

Creating a Constructivist Lesson

Slide 1	In the past several decades there has been a movement to a more learner-centered approach to classroom practice with a de-emphasis on teacher-led instruction. This presentation will provide an overview to an alternative approach labeled constructivism. My name is Bill Huitt and I am Professor Emeritus at Valdosta State University and Adjunct Professor at Capella University. The presentation is narrated by Geoff Huitt who is assisting me with the production of these videos.
Slide 2	In the presentation on instructivism, I mentioned that the teacher-led approach to instruction was based primarily on three learning theories:
Slide 3	operant conditioning with a focus on consequences,
Slide 4	cognitive information processing with a focus on memory, and
Slide 5	social learning theory with a focus on observation. Additionally, the assessment of knowledge and skills was primarily
Slide 6	the use of standardized paper-pencil exams.
Slide 7	The instructional approach of constructivism is based on a wider variety of learning theories where
Slide 8	John Dewey,
Slide 9	Jean Piaget,
Slide 10	Lev Vygotsky, and
Slide 11	Jerome Bruner are the most often mentioned. A variety of instructional theories are often included under the rubric of constructivism such as

Slide 12	discovery learning,
Slide 13	inquiry-based learning,
Slide 14	problem-based learning,
Slide 15	project-based learning,
Slide 16	situated learning,
Slide 17	experiential learning, and
Slide 18	self-regulated learning. Each of these has a separate learning theory.
Slide 19	In fact, as was mentioned in the presentation on connectivism, some practitioners believe that this is a constructivism theory applied to interacting with digital networks and knowledgebases.
Slide 20	The commonalities among these different theories when applied to instruction include a focus on
Slide 21	inquiry and exploration,
Slide 22	an emphasis on problem-solving and project-based learning, and,
Slide 23	the creation of products or services.
Slide 24	In the case of connectivism, there is the added focus of connecting to networks of people and knowledgebases.
Slide 25	It is important to also consider the influence of the humanists and the positive psychologists on the development of constructivism

Slide 26	with their focus on the importance of emotions in the learning process.
Slide 27	One of the most generic approaches to creating constructivist lessons was produced by Dunn and Larson and is summarized by Huitt as shown in the references. It consists of eleven steps sorted into four categories:
Slide 28	Investigation
Slide 29	Invention and Initial Implementation,
Slide 30	Further Implementation and Evaluation, and
Slide 31	Celebration.
Slide 32	Investigation includes three steps:
Slide 33	The first step is <i>contextualizing</i> where the teacher explains the process to the whole class, and either shares an essential question that begins the inquiry process or has learners create an essential question for the topic of investigation. The teacher then works with students in small groups to help them connect the students' previous experiences to the essential question.
Slide 34	The next step is <i>clarifying</i> where the students discuss the project among themselves in small groups and the teacher facilitates these discussions as learners determine what they already know and what they need to know in order to complete the project.
Slide 35	The third step in the investigation category is <i>inquiring</i> where students begin the process of acquiring the necessary knowledge and skills they might need to complete the project; teachers facilitate by asking questions and helping students identify and understand credible resources.
Slide 36	The next category, Invention and Initial Implementation, has two steps.
Slide 37	The first is <i>planning</i> ; this requires the students in each group to begin to organize or reorganize their knowledge and develop some initial plans as to how to approach the project.

Slide 38	Learners then take the next step of <i>realizing</i> where they develop a first draft or beginning product or service that will meet the stated criteria for the project. Each small group will develop an original approach and no two will look exactly alike.
Slide 39	The third category of further implementation and evaluation includes four steps:
Slide 40	The first in this category is <i>testing</i> ; at this point, groups check their project against the criteria to see if it meets the specifications. It is expected that the first attempt will need some or several modifications.
Slide 41	The second step is <i>modifying</i> where students rework their project in terms of deficiencies they may have identified. They then retest and modify until they have a finished project that meets the stated criteria.
Slide 42	The next step in this category is <i>interpreting</i> ; this step requires students to describe the value of the project relative to their backgrounds and experience. This is the point at which each learner in the group considers the personal value of the project.
Slide 43	Finally, students engage in <i>reflecting</i> where they broaden their evaluations of the project and put it in larger context, especially as it might be valuable to others.
Slide 44	The last category of celebration includes only one event. At the end of the learning experience, students present their projects to the larger group while the larger group acknowledges the value of the effort and results of the group. Notice that throughout this set of events, which might take several days or weeks, the teacher is involved more in organizing and facilitating than engaged in direct instruction. However, direct instruction can be included at various steps in the process.
Slide 45	The flipped classroom approach is one way to do this. In this approach
Slide 46	short videos that provide direct instruction on a topic are viewed at home. These could be produced by the classroom teacher or a presentation created by another teacher such as those available at Kahn Academy could be used.

Slide 47	Class time is then used for active inquiry and the creation of products and services. The set of videos by Huitt and Vernon describe how this can be done. Two additional instructional models developed within the constructivistic approach include
Slide 48	the 5E model created to address the National Science Education Standards
Slide 49	and the Artful Learning model developed by Leonard Bernstein to address inquiry through the arts.
Slide 50	The 5E model incorporates five stages. The first stage is
Slide 51	<i>engagement</i> where the learners are actively involved in identifying or understanding an essential question and analyzing what they already know and what they need to know. They might also identify some steps to take to begin the learning process.
Slide 52	The second stage is <i>exploration</i> where learners begin to inquire and develop the initial knowledge and skills needed to address the problem or project that is the focus of the learning process.
Slide 53	The third stage is <i>explanation</i> ; this involves learners answering why questions about any understandings or relationships they might have identified. At this point it is likely that new questions or issues might be identified that require additional exploration.
Slide 54	The fourth stage is <i>elaboration</i> ; this involves some initial applications of their knowledge and skills. At this point learners are encouraged to create new methods of exploring the needed knowledge or skills as well as creating initial products or services that would address the essential question.
Slide 55	The fifth stage is <i>evaluation</i> where both learning and products or services that have been developed are critiqued. This might involve such assessment procedures as portfolio assessment that includes artifacts created throughout the learning process, performance assessment where learners demonstrate what they have learned and show any products or services they have developed, or concept maps that provide explanations and demonstrate relationships among factors related to the inquiry process.
Slide 56	The Artful Learning model is slightly different and involves four phases:

Slide 57	The first is <i>experience</i> where learners interact with and respond to a Masterwork that can take many forms such as a piece of art, a dramatic skit, a movie clip, an example of architecture, a mathematical formula, and so forth. The basic concept is that the Masterwork can serve as a catalyst for engaging learners in active learning.
Slide 58	The next phase is <i>inquire</i> which is essentially the same as discussed in other approaches to constructivistic learning. This begins by identifying a significant or essential question that serves to guide the inquiry. In this approach there is an emphasis on using interdisciplinary explorations and an emphasis on deep inquiry.
Slide 59	The third phase is <i>create</i> ; at this point learners first
Slide 60	create a prototype and then further refine the product through evaluation and revision.
Slide 61	The fourth and final phase is <i>reflect</i> . At this point learners consider both the learning experience as well as the impact of the created product or service to themselves and others.
Slide 62	When one compares these different models of <i>constructivism</i> , it becomes apparent they have a lot in common with the general model associated
Slide 63	with <i>connectivism</i> , especially to the current version that has evolved from the original conceptualization .
Slide 64	The major difference is that connectivism adds the element of a digital network to the learning process.
Slide 65	For example, the connectivist model would first have learners <i>engage</i> with material, either individually or in groups, with essential or significant questions that have been presented via digital technology and the inquiry process would be completed via a digital network. Learners would engage in discussions over the network to organize or reorganize their current knowledge and understandings.
Slide 66	They would then <i>produce</i> , either individually or in groups, a prototype of a product or service that is in a digital format that would address the essential question.

Slide 67	The individual or group would then test and critique the first iteration of the product or service and would continue to revise until it was ready to be implemented via the digital network.
Slide 68	The next step would be to share the product or service and to collect data on how it was used and reflect on the process of development and implementation.
Slide 69	The last step would be some sort of celebration or recognition of the effort that had been expended and the learning that had occurred, both individually and as a group.
Slide 70	It is important to understand that no one is likely to become an expert in every form of constructivism, especially not at the beginning of one's professional practice. At this point it is merely necessary to review the different approaches and select one that appears to be most relevant to the content and learners that you are most likely to use initially.
Slide 71	Most importantly, educators should implement the basic principles of constructivism: engage learners in inquiry and exploration, provided opportunities for learners to gain experience in problem-solving and project-based learning, and have learners create products and services that are meaningful to them.
Slide 72	And because digitalization is such an important part of modern society, have learners connect to digital networks, both for consuming information as well as contributing to their development. Doing so will be an important component of your professional development.
Slide 73	<p>Alesandrini, K., & Larson, L. (2002). Teachers bridge to constructivism. <i>Clearing-House</i>. 75, 118-121. doi:10.1080/00098650209599249</p> <p>Dunn, S., & Larson. R. (1998). <i>Design technology: Children's engineering</i>. Bristol, PA: Taylor and Francis Publishers (The Falmer Press).</p> <p>Duran, L., & Duran, E. (2004). The 5E instructional model: A learning cycle approach for inquiry-based science teaching. <i>The Science Education Review</i>, 3(2), 49–58. Retrieved from https://files.eric.ed.gov/fulltext/EJ1058007.pdf</p> <p>Huitt, W. (2009). Constructivism. <i>Educational Psychology Interactive</i>. Valdosta, GA: Valdosta State University. Retrieved from http://www.edpsycinteractive.org/topics/cognition/construct.html</p>

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Sli de 75	<p>Slide 7: https://www.biography.com/image/ar_1:1%2Cc_fill%2Ccs_srgb%2Cg_face%2Cq_auto:good%2Cw_300/MTE1ODA00TcxNjA4Mjc4NTQx/john-dewey-9273497-1-402.jpg</p> <p>Slide 8: https://cdn.britannica.com/89/198089-050-C6DDBEC4/Jean-Piaget.jpg</p> <p>Slide 9: https://www.google.com/url?sa=i&url=https%3A%2F%2Fen.wikipedia.org%2Fwiki%2FLev_Vygotsky&psig=AOvVaw2U8PLwLG4st5YsHdu2TzE7&ust=1574718930714000&source=images&cd=vfe&ved=0CAIQjRxqFwoTCJjvq4Lvq-YCFQAAAAAdAAAAABAD</p> <p>Slide 10: https://www.goodreads.com/photo/author/426909.Jerome_Bruner</p> <p>Slide 26: https://i0.wp.com/www.clownlink.com/uploaded_images/Emotion-Masks-760092.jpg?resize=400%2C316</p>
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