

Constructivism: A Holistic Approach to Teaching and Learning

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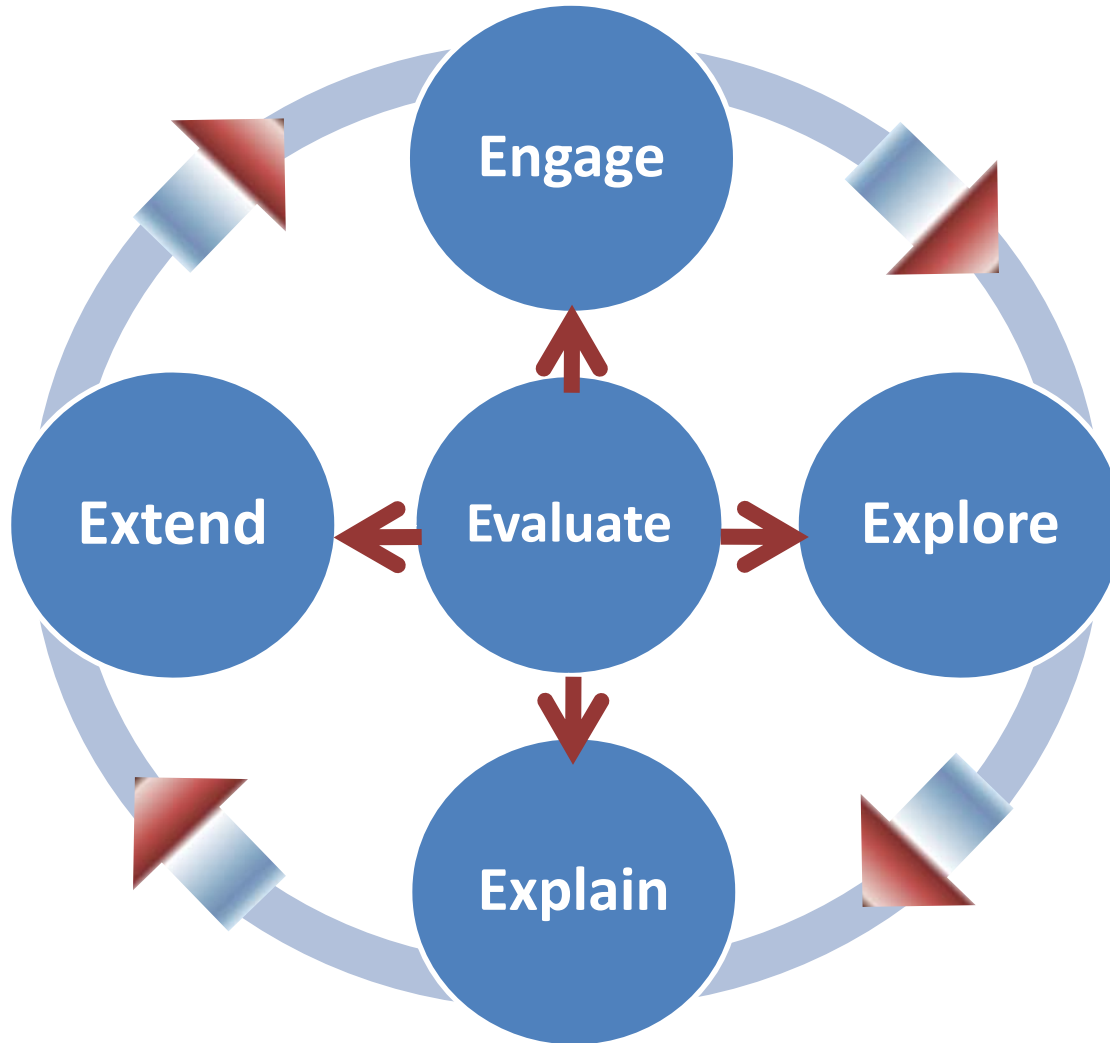
Introductions

- Your name
- Your department or unit
- Your experiences or knowledge of constructivism
- Why have you joined us today?

Overview

- Learning cycle
- Constructivism
 - Learning theory
 - Process
 - Instructional strategy
- Classroom applications
- Instructor and student roles

Learning Cycle or “5 E’s”



How would you define constructivism?



A definition of constructivism

Fundamentally, constructivism says that people construct their own understanding and knowledge of the world through experiencing things and reflecting on those experiences.

Constructivism is a learning theory

- Learning is an active process
- Knowledge is constructed from (and shaped by) experience
- Learning is a personal interpretation of the world

Constructivism is a learning theory

- Emphasizes problem solving and understanding
- Uses authentic tasks, experiences, settings, assessments
- Content presented holistically – not in separate smaller parts

Constructivism is a process – the instructor

- Adapt curriculum to address students' suppositions
- Help negotiate goals and objectives with learners
- Pose problems of emerging relevance to students
- Emphasize hands-on, real-world experiences
- Seek and value students' points of view
- Social context of content

Constructivism is a process – the instructor

- Provide multiple modes of representations / perspectives on content
- Create new understandings via coaching, moderating , suggesting
- Testing should be integrated with the task and not a separate activity
- Use errors to inform students of progress to understanding and changes in ideas

Constructivism is a process – the student

- Help develop own goals and assessments
- Create new understandings (via coaching, moderating, suggesting)
- Control learning (reflecting)

Constructivism is a process – the student

- Member of community of learners
- Collaborate among fellow students
- Learn in a social experience – appreciate different perspectives
- Take ownership and voice in learning process

Traditional Classroom	Constructivist Classroom
Begins with parts of the whole – emphasizes basic skills	Begins with the whole – expanding to parts
Strict adherence to fixed curriculum	Pursuit of student questions / interests
Textbooks and workbooks	Primary sources / manipulative materials
Instructor gives / students receive	Learning is interaction-building on what students already know
Instructor assumes directive, authoritative role	Instructor interacts / negotiates with students
Assessment via testing / correct answers	Assessment via student works, observations, points of view, tests. Process is as important as product
Knowledge is inert	Knowledge is dynamic / changes with experiences
Students work individually	Students work in groups

Constructivism is an instructional strategy

- Involves collaboration between instructors, students and others (community members)
- Tailored to needs and purposes of individual learners
- Features active, challenging, authentic and multidisciplinary learning

Constructivism is an instructional strategy

- Constructivism can help students
 - Pursue personal interests and purposes
 - Use and develop his or her abilities
 - Build on his or her prior knowledge and experiences
 - Develop life-long learning

Constructivism is an instructional strategy

- Constructivism encourages instructors to provide for each student's
 - Preferred learning style
 - Rate of learning
 - Personal interactions with other learners

Applying constructivism in the classroom

- Pose problems that are or will be relevant to students
- Structure learning around essential concepts
- Be aware that students' points of view are windows into their reasoning

Applying constructivism in the classroom

- Adapt teaching to address students' suppositions and development
- Assess student learning in context of teaching

Implementing constructivism in an online setting

- Individuality and choice in practical tasks; negotiated report titles
- Practical tasks use Internet to create Web pages, concept maps, etc.
- Videos replace (some) lectures
- Exams replaced by reports on issue or research on Internet resources
- Work in pairs, groups – Blackboard supported

Student-centered vs. instructor dominated learning environment

Instructor	Student
Facilitator of knowledge	Adaptive learner
Co-learner/collaborator	Collaborator/co-learner
Developer of instruction	Co-developer of goals and objectives
Reflective instructor	Knowledge seeker
Discovery facilitator	Knowledge creator
Negotiator of knowledge	Reflective learner
Team member	Learning through discovery
Information receiver	Negotiator of knowledge
Coach / facilitator	Team member
	Active learner
	Responsible learner
	Mediate own learning

Constructivism summary

Shifts emphasis from teaching to learning

Individualizes and contextualizes students' learning experiences

Helps students develop processes, skills and attitudes

Considers students' learning styles

Focuses on knowledge construction, not reproduction

Uses authentic tasks to engage learners

Provides for meaningful, problem-based thinking

Requires negotiation of meaning

Requires reflection of prior and new knowledge

Extends students beyond content presented to them

Take Workshop Quiz

Selected resources

- Christie, A. (2005). *Constructivism and its implications for educators*.
<http://alicechristie.com/edtech/learning/constructivism/index.htm>
- Clarkson, B., & Brook, C. (n.d.). *I can't understand why I didn't pass: Scaffolding student activities*. <http://www.ascilite.org.au/conferences/perth04/procs/pdf/clarkson.pdf>
- Grabowski, B. (2004). Generative learning contributions to the design of instruction and learning. In D. H. Jonassen (Ed.), *Handbook of research on educational communications and technology* (3rd ed.), pp. 719-743. Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.
- Grennon Brooks, J., & Brooks, M. G. (1999). *In search of understanding: The case for constructivist classrooms*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Honebein, Peter. C. (1996). Seven goals for the design of constructivist learning environments. In Wilson, Brent. G. (Ed.). (1996) *Constructivist learning environments: case studies in instructional design*. Educational Technology Publications Englewood Cliffs, New Jersey
- Lorsbach, A. (n.d.). The learning cycle as a tool for planning science instruction.
<http://www.coe.ilstu.edu/scienceed/lorsbach/257lrcy.htm>
- Murphy, E. (1997).
- Thirteen Ed Online (2004). *Constructivism as a paradigm for teaching and learning*.
<http://www.thirteen.org/edonline/concept2class/constructivism/index.html>

Workshop-related links

Constructivist Checklist (How constructivist concepts might be operationalized in an instructional setting)

<http://www.cdli.ca/~elmurphy/emurphy/cle4.html>

Data Analysis and Probability (simulations)

http://nlvm.usu.edu/en/nav/category_g_4_t_5.html

Virtual Frog Dissection (simulation)

<http://froggy.lbl.gov/cgi-bin/dissect>

Visual Constructivism in Distance Learning (Insight into the promise constructivism offers for achievement of quality in distance learning)

http://www.usdla.org/html/journal/JAN02_Issue/article03.html