking the sailboat well. Below, I use a diagram to make this operant conditioning easier to understand:

**Before Operant Conditioning:**
- Desired Behavior (Tacking Sailboat) ➔ Consequence (no lunch) ➔ Effect (Poor Tacking)

**After Operant Conditioning:**
- Desired Behavior (Tacking Sailboat) ➔ Consequence (get lunch) ➔ Effect (Great Tacking)
LEARNING THEORY #2: INFORMATION PROCESSING THEORY

The INFORMATION PROCESSING THEORY TEACHING STRATEGY (Contextualization) of asking my Case Study about how the Hōkūleʻa sailing canoe makes turns in the ocean and what Native Hawaiians knew about the ocean and wind (step I.2) is effective because according to the Woolfolk text (2014), information is more easily processed when it is associated with a person’s existing schema (contextualization).

This information processing begins when a person’s long-term memory is activated by a meaningful outside stimulus and the person pays attention to that stimulus (sensory memory). If the information is something that the person wants to examine, then the information moves from the sensory memory to the working memory where it can be retained if repeated (phonological loop) or as an image (visuospatial sketchpad). As long as the information isn’t too overwhelming and cause cognitive overload, the information can be moved into long-term memory through rehearsal or elaboration and expand the person’s schema. If the information becomes a permanent part of the schema, then the information becomes automated (habit), and the person no longer has to consciously process the information (implicit memory).

In my lesson, I wanted my Case Study to realize how important the wind and ocean conditions impacted turning a sailboat so to get his attention on that idea, I connected it to something that he finds meaningful – How Native Hawaiians navigated canoes like the Hōkūleʻa over great distances for thousands of years. Because he was interested in learning about that information, his attention was placed on the subject, brought into his working memory, where hopefully I was able to help make associations in his long-term memory with what he already knew about wind and ocean with what Native Hawaiians knew. Below, I use a diagram to make this learning theory easier to understand:

**Attention (Perception of Senses):**

*Case Study pays attention to the information by focusing his hearing and sight on me as I ask him to explain how Native Hawaiians used wind and ocean conditions to navigate canoes. Because the sensory memory is a filter and we can only focus on one thing at a time, then it is essential that the information is connected to something the Case Study finds meaningful.*

**Working Memory:**

*Case Study maintains the wind and ocean condition information through the phonological loop by continuing our discussion. It would be helpful for me at this point to bring out images of the concepts so that the visuospatial sketchpad can support the processing of this information.*

**Long-Term Memory:**

*Case Study connects information from working memory to what he already knows in his long-term memory and expands his concept of ocean and wind conditions. That means he learned!*
## LEARNING THEORY #3: CONSTRUCTIVISM

The **CONSTRUCTIVISM TEACHING STRATEGY** (Situated Learning) of using an actual sailboat under real wind conditions (step II.9) is effective because according to the Woolfolk text (2014), it requires the Case Study to actively construct knowledge himself during the task, which increases processing of information, and that a real situation reflects all the actual skills and knowledge required in the task.

Since the task involves the guidance of a teacher, situated learning is considered “second-wave” constructivism, and I will use the ideas of Vygotsky to explain why this teaching strategy is effective.

According to Woolfolk (2014), Vygotsky constructivism occurs when an expert sets up a learning situation where the learner actively explores information on his/her own while the expert scaffolds the learner through the process. This scaffolding begins when the expert determines the learner’s **zone of proximal development** (ZPD- level of readiness), and breaks up the learning into steps to help guide the learner to successive higher levels in his/her ZPD. These steps involve social negotiation where the expert (can also use cultural tools to represent the expert) and the learner negotiate the language of the information to reach a common understanding of the task and expand the learner’s cognition (**co-construction**).

In my lesson, I wanted my Case Study to actually demonstrate the task on an actual sailboat because it involves all of the other variables that you would not experience in a land drill (boat rocking, equipment placement, etc). However, because situated learning is more challenging and is beyond my Case Study’s ZPD, I first started out by scaffolding the tacking procedure with language and pictures from textbook, and then to land drills. After we socially negotiated what was expected in a safe and efficient tack, and he demonstrated that carrying out the procedure on land was within his ZPD, I felt comfortable in bringing him out on the water. Below, I use a diagram to make this learning theory easier to understand:

### ZPD (Beginning)

Case Study is introduced to tacking language through textbook (cultural tools) and practices land drills (hands-on) with social negotiation from me (the expert).

### ZPD (Middle)

Case Study practices land drills on his own and I provide feedback to improve ZPD. Continue to negotiate language used during procedure during land drills.

### ZPD (End)

Case Study demonstrates land drill on actual boat at dock. After checking proficiency, I determine whether ZPD is ready for open water. If it is, then Case Study does tacking maneuver in situated learning condition.
# LEARNING THEORY #4: SOCIAL COGNITIVE THEORY

The **SOCIAL COGNITIVE THEORY** TEACHING STRATEGY (Developing Self-Efficacy) by asking Case Study if he is ready to tack an actual sailboat and letting him know about specific indicators of progress he has demonstrated thus far. According to Woolfolk (2014), mastery experiences, modeling, and social persuasion can be an excellent source of self-information to boost our self-efficacy (the belief you can do a specific task).

According to Woolfolk (2014), self-efficacy is an important indicator on whether a person will attempt a particular task. Thus, increasing a person’s self-efficacy is critical because a person that doesn’t attempt the task (perceives that s/he can’t do it) won’t learn and this impacts other aspects of the person’s life such as the environment (parents are disappointed) and behavior (person slumps and hangs head). This total impact is what Social Cognitive Theory calls the triarchic reciprocal causality model, and the idea is that if one factor changes, then all the other factors change as well. So, increasing a person’s self-efficacy will also change the person’s surrounding environment and the person’s own behavior.

Developing a person’s self-efficacy comes from three specific sources: (1) mastery experiences; (2) modeling (vicarious experiences); and social persuasion. To develop a person’s mastery experiences, then a person needs to experience success at doing the task. This means that the task has to be broken down into smaller steps so that a person can experience mastery in small chunks. In turn, these small victories motivate the person to keep trying and the belief that the task can be done increases. To develop vicarious experiences, a model that a person identifies with, helps develop self-efficacy because the person believes that if a person like him/herself can do it, then so can s/he! To develop social persuasion, specific feedback for a person can demonstrate that previous efforts are working and that their efforts will result in more success.

In my lesson, I wanted my Case Study to believe that he can tack a boat safely and efficiently, so I broke down the lesson into specific steps and provided feedback throughout. I also made sure to model each step, but I am not sure how much the Case Study identified with me because we are different in age and background. However, just before I let the Case Study actually turn an actual sailboat on the ocean, I used social persuasion to review all the excellent progress that the Case Study has made since the beginning of the lesson and this hopefully will increase the Case Study’s self-efficacy enough for him to try to tack the boat on his own! Below, I use a diagram to make this learning theory easier to understand:

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**Diagram:**

1. Mastery Experiences (Success!)
   - Success, model, feedback

2. Model (Others can do it!)
   - Personal factors (Cognitive, affective, and biological events)

3. Social Persuasion (+ Feedback)
   - Environmental factors

Attempts Task!