ARTIFICIAL INTELLIGENCE VERSUS OR PLUS ONLINE COLLABORATIVIST LEARNING

by Linda Harasim, Ph.D
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Building the Field of Online Collaborative Learning

**BOOKS**
- 1986: Computer Networks for Teachers
- 1990: Online Education
- 1993: Global Networks
- 1995: Learning Networks
- 2012: Learning Theory & Online Technologies

**PROJECTS**
- 1983-> Study Online Education
- 1985→ Teach Online
- 1994-2014: Virtual-U collaborative learning platform
- 1995-2002: Leader of the TeleLearning Network of Centers of Excellence $50 million for R&D
- 1995-2002: Largest field trials of online education & OCL

**PRACTICE**
- 1986: 1st online university course in the world
- +100 publications
- +60 keynotes
- OCL Theory Building
- OCL Research Methods
- OCL Pedagogy
- OCL Assessment
My Purpose Today

- Celebrate and review Human Civilization
- Celebrate the Role of Teaching and Learning
- Identify Challenges Ahead
- Focus on the Role of Pedagogy & Technology
- Consider Artificial Intelligence v Augmented Human Intelligence
- Next Steps?
4 Major Paradigms in Human Civilization

- 3.8 million BCE: Rise of homonids
- 200,000 BCE: Rise of Homo Sapiens (defined as Intentional Collaborators)

Paradigmatic Shifts in Human Development & Technology

1. Speech: 60,000 years BCE
2. Writing: 10,000 years BCE
3. Printing Press: 1493 AD
Human Civilization

1. Speech: \(<-------\rightarrow\) Collaborative Intelligence Revolution
2. Writing: \(<-------\rightarrow\) Agrarian Revolution
3. Printing: \(\rightarrow\) Scientific Revolution
   \(--\rightarrow\) Enlightenment
   \(--\rightarrow\) Industrial Revolution
4. AI/Internet: \(\rightarrow\) Knowledge Revolution? or \(\rightarrow\) Automation Revolution?
Our Distorted View of Intelligence

Haha that's adorable the funny robot can do monkey tricks!

Intelligence

Time

EINSTEIN

DUMB

HUMAN

CHIMP

BIRD

ANT

AI INTELLIGENCE

waitbutwhy.com
Highest Intelligence on Earth

Time

Tripwire

Human brains become smart enough to create ASI
Computer Performance

Human Performance

We are here

Time
Reality

Haha that’s adorable the funny robot can do monkey tricks!

EINSTEIN
DUMB HUMAN

CHIMP

AI INTELLIGENCE

BIRD

ANT
Exponential Growth of Computing
Twentieth through twenty first century

Logarithmic Plot

- All Human Brains
- One Human Brain
- One Mouse Brain
- One Insect Brain

Calculations per Second per $1,000$

Year

1900 1920 1940 1960 1980 2000 2020 2040 2060 2080 2100
Humans Face an Unprecedented Future

either...

AI – Artificial Intelligence
   Computer Acts Alone

or...

AHI – Augmented Human Intelligence
   Computer Acts thru Human Intentions
Where are we at as Humans?

CrossRoad

AI
Automation
Computers Decide

AHI
Knowledge
Humans Decide How Computers Act
Where are we at as Teachers?

eLearning CrossRoad

AI
Computers Decide Individualization Memorization

AHI
Humans Decide Collaboration Thinking
TEACHERS Face an Unprecedented Challenge

either....Be replaced by

AI – Artificial Intelligence

or... Change Our Pedagogy to Augment Human THINKING

AHI – Augmented Human Intelligence
Teachers are key!
eLEARNING’S PEDAGOGICAL CrossRoad

**Artificial Intelligence**
- NO TEACHERS
- INDIVIDUALIZED LEARNING
- Memorization + repetition of “correct answer”
- EDUCATION IS AUTOMATED
  - Packaged Courseware
  - AI Delivers Content 24/7
  - Autograded Quizzes
  - AI assigns future path
- COMPUTER ACTS ALONE
- AUTOMATION REVOLUTION

**Augmented Human Intelligence**
- HUMAN TEACHER IS KEY
- COLLABORATIVE LEARNING
  - Seminars, Debates, Projects, Simulations
  - Teamwork, Innovation
- PROBLEM-CENTERED wrt
  - Emphasis on Thinking Skills, Analysis, Creativity
  - Real-World Problem Solving with AI tools
- TEACHER & LEARNERS develop AHI to create a
- KNOWLEDGE REVOLUTION
eLEARNING’S PEDAGOGICAL OPPORTUNITY

Artificial Intelligence

- COMPUTER ACTS ALONE
- AUTOMATION REVOLUTION

Augmented Human Intelligence

- TEACHER & LEARNERS COLLABORATE, use AI to develop AHI and create a
- KNOWLEDGE REVOLUTION
AUTOMATED EDUCATION
Share Ideas  
Collaboration  
Interaction  
Discussion  
Brainstorm  
Community
Collaborativist Learning (OCL)

Collaborativism is a THEORY and a PEDAGOGY for Elearning to develop Augmented Human Intelligence (AHI)

OCL employs AI tools with teamwork to develop AHI

• To use AI tools in Problem Solving in real world scenarios
• Facilitate learner expertise for 21st century knowledge industries
• Knowledge building in scientific and professional communities

OCL is based on DISCOURSE (group discussion)

• The TEACHER facilitates learning by engaging LEARNERS in group discussion to understand the discipline and to apply the key analytical terms and AI tools to
  • construct knowledge,
  • innovate solutions, and
  • solve problems.
Collaborativism is more than a HUDDLE:

COLLABORATIVISM IS A PEDAGOGY
Collaborativist Learning: Role of the Teacher

Collaborativist pedagogy is more than huddling:

ROLE OF THE TEACHER:
- To induct the learners into the field
- To provide **Content Expertise**
  - introduce learners to the discipline
    - What is the field of knowledge?
    - What is the analytical language of the field?
    - How to engage and problem solve?
- To provide **Process Expertise**
  - enable learners to apply analytical frameworks and terms
    - To engage learners in collaborative problem solving
  - 3 processes of OCL: IG→IO→IC
COLLABORATIVIST LEARNING
Theory: 3 Processes

Idea Generating (IG) → Idea Organizing (IO) → Intellectual Convergence (IC)

Knowledge Building & Social Application
Collaborativist Learning Theory & Pedagogy

Knowledge Community

Experience

Inputs

Role of Teacher/Moderator

Idea Generating (IG)

Idea Organizing (IO)

Intellectual Convergence (IC)

Possible Application
Online Education

Artificial Intelligence Orientation
- Cognitivism: Courseware & MOOCs
  - Video lectures/courseware + quizzes online
- No live instructor; AI controls lectures and quiz feedback

Augmented Intelligence Orientation
- Online Collaborative Learning Theory
  - Discourse-based teamwork & seminars
- Teachers facilitate critical thinking & knowledge building
Teachers can choose from or design many Collaborativist Pedagogies:

- Plenary group discussions
- Small group discussion
- Team projects
- Dyads
- Debates
- Role Plays, Simulations
- Student-led Online Seminars (SOS)

+ Employ

AI tools such as AR, Mobile, VR, Gamification
SOS Student Roles:

1. Team Moderate an Online Seminar:
   1 week

2. Discussant in an Online Seminar
   3 weeks
SOS: Student Moderator Team:
1 week Seminar

- Present Seminar Topic that week
- Introduce Seminar Design & Schedule
- 3 Discussion Questions
- Readings

- Facilitate the Quality of Discussion
- Facilitate Progress from IG→IO→IC

- Lessons Learned: In Retrospect
- Assess Quality of User Participation
- Analyze CHANGE Over TIME in type and level of participation
- Reflect on Design and Role as moderator
Student Role: Discussant in Seminar: 3 weeks

**Collaborate**
- Log in daily
- Do readings
- Post minimum 8 messages to reply to 3 DQs
- Reply to others

**Build Knowledge**
- Contribute new ideas, resources
- Provide reasons/evidence to agree/disagree
- Advance from IG→IO→IC
MAKING LEARNING VISIBLE
(Discourse Analysis):

Study the Transcripts of the Online DISCUSSIONS to Identify Learning PROGRESS and activities. Analyze the TRANSCRIPTS according to:

SEMINAR 1:
- Total # of Messages
- By date:
  - # of message per day
  - Size of Messages per day
- By Gender
- By Role
  - Message numbers or size by Moderators, Discussants, Instructor
- By Process (IG, IO, IC)
  - Messages numbers or size by Process type
    - Per day
    - Per Participant
- CHANGE OVER TIME
Number of Messages By Day

Total Number of Messages by Type
Figure 1: Total Number of Messages by Day

Figure 2: Total Number of Words of Messages by Day
<table>
<thead>
<tr>
<th>Days</th>
<th>Number of Messages</th>
</tr>
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<tbody>
<tr>
<td>Tues, June 28</td>
<td>7</td>
</tr>
<tr>
<td>Wed, June 29</td>
<td>7</td>
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<tr>
<td>Thu, June 30</td>
<td>21</td>
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<td>23</td>
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<td>Sat, July 2</td>
<td>19</td>
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<td>Sun, July 3</td>
<td>18</td>
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<tr>
<td>Mon, July 4</td>
<td>16</td>
</tr>
<tr>
<td>Tue, July 5</td>
<td>4</td>
</tr>
</tbody>
</table>
Methodology

# of posts was calculated by total posts separated male/female and dividing it by the total males/females. I did this because there are twice as many females than males in our class - dividing by the entire class would have skewed posts in favour of females.
Collaborativist Learning Theory & Pedagogy

Knowledge Community

Role of Teacher/Moderator

Experience

Inputs

Idea Generating (IG)  Idea Organizing (IO)  Intellectual Convergence (IC)

Possible Application
## So What...?

### If AI Wins?
- Automation Model Dominates
- Teachers replaced by AI software delivering personalized commercial content
- Education is one-way information transfer
- Efficiency rules over quality
- Unprecedented costs in terms of human values, work, creativity which are replaced by AI
- Humanity replaced by AI
- AUTOMATION REVOLUTION

### If AHI Wins?
- Knowledge Model Grows
- Educators retain key role and adopt Collaborativist pedagogies to facilitate discourse and critical thinking
- Educators encourage human understanding, creativity & ethics
- AI to enhance Human Thinking,
- Quality rules over Efficiency
- Humans Smarten Up
- KNOWLEDGE REVOLUTION:

Next Steps...?
YOU ARE THE RESULT OF 3.8 BILLION YEARS OF EVOLUTIONARY SUCCESS
ACT LIKE IT
To develop a complete mind:
Study the science of art;
Study the art of science.
Learn how to see.
Realize that everything connects to everything else.

- Leonardo da Vinci
Dr. Linda Harasim is a founder of online education and the creator of Online Collaborative Learning (OCL). She is a professor in the Communications Department at Simon Fraser University, Vancouver CANADA.

TEACHERS:
Do what Robots Can't! Teach THINKing!!
Reference List


