

# CI Lab Notes

From the University of Illinois Graduate School of Library and Information Science, with the support of the Institute for Museum and Library Services, the Benton Foundation, and the University of Illinois at Urbana-Champaign's Afro-American Studies and Research Program, Illinois Informatics Institute and Community Informatics Initiative

Community Technology on Earth (CT on E) database v0.1

There are 26 entries currently in the database.

Citation:	<input type="text"/>	Document the citation for each article in Chicago Style.
Language:	<input type="text"/>	The language the article is written in.
URL:	<input type="text"/>	URL if available.
Document type:	Single Case Study	Describes the type of article being entered into the database. <ul style="list-style-type: none"><li>• Single Case Study: one documented instance of ICT in local communities</li><li>• Multiple Case Study: two or more documented instances of ICT in local communities</li><li>• Literature Review/Other: broad comparisons or analyses of ICT research ideas, theories or methods</li></ul>
Country:	Afghanistan	The primary country where this project or research is taking place.
Region Description: <small>Multiple selections allowed (CTRL-click)</small>	Not Sure Rural Inner City Suburban Urban State-wide Nationwide	Describe a regional distinction of an ICT instance or research.

Screen capture of prototype for Community Technology on Earth (<https://courseweb.lis.uiuc.edu/~critz1/ctone/>).

## CT on E: Beginning a global community technology and community media portal

By Christopher Ritzo and Kate Williams, U. of Illinois

Many instances of community technology and community media have been documented in books, journals, dissertations, evaluation reports, annual reports and publications of the projects themselves, and the popular media. The web and the human networks of people studying and engaging in these projects offer an opportunity to gather these instances together. Without this, there is a chance that, as

the expression goes, we don't see the forest for the trees. In other words, we only see the instances that we can touch or find documents about. But we need the big picture, we need to see broad trends. We need to use all the documents that are produced more effectively.

With this in mind, we conceived of a project that would recruit people to gather as many instances of community technology

The Community Informatics Lab is a research facility opened in January 2008 in order to study the interaction of local communities and information technology in the tradition of the bench sciences, with a physical lab space for multiple projects. Its goal is to perfect current methodologies and develop new ones. Current projects include eChicago (ethnic communities and technology use), TOP Data Archive (creating and using an archive of 600+ community technology projects), eBlack (creating and using two online datasets regarding African American Illinois and African American Studies), Pnet 15 (reviewing the 15 year history of Prairienet), and Community Technology on Earth (coding and analyzing documented instances of community technology).



The CI Lab looks forward to becoming a research tool available for faculty and students studying local communities or carrying out research in local communities. We welcome inquiries and visits from across the university, the state, and beyond. A weekly pot luck dinner (Wednesdays 5:30-6:30 in LIS 341) is open to all.

For more information, contact Kate Williams, The Graduate School of Library and Information Science, University of Illinois at Urbana-Champaign, 501 E. Daniel Street MC-493, Champaign, Illinois 61820-6211 USA, tel (217) 244-9128, or email [katewill@uiuc.edu](mailto:katewill@uiuc.edu).

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from around the world as possible, code them, and provide that set, searchable and researchable according to the coding, to the public. In research terms, this enables us to go “beyond the case study” in our methodology and theory building. So we formed a small working group with community technology scholar Doug Schuler, author of *New community networks* (1996) who had been thinking along the same lines, and began a pilot project.

At the same time, in March 2008 the ciresearchers list<sup>i</sup> debated the impact of One Laptop Per Child laptops in Nigeria. Posts made reference to Nigerian spammers (who may not actually be Nigerian) but not to other local technology practices. We asked, how can we evaluate laptops for African children without knowing the local community technology context? So we posted:

here at U of I in collaboration with Doug Schuler we are starting a project called CT on E—Community Technology On Earth—to catalog all the instances of technology in local communities that we can...if you are interested in plugging in from a particular state or province or county, please let me know, we are designing something that is along the lines of citizen science, i.e. collecting data from researchers and all interested others and sharing the data back online.

kate

Encouraging replies came back, including these from Peter Day (co-editor of *Community practice in the network society: Local action/global interaction*, 2001 and *Shaping the network society: The new role of civic society in cyberspace*, 2004):

Great initiative Kate but I'm assuming plugging in from towns, cities, counties and rural areas from the UK, for example would also be ok? :-)

Peter

The answer was an enthusiastic yes.

I'd like to discuss this further with you soon. I have one or two ideas that might be useful to a project such as this.

In the next few weeks (after Easter), I'm going to be sending 44 communication and media studies students out into West Hove to set up collaborative community media partnerships, i.e. small media projects with a community development focus. Much of it will be skills/knowledge sharing partnerships...generating community learning contexts and content for the phone-based CNA community communication space (CCS) as a prelude to what will hopefully be the next funded phase of the project—participatory diffusion in the community. All of these activities will include working with diverse community groups and individuals and would hopefully be of interest to a project such as CT on E.

Incidentally, and as an aside...I'm increasingly drawn to community technology and community media as descriptors of what we do. [...]

Peter

With the helpful corrective of including community media as well as community technology within our purview, then, we report here the beginning of our prototype for Community

Technology on Earth (CT on E). We invite comments and potential partners to work out how to “mash-up” (combine) input from researchers and academics with contributions from community members, NGO leaders, project coordinators, and any other interested parties. The goal is a unique view of what communities are doing and a mechanism for connecting them all together.

## Designing a prototype

The prototype is a system for coding articles that discuss or analyze specific instances of community technology/ community media in local communities. The input channel—in other words, the way to input information about each case of community technology or media—is illustrated in the screen capture above. The output is stored in a database containing the several dozen records, or cases, that we are now coding. The results can be retrieved through a webpage query or in text format. The system, and the initial sample of cases, was developed in three stages.

First, as part of a quality control re-coding of the TOP Data Archive cases (Williams, 2007) that was carried out by the CI Lab, we reviewed that coding methodology. This provided a set of baseline variables to look for. It also familiarized us with the paper-and-spreadsheet process the TOP coding used.

This group activity helped identify several factors that influenced the next steps toward data collection, storage, and retrieval decisions for CT on E. First, the variables were coded as numeric values that represented text values in a coding key. The data was stored as numbers in one spreadsheet, corresponding to text values in the key spreadsheet. This made data input and manual rechecking difficult since the coder had to remember or constantly refer to the key. Second, since the data was stored in a spreadsheet, multiple people working on the same data required manually merging data from separate documents. Incompatibilities between different systems and inconsistent connectivity to network shared storage were also issues.

Next, to identify additional variables specific to CI literature on ICT issues, we reviewed articles from a set of community informatics-related journals. To counterbalance the U.S. work on the TOP archive and aim for a more global perspective, we looked to the University of Manchester Development Informatics group (<http://www.sed.manchester.ac.uk/idpm/research/is/>). We looked to see where their faculty has published and this served in a small way to bridge the universes of community informatics and development informatics (also known as ICT for Development, or ICT4D). This brief, introductory survey helped us confirm and identify additional variables to code for such as geographic location, research methodology, target populations, how ICT is being used, and ICT's influence on social capital and literacy. Six articles were reviewed, one each from the following journals:

- *The Electronic Journal on Information Systems in Developing Countries* (edited from Hong Kong)
- *Human Technology* (Finland)
- *Information Technologies and International Development* (United States)

- *The Journal of Community Informatics* (Canada)
- *The International Journal of Education and Development using ICT* (Barbados and South Africa)
- *Knowledge Management for Development Journal* (The Netherlands)
- Finally, we reviewed the tentative set of variables and refined the possible values for each variable. The final coding schema for the prototype, with possible values for each variable and with references for the more conceptual variables, is shown in the table below.

Variable	Possible values M = Multiple Values Allowed
Citation	Article citation in APA-style format.
Language	The language in which the article is written
URL	URL if available.
Document Type	Single Case Study, Multiple Case Study, Literature Review/Other
Country	All world countries compiled from U.S. State Dept./ UN listings
Region	(M) Not Sure, Rural, Inner-City, Suburban, Urban, Statewide, Nationwide, International
Methodologies Used	(M) Description of methods used in research or analysis
Funding Source	Funding agency, university, government, grant, etc. if mentioned
Lead Agency	(M) After-School Program/Informal Education Setting, Arts Organization, Business, Community- Based Organization, Faith-Based, Foundation, Governmental Unit, Health Care/Medical, Higher Education, Library, Media, School, Other
Ancillary Agency	<i>same as above</i>
Gender	(M) Not Mentioned, Male, Female
Target Population	(M) Not Mentioned, Adults, Children, Students, Teachers, Men, Women
- If Adults	(M) General, Grandparents, Parents, Professionals, Seniors, Veterans, Elders, Other
- If Children	(M) General, Adolescent/Teen, Other
- If Students	(M) General, Preschool, Elementary School, Middle School, High School, Vocational School, Two-Year College, Four-Year College, Nontraditional Students in Higher Education, Graduate School, Other
- If Teachers	(M) General, Preschool, Elementary School, Middle School, High School, Vocational School, Two-Year College, Four-Year College, Graduate School, Other
Ethnicity	Specific ethnicities mentioned.
Multiple Sites?	Yes/No
No. of Sites if Multiple	Number, if applicable.
Primary ICT Use	(M) Work/Economic, Education, Cultural Preservation, Communication, General/Other
Technologies in Use	(M) Computer Lab, Radio, Video, Television, Handheld Device, Cell Phone, Fixed Line Telephone, Network, Home Computer, Other
Technology Provided	Technology Not Provided, Equipment Provided, Training Provided, Applications Provided, Applications Used, Applications Developed
Outreach	No Outreach, Deep Outreach, Shallow Outreach (Vimoche, 1998)
Social Issues Addressed	(M) Not Directly Addressed, Agriculture, Business, Children or Families, Community, Culture, Education, Health, Housing, Human or Race Relations, Jobs, Safety/Crime/Emergency
Local Leadership	Yes/No
Three Spheres of Computing	(M) Not Related, Personal Computing, Private Computing, Public Computing (Williams, 2001)
Social Capital	(M) Not Addressed, Bonding Social Capital, Bridging Social Capital (Putnam, 2000)
Literacy	(M) Not Mentioned, Computer Literacy, Information Literacy, Traditional Literacy, Other Form of Literacy (Williams, 2003)

**Variables and Possible Values for Coding Prototype of Community Technology on Earth.**

In response to the coding lessons learned by working with the TOP data, we decided to maximize portability of our data, ease data entry, and avoid system compatibility, storage, and retrieval issues by creating a simple MySQL database with a web-based data entry page. This accomplished several things for the project. Multiple people could enter data simultaneously and access is controlled by standard web-based authentication methods already in place. System requirements are low and system compatibility is high since the only

requirements are web connectivity and an Internet browser. The school's database storage is backed up regularly and the open-source database format will allow for future portability. The data entry page connects the categories being coded and the possible values into one interface, effectively merging the code choices, data entry, and instructions into one interface. Data can be stored in either text or numeric format behind the scenes.

```
mysql> desc ctone_data;
+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default |
+-----+-----+-----+-----+-----+
| id     | int(11) | NO   | PRI | NULL    |
| citation | text | NO   |     |         |
| language | text | NO   |     |         |
| url    | text | NO   |     |         |
| doctype | text | NO   |     |         |
| country | text | NO   |     |         |
| region | text | NO   |     |         |
| methodologies | text | NO   |     |         |
| funding | text | NO   |     |         |
| lead_agency | text | NO   |     |         |
| ancillary_agency | text | NO   |     |         |
| gender | text | NO   |     |         |
| pop_target | text | NO   |     |         |
| pop_target_adult | text | NO   |     |         |
| pop_target_children | text | NO   |     |         |
| pop_target_students | text | NO   |     |         |
| pop_target_teachers | text | NO   |     |         |
| ethnicity | text | NO   |     |         |
| multi_site | text | NO   |     |         |
| num_sites | int(11) | NO   |     |         |
| ictuse | text | NO   |     |         |
| tech_used | text | NO   |     |         |
| tech_provided | text | NO   |     |         |
| social_issues | text | NO   |     |         |
| local_leader | text | NO   |     |         |
| outreach | text | NO   |     |         |
| three_spheres | text | NO   |     |         |
| social_capital | text | NO   |     |         |
| literacy | text | NO   |     |         |
+-----+-----+-----+-----+-----+
29 rows in set (0.00 sec)

mysql>
```

**CT on E prototype database in MySQL.**

This decision was based primarily on the database service being available to students at the U. of Illinois Graduate School of Library and Information Science and the first author’s previous expertise with this open-source database. The schema for our database had already been decided in the planning stage, which made creating it a fairly quick process. The web-based entry form was built using a combination of PHP (hypertext pre-processor) and HTML to code a very basic input form for our prototype. This programming architecture is in extensive use by web developers, which will provide future developers with a common interface to the data and allow them to integrate their own scripts to the project.

**Using the prototype**

With the prototype database and data entry form created, we began to code instances of ICT in local communities, taking a comprehensive look at the entire run of the *Journal of Community Informatics* (JoCI) for our first sample dataset.

JoCI is an online, peer-reviewed journal focused on articles examining a wide range of issues surrounding information and communications technologies (ICT) in local communities. JoCI describes community informatics as a discipline “concerned with how ICT can be useful to the range of traditionally excluded populations and communities, and how

it can support local economic development, social justice and political empowerment using the Internet.” From its beginnings JoCI has sought both academic and nonscholarly contributions. As editor Michael Gurstein put it:

Much of the most interesting and valuable materials in this area (as in other areas where there is a confluence of the researcher and the practitioner) are produced not by academic researchers but by practitioners working for and through agencies and enterprises directly engaged in the practice of enabling communities. Our intention is to provide a means for making this available to the academic and practitioner communities and a structured opportunity to comment on and critique this work as appropriate.<sup>ii</sup>

JoCI puts out an issue addressing these themes three times per year and can be accessed at <http://www.ci-journal.net>. It has so far published 98 articles in English and 14 in Spanish in 9 issues. All these are being reviewed. Articles are coded if they represent one or more case studies (reports or accounts) of information and communications technology in specific communities. Literature reviews, policy pieces, and other writings containing broader analysis are not coded. With this criteria, close to 30 articles will be coded. Next steps are to recruit others to code articles and test the prototype, analyze the results, and regroup with our advisors.

**Works cited**

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<sup>i</sup> Ciresearchers is a listserv for community informatics researchers edited by Michael Gurstein. Archives at <http://vancouvercommunity.net/lists/info/ciresearchers>

<sup>ii</sup> Gurstein, M. (2004). Welcome to the Journal of Community Informatics. *Journal of Community Informatics*, 1, p. 1. <http://ci-journal.net/index.php/ciej/article/view/193/148>