Objective

Compare and contrast, in a visual format, the principal theories of learning.  
*Technology must be used to prepare the product.*  [Course objectives 1, 5]

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Behaviorism (Physical)

Behaviorism is a movement in psychology that advocates the use of strict experimental procedures to study observable behavior (or responses) in relation to the environment (or stimuli). The American psychologist John B. Watson first developed behaviorism in the early 20th century.

He was greatly influenced by the pioneering investigations of the Russian physiologists Ivan P. Pavlov and Vladimir M. Bekhterev on conditioning of animals (classical conditioning). In this theory all complex forms of behavior—emotions, habits, and such—are seen as composed of simple muscular and glandular elements that can be observed and measured.

**BF Skinner**, however, disagrees with Watson's position that inner processes, such as feelings, should be excluded from study. He maintains that these inner processes should be studied by the usual scientific methods, with particular emphasis on controlled experiments using individual animals and humans. He postulated a type of psychological conditioning known as reinforcement.

At the same time, psychologists have undertaken studies using behavioral principles on practical problems. This work has yielded a body of knowledge known as behavior modification, or applied behavior analysis.

By the early 1960s, behavior modification had become a clearly identifiable applied psychology movement with two components: behavior therapy and applied behavior analysis. Five essential steps characterize this approach: (1) deciding what the individual can do to ameliorate the problem; (2) devising a program to weaken undesirable behavior and strengthen desirable substitute behavior; (3) carrying out the treatment program according to behavioral principles; (4) keeping careful and objective records; and (5) altering the program if progress can thereby be improved.

Cognitive Information Processing (Mental)

In 1930 American psychologist Edward C. Tolman investigated cognitive processes in learning by studying how rats learn their way through a maze. He found evidence that rats formed a "cognitive
map" (a mental map) of the maze early in the experiment, but did not display their
learning until they received reinforcement for completing the maze—a phenomenon
he termed latent learning.

The American psychologist Abraham Maslow devised a six-level hierarchy of
motives that, according to his theory, determine human behavior. Maslow ranks
human needs as follows: (1) physiological; (2) security and safety; (3) love and feelings of belonging; (4) competence,
prestige, and esteem; (5) self-fulfillment; and (6) curiosity and
the need to understand.

In the 20th century, certain psychologists—including the Americans Rollo May,
Gordon Allport, and Abraham Maslow and especially the advocates of
existentialism—have recognized the element of spontaneity in the human mind
that is admitted to lie outside any possible scientific law. This spontaneity can be
interpreted to be free will, or at least a measure of self-determination that people feel themselves to
possess and by which they make moral judgments.

Maslow developed a theory of motivation describing the process by which an
individual progresses from basic needs such as food and sex to the highest needs
of what he called self-actualization—the fulfillment of one's greatest human
potential. In the 1980s American psychologist Howard Gardner proposed that
there are many different forms of intelligence, including linguistic, logical-
mathematical, musical, and interpersonal intelligence. A person may easily learn
skills in some categories but have difficulty learning in others.

Comparison

That persons are active and intervening participants in their behavior has become increasingly clear
but the work by Watson & Skinner remains a viable theory to this day. Environments, rewards, and
punishments have a place in how humans learn, but they are not simply defined by their physical
characteristics. Recent observations on how we think & learn have predicated new theories that
further our understanding. In conclusion,

“Cognitive psychologists and behaviorists will continue to debate the merits of their different positions,
but in many ways these two approaches have different strengths that complement each other. With its
emphasis on memory and complex thought processes, the cognitive approach appears well suited for
investigating the most sophisticated types of human learning, such as reasoning, problem solving, and
creativity. The behavioral approach, which emphasizes basic principles of conditioning, reinforcement,
and punishment, can provide explanations of why people behave the way they do and how they choose
between different possible courses of action.”

Constructivism (Understanding)

Constructivism is a theory based on results of Piaget's & Lev Vygotsky research. It differs from the
traditional view, that knowledge exists independently of individual, the view that the mind is a
_tabula rasa_, a blank tablet upon which a picture can be painted.

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1 Microsoft® Encarta® Encyclopedia 99. © 1993-1998 Microsoft Corporation. All rights reserved.
2 [http://www.ic.polyu.edu.hk/posh97/Student/Learn/Learning_theories.html#constructivism](http://www.ic.polyu.edu.hk/posh97/Student/Learn/Learning_theories.html#constructivism)
Constructivism, as part of a cognitive family tree\(^3\) is a ...theory of cognitive growth and learning that has gained many adherents in recent years.\(^4\) One foundational premise is that children actively construct their knowledge. Play and experimentation are valuable forms of learning. The child as a self- governed creator of knowledge. Learning something new, or attempting to understand something familiar in greater depth, is not a linear process. In trying to make sense of things we use both our prior experience and the first-hand knowledge gained from new explorations.\(^5\)

**Comparison**

As constructivism is a cognitive theory, differences between them are a matter of degree. Constructivism builds on cognitive theory, which was in turn built upon the work by behaviorists. The basic distinction, however, is that while the behaviorists viewed knowledge as nothing more than passive, largely automatic responses to external factors in the environment and the cognitivists viewed knowledge as abstract symbolic representations in the head of individuals, the constructivistic school views *knowledge as a constructed entity* made by each and every learner through a learning process. Knowledge can thus not be transmitted from one person to the other; it will have to be (re)constructed by each person. This means that the view of knowledge differs from the "knowledge as given and absolute" views of behaviorism and cognitivism.\(^6\)

<table>
<thead>
<tr>
<th>Constructivist Perspective</th>
<th>Behavioral Perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge is active, situated in lived worlds</td>
<td>Knowledge is inert</td>
</tr>
<tr>
<td>Individuals construct knowledge</td>
<td>Individuals are passive recipients of knowledge</td>
</tr>
<tr>
<td>Meaningful learning is useful and retained, building on what the learner already knows</td>
<td>Learning occurs with programmatic, repeated activities</td>
</tr>
<tr>
<td>Teacher's role is coach, mediator, strategic</td>
<td>Teacher's role is authoritative, directive</td>
</tr>
</tbody>
</table>

**Technology Used (Software)**

- Microsoft Windows 98
- Microsoft Word 97
- Microsoft Encarta 99
- CompuServe (ISP)
- Metacrawler Internet Searches
- Microsoft FrontPage 98
- Adobe PhotoDeluxe BE
- Adobe Acrobat
- Adaptec DirectCD
- Adaptec EZ-CD

\(^3\) [http://www.hmco.com/college/education/station/concept/construct/conback.html](http://www.hmco.com/college/education/station/concept/construct/conback.html)

\(^4\) [http://www.ilt.columbia.edu/k12/livetext/docs/construct.html](http://www.ilt.columbia.edu/k12/livetext/docs/construct.html)

\(^5\) [http://www.miamisci.org/ph/lpintro5e.html](http://www.miamisci.org/ph/lpintro5e.html)

\(^6\) [http://www.uib.no/People/sinia/CSCL/web_struktur-836.htm](http://www.uib.no/People/sinia/CSCL/web_struktur-836.htm)
Webliography
The following links were the results of searching for the various proponents of the theories in this paper, and the theories themselves. The results were mixed but interesting. This is a sample of the many “hits” from my search terms.

Tolman Biography
http://muskingum.edu/~psychology/psycweb/history/tolman.htm

Maslow Biography
http://www.ship.edu/~cgboeree/maslow.html

Garner Biography

Garner’s 7 Intelligences
http://www.swopnet.com/ed/TAG/7_Intelligences.html

School Reform: What Role can Technology Play in a Constructivist Setting?
http://pixel.cs.vt.edu/edu/fis/techcons.html

Constructivism: Background Knowledge
http://www.hmco.com/college/education/station/concept/construct/conback.html

University of Colorado at Denver, School of Education: Constructivism
http://carbon.cudenver.edu/~mryder/itc/constructivism.html

Building and Using Constructivist Learning Environments (Resource Site)
http://gamma.is.tcu.edu/~cpevoto/treatise/

Constructivism and Related Sites (Resource Site)
http://www.emtech.net/links/construc.htm

Constructivism, Technology, and the Future of Classroom Learning
http://www.ilt.columbia.edu/k12/livetext/docs/construct.html

(Mathematics Education) Constructivism: Vygotsky and the Internet
http://forum.swarthmore.edu/mathed/vygotsky.html

Constructivism and the Five E's
http://www.miamisci.org/ph/lpintro5e.html

Transformative Learning
http://adulted.about.com/education/adulted/library/weekly/aa011500b.htm?iam=mt&terms=%2Bcon
structivism+%2Blearning