Education for Transformation: Our Conceptual Framework in this Course

The central tenets of our conceptual framework are Excellence, Equity, Inquiry and Collaboration

In this course, my intention is to help you to examine constructivism from several perspectives so that you question your own understanding of and developing ideas about the field. As always, you should emerge with excellent knowledge, demonstrated in the assignments you complete. I expect you to be inquiry-oriented, raising questions which may be answered by current research or which are open for exploration. Further, you will begin to value the dialogue between students and the collaborative nature of the class-work as a necessary component in developing your own knowledge. Constructivism can be viewed as a referent for teaching and learning. If you truly believe in an equitable education for all, then constructivism provides a guiding philosophy which acknowledges that each individual builds his/her knowledge by drawing upon cultural, informal and formal (school-based) contexts. We as educators must be aware of each child’s way of knowing.

Background to the course

Constructivism is mentioned frequently among educators. Unfortunately, the term is often used to mean an approach to or method of teaching; that is NOT the case. You will not hear me talk about “A” constructivist approach to teaching; you will not hear me say that I am a constructivist teacher; these phrases trivialize and misrepresent the field.

There are some central tenets of constructivism that educators agree upon, whether their roots are cognitive, radical or social:

- Information is acquired, but knowledge is built by the individual. Knowledge represents the integration and organization of information by the individual.
- Building knowledge involves both intrapersonal and interpersonal processes and is influenced by socio-cultural contexts.
- The knowledge built by the individual must represent a viable interpretation of experience.
- Individuals can be assisted with their knowledge construction through the use of teaching methods which recognize the roles played by prior knowledge, socio-cultural context of the learner, social interaction, individual processing and solution testing.

In this course we shall look at theoretical background of the three areas of constructivism separately.
INTRODUCTION TO THE COURSE

Psychological roots

- Knowledge is not passively received, but built up by the cognizing subject.
- The function of cognition is adaptive (as in the biological sense of adaptation) employing the functional invariants — assimilation and accommodation — in the act of equilibration.

Summarized from Piaget

Epistemological roots

- The knowledge we construct must be viable (constructivism is NOT about building any interpretation of experience).
- Cognition serves to help the individual organize the world s/he experiences and not to discover reality.

Summarized from von Glasersfeld (1995)

Socio-cultural roots

The individual learns to think through his/her social actions. As a result of discourse the individual takes externally developed understanding and turns it inwards as interpersonal speech for making personal sense.

Summarized from Vygotsky (1930s)

The background for those who see constructivism as a learning theory; often referred to as personal or COGNITIVE CONSTRUCTIVISM.

The background for those who see constructivism as an epistemology; knowledge does not represent truth but a viable interpretation of experience; often referred to as RADICAL CONSTRUCTIVISM.

The background for those who see knowledge as socially constructed and instrumental. They acknowledge the influence of culture and social interaction on learning; often referred to as SOCIAL CONSTRUCTIVISM.
**REQUIRED TEXTS**

0-8204-7616-1

0-7507-0572-9

Cambridge, MA: Harvard University Press.  
0-674-57629-2

**SOME OF THE PAPERS THAT WILL BE READ**

[HTTP://FACULTY.ED.UIUC.EDU/BURBULES/PAPERS/CONSTRUCT.HTML](HTTP://FACULTY.ED.UIUC.EDU/BURBULES/PAPERS/CONSTRUCT.HTML)


Radio Program 30 minutes  
The Three Mountains  

Nola and Irzik – Philosophy, science, education and culture (criticism of radical constructivism- chapter 5)
Processes employed in the course
von Glasersfeld contends that ....

knowledge is not a commodity which can be communicated
....we shall explore what he means by this through your involvement in this course. You should expect to be actively (mentally and verbally) participating in discussion, questioning, arguing, investigating, and reflecting. The course will help you to explore the many interpretations of constructivism while also exposing you to some commonly agreed upon tenets.

Planning of Constructivism Course Using Wiggins and McTighe - Understanding by Design

STEP 1
Identify Desired Outcomes

STEP 2
Determine Acceptable Evidence

STEP 3
Plan Learning Experiences and Instruction

Identifying Outcomes

Enduring Understanding
Constructivism today has evolved from three distinct traditions. It is often referred to as a referent for teaching and learning because there are objections by some authors to its status as either an epistemology or a learning theory. Constructivism holds that knowledge is built by the individual and not acquired by transmission from one person to another. Building knowledge occurs as we make sense of our personal experiences with the world, as well as our interactions with others where meaning is negotiated. In school settings our socio-cultural learning interacts with academic knowledge. The resulting knowledge is a viable interpretation of personal and social experiences. Viability of constructions is a central tenet of constructivism.

Important to Know
The roots of constructivism.
How to examine teaching approaches for consistency with constructivist perspectives.
How prominent authors’ ideas have evolved.

Worth Being Familiar With
Fields which have evolved from constructivism
Criticism of constructivism
INTENDED LEARNING OUTCOMES

NON-BEHAVIORALLY STATED
- Knowledge of the foundations and differences in the fields of constructivism
- Understanding of practices which are consistent with constructivism
- In depth knowledge of a scholar’s writing in this field

BEHAVIORALLY STATED
As a result of participating in this course you will be able to:
1. Explain the different foundations and emphases of radical, cognitive, social constructivism.
2. Critique teaching practices for their consistency with constructivism.
3. Synthesizing the meaning and evaluating the application (or potential relevance) of constructivism in <a field of> education as it has been developed by a prominent scholar/researcher.

STEP 2
DETERMINING ACCEPTABLE EVIDENCE

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Evidence of constructed understanding from this course - graded. SPECIFIC DETAILS WILL BE HANDED OUT IN CLASS</th>
</tr>
</thead>
</table>
| 1. Explain the theoretical foundations and your understanding of the central ideas of each form of constructivism.  
- Radical  
- Cognitive  
- Social | ASSIGNMENT 1 (45 POINTS)  
Three papers 1000-1500 words  
Paper 1 – Cognitive Constructivism 15 points  
Paper 2 – Radical Constructivism 15 points  
Paper 3 – Social Constructivism 15 points |
| 2. Analyze teaching practices for their consistency with constructivism as a theory of knowing | ASSIGNMENT 2 (15 POINTS)  
An oral presentation which describes and critiques a teaching example in terms of consistency with constructivism as a referent for teaching and learning. |
| 3. Synthesizing and evaluating the work of a given researcher/scholar | ASSIGNMENT 3 (30 POINTS)  
A major paper in which you synthesize the work of a chosen scholar/researcher with respect to his/her evolving ideas in the field of constructivism and also evaluate the relevance of this author’s perspective for teaching and learning. |
| 4. Articulation of developing ideas and questions OR discussion of a related field. | ASSIGNMENT 4 (10 POINTS)  
Timely and complete participation in web-based discussions as described on the website. |
HOW THESE OUTCOMES WILL BE ASSESSED

ASSIGNMENT 1 (45 POINTS)

3 SHORT PAPERS (1000-1500 WORDS) THAT ILLUSTRATES YOUR UNDERSTANDING OF:

Paper 1: Radical Constructivism due June 15th (electronically) (15 points)
Paper 2: Cognitive Constructivism due June 29th (electronically) (15 points)
Paper 3: Social Constructivism due July 13th (electronically) (15 points)

ASSIGNMENT 2 (15 POINTS EACH)

IN-CLASS PRESENTATIONS JULY 17TH, 24TH OR 31ST

You will be asked to present an assigned paper or chapter in class.
You will use Powerpoint but please prepare NO MORE THAN 7 SLIDES (includes a title slide). The timing of these presentations will depend upon how many students are in the class and cannot be scheduled in advance. This assignment assesses your ability to select salient information and present this coherently to someone who has not read your paper. You need to ensure that you illustrate:

- Description of practices
- Critique of practices for their consistency or inconsistency with constructivism
- You may not use more than 7 slides and you will be assessed on the fluency of your presentation, much as you will in your qualifying examination or dissertation proposal or final defense. You will also be required to stick to the time allotment.

ASSIGNMENT 3 (30 POINTS)

FINAL PAPER due AUGUST 4TH

You must read a minimum of six papers written by your chosen author/researcher. Most of the authors have been writing for 20 years and your papers must spread over the two or more decades of their work.

Paul Cobb Mathematics Paul Ernest Mathematics
Jere Confrey Mathematics Les Steffe Mathematics
Catherine Fosnot Mathematics Dina Tirosh Mathematics
James Wertsch Anthropologist/sociologist Kenneth Gergen Social Psychologist
Ken Tobin Science Rosalind Driver Science
Reinders Duit Science Peter Hewson Science
Seymor Papert (Constructionism) Instructional technologist
Kenneth Goodman Reading Karen Harris Writing

ASSIGNMENT 4 (10 POINTS)

You will receive up to 10 points for your participation in web-based discussions.

TOTAL ASSIGNMENT POINTS = 100

ALL ASSIGNMENTS SHOULD BE COMPLETED USING APA 5TH EDITION
COURSE GRADING STRUCTURE

<table>
<thead>
<tr>
<th>Grade</th>
<th>GPA</th>
<th>Point structure</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>4.0</td>
<td>99-100</td>
<td>Work of the highest professional standard demonstrating independent and exemplary performance.</td>
</tr>
<tr>
<td>A</td>
<td>4.0</td>
<td>96-98</td>
<td>Excellent work demonstrating independent and high quality performance.</td>
</tr>
<tr>
<td>A-</td>
<td>3.7</td>
<td>91-95</td>
<td>Very good work, carefully executed, but requiring some areas of improvement.</td>
</tr>
<tr>
<td>B+</td>
<td>3.3</td>
<td>86-90</td>
<td>Good work, indicating careful thought and attention to the task, yet requiring several areas of improvement.</td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
<td>80-85</td>
<td>Work of graduate standard, but omissions exist or careful analysis is not in evidence.</td>
</tr>
<tr>
<td>B-</td>
<td>2.7</td>
<td>76-79</td>
<td>Effort is evident, but work indicates lack of understanding of the demands of the task.</td>
</tr>
<tr>
<td>C+</td>
<td>2.3</td>
<td>70-75</td>
<td>Poor quality work with little attention to detail and the demands of the task.</td>
</tr>
<tr>
<td>C</td>
<td>2.0</td>
<td>65-69</td>
<td>Work of very poor quality, indicating no understanding of the depth of analysis required.</td>
</tr>
<tr>
<td>F</td>
<td>0.0</td>
<td>Below 65</td>
<td>Serious neglect or evidence of cheating.</td>
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COURSE POLICIES.
ALL ASSIGNMENTS MUST BE SUBMITTED TO PASS THE COURSE.

Late Assignments
For every day that an assignment is submitted late, you lose a point.
Once an assignment is 7 days late it will NOT be graded, but IT MUST be submitted.

Pre-reading and Re-writes
Unless this is your first doctoral course, I cannot read a draft of your paper. No re-writes are allowed for any student, thus, you must ensure that you understand the assignment prior to embarking on it. Make use of office hours and email to ask questions before an assignment is due.

Withdrawal from Course and Incomplete Policy
If you are behind in your course work or you have missed several classes, then you may be advised to WITHDRAW from the course. You will lose the money you paid for the course, but a W rather than an F will be recorded on your transcript. PLEASE do not ask for an incomplete grade unless you or a close family member has suffered a severe illness or other emergency situation arises. You may be asked to provide written documentation.

Lateness, Un-preparedness and Absenteeism
I reserve the right to subtract up to five points from your total points for continual lateness to class or un-preparedness or excessive absenteeism without prior discussion with the instructor. Your presence and contributions in class are important for your own learning and for that of your peers.
## Weekly Schedule

### Week 1
**May 29**

**Topic:** Perspectives on Constructivism

**Reading you need to do before this class:**

**Questions or ideas we shall consider during class:**

1. What do various educators think that constructivism is?
2. Why so much divergence?
3. How we will view constructivism?
4. Beginning to understand Piaget’s work as foundational to constructivism

### Week 2
**June 5**

**Topic:** Piaget’s Genetic Epistemology

<table>
<thead>
<tr>
<th>Online Session</th>
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<tbody>
<tr>
<td>As you read in preparation for this class, make notes on the following terms:</td>
</tr>
<tr>
<td>o genetic epistemology</td>
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<tr>
<td>o intelligence</td>
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<tr>
<td>o knowledge</td>
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<tr>
<td>o equilibration</td>
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<tr>
<td>o adaptation</td>
</tr>
<tr>
<td>o reflective abstraction</td>
</tr>
<tr>
<td>o action schemes</td>
</tr>
<tr>
<td>o operations (concrete and formal)</td>
</tr>
<tr>
<td>o cognitive development</td>
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</tbody>
</table>

**Required to read:**

Campbell—as far as point 84

http://hubcap.clemson.edu/~campber/piaget.html

**Use this to help you with terms:**

*I am also providing you with a chapter from Flavell which may help you with some of the terminology.*
<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Reading You Need To Do Before You Come To This Class</th>
<th>Questions Or Ideas We Shall Consider During Class</th>
<th>Questions Or Ideas We Shall Consider During Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. June 19</td>
<td>Radical Constructivism: Questions and Answers</td>
<td>Finally, MOST IMPORTANT read an article by Ernst von Glasersfeld <a href="http://www.oikos.org/constructivism.htm">http://www.oikos.org/constructivism.htm</a></td>
<td>What makes radical constructivism radical (or post-epistemological!!)? Why is it incorrect to say that constructivism “denies” reality? How can we “share” knowledge that is constructed?</td>
<td></td>
</tr>
<tr>
<td>6. July 3</td>
<td>The Roots of Social Constructivism</td>
<td>MIND IN SOCIETY Read chapter 4 and chapter 6 (if you do not have the text, I will send you an email attachment)</td>
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<tr>
<td>WEEK</td>
<td>TOPIC</td>
<td>READING YOU NEED TO DO BEFORE THIS CLASS</td>
<td>QUESTIONS OR IDEAS WE SHALL CONSIDER DURING CLASS</td>
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<td>7. JULY 10</td>
<td>SOCIAL CONSTRUCTIVISM</td>
<td>Choice of papers to read: Martin paper – Reconstructing mathematics pedagogy from a constructivist perspective.</td>
<td>What aspects of Vygotsky’s work has found its way into this field of constructivism?</td>
<td></td>
</tr>
<tr>
<td>8 JULY 17</td>
<td>ASSIGNMENT 2 PRESENTATIONS CRITICAL CONSTRUCTIVISM</td>
<td></td>
<td>How does critical constructivism differ from radical, social and pedagogical constructivism?</td>
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<tr>
<td>9. JULY 24</td>
<td>ASSIGNMENT 2 PRESENTATIONS CRITICAL CONSTRUCTIVISM</td>
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<td></td>
</tr>
<tr>
<td>10 JULY 31</td>
<td>BEYOND CONSTRUCTIVISM</td>
<td>Criticisms – • Osborne • Burbules • Nola</td>
<td>What impressions and ideas have evolved for you?</td>
<td></td>
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</tbody>
</table>