

# Crowdsourcing Education

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## Abstract

*"I would like to invite readers to contribute to the development of the Dictionary by adding to our record of English throughout the world. Everyone can play a part in recording the history of the language and helping to enhance the Oxford English Dictionary."*

## 1 Organizational Statics

This is a place to talk about stakeholder groups, and say a bit about how they relate to each other.

- Professions
- Research
- Nonprofits
- Developer Communities
- Certification Bodies

## 2 Organizational Dynamics

This is a place to talk about the roles and activities involved in education.

students	~	learning (obviously)
teachers	~	doing knowledge transfer
researchers	~	doing knowledge creation
administrators and staff	~	managing a commons
deans	~	advocating to the state and industry
certification bodies	~	managing rights in "private property"

We can roughly connect these roles and activities to the stakeholder groups mentioned above.

## 3 What does it mean to have an impact?

Can we measurably *engage in* or *support* the various activities mentioned above?

Let's look at what it means to *study*, *teach*, *research*, *develop*, *collaborate*, *promote*, *campaign*, *certify*, and *standardize*.

## 4 SECI/AQAL Analysis

I	We
go to class	do a class project
lead a class	plan the curriculum
ask a question	discuss/experiment
share ideas/code	manage a body of work
engage in dialog	find common ground
describe/demo	trial phase/discussion
agitate/evangelize	negotiate relationships
check work	build credibility
discern needs	achieve a consensus
Its	It
build a transcript	gain a skill
give feedback	help a student
write a paper	generate knowledge
create a system	create a tool/workflow
assemble strategies	create a new "identity"
effect transaction(s)	have a fruitful exchange
coordinate activities	create a richer context
complete paperwork	be "authoritative"
describe a skill set	know the relevance

## 5 Sensemaking and Praxis

In order to understand patterns of interaction with data well enough to make useful maps, we must delve a bit into human sense-making behavior. A small vocabulary of actions related to sense-making provides a model we can then use quite extensively.

People look for simplifying patterns. In a countervailing trend, they look for ways to become more usefully interconnected and interoperable. To negotiate between these two types of behavior, they identify or create "points of coordination" which provide mechanisms of control. They may do experiments, and then document how these mechanisms generate effects in a more or less predictable way. Finally, they developing explicit, sharable, practices which achieve "desirable" effects.

Simplification, interconnection, control, experiment, motivation, and praxis – these are the thematic issues that inform my technical investigations.

## 6 Proposed Implementation Work

Implementation is an ideal way to refine and test ideas about dynamic maps.

*(Note that my initial projects, "Encyclopedia", "Gutenberg.org 2.0", "Course", "Interactive Fiction", "Publication", and "Mutual aid", may get sorted in here or they may not.)*

## **Etherpad and other related tools for live online interactions**

Data about social interactions is all interesting and potentially useful, but data about "live" social interactions is becoming increasingly available in forms that are suitable for large-scale computational analysis, and real-time use.

## **RDF and related techniques for data management**

Marking up complex and changing relationships between objects is standard in e.g. computer animation and computer games; it is interesting to think about how these ideas can work in other domains (e.g. to assist with learning).

## **Wordnet and Latent Semantic Analysis style approaches for clustering and annotating data**

There are various techniques for dividing content into thematic clusters (useful for supporting simplification behaviors needed for sense making), and for annotating data with new relationships (useful for supporting interconnection behaviors). I will explore these in various applications, e.g. applying them to the streams of data identified above.

## **Semantic Web style patterns for interoperability**

Content may still be king, but application programming interfaces make up the board on which the game is played. I plan to use an existing standard for mathematical documents (OMDoc) and other API-building tools to help make the PlanetMath.org collection of mathematical resources interoperable with e.g. OU's SocialLearn platform, contributing to the development of a public service to STEM learners and practitioners worldwide.

## **Documentation of technical processes**

PlanetMath.org is just one example of a tool that has more content contributors than coders, and more feature requests than anyone knows what to do with. Good documentation is part of making hacking easier. Towards this end, I'm planning to build PlanetComputing.org to document the software used on PlanetMath (and many other projects).