Learning Theory
Constructivism vs. Instructivism

Constructivism
Sometimes called progressivism, this is both a specific learning theory and a term which (in popular educational usage) has come to stand for a number of different theories with some similar characteristics.
Constructivism's Foundational Scholars
- **Dewey:** His work dealt with the importance of the relationship of the individual to his or her environment and the building of experience through action. It has contributed to constructivism in terms of its emphasis on situated learning.
  http://www.bu.edu/wcp/Papers/Amer/AmerVand.htm
- **Piaget:** His work dealt with the stages of development which people go though and the importance of discovery in leaning. His work reinforces many constructivist ideas including its reliance on internal motivation and the spiral curriculum.
  http://www.coe.uh.edu/~srmehall/theory/cognitive.html
- **Vygotski:** His work stressed the social context of learning as well as the importance of a student's past learning on future learning. He has influenced constructivism in terms of its belief in collaborative learning and student centeredness.
  http://ruby.fgcu.edu/courses/80337/6215m8a.htm
- A short description of all three can be found here:
  http://www.sedl.org/scimath/compass/v01n03/understand.html

What is Constructivism?
Constructivism is a learning theory based on the idea that each individual learner constructs his or her own knowledge. There are two dynamic principles which follow from this point of view:
- Education needs to focus on the learner.
- There is no such thing as knowledge, as an entity, apart from the constructed experiences of learners or communities of learners.

Principles of Constructivism
- Active learning
- Metacognition
- Contextual learning
- Collaborative learning
- Learner Centered
- Spiral curriculum
- Authentic Assessment

Active Learning
Learning is an active process in which the learner constructs meaning from sensory input. Traditionally this idea is formulated by stressing that the learner needs to do something. Learning is not the passive acceptance of pre-existing knowledge, but rather it requires the learners to engage in some way with the world.

Metacognition
People learn to learn by constructing meaning and constructing their own systems of meaning. This process is primarily a mental one. Doing is not a substitute for thinking. Meaningful learning takes time and reflection. Profound thought results from long periods of preparation.

Contextual Learning
We do not learn isolated facts and theories in abstraction, separate from the rest of our lives. Everything we learn is in relationship to the other things we know and believe. It follows from this that language and learning are inextricably intertwined.

Collaborative Learning
Learning is intimately associated with our connections to other human beings. We are more likely to be successful in our efforts to educate if we recognize this principle rather than try to avoid it. Traditional education is based on a one-on-one relationship between the learner and the material to be learned. In contrast, constructivism recognizes the social aspects of learning: conversation, interaction, and the application of knowledge.

Learner Centered
The more we know, the more we can learn. Teaching involves connecting to the learner, by providing a path to his/her previous knowledge. Motivation is a key component in learning. Motivation, as described here, is the internal motivation to understanding ones environment and the way knowledge is used. Even the most severe direct teaching can not compare with an actual desire to "know the reasons why…".

Spiral Curriculum
Each meaning we construct makes us better able to give meaning to other sensations which fit into a similar pattern. A body of knowledge should be structured so that it can be most readily grasped by the learner. The most effective sequence in which to present material is in a spiral manner so that the student continually builds upon what they have already learned.

Authentic Assessment
The way in which you plan to evaluate learning should be based on learning theory (or vice versa). Because constructivism is based on the student's experience, assessment and evaluation should be based on student work which was generated in the context of the learning. Sometimes this is referred to as portfolio assessment.

A Final Word on Constructivism
- This graph illustrates the results of a study on classroom perceptions of students in grades six to twelve. The four downward lines indicate: opportunity to participate, active participation, independent exploration, and excitement and involvement. The upward trend indicates concern for grades.
- We can reasonably extrapolate these curves in both directions, towards kindergarten on one end and towards graduate school on the other.

- This seems to indicate a need for change at most levels of education (except kindergarten and PhD programs).

Instructivism
Sometimes called objectivism, this is not a specific learning theory but rather a term which has come to stand for a number of different theories and educational practices with some similar characteristics.

Instructivism's Foundational Scholars
- **Skinner:** His work attempted to describe human behavior in terms of stimulus and response. This has contributed to the highly behaviorist nature of instructivism.
  http://www.psych.nwu.edu/~garea/skinner.html
- **Merrill:** His work dealt with the components which make instruction effective. As such he has contributed to the idea of programmed instruction.
  http://www.gsu.edu/~mstswh/courses/it7000/papers/componen.htm
- **Carrol:** His work stressed the importance of time on learning. It contributed to instructivism in terms of pacing, grouping and teacher centeredness.
  http://allen.warren.net/ml.htm

What is Instructivism
Instructivism is based on the idea that there is an external reality which individuals must strive to come to terms with. There are two dynamic principles which follow from this point of view:
- Teachers are the primary agents of learning – they control it with their knowledge of general principles of psychology and instruction.
- Education is about changing students' behavior (learning) from what it used to be to what we all agree is better.

Principles of Instructivism
- Applied Behavioral Analysis
- Precision Teaching
- Mastery Learning
- Standardized Assessment

Applied Behavioral Analysis
Instructivist approaches stress an analysis of the functional relationships between students, teachers and the material. This involves creation of formulas and procedural guidelines for questioning, providing feedback, and rewarding correct behavior (learning).

Precision Teaching
Instructivist approaches are characterized by their use of standardized educational products and methods. These products and methods are developed and tested by professional instructional designers. It becomes the instructor's role to implement them properly. Aside from the use of formal, programmed instruction, instructivists rely on a battery of pedagogical approaches designed to improve student time on task, reduce

"teacher talk", isolate the "big ideas", provide structure, achieve mastery of precise instructional objectives, and ensure active learning.

Mastery Learning
Curricula is designed around the concept of achieving specific instructional objectives. Students proceed through a series of steps along predetermined linear knowledge paths. They only proceed to the next step once they have mastered the appropriate prerequisites. Virtually any student can succeed provided the appropriate time and remediation is available. This can break the cycle of failure, improving students' self esteem. Mastery leaning requires a battery of tests and remedial materials. It tends to stress the lower order thinking skills (knowledge, comprehension and application).

Standardized Assessment
Evaluation and assessment are standardized and used prolifically by instructivists. The measures of learning must be comparable between students so that they can be appropriately grouped and paced for the given instruction. Furthermore, instructivists tend to consider test results as the most important indicator of educational achievement. Unfortunately, they have the same problems matching curriculum to standardized test as constructivists do.

A Final Word on Instructivism
Interestingly enough, with the exception of "independent exploration" instructivists would point to this same study as reasons for change. It is a mistake to equate instructivism with traditional reading and lecture-based educational practices. In fact instructivists also complain about this approach since it is not congruent with their belief in precision teaching, behaviorism, and mastery learning.

Conclusion
The decision to philosophically support one approach over another is, of course, based on ones personal world view and experiences. However, it is a danger to be so committed to a philosophical orientation that the real world, practical applications of a particular approach are missed. In other words, an informed educator should be like a doctor, who diagnosis the learning situation and then chooses the most appropriate treatment - based on what will be best for the students. Following this advice, it is likely that educators will have occasions to find themselves on either side of the fence, from time to time…

References
This a list of some of the resources I used to make this presentation:
- Hein, G. (1991). Constructivist learning theory. Web: http://www.exploratorium.edu/IFI/resources/constructivistlearning.html
- Kozloff, M. (1999).. Direct instruction in education. Web: http://www.uncwil.edu/people/kozloffm/diarticle.html
- Warren, A. (2002). Mastery learning: A basic introduction. Web: http://allen.warren.net/ml.htm
- Kearsley, G. (2001). Explorations in learning & instruction: The theory into practice database. Web: http://tip.psychology.org/