Rural Connected Communities: A Project in Online Collaborative Journalism

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Abstract: We describe a web-based collaborative educational project in an under-served rural community in Northern Thailand. The rural community enjoyed high internet connectivity via a satellite internet link installed as part of a larger research endeavor directed by Seymour Papert. Project Lighthouse is exploring the role of computers in educational reform throughout Thailand. The goal of this particular pilot project was to help villagers of all ages and backgrounds gain technological fluency, cultivate a sense of ownership and mastery, and develop knowledge and pride about their cultural heritage and history while creating an on-line magazine for their village. The constructionist methodology guided our work and helped people to view themselves not only as consumers but also as producers of information. The project employed a software environment named Pluto, an authoring tool specially designed at the MIT Media Lab to support community-based collaborative electronic publishing.

Keywords: community settings, web, constructivism

Introduction

We are exploring collaborative computer-based learning activities in under-served developing areas. Here we describe a web-based project that took place in a small and remote village in Northern Thailand. This experience, located in the Mae Fah Luang district, engaged a community of learners with the task of creating an on-line magazine for their village. They made use of an MIT developed collaborative authoring tool, entitled Pluto, that was designed to be simple and transparent. We observed participants gaining technological fluency as they worked on the collaborative project - writing, editing, taking photographs, doing artwork and publishing stories of relevance for the community. Web-based journalism allowed learners of all ages and backgrounds to assume an active role as producers of information and researchers of their cultural heritage.

This experience is part of a larger research endeavor, directed by Seymour Papert, which explores educational reform throughout Thailand. The goal of the project, entitled Lighthouse, is to use new technologies to re-think what education should look like in under-served and often physically isolated areas with high connectivity, via satellite internet link. Based on the constructionist philosophy, this on-going project seeks to support the development of technological fluency.

In this paper we first overview the constructionist learning theory. We then review the Lighthouse project, we describe our particular web-based journalism pilot project and the collaborative authoring tool, Pluto, which we employed. Later we tell two "learning stories" that

demonstrate the learning processes. We end with our conclusions.

Constructionism

The educational philosophy of constructionism (Papert, 1980) asserts that learners are likely to construct new ideas when they are building artifacts that they can reflect upon and share with others in their learning community. Constructionism implies a hands-on, project-based methodology and its roots can be found in Piaget's constructivism. Piaget argued that the child is not a *tabula rasa* who blindly sucks in knowledge, but is an active builder of intellectual structures. While Piaget was concerned with developing an epistemological theory, explaining how knowledge is constructed, Seymour Papert advanced it as an active theory of learning. Papert's constructionism carries an interventionist perspective; it not only aims at understanding how knowledge is constructed, but tries to make use of such insights in developing learning activities and computational tools.

Computational tools become computational construction kits (Resnick et. al., 1996) when they support users as designers of their own projects by making both personal and epistemological connections. These construction kits offer environments where users build personally meaningful projects and engage in the discovery of underlying powerful ideas. For instance, Pluto is a computational construction kit that supports collaborative writing and editing of community-based news. While computational construction kits have the potential to enhance learning, Papert stresses that it is important not to fall into the technocentric fallacy (Papert, 1990), the assumption that technology by itself can produce changes. In a constructionist environment tools are only one element of the social and cultural context in which learning happens.

Overview of Mae Fah Luang

A group of industrialists, educators, and government officials in Thailand chartered the Suksapattana Foundation to reform the country's tradition-laden education in light of the rise of the global information-based economy. The Foundation approached Papert and his group at MIT suggesting that constructionist learning could form a cornerstone to their reforms.

Since early 1997, Papert and his colleagues have executed a series of interventions centered at six pilot locations in Bangkok, and villages in the the North, and the Northeast of Thailand. Under the title Project Lighthouse, a collection of constructionist learner-centered immersive experiences has been executed at each of these pilot sites (Cavallo, 1999). Most activities to date have been located at Non-Formal Education (NFE) centers. The NFE department is responsible for vocational education, rural programs, adult learning, and so forth. Papert, along with leaders from the Suksapattana Foundation, felt that NFE centers would provide some of the most flexible environments to work in.

The particular intervention described in this paper was conducted at the Non-Formal Education center of Ban Tart, a small village in the Mae Fah Luang district, situated in the very northernmost portion of Thailand a short distance from the Burmese border. The village is a three-hour drive through hilly terrain from the city of Chiang Rai. Ban Tart's economy is based primarily on basic agriculture along with some handicrafts and weaving. Most of the children

study through the 5th or 6th grade at the local NFE school. The population of the village is multi-lingual and multi-cultural and consists of tribal communities from Lee-Saw, Aka, and ChineseYunnanese. There are around 150 families totaling about 500 people.

The village of Ban Tart was selected as one of the initial five pilot sites to participate in the Lighthouse project. In January 1998, eight computers were given to the village and a satellite dish was installed next to the school's basketball court. The villagers pitched in their own time and money to make wooden tables for the computers and installed them in the school library, a small stilted bamboo structure. Six months later, in June 1998, Jirachai Buranaritawee, the director of NFE for the Mae Fah Luang District, led the students and their families in the construction of a computer learning center for the village. With materials donated by Siam Cement, one of the companies supporting the project, the villagers took two weeks to cooperatively build the new computer center (see Figure1). It was important to them that the center have many windows so the mothers could stand outside and watch their children's activities.

Figure 1: The learning center in the village of Ban Tart

Village members were involved in the entire experience, from designing the space to building the physical structure to making the electrical connections. This fostered a sense of authentic ownership and responsibility over the physical space, the equipment, and the activities and projects held in the learning center. At the same time, it reinforced the sense of community. We believe that intellectual and material ownership is important to guarantee the long-term success of any learning experience. However, in under-served communities ownership is also the best way to make sure that the expensive equipment involved in technological projects of this sort remains secure and protected while accessible to the community. In Mae Fah Luang, despite poverty, security is not an issue; the learning center remains open and unlocked 24 hours a day without supervision.

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The workshop

The on-line community magazine workshop took place in Mae Fah Luang between July 8th and July 17th, 1998. It was an immersive workshop; we worked with the forty-five participants every day for eight hours or more. The participants were children from nearby hill tribes, rural teachers in the area, and delegates from other pilot sites around Thailand also involved in the Lighthouse project. The MIT team during the workshop consisted of the two authors with assistance from Media Lab alum Joshua Bers and MIT undergraduate Rattapoom Tuchinda, who helped with Thai translation. In Boston Ingeborg Endter and Dennis Quann, from the News in the Future consortium, helped with Pluto support.

The goal of the workshop was for the participants to create a collaborative on-line community magazine. In remote areas feeling connected to the world is not always easy, therefore the use of the internet as a publishing media. The process of web-based journalistic authorship and collaborative revision was emphasized over the final product. We further encouraged the formation of a community of inquiry exploring and reporting issues of local relevance. .

An important goal of the workshop was to enhance technological fluency. By this we mean the ability to use and apply technology in a fluent way, effortlessly and smoothly, as one does with native language (Papert & Resnick, 1995). Participants learned about the internet, web page construction, digital photography, and so forth. Further an MIT developed web-based authoring environment, Pluto, was introduced. Workshop participants created an on-line community magazine called Sakura Sun, the name of a beautiful tree that populates the area (see Figure 2). The magazine had nine main subsections chosen by the participants: local sports, natural environment, tourism, local culture, local news, science and technology, healthcare, education, and general interest.

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Figure 2 shows the front page of the Sakura Sun

ชากุระสาร Sakura Sun

โครงการชุมชนสัมพันธ์ หมู่บ้าน Mae Fah Luang Community Magazine
ห้องคอมพิวเตอร์ วัดป่าห้วยลาน Publishes at the Mae Fah Luang King Center

กีฬา Sports

ข่าวท้องถิ่น Local News

ธรรมชาติและสิ่งแวดล้อม
Natural Environment

วิทยาศาสตร์และเทคโนโลยี
Science and Technology

การดูแลสุขภาพ Healthcare

วัฒนธรรมท้องถิ่น Local
Culture
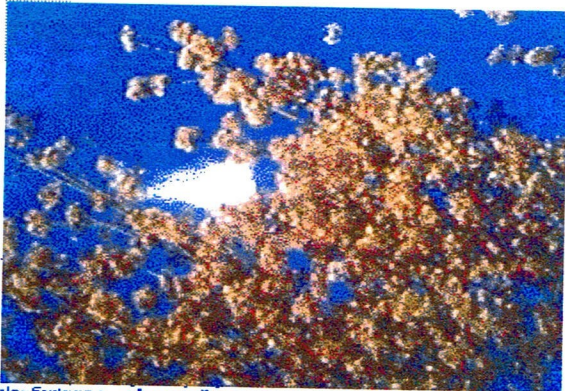
ความสนใจทั่วไป General
Interest

การท่องเที่ยว Tourism

รายงานการอบรม Workshop
Report

กลุ่มอภิปรายโครงการประภาคาร
General Lighthouse
Discussion

การศึกษา Education

ประโยชน์ของ ป่าและต้นไม้
ป่าและต้นไม้คือทรัพยากรที่จำเป็นต่อชีวิต
ชนาภา   กิตติศักดิ์สิงขร

คำถาม
Suneeporn Wiangtong

ทักทาย
Suneeporn Wiangtong

Day one, Wednesday July 8
First day of workshop
Josh Bers

ความสำคัญของป่าไม้ในภาคเหนือ
ป่าไม้มีความสำคัญต่อมนุษย์และสัตว์ ภาคเหนือมีลักษณะภูมิประ เทศเป็นภูเขาสูงสลับพื้นที่ราบ ป่าไม้สำคัญของภาคเหนือมี 2 ประ-
เภทใหญ่ ๆ คือ ป่าไม้ผลัดใบและป่าไม้ไม่ผลัดใบ ไม้ไม่ผลัดใบ
จุฑารัตน์   ชาว เวียง

เราคือใคร_who are we

the mit media laboratory

Pluto Software

Pluto is an online publishing environment designed for users without extensive computer experience. It supports collaborative authoring, editing, and publishing of material on the web, as well as the creation of personal web pages. Pluto is the work of a number of MIT Media Lab researchers under the guidance of Walter Bender and Jack Driscoll (Driscoll et al., 1997). Pluto has been used by a number of communities including senior citizens in the US and worldwide youth activists at the Junior Summit, a program organized by the Media Lab that brought together online children from 139 different countries to discuss how technology could be used to help children.
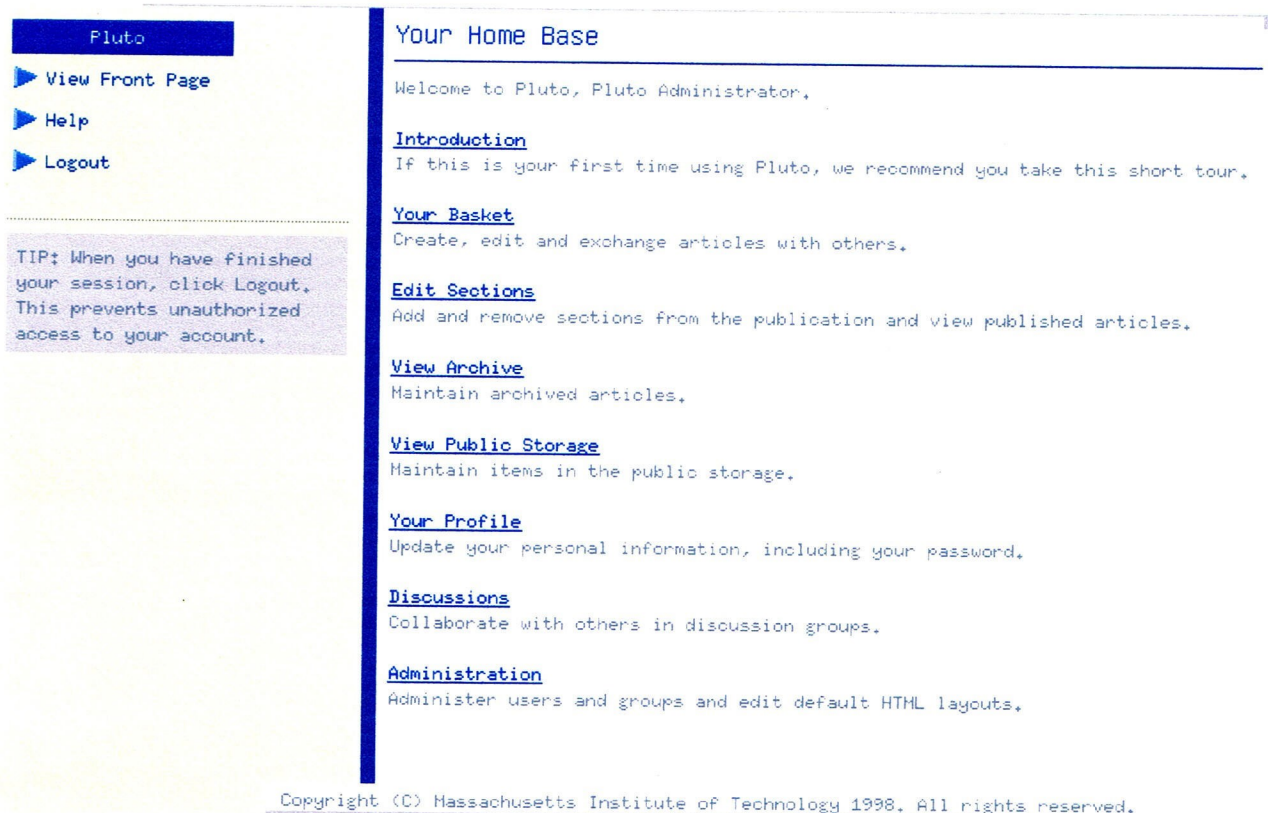
Pluto organizes the authoring, editing, and presentation of articles around a collection of sections (e.g. Arts, Sports, and Local Interest); in this way it is similar to a traditional newspaper or magazine. Pluto supports the traditional write/edit cycle, but adds the possibility of collaborative work and decision-making both online (through its facilities for email, online discussion groups, and sharing of articles and media objects) and face to face.

For an individual author, Pluto offers a straightforward interface centered on a collection of

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virtual baskets. An author logs in to the system, using web forms, and is presented with his or her home base (see Figure 3). The home base is the author's central point and allows access to his or her own personal basket, the baskets of the diverse sections, the article archive, discussion areas, and so forth. By clicking on his or her personal basket the author is presented with a collection of options including writing a new article, uploading media objects such as pictures or sound, and simple formatting of the article. When an author is satisfied with the article he or she can submit it to the appropriate editors. The editors then comment on it and return it to the author. When the article is finished, the editors can publish it on the publicly accessible website.

Figure 3 shows an author's home base in the English version of the Pluto software

Pluto

▶ View Front Page

▶ Help

▶ Logout

TIP: When you have finished your session, click Logout. This prevents unauthorized access to your account.

Your Home Base

Welcome to Pluto, Pluto Administrator.

Introduction
If this is your first time using Pluto, we recommend you take this short tour.

Your Basket
Create, edit and exchange articles with others.

Edit Sections
Add and remove sections from the publication and view published articles.

View Archive
Maintain archived articles.

View Public Storage
Maintain items in the public storage.

Your Profile
Update your personal information, including your password.

Discussions
Collaborate with others in discussion groups.

Administration
Administer users and groups and edit default HTML layouts.

Pluto has been created with a number of over-arching design concerns. First and foremost is ease of use for the authors. No particular computer expertise is expected; an author can create an article and make use of default formatting without any specific knowledge of HTML or the web in general. Second, Pluto is completely networked. All authoring, editing, and administration of the system is done through web form interfaces. Thus, users can be geographically dispersed; all they need is a web browser and internet connectivity. This decentralized quality is further supported by online facilities such as discussion fora and email. Third, Pluto is designed to be multi-lingual. Published material can be in any language supported by the web browsers and the actual Pluto interfaces for authors and editors can be localized to whatever language is desired. Finally, Pluto is designed to be a collaborative tool to be used by a community actively participating in group decision making and authorship.

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The collaborative nature of both the software and the workshop methodology allowed participants to arrive at consensual editorial decisions. Discussions occurred through both the online facilities of Pluto and in face to face meetings. For example, one group proposed to write a story about illegal gambling in the village. They had gathered very good information and were eager to report on this traditional activity that apparently involved a large percentage of the local population. This raised a dilemma – how to address the ethical and personal conflicts such a story might cause. In particular, some participants argued that the story would be worth publishing but only for local consumption given that only village members would have the appropriate cultural context needed to understand the story. Others argued that these things are best kept unreported. A lively debate ensued. It is worth mentioning that, while collaboration about these issues first started online, it soon evolved into a lively face to face debate. Most of the final discussions happened during a big meeting that involved every one of the workshop participants. The decision was to not publish the article. It is important to note that this sort of cross-generational collaborative discussion on an ethical issue is not a traditional mode for this community which has very traditional hierarchical cultural norms.

Learning stories

In this section we present two learning stories. In research of this sort, quantitative evaluation is not always an adequate form of assessment. We argue that learning stories are one available means of evaluation for projects of this scale. They allow us to develop the salient points of our experience, offer up successes and failures for consideration and reflection, and can be used as guides to help others doing similar research.

Technocentrism: how a bug becomes a feature

A regular challenge in projects such as this is to keep the participants' interest on learning and their community needs and not only on technology-transfer. That is, we wish to avoid a technocentric approach. The Thais correctly recognized the rich technological expertise of MIT and were understandably keen to take advantage of our skills and the Institute's resources. This focus was clearly revealed in the welcoming banner placed above the Ban Tart Learning Center which announced a "Pluto Workshop", in contrast, for instance, to a project in community-based collaborative learning and online journalism.

This technocentrism was revealed, challenged, and to some extent resolved by the significant technology problems we experienced. By Day Three we had identified some sever problems in the interaction of Pluto with Thai Windows. Our initial approach to tackling the problems was to hold something of a "town meeting" where the space of possible solutions was explored. We felt there were three reasonable courses of action: 1) wait on potential Pluto fixes from MIT, 2) continue with producing an online magazine using other authoring tools, or 3) adopt a low-technology solution such as writing in journals. The final decision was to go with option 2. But the process of community problem solving seemed in itself to nicely demonstrate the sort of collaborative learning dynamic we were stressing.

The move from Pluto to a different authoring tool was first received by the community of learners as momentous. They couldn't see that it was possible to keep the collaborative methodology that we started with the Pluto software (particularly designed for collaboration)

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while working with other internet-based tools. But after a day of working in the new environments, and once some basic fluency with the tools was achieved, it appeared as if focus shifted more towards the tasks of story investigation, narration and collaboration, and, at least for some learners, away from the technologies. When, towards the end of the workshop we returned to using the Pluto software with US Windows, the focus seemed to remain more on the collaborative process of writing, editing, and reflecting and away from the software.

Clearly, we would have preferred to have this outcome without having to first frustrate the learners with technology problems and mid-course software switches. However, the outcome seemed to be a broadened focus on the higher issues. This suggests that in a short workshop such as ours (where true fluency is not an achievable goal) one might usefully employ a range of technologies, including indeed local technologies, in the service of the learning goals. This might help to keep the focus away from any one piece of the technological puzzle and perhaps more directed towards learning and the community.

In an amusing end to this story one of the local teachers approached a member of the MIT team to compliment us on our ingenuity. He had come to understand our clever plan; we had intentionally orchestrated the Pluto software problems as a method to powerfully demonstrate how unimportant the technologies were and to create an opportunity for real-life group problem solving. We only wish we were so clever!

City and village: two learning styles

Prinya is an 11-year-old boy who came to participate in the workshop from Bangkok's Vachiravudh college, one of the most elite boys prep schools in Thailand. Prinya knew English and was computer literate, therefore everyone expected him to make important contributions during the workshop and to help the local children. Prinya came to Mae Fah Luang with a learning style and work ethic that he had employed with success at Vachiravudh. We observed that he focused on speed of completion of the task over depth of understanding.

By the second day of the workshop Prinya had already published two articles about how the internet works, writing in both Thai and English. The content, we discovered, had been carefully cut and pasted verbatim from an internet site he had found on the web. The website material, and thus his articles, were full of technical details that Prinya himself did not understand. Prinya's approach seemed to maximize volume and speed of work though, in this case, clearly at the expense of depth of understanding.

We also closely observed a set of young local village kids similar in age to Prinya. These kids would work in groups, spend long hours choosing a topic and many days taking pictures and interviewing sources. While they worked diligently in preparing stories, in many cases they would not publish them. For instance Kanya, a young Aka girl, organized a field trip to visit her village, which was about seven kilometers away from Ban Tart. She and her teammates intended to investigate and write a story about the lives of these Aka people, with particular focus on the rituals of marriage. They took many digital pictures, recorded an interview with the chief of the village, and collected a range of raw materials. Despite their motivation and high degree of engagement they never put together all the material nor published a complete story. They only published fragments of it. Had the exercise of producing the story been enough for them? Was

the process over the end product what they most appreciated? How does this contrast with Prinya's apparent focus on end product? We don't have clear answers to these questions yet.

As educators one of our challenges was to help Prinya and Kanya become aware of their distinct learning styles and work ethics. We hoped that they could learn from each other while collaborating on stories. This did not, however, happen as expected. For Kanya and her friends it was very important to write about local culture. However, Prinya was not interested in this topic so an opportunity to collaborate on a story did not emerge. We should note that for Kanya assuming the role of the question-asker or investigator was a new way of positioning herself within her community. In the Aka community young girls do not traditionally query village elders and their curiosity is not generally taken seriously.

Conclusions

The pilot experience reported in this paper was an attempt to help an isolated and under-served community to become technologically fluent, to gain knowledge and pride about their cultural heritage, and to share locally produced news with others. Interventions on this scale take years to bear fruit and the ultimate results are still to be seen. However, during the workshop we observed an increasing mastery of the technology, and a high degree of collaboration between community members of differing status and age. The particular collaborative nature of the Pluto authoring tool and the constructionist methodology favored this form of working and learning.

During the workshop the traditional role of community members as strict information-receivers versus producers was challenged. Villagers explored new modes of communication, both amongst themselves and indeed with the world. This experience encouraged them to view themselves and their roles in the community in new ways.

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