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INF5790 – Spring 2013
Lecture 1 – Basic concepts, Overview

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Outline

- Introduction to today's theme
  - Basic concepts in TEL from a collaborative learning point of view
- Group in-class exercise
- How to read an article
- Selecting article to present
- Semester project
- Wiki technology for INF5790

Basic concepts (an overview)

- Many possible ways to organize a course in technology-enhanced learning (TEL)
- The wealth of technologies and tools is a result of a wide variety of underlying theories of human learning
  - Behavioristic
  - Cognitive
  - Sociocultural and constructivist
  - Etc.
- Most TEL tools are based on theory and/or derived design principles, directly or indirectly

What the theories tell us

- Behaviouristic
  - Drill and practice
  - Detailed sequencing of learning tasks
- Cognitive
  - Instruction is central
  - Acquisition as model of learning
  - Information processing (computer) as model of thought
- Sociocultural and constructivist
  - Communication is central to teaching and learning, involving both the social and cultural contexts
  - Collaborative learning, learner as active agent
  - Technology as mediating artifact
  - Stages and transition from communication to thought

The sociocultural perspective

- The overarching perspective for this course
- Key concepts we use across 12 lectures
  - Generalized other
  - Zone of proximal development
  - Multiple external representations
  - Appropriation
- Some of the concepts have been associated with more than one theory, arguable they are better integrated within the sociocultural perspective, which we exemplify in the course

Generalized other

- It is the expectations an individual has for how to act within a particular society

- It helps a newcomer to navigate and position himself within a social system or organization

- Any time that an actor tries to imagine what is expected of them, they are taking on the perspective of the generalized other (Mead & Morris, 1934)

- How this can inform TEL design, is a question we address in the course for this and other concepts from psychology and social sciences

Zone of proximal development

- Cognitive development is limited to a certain range at any given age, and full cognitive development requires social interaction, according to Vygotsky

- Zone of proximal development (ZPD) is the "distance between the actual developmental level as determined by independent problem solving, and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers." (Vygotsky, 1978, p. 86)

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ZPD visualized

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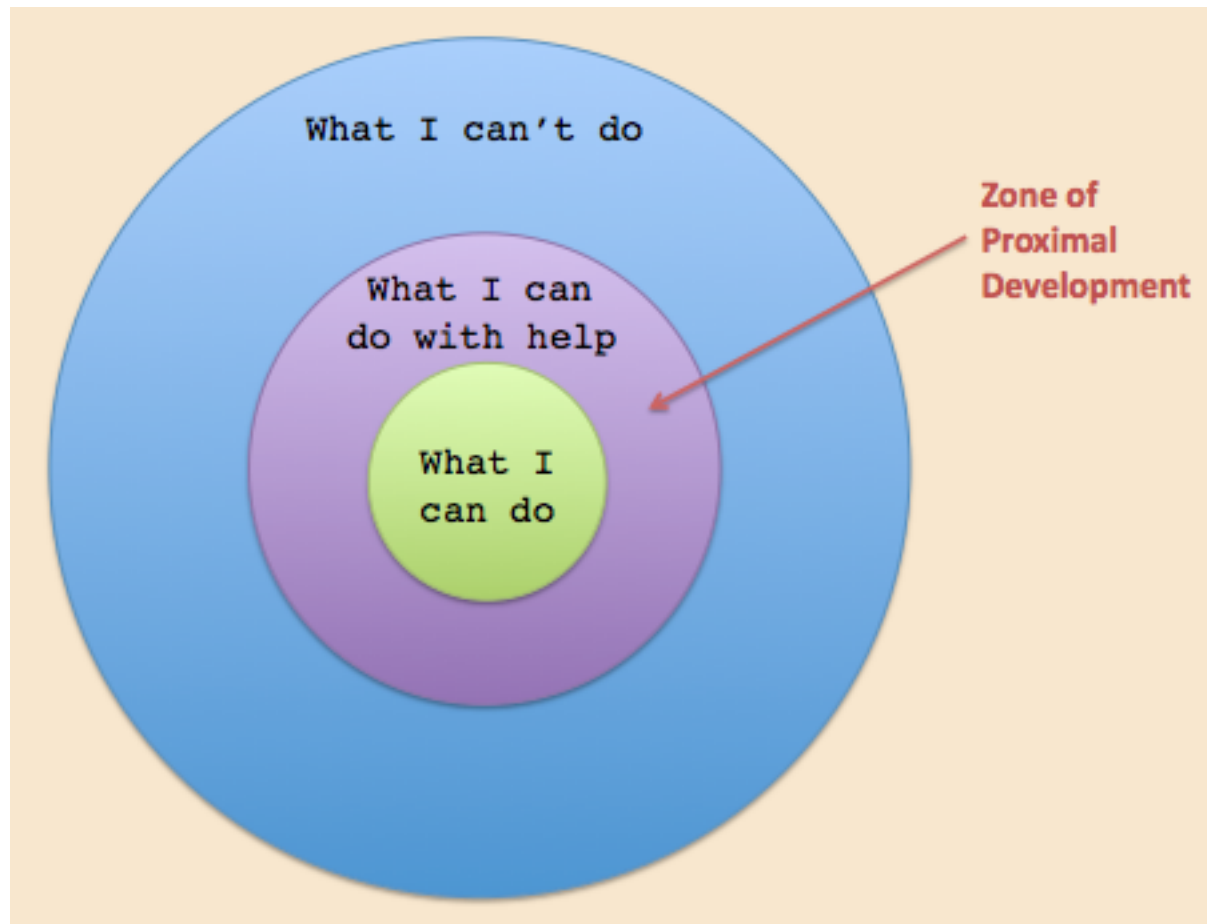
Multiple external representations

- An external representation is something that stands for , depicts, symbolizes or represents a phenomenon under study, abstract or concrete

- Examples include diagrams, pictures, sketches, models, and graphs

- "Finding facilitating representations for almost any class of problem(s) should be seen as a major intellectual achievement, one that is often greatly underestimated as a significant part of both problem solving" (Simon, 1996)

- External representations can aid the communication and coordination with others in joint problem solving

Appropriation

- From a sociocultural point of view, appropriation has been defined as "the process of taking something that belongs to others and making it one's own" (Wertsch, 1998, p. 53)

- According to Wertsch, the path to appropriation sometimes involves "tension" between what one appropriates and the way one uses it

- Appropriation of concepts can be described as breaking down an idea or concept into meaningful units and reorganizing them to make applications possible without distorting the conceptual integrity of the original idea

- The concept has two meanings for TEL: Appropriation of technology and appropriation of theoretical concepts

How to read an article

- Focus
  - What is the theme of the article/study?
  - Research questions (explicit or implicit)

- Theoretical perspective
  - What theory or conceptual framework is made use of
  - Can you compare it with the key concepts we use in the course (ZPD, mediation, acquisition, participation, etc.)

- Technology
  - What type of technology
    - collaboration system, ITS, domain-specific app, game, virtual world, etc.
  - A prototype or finished system
  - Affordances and constraints built into the technology
  - Underlying design principles and theory, if any

How to read an article cont'd

- Setting
  - Informal vs. formal learning
  - Synchronous vs. asynchronous communication
  - Subject matter (English, science, communication, etc.)
  - Numbers of participants (N)

- Methods
  - Qualitative/quantitative?
  - Analyses methods

- Discussion points
  - Strengths and shortcomings of the study
  - Do thy findings emerge naturally from data
  - Do you agree / disagree about conclusions reported

Article distribution table (this is from 2012)

Dato	Artikkel	Herman	Fredrik	Therese	Anna	Dunia	Michal	Dave	Lamisi	Xiaoli	Discussants
16. feb	Romero et al. (2008)		x								Herman & Therese
1. mars	Brown (1992)	x									Fredrik & Anna
15. mars	Shami, Erickson & Kellogg (2011)				x						Therese & Dunia
22. mars	Paavola & Hakkarainen (2005)						x				Dave & Herman
22. mars	Stahl (2006)									x	Lamisi & Anders
22. mars	Richter et al. (2012)					x					Fredrik & Dave & Xiaoli
29. mars	van der Meij & de Jong (2006)							x			Dunia & Michal
12. april	Clark & Sampson (2007)								x		Xiaoli & Anniken
26. april	Li, D'Souza & Du (2011)			x							Anna & Lamisi

It will be accessible in Dropbox (INF5790-Spring13-all) by end of this week, for you to fill in

Semester project *(tentative, to be worked out)*

- Design, justify and implement a Wiki page for INF5790 course wiki to support communication, according to:
  - Combining synchronous and asynchronous communication
  - Working on a common task (group work)
  - Argumentation with epistemic tags
  - Back-channel communication
  - Awareness (provide awareness of some shared activity)
- You will complete the formulation of your task in first deliverable
- Design suggestions can be based on data and/or more or less programmed solutions
- Lack of programmed solution can be compensated with empirical findings and argumentation based on literature references, alternatively a programmed solution do not require empirical justification