Web 2.0 Supported Collaborative Learning Activities:
Towards an Affordance Perspective

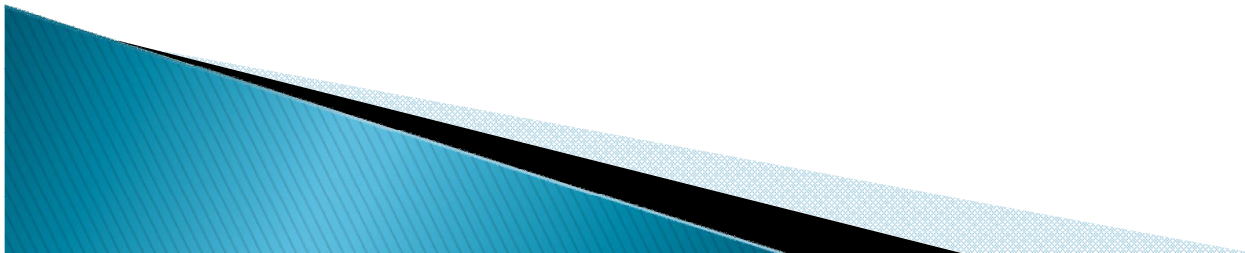**Andreas U Kuswara**
School of Education
Macquarie University

Andrew Cram
School of Education
Macquarie University

Debbie Richards
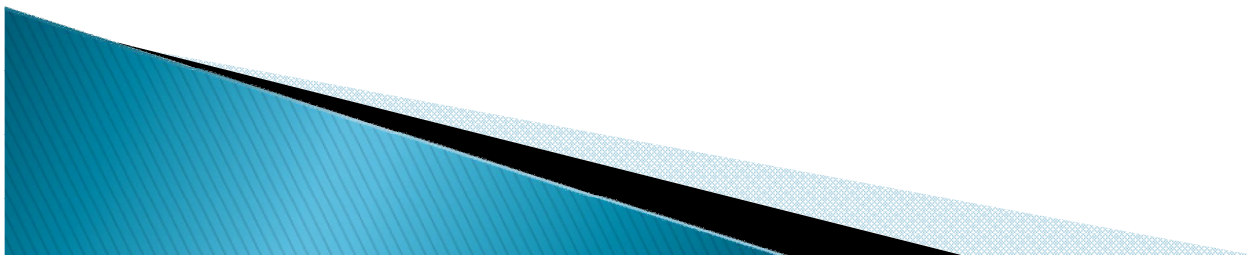Department of Computing
Macquarie University

Web 2.0

- Formation of technology-mediated communities of shared interest
- Content is user-generated and co-constructed
- Collaboration!

Web 2.0 and collaborative learning

- Intuitive appeal
- But… which tools may support which learning outcomes?

Pilot case study

- Objective: better understand wiki-supported collaboration
- The course provides a wiki to students with the aim of supporting collaboration within a group project
- The course was recently redesigned based on the activity systems framework
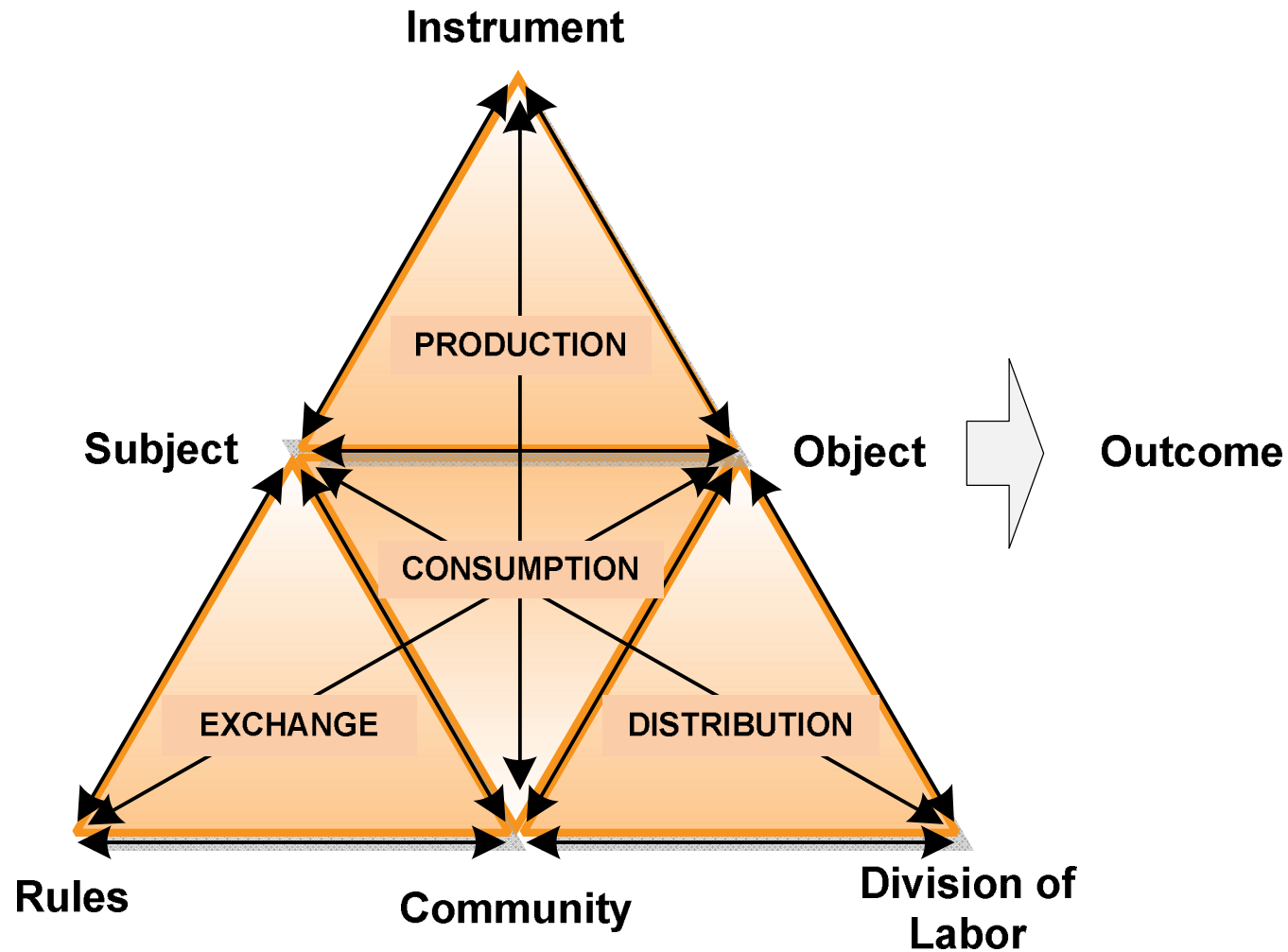 - Guided by Jonassen & Rohrer-Murphy (1999)
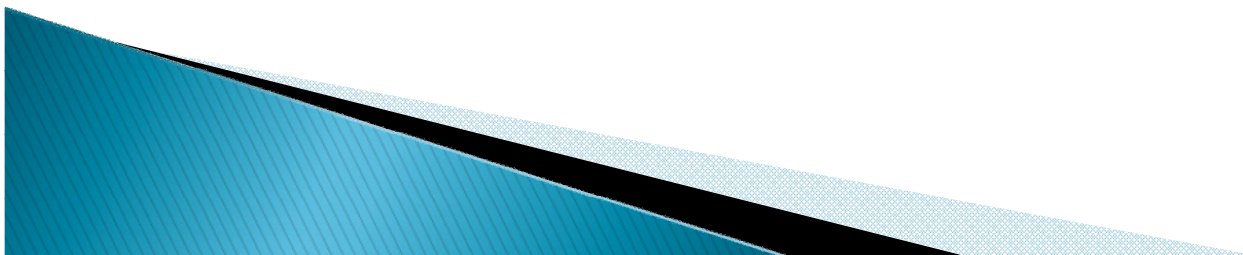
Activity systems framework

- Engeström (1987)
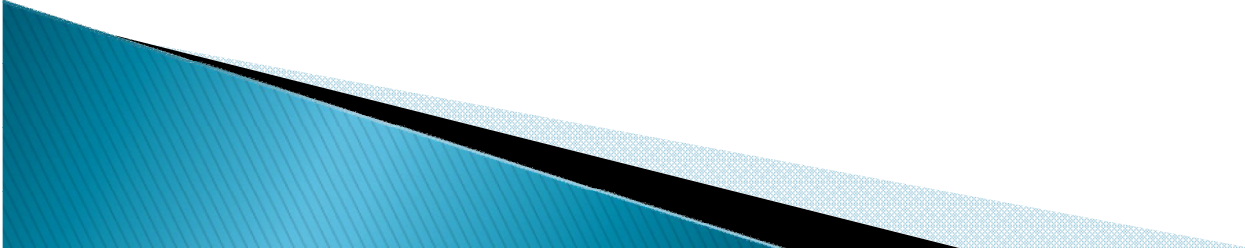- Describes how a group of people interact to achieve a common purpose
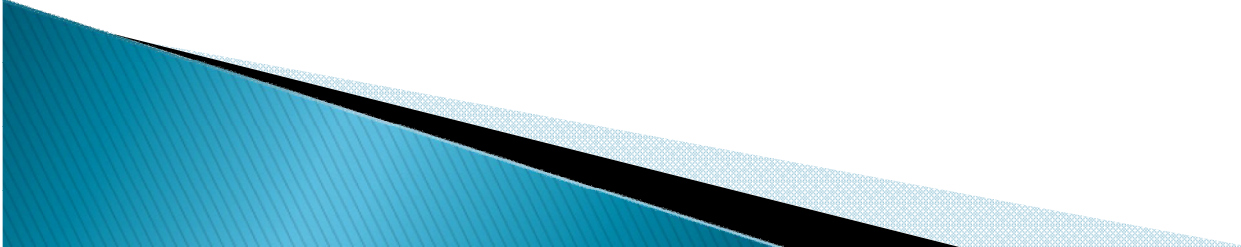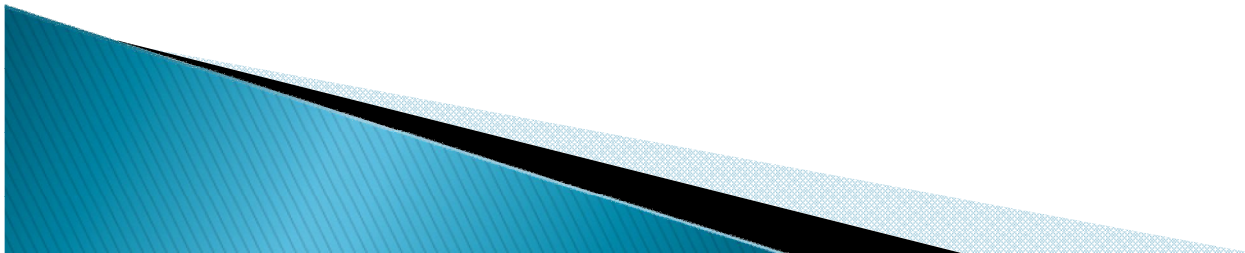
Activity systems framework

(Engeström, 1987)

Pilot case study

- Two 3rd year computing project units at MQ
- 54 participants in 11 groups
- Groups formed by the lecturer
- Single project within the semester; vehicle for both student learning and final assessment
- Supported by TRAC (www.edgewall.com/trac/)

TRAC

- Software development project support system (open source)
- Aims to:
  - assist with resource and project management
  - support teamwork
- Each group has own space
- Includes an integrated wiki
  - Other features included version control, ticketing and project scheduling processes
- No formal training provided
- Use of wiki was not mandatory

Pilot case study

- Data collected from:
  - reflective journals
  - TRAC systems logs
  - group wiki pages
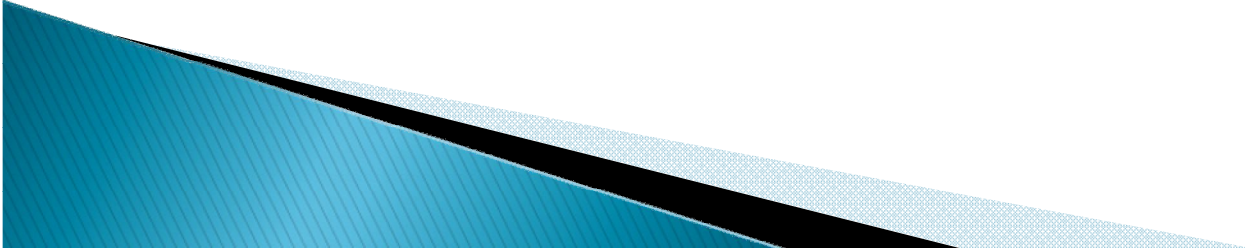- Analysis focused on usage of wiki
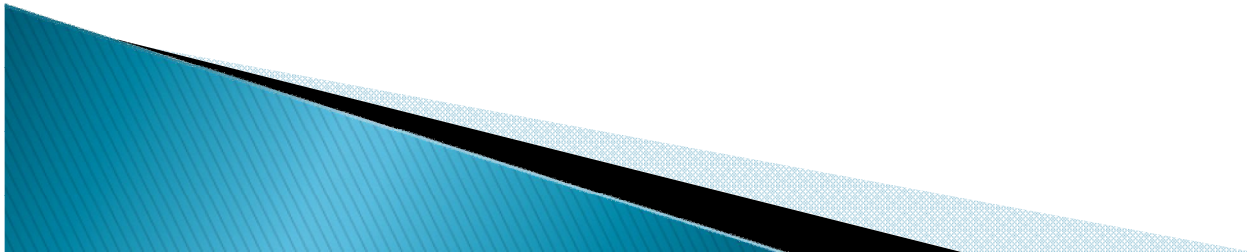
Results

Five categories of use:

1. (N = 1) No use of TRAC wiki (technical issues)
2. (N = 7) Posting messages between group members
3. (N = 8) File exchange
4. (N = 3) Coordination web space
5. (N = 1) Personalised collaboration space

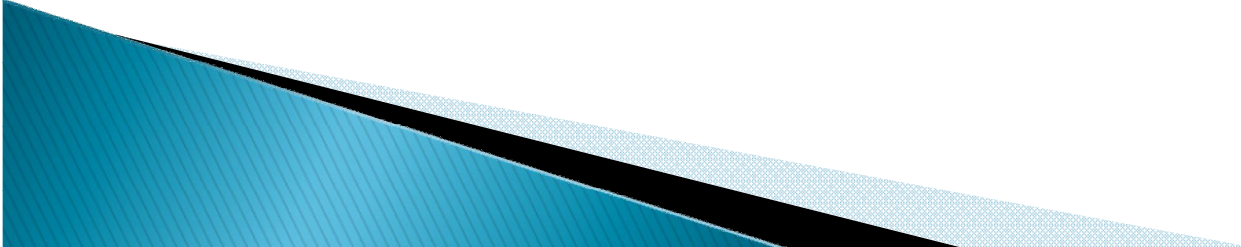▸ Only group 5 used the wiki as a 'Web 2.0' collaboration tool
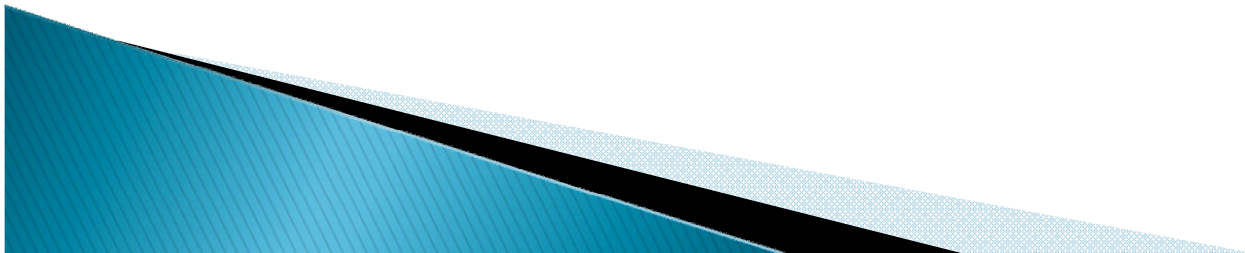
Questions

▸ Why didn't the other groups use the wiki to collaborate?

- Were students aware of how collaborating could assist their group project activity?
- Were students aware of how the wiki could be used to support collaboration?
- Why did the students use external tools to support collaboration?

Discussion

- Activity systems framework concentrates on social interaction, and is not enough to explain differences between the categories
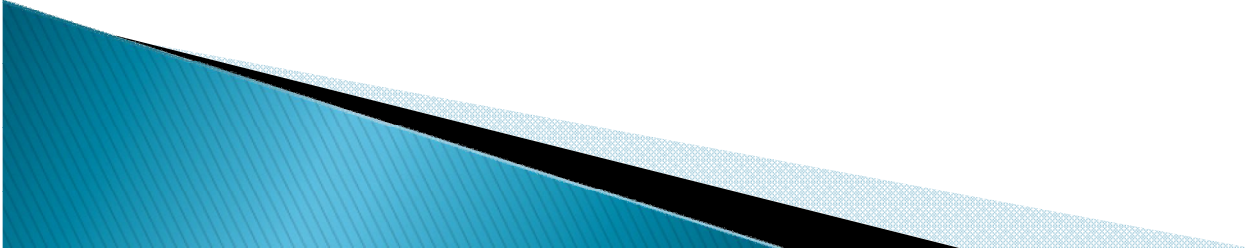- Need a framework that provides greater support for analysis of the way individuals interact with technology
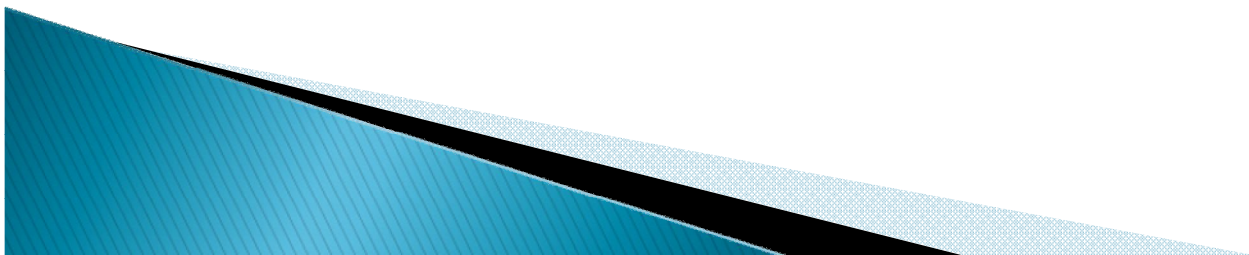
Affordances

- Gibson (1979), Norman (1988)
- Possibilities of action between an organism and the environment
  - For example, a learner interacting with other learners through a wiki
- Supports exploration of student and teacher perceptions of the possible uses of Web 2.0 tools to support learning
  - What values do students and teachers perceive in Web 2.0 tools in relation to learning and group work?

Affordances perspective of wiki usage

Revisiting the usage categories:

1. No affordances used
2. Communication affordances
3. File sharing affordances
4. Extended communication and file sharing affordances to develop portal and coordinate group members
5. Combined above affordances with affordances related to resource aggregation and personalisation

Integrating affordances and activity theory

- **Activity theory** emphasises the socially mediated aspect of group work
- **Affordances** emphasise how each individual utilises the environment to perform their contribution
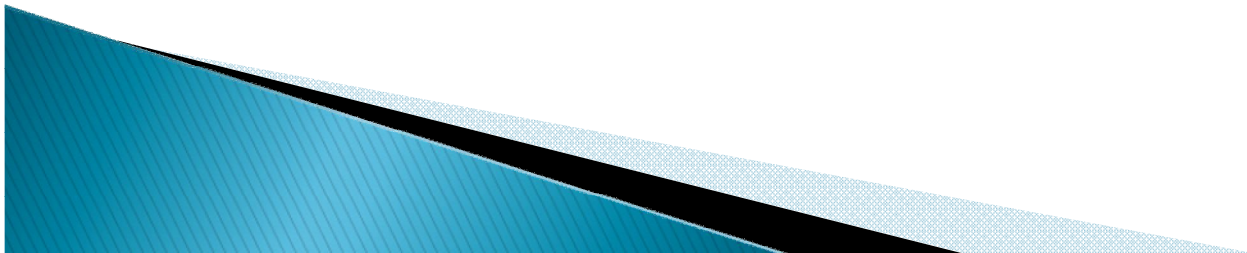
Integrating affordances and activity theory
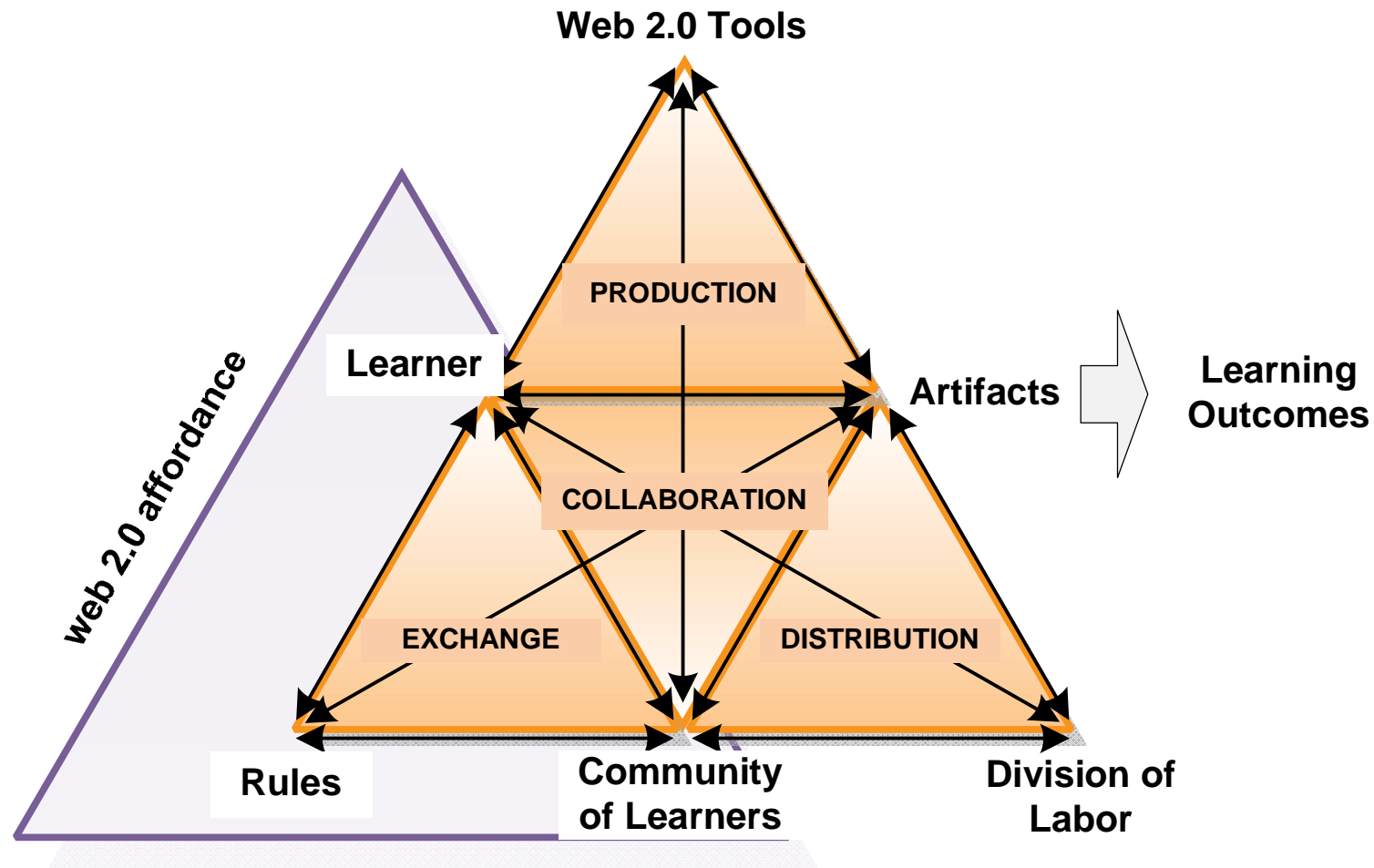
What next?

- Series of case studies throughout 2009
  - Range of Web 2.0 tools
  - Range of undergraduate and postgraduate courses
- Apply the affordances/activity systems framework to explore the match between the affordances of web 2.0 tools and collaborative learning processes