Building Capacity in San Francisco Neighborhoods through a Community Learning System

Kasey Asberry & Ian Pollock
SFSU Instructional Technologies
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Abstract: This document models an adaptive management system that builds social capacity as citizen empowerment at the neighborhood level through teaching and learning; a Community Learning System [CLS] for San Francisco's Neighborhood Empowerment Network University.

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Executive Summary

This document proposes a community learning system to support engagement, empowerment and social capacity building among residents of San Francisco neighborhoods. It outlines research and a conceptual design that lays groundwork for formation of this system [CLS] as an adaptive network of learning and teaching opportunities. As an adaptive design it will be modified based upon use and as such deployed in phases in collaboration with its participants. It is hoped that elaboration of this network will lead to greater resilience in San Francisco neighborhoods and a more stable social infrastructure for the City over time.

Background

This project is in development through a partnership between the Neighborhood Empowerment Network [of San Francisco], the Institute for Community and Civic Engagement at San Francisco State University and SFSU's Instructional Technologies Department of the School of Education. [See **Appendix B: Teams** for more specific information about contributors] This design is offered based upon research conducted Spring 2010 in San Francisco.

View of Success

The proposed system should provide an environment that mediates social and personal learning to build connections between people based on expertise and mutual need. It will motivate growth in knowledge and connections by rendering them visible. The system must be economical at the outset, extensible over time and accessible to people with different abilities. [UDL, 2009] This document outlines an approach that aims to be fully built-out in a series of relatively low-cost iterations over a period of two years with a functional general release available after the first year. Challenges to success are associated with the dependency in the model upon integrating social tools with the learning context. Also the participant's relative investment will follow their motivation to interact through often unfamiliar channels. Correct investments in appropriate levels of feedback to encourage sustained participation must be balanced with other needs.

Overview of project architecture

This section describes the intended audience that will be served, their needs, intended experience and rationale for development.

Learning Context and Service Audience

Like the diversity of microclimates in San Francisco's physical terrain, its political landscape is comprised of twelve supervisoral districts each characterized by a distinct make-up of neighborhoods and neighborhood associations that advocate on their behalf.
Many of these organizations have had continuous leadership since their founding owing their vigor to the deep and direct connections between citizens and City governance that they provided. Largely invisible to visitors, this network has contributed greatly to the special flavor that people sense here through a cultural memory that maintains uniqueness and helps in times of adversity. Organizations that were established during the mid-to-late 'thirties in response to Depression pressures were rejuvenated by an influx of individuals educated in the social movements of the early 'seventies. Now much of San Francisco's established neighborhood leadership is retiring, at the same moment that waves of new immigrant cultures flow in often affecting long-established enclaves. Ever a city of innovation and of immigrants, the scale of the current demographic shift is unprecedented since the Gold Rush era.

This environment is designed to support learners that meet the following criteria. Participants are

- Resident in San Francisco
- Interested in improving their neighborhoods, access to City services or advocacy of San Francisco as a healthy place to live

System Objectives

Business Goals: NEN & ICCE

The business objectives of the NENu Community Learning System [CLS] include fostering citizen engagement, retention of institutional and organizational knowledge and empowering individuals motivated to create positive change.

Learner Goals: Residents of San Francisco

Learning objectives of target participants are focused upon becoming more effective advocates for issues of importance to them, better equipped to work through city governance channels to effect positive change.

Performance Outcomes

The NENU CLS will provide pathways for, and evidence of, personal growth through community engagement. Specific metrics will be developed during Phase 1 through Community Partners interactions in pilot system

The Gap

What combination of technology and social mediation can be usefully brought to bear upon challenges to the culture of civic connectivity and shifting San Francisco populations?

Research & Literature Review

Methods

The solution space from which the CLS is derived includes work in the disciplines of Geography/ Urban Studies, Learning Theory and Computer-Human Interaction.

In geographic terms, Adaptive Resource Management is a collection of environmental engineering practices systemically applied to landscapes. For example in situations where the management of a scarce resource, such as water, is allocated and these allocations are tracked to conserve or optimize populations of farmers or fish. Metrics, monitoring and sharing of results refines or evolves the practice over time. A Community Learning System when treated as an adaptive management application can steward, monitor and report on community capacity building as learning and apply pattern analysis to measure the vitality of the network. By leveraging the common grammar in other communities it can distribute information and work globally as well as locally to improve community learning as social capital.

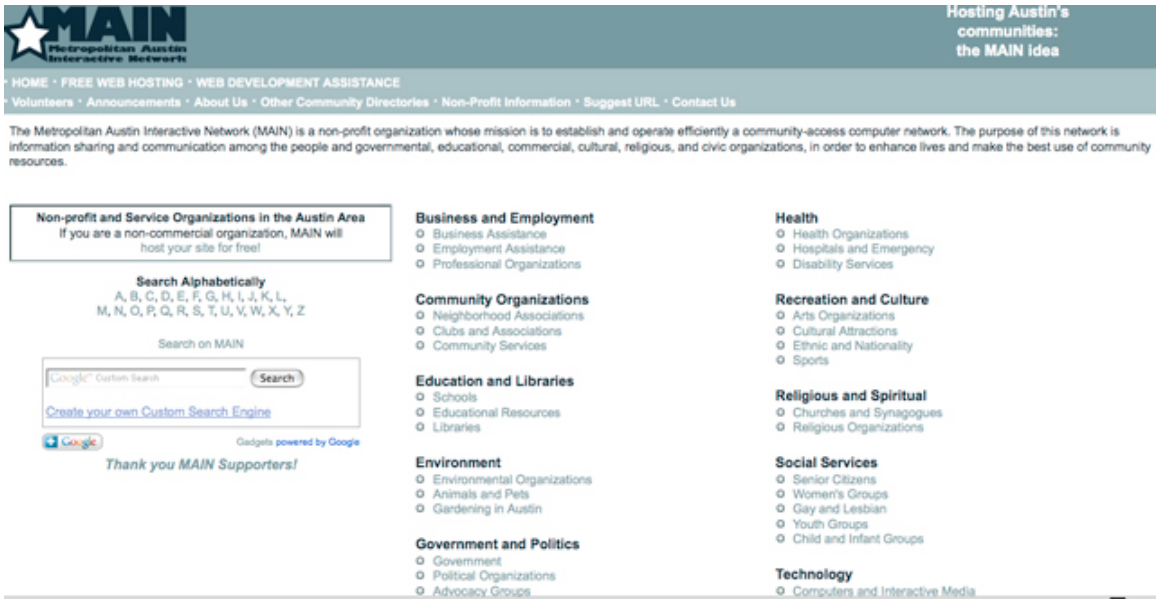
In comparison, Los Angeles, New Orleans and Austin provide examples of different approaches to networked neighborhood capacity building.

Empower LA website, May 2010

In the Empower LA site Los Angeles emphasizes a promotional workflow and supports community councils as the basic building block of engagement. The LA application is primarily a Constituent Relationship Management [CRM] system where communication flow is from inside out or radial, one-way. A blog is the primary social tool and this is used to make announcements.

Neighborhoods Partnership Network, May 2010

New Orleans Neighborhoods Partnership Network also uses Constituent Relationship Management software to distribute information online. Here The Citizen Participation program or CPP is a prominent feature. "A Citizen Participation Program is a vehicle for individuals, communities and neighborhoods to have greater access and impact on the policies and actions of our city government." Like in LA the online goal is primarily informational with communication flow operating radially, out. To join is to receive the newsletter and be asked to donate.



Metropolitan Austin Interactive Network, May 2010

Austin's MAIN or Metropolitan Austin Interactive Network focuses its investment upon creating a directory where non-profit organizations can find each other. Support for groups is offered to build a website and locate it on MAIN servers.

It is likely that each of these established neighborhood support groups sponsors educational activity in real time. However, even though they are all operating permissions-based environments there is not a strong online learning component evident in any of them.

"Community capacity is the interaction of human capital, organizational resources, and social capital existing within a given community that can be leveraged to solve collective problems and improve or maintain the well-being of a given community. It may operate through informal social processes and/or organized effort." (Chaskin 2001)
Since the late 1990's there has been an increased interest by government to redirect policy to a community based approach in addressing the issues of social change and economic development and empowerment, and in the delivery of public services (Chaskin, 2001). The Neighborhood Empowerment Network (NEN) is a constantly evolving collaboration of community organizations, city agencies, non-profit organizations, and academic institutions. It is sponsored by the San Francisco General Services Agency, the Department of Emergency Management and the Institute for Civic and Community Engagement, and is collaboration between community organizations, city agencies, non-profit organizations, and academic institutions. Their goal of the NEN is to: "empower neighborhoods to take leadership roles in stewarding their community to becoming cleaner, greener, healthier, more inclusive places to live and work." [Neighborhood Empowerment Network, 2010].

The Learning Theory thread is drawn from the evolving tradition of Connectivism, which sees learning as a process of creating connections and intelligence as a direct product and measure of the richness of connections. Collaborative education and in particular social learning, was a cornerstone of the critique of schooling (Illich, 1974) and has been seen as a tool for change if linked to community needs (Freire, 1972).

More recently Steve Garlick (1999) of Southern Cross University outlined the role of education in community capacity building by identifying (a) knowledge building, (b) leadership, (c) network building, (d) valuing community and (e) supporting information, as critical components.

Knowledge building is the capacity to enhance skills, utilize research and development and foster learning in individual, while Leadership is the capacity to develop shared directions and influence what happens in the region. Network building is the capacity to form partnerships and alliances with people, while Valuing community and the capacity of the community to work together to achieve their own objectives. Lastly supporting information is the capacity to collect, access and utilize quality information. (Garlick, 1999)

From this perspective we can see how individual capacity connects to the whole and how learning plays an important role in the process of enhancing community capacity. Connection between the social context and learning can be found in Dewey (1938) with his emphasis on interaction and in Vygotsky who asserts that "environment is the source of development and not it's setting (Vygotsky, 1994)."

The goals of much of contemporary education theory then are well aligned with the mission of NEN University. Bielaczyc and Collins (1999) define a learning community as "a culture of learning in which everyone is involved in collective learning. If the community encounters a problem, the entire learning community brings its collective knowledge to bear to solve the problem". Leh, Kouba et al.(2005), surmise that "it is no longer necessary for a member of the community to understand everything the community knows as long as the member is able to identify who within the community has the expertise to solve the problem". Jonassen and Howland (2003) go even further, describing communities of learners as a form of distributed memory, connected through an electronic network.

By stressing the collective, networked memory of the community, Jonassen and Howland (2003) emphasize the importance of connections between individuals and connect them with community capacity building. Unlike prior notions that the

social supports individual learning, individual capacity in this case is depend by its connections to others and the availability of the capacity of others.

The discipline of Human-Computer Interaction offers NENU two significant conceptual resources. First, the Adaptive Culture Model [Kennedy, 2001] describes a cybernetic theory of culture developed by K. Axelrod in 1996 that simulates culture as emergent from interactions among individuals; where interactions, particularly collaboration, are shown to optimize cognition. By building a learning environment that maximizes opportunity for interaction among participants or learners and then provides evidence of those interactions we can expect richer expressions of culture to emerge. This phenomenon helps to explain the 'stickiness', or viral appeal, of social networking tools, which have not as yet been maximized for social learning.

HCI resources also include Universal Design for Learning [UDL] the goal of designing information and communications products and services for learning that are maximally usable by every citizen. Ben Shneiderman, computer scientist and professor at the University of Maryland, College Park, has advocated this concept. His working definition of universal usability – "having more than 90% of all households as successful users of information and communications services at least once a week." [Shneiderman, 1998] The concept of universal usability ("usable by all") is closely related to the concepts of universal accessibility ("accessible by all") and universal design ("design for all"). These three concepts altogether cover, from the user's end to the developer's end, the three important research areas of information and communications technology (ICT): use, access, and design. [Lazar, et al 2007]

Analysis

Looking at the overlap of social capacity building and social learning a definition for the design of NEN University emerges that could be called a social learning and organizing environment, a community learning system [CLS]. The learning objectives, the educational theory and the performance context of this learning all concern connections and how these can be used to create change, on a personal, organizational, communal and municipal level. While not all of the learning and performance contexts are online, many of the tools available today can be seen as greatly enhancing these capabilities.
Adaptivity is the conceptual bridge that connects all these domains, resonant with NEN's goal of 'resilience'. Another linkage is the concept of a systemic or networked application of techniques. By facilitating many more occasions for

interaction the NENU CLS can foster an expansion of culture that will bolster each of our neighborhoods' capacity to exchange information and participate in city governance.

Results and Recommendations

The learning context in this environment will be continuous with the performance context. By integrating online learning and tools with more traditional methods of organizing in real time and space NEN University's CLS can expand the effectiveness of activists and organizers through greater outreach and deepening institutional memory. Connecting learning with performance creates an accessible context for learning and provides scaffolding for greater transference and persistence of knowledge. NEN University CLS can be built as a collaborative environment with short modules, creating a system that is less like a school and more like a community of practice with access to mentors. The NEN University CLS, by integrating support for social and personal learning with learning management, offers opportunities for open exchange and private work that can evolve into public spheres with tracking and reporting capabilities necessary for ongoing system evolution and community accountability.

Beyond more closed and static communities of practice [Gee, 2004] the NENU CLS proposes to appropriate cloud-based social interactions through re-contextualizing them. The proposed new context that we aim for is permeable to social networking applications but integrated into a unified interactive space that grounds Social networking in Leanring Management and Personal Learning (e-Portfolio), allows dynamic support for multimodal, multi-directional learning trajectories with opportunities for systems-based pattern analysis that don't interfere with Learner interactions, concentration or privacy. Both explicit and tacit knowledge transfer through appropriate channels can be accommodated. For example the best support for procedural learning may be a careful explanation chunked and absorbed over time in contrast with time-sensitive information transmitted as a a brief message on the screen about a community meeting.

Looking at Mayer() and Eichler() we can identify four dimensions of social capacity, (1) assets, (2) network, (3) leadership and motivation, and (4) envirnoment. As we develop the design for NENu we should understand how development in these areas might be supported through education and also how education might be enhanced by them.

Drawing from the disciplines of Geography, Learning Theory and Human Computer Interface we can describe an adaptive Community Learning System to

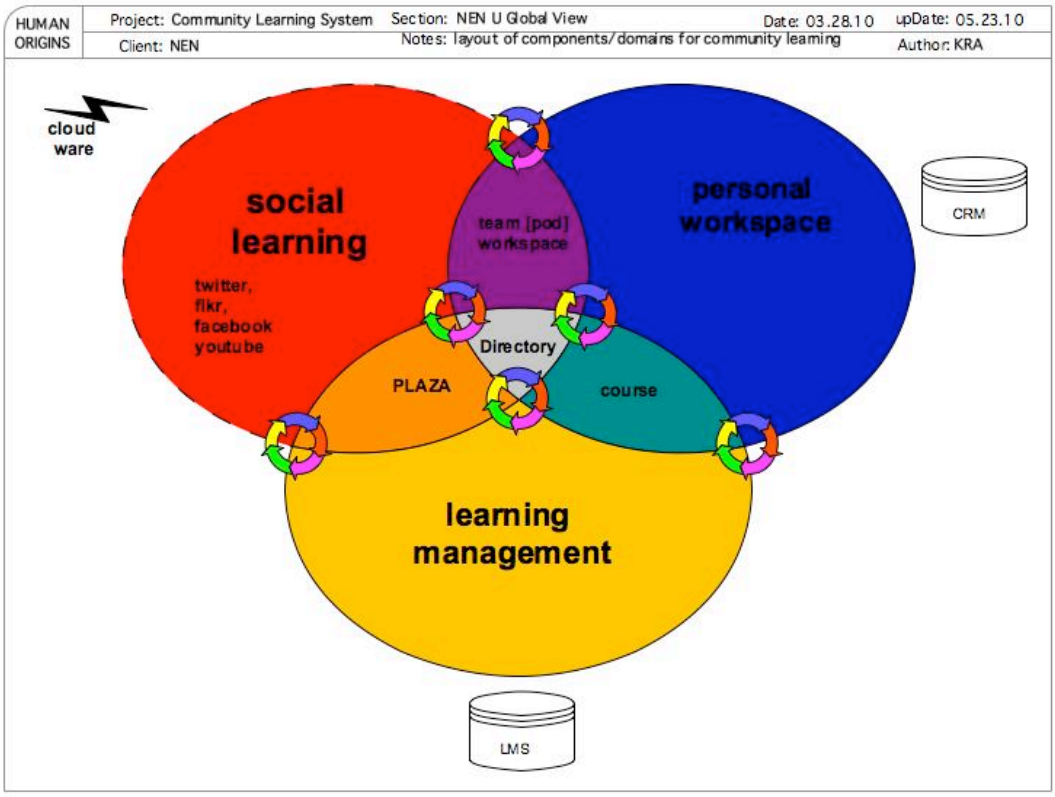
support the NEN vision and mission of empowered neighbors, vital neighborhoods and a more sustainably livable San Francisco.

Pedagogical opportunities and challenges

Learning theorists from Vygotsky [1938] to Brown [1989] to Gee [2004] have guided the development of instruction toward greater awareness of the learning context as motivator for the proactive learner. Gee explains that learning is made of connections between information and context – meaning perceived by the learner and amplified through social intercourse. This makes sense in light of Banduras' observation [1990] that human learning is extended through modeled behaviors. This work has lead to formalization of the idea of Communities of Practice [CoP] [Gunawdawena 2006] However, Gee has been critical of these communities encumbered by definitions of constituents as 'Members" Other constraints may be felt in sharing information across communities or courses. Even learners within very large networks such as the moodle implementation at San Francisco State University that serves approximately 30,000 users experience their network through the relatively narrow lens of individual class groupings that therefore more closely emulate real-time class meetings than an open network. For users and system to enjoy the optimizations of an adaptive system it must be permeable, that is, key features such as publishing or sharing must be controllable through the learners' choices. At the same time the intrusion of seemingly random information that participants are exposed to and react to further extends the intelligence of the learning system and therefore deepens the resources available to learners for solving specific problems.

NEN University is a network for people but it will be built from technology. Online environments can be immediate or they can increase transactional distance. Differentiators include the ease with which learners can see the effects of their actions, feedback loops in cybernetic parlance, and the meaning that they are able to create or co-create. By making these nodes explicit decisions as to where to place these feedback loops or energy nodes determine what aspects of the system will be invested in. [Alexander,1964] Particularly in a system that works to increase civic engagement effective methods for conflict management are critical. By founding the system upon discourse over objective criteria, precedent and scientific merit the stage is set for community decision-making that goes beyond a battle for dominance over entrenched positions and allows creative energy to flow into and through the network with less friction. [Fisher, 1991].

Conceptual Design



The NENU Community Learning System integrates Social networking tools into a managed learning context using principles, tools and techniques of constituent relationship management.

Organizing principles include support for content co-generation, orientation and status visibility, effective privacy and publishing controls.

Affordances include support for work in private and public, workflows that manage editorial processes, work in different channels and media including mobile, video, hybrids of online and real time, and a smart system that learns from use of it.
A key element of the evolutionary strategy for the community learning system is a dependency upon co-generation of content. Participants in the system must find it easy to contribute course materials, courses and feedback on courses as well as see the means to customize course delivery methods to benefit their constituency. To that end the CLS should devote relatively more resources toward systemic approaches of content contribution than to creating specific content modules except those developed as prototypes demonstrative of the capabilities of the system. This can be delivered through a Casebook and Template Library.

Attraction and retention of participants will be directly correlative to relevance and accessibility of course material combined with the immediacy of social interactions. The system will be successful to the extent that it facilitates relationships between participants.

The Directory feature will build and support relationships by making participants visible to each other and increasing their stature in the system based upon attributes of their relationships such as quality (reviweing or rating system), geographic distribution of services (spatial analysis) and frequency or duration (temporal analysis).
The Plaza or StreeBuzz feature allows exposure to fleeting, randomized messages or non-information. It is hard to know how much ambience contributes to intelligence, perhaps this implementation will provide an occasion to measure these impacts.

Self- directed activity can be amplified by providing visibility of it, Feedback loops reinforce energy spent to perpetuate. The Badge feature will allow individuals and groups to show evidence of capacity built in specific areas through training or other experiences. Complete a course get its badge displayed on your "sash" [profile widget that displays badges]. Use a Badge to search for individuals or groups who have that capacity. This feature will add value to the Directory.

Early phases of development will benefit from partnerships with organizations that have signed on as Community Design Partners to help develop the CLS. Self-selection should be supplemented by recruitment to give balance to the offering and wider appeal.

Tracking and reporting on participants / learners' activity canl be the domain of either the Learning Management or Constituent Relationship Management System depending upon social networking integration strategy.

Functional Requirements & Features

This section describes the functional criteria and features that satisfy them, organized by user experience views, for an effective CLS deployed to support NEN's mission and vision. Key to realizing this vision is an architecture that affords ongoing adaptation based upon the visibility of user interactions that connect users to each other. Learning, organizing and other accomplishments and connections through modules with highly structured attributes, but can also come to define a group or a physical resource. Properties such as properties, locations, badges, and connections are attached to this module as needed. By connecting these attributions to the asset, the structure remains open to new

functionality which in not yet built or even conceived. Maintaining a system that allows for dynamism is seen as a key to the sustainability and longevity of this project

1. Environment

All users of the system interact within an Object-Oriented environment. System objects are situated within a hierarchy that supports inheritance as well as independence. This method of organization offers economies of scale and interoperability accompanied by highest flexibility over time as a modular construction allows exchange of outdated elements without re-building the whole system.
[Please see the Schema Diagrams for a map of objects and relationships]
The environment controls flow and presentation of information through
1.1 cloud-based applications to the persistent personal workspace
1.2 manages, tracks and reports course interactions and content management
1.3 operate seamlessly from the users/learners/participants point of view.
Its primary function is to consolidate and de-fragment experience while
1.4 enforces clarity as to orientation, privacy status and controls.

While a precise technical specification for the CLS environment is beyond the scope of the current research, several methods for integrating tools, states and controls are sketched in Technical Recommendations section below.

2. Views

The Global View is an inventory of all available components but is artificial as no one user or view sees all configurations at once.

Users of the system each see a View that is
2.1 tailored from their Role (permissions-based level of access)
2.2 filtered by their preferences
2.3 as controlled by Profile and their point of interaction with the system.
2.4 Role-flexibility. The CLS sees all users of it as participants and as potential Learners and Moderators.
2.4 User types During Phase 0 & 1 of development the system treats four types of user: Participant, Moderator, Manager and Administrator. Note that research in Phase 1 with Community Design Partners will seek more appropriate descriptive titles for these roles.
2.5 Componetized presentation. Each view is modular, templated and consistently styled. Views are comprised of Interface Components. [See **Appendix C: Resources** for a link to a provisional Style Guide]

3. Interface Components

Standardized presentation elements dynamically compose the interface for each View, PHP routinely delivers these elements to the web browser. Use of AJAX allows

3.1 dynamic rendering of elements that change based on user interaction and system state.

3.2 Standard Interface components include personalized **header**, text linked **foote**r, authentication **dialogs** and **error messaging blocks**, system **status messaging blocks**.

3.3 **Tabs** provide access to layers of applications and information.

3.4 Accessibility. Content blocks and **navigation** elements are structured in compliance with voice activation and screen reading, consistent access to back-paging and history lists is provided, no new pages or plug-in applications are called without warning.

4. Applications

4.1.1 Constituent Relationship Management

4.1.2 The Account contains linkages to all user history and information, including credentials and permissions, parent to Profile.

4.1.3 The Profile contains user configurable identity and presentation information. Course completion Badges are linked here. Organizations as well as individuals are represented in the CLS via profile objects.

4.1.4 The Directory is a highly structured display of specific user profile components, including Badges and user-published contact information of individuals in the CLS.

4.1.5 The Plaza or Streetbuzz is a loosely structured display of Social Information Objects that provide randomized view of activities of individuals in the CLS through their social networking usages.

4.1.6 The Workspace Can be multiple, can be tailored as Personal (Private), Team (Semi-public) or Public.

4.1.7 The Gallery Public display of information controlled by an editorial workflow. A specific instance of Workspace. *Note that both instances of the Workspace are forms of Content Management that may be provided through CRM or LMS depending upon the choice of management system deployed.*

4.2.1 Learning Management

4.2.2. Course Module Presentation, evaluation and interaction elements available to Personal and Team Workspaces.

4.2.3 Course Management Tracking and reporting associated with teaching and learning, social interactions, local, global and public publishing.

4.3.1 Utilities

An extensible set of system-based tools which may range from UWA widgets to simpler user interface elements that are adopted as conventional for the CLS.

4.3.2 Social Information Object (Message, Tag) Products of social networking applications related to user by Profile configuration. May be 'transported" or represented within the CLS via RSS as XML feed.

4.3.3 The Badge An information object linked to course completion, managed by Profile, displayed in Directory and Workspaces via Javascript.

5.0 User-Generated Content

Assets stored or linked through the NENU CLS by network participants or learners.
5.1 All assets will have text-based descriptions, captions, titles or labels to render representations of them across assistive technologies.

6.0 Evolution Patterns

The NENU CLS will employ a spiral model of production with software upgrades scheduled in phases and rolling content revisions as needed. Formative evaluation will be included in each phase and dominantly during Community Design Partner involvement. Significant challenges are represented by the requirement of seamless integration of Social Information Objects with Constituent Relationship Management applications and Learning Management applications. However much of the effectiveness of the system turns upon tight integration of cloud-based interactions with the secured views and protected information available to Learners in the NENU CLS.

7.0 Validation Strategy

Formative evaluation of the CLS including heuristic assessment, formal usability testing and statistical analyisis will occur cyclically within phases and on an ongoing basis.
7.1 Community design partners will be recruited to use system components and learning modules and actively report
7.2 as well as have their interactions passively tracked. [See Sample instrument in Appendix C: Resources]

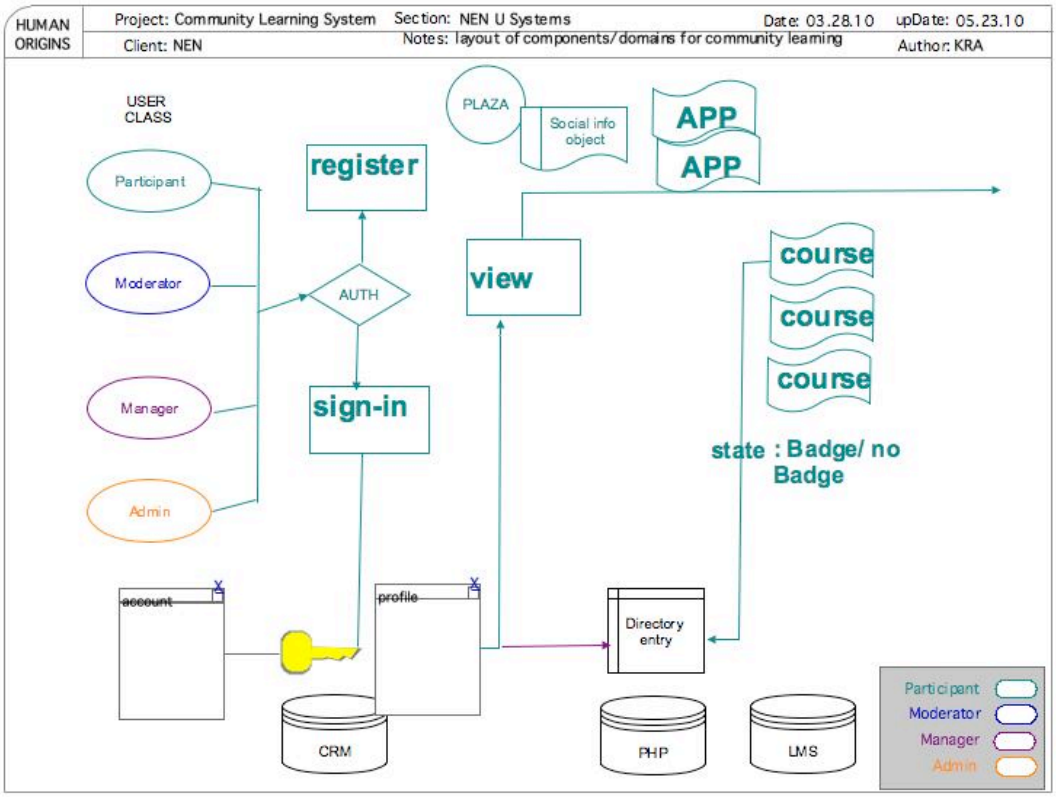
Validation of Learners' efforts is critical for generating and maintaining motivation particularly in self-directed environments. []
Evidence of learning can take a global form as in Learning Maps [Kahn, 2010], etc and particularly in Badges, system objects that include a visual emblem and

signify completion of a course. They can be associated with the Learner profile and associated with that profile within a directory structure making achievements part of community awareness and functionally searchable. Due to learner validation's alignment with engagement in the CLS investment of resources in this area is mission critical.

8.0 Content Overview

To maximize ownership and proactivity learners should be able to self-assign or sign-up and participate in courses as they see fit. However each course may have distinct, published standards for performance and completion. A course in Cardio-Pulmonary Resuscitation [CPR] might have different requirements for attendance than Household Composting for example. Clarity and consistency in publishing course information is seen as a structural support for greater engagement. The need to promote engagement recommends that Course Modules draw from Problem-based learning to employ a cognitive conflict as a stimulus for growth and afford opportunities for individual reflection and contribution as well as social negotiation. [Salem, 2010]

Functional Diagrams



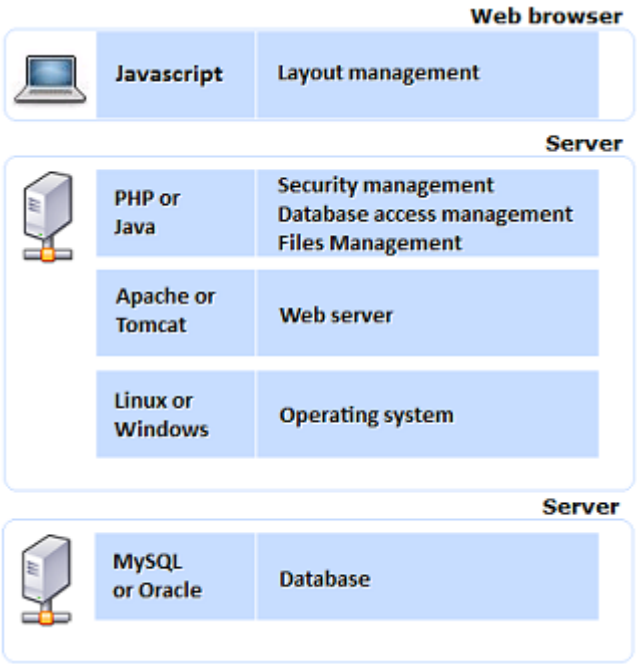
Updated systems map and interactive design documents are available from:
http://humanorigins.org/lab/labproject/nenu/index.html

Technical Recommendations

A precise technical specification is beyond the scope of this work but preliminary research points to options with either a standard Open Source deployment in a LAMP stack or a partially proprietary system using GINA or POSH.

LAMP is an acronymn that stands for PHP for presentation layer, mySQL for database management, and an Apache server for web application layer all running on a LINUX machine.

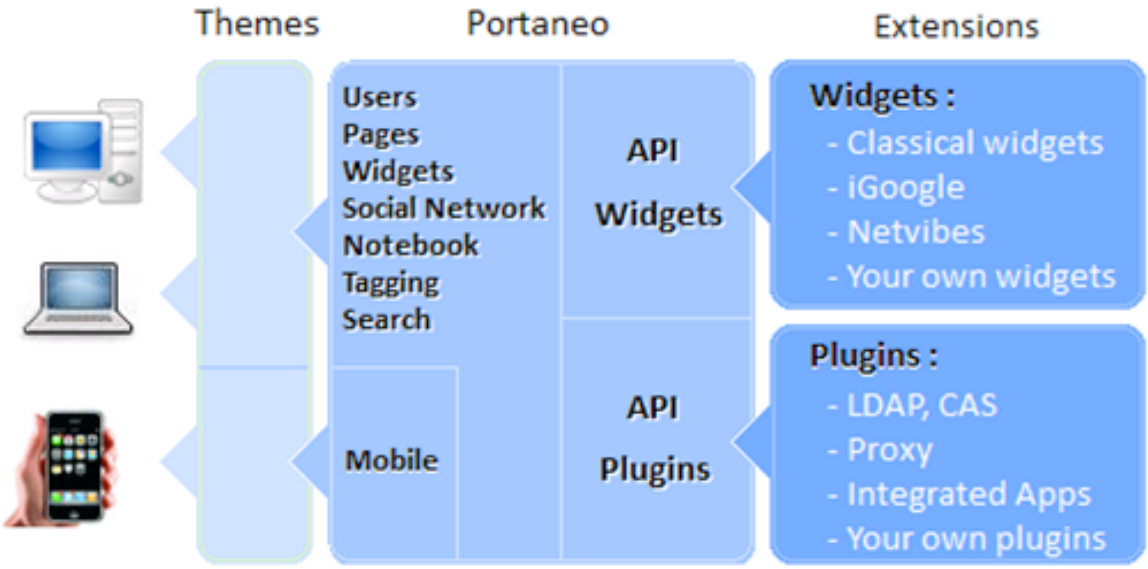
GINA stands for Global Information Network Architecture and offers an interoperability platform that integrates discrete applications with less than normal overhead. As a vector-relational data base management system it is powerful but intensely proprietary.



POSH (Portaneo Open Source Homepage) is an example of a Microsoft-based, though not wholly proprietary alternative to an Open Source implementation. It is a personalizable interface which requires an Apache® 1.33 + server, MySQL® 4.3+ or Oracle® database and PHP 4.3 +. A java version is under development and should increase rendering speed significantly.

Presently POSH supports access by workstations and laptops running Internet Explorer® 6 or later, Firefox ®, Google Chrome®, Safari and smartphones running Blackberry®, iPhone®, Windows Mobile® operating systems. Although as yet untested, Android support is expected.

POSH supports the use of UWA widgets, but also makes use of proprietary widgets which support CRM, ERP, LDAP, Proxy, CMS, PRM connections. While most of POSH is available as Open Source via Sourceforge, some functionally is limited to Enterprise installations.



Many Open Source CRM and LMS environments are mature and stable enough for community-wide deployment, however adoption of the a specific platform should be evaluated in light of the critical design criteria represented by Social Information Object integration. This should be a primary focus of Phase 1 test cycles.

Conclusions

The Neighborhood Empowerment Network Community Learning System offers San Francisco the opportunity to conserve and learn from one of the City's greatest treasures: its diverse, historic and vital activist community. The CLS can work to amplify the efforts of this community to safeguard the quality of life for the next generations of inhabitants of this region and as a laboratory share results that work to build social capacity in other communities.

Glossary

Adaptive Management [AM] The structured, iterative process of optimal decision making in the face of uncertainty, with an aim to reducing uncertainty over time via system monitoring. In this way, decision making simultaneously maximizes one or more resource objectives and, either passively or actively, accrues information needed to improve future management. Also known as Adaptive Resource Management [ARM].

Community Learning System [CLS] A model that integrates personal learning environment with socially networked learning management.

Heterarchy A network composed of horizontal linkages, no node is more important than another.

Intergenerational Learning Practices that support interchange of ideas and experiences between people of different ages.

Learning Management System [LMS] a software application for the administration, documentation, tracking, and reporting of training programs, classroom and online events, e-learning programs, and training content.

Personal Learning Environment [PLE] Tools and methods that support individual learning (create connections between ideas, people, disciplines) within a socially networked context, ie portfolio, ….,etc esp autonomy, self-monitoring.

Schema System of objects interacting with in the learning network.

Social Learning Environment [SLE] tools and methods that support meaning-making within a social context.

Universal Design The design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.

Appendix A: Seven Principles for Community-Based Learning

4/8/10
NENU Modules Team

1. **Transparency**
   Sharing information with honesty and clarity of purpose
2. **Accessibility**
   Inclusiveness—extending meaningful involvement to all
3. **Accountability**
   Good record keeping and reporting practices
4. **Collaboration**
   Engaging neighborhood stakeholders—partnering for progress
5. **Generosity**
   Listening to all views...bridging organizational, cultural, age and gender gaps
6. **Pro-active Awareness**
   Looking ahead. Problem-solving through community-building
7. **Reflection**
   Self-assessment; story-telling (successes and non-successes)

Appendix B: Teams

NEN – Neighborhood Empowerment Network - Daniel Homsey
ICCE - Institute for Community & Civic Engagement - Gerald Eisman, PhD, Jennifer Gasang, Project Manager
SFSU Instructional Technologies:
Platform Research Team – Kasey Asberry, Ian Pollock
Learning Modules Research Team – Kelly , Eileen Moyne, Janet Green, Angela Dowd
Research Supervisors: Chris Salem, Brian Beatty
For team bios see
http://docs.google.com/Doc?docid=0AdmDEYt5TJg1ZGM5a3BqaGJfMWN2azVwa2R3&hl=en

Appendix C: Resources

NENU Document Library
http://humanorigins.org/lab/labproject/nenu/index.html

NENU Partner Questionnaire
http://spreadsheets.google.com/viewform?hl=en&formkey=dDEyN3hfc25XOE4tSURfandtMFhXUVE6MQ#gid=0

NENU Partner Interview List
http://spreadsheets.google.com/ccc?key=0Am-fw4OxzuEXdEdWaVkybWxSRndGNENhUE5UMkJtcWc&hl=en

NENU Style Guide
Available from:
http://docs.google.com/Doc?docid=0AZ7V3ipA5ni_ZGNiMmRtc25fMmY0YmM3NTQ2&hl=en

POSH (Portaneo Open Source Homepage) employs PHP and AJAX to provide a personalizable interface to a web application. Early stage implementation. Available from: http://sourceforge.net/projects/posh/

Bibliography

Adler, P. S., & Kwon, S.-W. (2002). SOCIAL CAPITAL: PROSPECTS FOR A NEW CONCEPT. [Article]. Academy of Management Review, 27(1), 17-40.

Alexander, C., Ishikawa, S., Silverstein, M., Jacobson, M., Fiksdahl-King, I., Shlomo, A. (1977) A Pattern Language. New York: Oxford

Berge, Z. L. (1998). Guiding Principles in Web-Based Instructional Design. [Article]. Educational Media International, 35(2), 72.

Bielaczyc, K., & Collins, A. (1999). Learning communities in classrooms: a reconceptualization of educational practice (Vol. 2).

Brown, J. S., Collins, A., & Duguid, P. (1989). Situated Cognition and the Culture of Learning. *Educational Researcher*, *18*(1), 32-42.

Center for Digital Government and Government Technology. (2008). Government 2.0: Building Communities with Web 2.0 and Social Networking (pp. 11).

Chaskin, R. J. (2001). BUILDING COMMUNITY CAPACITY. [Article]. Urban Affairs Review, 36(3), 291-323.

Coalitions: A Review and Integrative Framework. American Journal of Community Psychology, 29(2), 241-261.

Dewey, J. (1938). Experience and education. New York,: The Macmillan company.

Dron, J. (2006). The teacher, the learner and the collective mind. AI & Society, 21(1-2), 200.(1-2), 200-216. doi: 10.1007/s00146-005-0031-4

Eichler, M. (2007). Consensus organizing: building communities of mutual self-interest (1 ed.). Thousand Oaks, California: SAGE Publications, Inc.

Empower LA (DONE) Los Angeles, CA
Available from: http://done.lacity.org/dnn/ Accessed 05.12.2010

Foster-Fishman, P. G., Berkowitz, S. L., Lounsbury, D. W., Jacobson, S., & Allen, N. A. (2001). Building Collaborative Capacity in Community

Fisher, R. & R. Ury (1991) Getting to Yes. Houghton Mifflin Co, Boston.

Freire, P. (1972). Pedagogy of the Oppressed (M. B. Ramos, Trans.). Harmondsworth, Middlesex: Penguin.

Garlick, S. (1999). Capacity building in regional Western Australia : a regional development policy for Western Australia : a technical paper. Perth, W.A.: Commerce and Trade, Government of Western Australia.

Gee, J. P. (2006) Situated Language & Learning

Goodman, R. M., Speers, M. A., McLeroy, K., Fawcett, S., Kegler, M., Parker, E., et al. (1998). Identifying and defining the dimensions of community capacity to provide a basis for measurement. Health Education and Behavior, 25(3), 258-278.

Gunawardena, C. N., Hermans, M. B., Sanchez, D., Richmond, C., Bohley, M., & Tuttle, R. (2009, March). A theoretical framework for building online communities of practice with social networking tools. Retrieved from http://0-search.ebscohost.com.opac.sfsu.edu/login.aspx?direct=true&AuthType=ip,cookie,url,uid&db=ufh&AN=37141620&site=ehost-live

Illich, I. (1974). Deschooling Society Retrieved from http://gyanpedia.in/tft/Resources/books/DESCHOOLING.pdf

Institute for Civic and Community Engagement, I. (2010). NEN University Retrieved 13 APR 2010, 2010, from http://www.sfsu.edu/~icce/programs/nenu.html

Jonassen, D. H., & Howland, J. (2003). Learning to solve problems with technology: a constructivist perspective (2, illustrated ed.): Merril.

Kennedy, et al 2001, Swarm Intelligence

Kulig, J. C., Edge, D. S., & Joyce, B. (2008). Understanding Community Resiliency in Rural Communities Through Multimethod Research. Journal of Rural and Community Development, 3(3), 76–94.

Lampel, J. a. (2007). The role of status seeking in online communities: Giving the gift of experience. Journal of Computer-Mediated Communication , 12 (2), article 5.

Lineback, N. (n.d.). Graphical User Interface Timeline. Retrieved MAY 21, 2010, from Nathan's Toasty Technology page: http://toastytech.com/guis/guitimeline.html

Lee, E. (2010, April 2010). [Enterprize 2.0, an introduction to socialtext.com].

Leh, A. S. C., Kouba, B., & Davis, D. (2005). Twenty-first century learning: communities, interaction and ubiquitous computing Educational Media International, 42(3), 237-250. doi: 10.1080/09523980500161296

Mayer, S. E. (1994). Building Community Capacity With Evaluation Activities That Empower. 56. Retrieved from http://www.rainbowresearch.org/publications/pdf/1003_buildingcommunity.pdf

Neighborhood Empowerment Network, N. (2010). About the NEN Retrieved 29 MAR, 2010, from http://www.empowersf.org/about-us/#Vision

Neighborhoods Partnership Network, New Orleans, LA
Available from: http://www.npnnola.com/ Accessed 05.12.2010

Piskurich, G.M. (2009) Rapid Training Development: Developing Training Courses Fast and Right. Pfeiffer-Wiley, San Francisco

Salem, C. (2010) Personal Communication. San Francisco.

Universal Design Principles (2010) North Carolina State University. Available from:
http://www.design.ncsu.edu/cud/about_ud/udprinciples.htm
Accessed 05/01/2010.

Vygotsky, L. (1994). The Problem of the Environment (T. Prout & R. van der Veer, Trans.). In R. van der Veer & J. Valsiner (Eds.), The Vygotsky Reader. Oxford, UK ; Cambridge, Mass., USA: Wiley-Blackwell.

Wates, N., J. Brook. (2000) The Community Planning Handbook. Earthscan.

Yee, R. (2008) Web 2.0 Mashups, Remixing Data and Webservices. Berkeley: Apress.