

**Understanding Learning Theories in the Context of Higher Education (Online Learning Modality)**

**Module 1a**

**R511**

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## 

## **Introduction**

Learning is a truly fascinating process. Newly acquired knowledge and skills are a further step in learners’ development that brings them closer to the fulfillment of their potential. It is like scaling a mountain; new knowledge and new skills will help learners go higher and thus, enjoy other beautiful peaks.

Learning is a process that does not occur in a vacuum; events surrounding learning influence it to a great extent. In today’s increasingly global and mobile community, online education continues to grow in popularity and necessity. In the area of higher education especially, online learners come from a multitude of backgrounds, ages, and focuses. It is incumbent upon the instructor to ensure that all learners have the opportunity to thrive in an online environment.

This project assesses how three popular learning theories, behaviorism, cognitivism, and constructivism, can be successfully applied to an online course.

## **Instructional Problem**

Team Success has been challenged by the Office of Distance Education of their local community college to develop an online seminar to introduce students to online learning and provide them with the tools and resources to be successful. This local community college has seen a large growth in the number of students who are registering for online courses, and the Office of Distance Education wants to ensure that students are knowledgeable of and prepared for the expectations of online learning.

This seminar will serve as a training course to emphasize the skills and knowledge that undergraduate students will need to succeed in online classes. Team Success will introduce a two-hundred level seminar course titled “EDUC-211: How to Learn Online” that will be delivered online through the Canvas learning management system for 8 weeks. We are committed to integrating multiple learning theories and perspectives to provide the best possible learning environment to participants. Team Success and the Office of Distance Education have proposed the following elements to be addressed in the creation of this new seminar course:

* Ensure a high level of engagement and participation from students
* Integrate technology in a purposeful and meaningful way
* Guarantee multiple learning styles are provoked
* Provide immediate, relevant, and continuous feedback
* Discuss the benefits of online classes
* Demonstrate best online learning practices and success stories of online learning
* Encourage learners to apply acquired skills and knowledge into practice.

Two matrix tables, provided below, were created to guide Team Success in informing our practices for the development of the syllabus and to ensure we address all challenges effectively.

**Matrix Table #1: Theory Basics Comparison**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Behaviorism** | **Cognitivism** | **Constructivism** |
| **Theorists and Relevant Theories** | **Classical or respondent conditioning theory** The first type of learning that was discovered and studied. The major theorist of classical conditioning theory is Ivan Pavlov. Based on the theory, unconditioned stimulus elicits unconditioned response. Classical conditioning starts with a reflex (involuntary behavior).  J.B. Watson introduced the notion of behaviorism into American psychology (Driscoll, 2000, p. 33)  **Operant or instrumental conditioning theory**: According to the theory, learning occurs when the behavior’s consequences, such as reward or punishment, lead to behavioral changes. Operant conditioning was first studied by E.L. Thorndike. B.F. Skinner is often called as the father of operant conditioning.  **Contiguity theory** is based on E.R. Guthrie’s work. According to the theory, all learning is a result of association between a particular stimulus and responses. | Early cognitive theory traces back to gestalt theorists, who believed that stimuli only have meaning when cognitively organized by the individual. Modern cognitive theory took off around World War II. Some prominent theorists include:  K. Lewin - study of motivation in learning; F.C. Bartlett - schemata; R.C. Atkinson and R.M. Schiffrin - both contributed to the idea of stages of processing information and storing it in memory (sensory/ short-term/ long-term); M.R. Quillian and A.M. Collins - network model for processing information through learned relationships;  J.R. Anderson - network model based on propositional structure; A. Paivio - dual system of memory representation (verbal and imaginal); J. Piaget - equilibration, W.G. Perry - the impact of different positions on information processing; R.M. Gagne - conditions of learning; G. Miller - chunking | -John Dewey, often regarded as the “father” of progressive and constructivist education (Merriam, 1995)  -Jean Piaget, introduced ideas impacting curriculum  -Jerome Bruner, promoted learning as an active process  -Vygotsky, stressed the importance of social development \*social constructivism\* |
| **Characteristics** | According to the theory, the learner is a black box, and nothing is known regarding what is going on inside the learner’s brain. (Driscoll, 2000, p. 35)  Therefore, learning is evidenced by observable behavior changes and environmental events surrounding learning as a response to stimuli. | Cognitivism focuses on the internal processes of the learner that influence learning, including how information is stored and recalled by the learner. This theory heavily influenced instruction and instructional design, focusing on aspects such as how best to draw the learner’s attention and the importance of feedback in learning. | -According to this theory, people *construct* their own understanding and knowledge of the world, through realistic practice and reflection on those experiences  -Learning by doing  -It is crucial for facilitators to guide the learning process and for participants to be rooted in active engagement of meaningful, relevant knowledge. |
| **Keywords** | stimulus, response, reinforcement (positive, negative), reinforcer (primary, conditioned), respondent behavior, operant behavior. | schema, encoding, chunking, processing, recall, memory (short-term, long-term, sensory, episodic, semantic) | teacher facilitation, meaningful learning, reflection, learner autonomy, realistic, experience, construct, collaboration, multiple perspectives. |

**Matrix Table #2: Theory Learning and Assessment Comparison**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Behaviorism** | **Cognitivism** | **Constructivism** |
| **How does learning occur?** | Is not addressed by the theory. Presumably, all learning occurs as a response to certain stimuli, and learning is explained and analyzed through a behavioral change that can be observed over a period of time | Cognitive theory insists that learning occurs internally, and focuses on how information is processed and stored. This includes identifying relationships between already known information and newly acquired information. | -Human learning is constructed  -Meaning is connected to experiences (Ertmer & Newby, 2013)  -Learners build new knowledge upon the foundation of previous learning (Olusegun, 2015) |
| **What factors influence learning?** | Environmental variables and events surrounding behaviour;  Arrangement of stimuli and consequences in the environment. | Environment plays a role in cognitive theory, but it alone is not solely responsible for learning. Particular attention is paid to how learners process new information. Learners’ pre-existing thoughts and values also play a role (Ertmer & Newby, 2013). | -Prior lived experience  -Real-life situations where prior knowledge can “co-produce” current knowledge (Ertmer & Newby, 2013) |
| **What is the role of memory?** | It is not specifically addressed by the theory;  Little attention is given to how learners store and use information for future use. | Memory is critical to cognitive theory, as learning is believed to occur based on how information is stored and organized in memory and can therefore be recalled when prompted (Ertmer & Newby, 2013). | -Not rigid or a mere recall of facts  -Learners should develop a continuum on which prior knowledge can apply to a specific problem, situation, or question at hand |
| **What types of learning are associated with this theory?** | Discriminations (recalling facts)  Generalizations (defining and explaining concepts)  Associations (applying explanations)  Chaining (performing a new procedure based on already known behaviors to the learner). | Cognitive theory best explains higher-level learning, such as reasoning and problem-solving (Ertmer & Newby, 2013). | -Cannot be identified outside the content and context of each learning experience  -Complex  -Ill-structured problems  -Theorists regard it as the most advanced process and suggest that knowledge in the behavior/cognitive stages can be modified and improved upon thanks to constructivism (Ertmer & Newby, 2013) |
| **How is motivation encouraged?** | The theory does not substantially address motivation.  It states that learners must expect to be rewarded, and learners must value the reward for the reinforcement to work.  Intrinsic motivation -sometime learners do things without being reinforced. | Because cognitive learning theory focuses on internal processes and the active learner, motivation is likely to be internal as well; instructors can encourage and facilitate motivation under this theory by relating instruction to learners’ pre-existing knowledge, using realistic examples, and directing learners’ attention in such a way that learners will organize newly learned information in the most effective manner. | -Facilitators must engage students  -Engagement should come from drawing learners experiences and current understandings to the forefront  -Learning experiences should involve content important, meaningful, and relevant to learners |
| **What is the role of the teacher?** | The teacher should structure the learning environment through clear and concise objectives, provide stimulus and adequate learning conditions.  The teacher should determine the most effective reinforcers,  implement instructional acts that encourage behavioral change, as well as  evaluate the learner’s progress. | The teacher should structure instruction within students’ pre-existing schema, avoid irrelevant information, and draw students’ attention to the information in a way that will maximize retention and recall; this may occur through appropriately chunking information, presenting information in recognizable patterns, and the like. Cognitive theory also stresses the importance of feedback in shaping information stored in memory (Ertmer & Newby, 2013). | -The teacher is not the “star on the stage” but rather the “guide on the side”  -Teachers should facilitate the process of drawing out prior experiences and knowledge that learners can construct into new knowledge |
| **What is the role of the learner?** | Take a passive role in the learning process  Be reactive to stimuli  Engage in high-frequency behavior to reinforce low-frequency behavior. | Cognitive theorists emphasize an active learner, because learning is an internal process. Learners must be able to connect new information to their own pre-existing schema; in this way, learning can be highly individualized. | -Take an active role in the learning process  -Reflect upon past experiences and knowledge to apply to the problems, tasks, and questions at hand  -Be open to collaboration and multiple perspectives to achieve the highest awareness of relevancy and meaningfulness in the learning experience. |
| **What does instruction look like?** | Structured through precise learning objectives; occurs in adequate learning conditions for learners to make the correct responses; full of drill and practice activities; teacher-centered. | Avoid irrelevant information; design instruction to draw students’ attention to the information to be learned; suggest appropriate learning strategies to maximize retention (ex: mnemonics, chunking); present new information to students in relation to pre-existing knowledge | -Must not be a strict sharing of facts, but an involvement of learners  -Information should be useful and relevant to the needs of learners  -Instruction should be designed to facilitate,simulate, and recreate real life complexities and occurrences |
| **What basic principles of this theory are relevant to instructional design?** | A focus on producing tangible results by learners: learning objectives, tasks analysis  Learners’ prior knowledge assessment to choose the appropriate instructional strategy (learner analysis)  Focus on learning first steps prior to attaining higher levels of performance  Use of detailed feedback and tangible rewards as reinforcement to improve performance  Use of directions, instructions, cues to promote a stimulus-response association | The importance of presenting information in a manner that will draw the learner’s attention and aid in retention; the importance of feedback in shaping stored information; building on existing knowledge or beliefs in incorporating new instruction | -Content can be created to allow elaboration and interpretation, allowing learners to construct their own meaning and a establish personal connection  -Collaboration among peers provides insight beyond just the learners interpreted meaning, this social negotiation enhances their ability to solve complex problems more than one way  -Multiple perspectives: A rich learning environment exposes learners to the diversity of the real-world |

### **Evaluation: Applying Theory to Objectives and Assessments of an Online Course**

Below we have outlined how each of the three core educational learning theories were utilized in the creation of the syllabus for “EDUC-211: How to Learn Online” e-learning course, focusing on several key components of the syllabus.

### **Learning Outcomes**

* Identify best practices in learning online.
* Describe the importance of netiquette and time management skills in online classes.
* Analyze the role of technology in interaction between learners and teachers, and learners among each other.
* Demonstrate effective learning strategies pertinent to an online course through active participation in all class discussions and activities.
* Apply effective study skill methods and use of course support tools (an LMS, asynchronous and synchronous communication tools, discussion board, video conferencing tools, and mobile applications for learning).

**Application of Learning Theories to Learning Outcomes:**

**Behaviorism**: Learning outcomes are the behavior the instructor wants the students to exhibit. The instructor uses learning outcomes as criteria to assess the students’ mastery of skills and knowledge. By spelling out learning outcomes for the students, the instructor endures students’ understanding of what skills and knowledge they are supposed to be learning.

**Cognitive Learning Theory**: By demonstrating and encouraging students to employ a variety of study skill methods, the instructor exhibits cognitive learning theory; students are shown a variety of methods, given the opportunity to practice those methods, but ultimately encouraged to adopt the methodology that best suits their own cognitive processes.

**Constructivism**: Learning outcomes acknowledge the authentic and interactive process of the construction of knowledge. These should serve as a guide to students as to what conclusions they should be connecting relevant experiences and meaning to. Learners are thus required to take responsibility for their own learning, thinking about what they need to learn and managing their own learning activities.

### **Course Assignments and Projects**

**Discussion Forum Participation**

Students will be required to participate in weekly discussion forums. They will be a given a scenario related to the topics covered in this course. Students will be expected to provide an elaborate response and comment on at least one classmate’s post.

**Example of a Discussion Board Scenario:**

*You are certain about the issues you discussed in the weekly discussion forum. However, one of your classmates expressed a different opinion on the same issue and provided counter-arguments that challenged your statements. What rules of netiquette would you apply to this particular situation as you understand that your tone should be courteous and professional at all times?*

**Guidelines for Discussion Forum Participation**

1. Please sign your name at the bottom of your messages, it will help your classmates remember who you are.

2. Before discussing a particular scenario posted in the discussion forum, please be sure to complete the reading assignment or watch the video lecture or narrated presentation on a particular topic. Please keep in mind that the discussion forum scenarios are tied to the readings or a particular class material: video lecture or narrated presentation.

3. Please write elaborate and meaningful discussion forum postings.

4. Please be sure to participate in each discussion forum and avoid procrastinating until the due date. Each discussion requires replies to at least one classmate, therefore, be sure to plan your time accordingly to be able to timely participate in discussion board forums to interact with your classmates.

**Application of Learning Theories to Discussion Forum**

**Behaviorism**: The application of the behaviorist theory to this assignment will consist in giving students clear guidelines for discussion forum participation, as well as detailed feedback, highlighting the students’ good ideas. By providing clear directions the instructor can expect the students to exhibit appropriate behavior. Feedback, positive or corrective, will serve as reinforcement. Corrective feedback will be given to modify behavior should the students do not give correct responses. Positive feedback will be given to maintain appropriate behavior when students demonstrate a thorough understanding of the topic. Feedback will be provided weekly (fixed interval schedule). If the radical behaviorist theory is applied, no discussions will take place between the students, as most interactions will be limited to students-content and students-teacher discussions.

**Cognitivism**: Cognitive learning theory will be applied by students in their reactions to the discussion prompts, which will call upon their problem-solving skills. In the example above, students will have to determine how they would respond in a situation in which a fellow student did not agree with the student’s discussion board post; under cognitive learning theory, the instructor can expect different approaches from different students, based on how they organize netiquette into their pre-existing knowledge, beliefs, and attitudes.

**Constructivism**: This application fits all constructivist approaches from its ability to form a community of inquiry where students’ knowledge can evolve rather than being forced, to setting up students to be thinkers in pursuit of answers and the construction of knowledge rather than empty vessels to be fed information, as well as positioning teachers as facilitators and guides that can provoke elaboration and interaction rather than taking the role of the “all-knowing” overseer.

### **Weekly Quizzes**

The course is broken up into weekly modules; each module covers a different aspect of online learning, and each module builds upon the one before. Students will take weekly quizzes throughout the course, based on the modules. Quizzes will entail a variety of question types, including multiple choice, true/false, and essay, as well as different level of difficulty.

**Application of Learning Theories to Weekly Quizzes**

**Behaviorism**: By assigning quizzes, the instructor applies the behaviorist theory by focusing on drill and practice exercises. Since the quizzes will include a variety of questions of different difficulty level, the students are expected to achieve higher levels of performance by mastering the first steps. Students are expected to be able to recall facts, apply and explain concepts along with applying explanation by completing quizzes on a regular basis.

**Cognitivism**: By chunking the course into thematic modules, the instructor employs cognitive learning theory by breaking the content into smaller, easier-to-digest chunks.

**Constructivism**: By participating in small weekly quizzes, learners can self-assess their current level of understanding and therefore be able to adjust their level of performance as necessary.

### **Reaction Papers**

Throughout the course, students will turn in three 3-5-page reaction papers based on news events relevant to online study and discourse. Students will be expected to analyze the scenario and react based on their own experiences and the principles learned throughout the course. For the successful completion of this assignment, students will be given clear step-by-step instructions, as well as examples of other students’ reaction papers who took the course last semester.

**Application of Learning Theories to Reaction Papers**

**Behaviorism**: The behaviorist learning theory is applied by the instructor by providing appropriate learning conditions in a form of specific instructions and assignment examples for learners to produce a stimulus-response association. Students will write three papers throughout the semester. Feedback will be provided on every paper. The instructor will cue a learned behavior by giving a very detailed feedback on the first paper to reinforce students’ understanding of the assignment.

**Cognitivism**: This assessment device significantly utilizes cognitive learning theory, by relating the assessment to real-life events and by encouraging students to employ their own experiences and backgrounds in their analysis.

**Constructivism**: Much like the cognitive process, self-reflection will encourage students to take prior knowledge and personal experience and apply it to the content currently being facilitated in the course. Students will make meaningful connections between knowledge and practice, keeping them motivated and engaged throughout the learning process.

### **Feedback**

Feedback will factor heavily into this course. The instructor will offer rapid feedback in discussion forums and weekly quizzes, with more detailed feedback on reaction papers. Students are encouraged to seek additional feedback or clarification as warranted.

**Application of Learning Theories to Feedback**

Feedback is a critical factor in all three learning theories.

**Behaviorism**: Feedback is of great importance since it strengthens and maintains the desired learned behaviors.

**Cognitivism**: Feedback is critical under cognitive learning theory to ensure that the newly learned information has been effectively processed and understood (Ertmer & Newby, 2013).

**Constructivism**: Providing feedback ensures that students have a better understanding of their learning. Students still look to the facilitator, as well as their peers, for validation that the knowledge they are constructing is authentic and rooted in the ability to be successful in real-life scenarios.

## **Conclusion**

Online learning often suffers from false assumptions that it is less effective than in-person education. Yet the examples listed above show that a properly designed online course can provide an effective and thorough learning environment, steeped in the three major learning theories of behaviorism, cognitivism, and constructivism. Learning theories in this context serve an important role in the ID process by functioning as instructional design tools. While it might be easy to follow one learning approach or theory, we believe in the concept of “eclecticism” which allows drawing from different learning theories and employing them with the aim of “improving human performance and learning in diverse contexts” (Indiana University School of Education, Department of Instructional Systems Technology Website).

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Front page image retrieved from: <https://georgiacrossnd.wordpress.com/2013/04/02/social-constructivism/>

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