CAS - Collaborative Artwork System

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Under MDR Study Project
Media Lab 2006

ABSTRACT

This paper describes the process of conceptualizing CAS (Collaborative Artwork System) as a research based design. CAS is an ergonomic and usable interface accessible either from a mobile device or from a personal computer via Internet. This system will let the user share pictures, audio, and text information in a learning environment. The aim is to explore sharing practices and digital mediated communication in e-learning communities, taking advantage of mobility, ubiquity, and other characteristics of present technology. By developing this project, I will analyze new means for helping increase motivation and generating collaborative learning practices. CAS focuses on students of Master of Arts degree on Art Education who are learning through virtual environments.

INTRODUCTION

Since the rapid worldwide growth of the postal mailing systems in the late 1800's, mainly within Europe and the United States, institutions and organizations have been exploring new possibilities of reaching a wider community of learners. Technological furtherance since the industrial revolution has contributed to a constant progress on means of transportation. The latter applies to communication and information, leading to explore widely the transformation of technologies and its adaptation for learning purposes.

After experiencing all evolving technologies, from audiocassettes, videotapes, T.V. till the world wide web, and very lately mobile devices, distance learning have become an important subject of research with the purpose of exploring further possibilities to make this modality comparable (in quality and prestige) with traditional education. Teaching and learning methodologies have been considered of great importance since the era of the Internet turned the whole system of distance learning to a completely new phase.

Pedagogical framework

Diverse pedagogical theories have been explored through out the evolution of distance learning and e-learning, from cognitive theories to constructionist. Mostly with Piaget's and Vigotsky's studies, the integration of concepts like digital tutoring, computer based activities, and new teaching-learning strategies have been manipulated significantly. (See Gottlieb Marvin, Foundations of e-learning). One of the pedagogical bases for computer-supported or mediated learning is taken from these constructionist theoreticians. *Collaborative learning*, which is based on the premise of building knowledge through sharing and constant flow of information, stimulating in the students a critical and participative attitude (CSCL).

In this sense, digital learning tools should be designed for contributing to the flow of collaborative experiences in order to build *meaningful*[1] learning processes. At the same time, these tools must stimulate the pedagogical team to structure information and produce activities in a creative way.

Designing systems for e-learning environments must be done in joint with pedagogic planning and development of the educational process. Some important categories and qualities that affect learning when it is mediated by technology have to be considered during the research in order to focus in designing for true benefits in the whole purpose of pedagogical methods.

Through a distance learning practice, students must be encouraged to use their personal previous experience; to have a responsible attitude through their studies; to be active and participative; to communicate their outcomes as well as taking from others what is useful to fulfill their own expectations or interests; to apply in real situations the acquired knowledge; finally, to encompass all the information, tasks, and practices into a common learning process. All the latter refer in general to the concept of constructive pedagogy. (Kevin Kruse,)

Theoretical analysis of the pedagogical scope is an important phase for the development of CAS. Collaborative, constructive, and meaningful learning are the educational premises for this project and they must be combined with the study of information and communication technologies in order to design effective solutions for learning needs.

From the technological perspective, two fundamental concepts will be reviewed and considered in terms of learning. One is the quality of pervasiveness or ubiquity that digital technology is following through. The second concept is mobility and it refers to the first one but in a more concrete way.

[1] The theory of meaningful learning from David Ausubel stands as the opposite of rote learning. His theory is based on the idea of building knowledge by linking and associating new information with previous personal experiences or knowledge.

Ubiquitous learning

The term ubiquitous computing[2] applies to the era of "calm technology". Understanding by that the integration of digital devices in such an accessible, practical, and personal way that its presence is not noticed anymore. Ubiquitous computing refers to the era of technology where information flows in an invisible way, where data is traveling and transforming all the time.

Wireless networks and mobile technology lead information to become reachable at any moment, in any place. Pervasive or ubiquitous technology is "everywhere computing that does not live on a personal device of any sort, but is in the woodwork everywhere" (Weiser, 1996).

Ubiquity, as a modern concept, has been adapted to the needs of education by researching accessibility and the way to design information so that it propitiates knowledge building. Considering the possibility of making information pervasive opens new horizons in distance education. With ubiquitous technology we can integrate fruitful activities into daily life, promoting constant connection with learning activities and colleagues.

Developing positive learning strategies by taking advantage of technology, means not making students media-dependent but providing them with the "right information at the right time in the right way" (Clue research group on ubiquitous learning).

Mobile learning

The term mobility in the scope of information and communication technologies means the possibility of carrying in a practical way a device that allows input and output of information as well as connectivity within people. It does not implicate, though, the aspect of wireless in itself. For this reason the aspect of ubiquity is also very important for conceiving CAS. Mobile devices conform a group of technologies with the characteristics mentioned above, these can be PDAs, laptops, i-pods or mobile phones. In this paper the interest lies in analyzing the mobile phone and its possibilities for learning purposes.

The use of mobile phones in learning environments has been very much researched since the evolution of the 3G or third generation. Interesting projects about mobile learning[3] are demonstrating the importance of designing educational tools for this technology. Nowadays, mobile learning is a term that perfectly defines the way in which technology leads to an important phase of evolution in educative methods and systems. New strategies for achieving learning outcomes can be formulated by integrating mobility into study communities, also within distance learning.

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[2] This term was defined originally by Mark Weiser in 1988 as a futuristic approach to the evolution of technology.

[3] For example, researched being made in Harvard Graduate School of Education

New educational strategies must consider the fact that "most mobile phones being sold nowadays have the computing power of a mid-1990s personal computer" (Prensky, M. 2005). These devices are already introduced and acquired by the standard population all over the world. Teaching people to use them in an educative way will not be so hard as if there was some complex system to learn in between. Not big effort is needed to introduce the technology into learning communities or to create new outrageous and complex devices; nevertheless, the challenge is to provide appropriate solutions, usable interfaces and communicational ideas that could effectively increase motivation in this specific learning group. Designers must not take for granted the huge importance of what Ellen D. Wagner calls the "mobile revolution".

By now, most of the researches in m-learning are based in teenagers as main users. One simple reason is that this group is already living harmoniously with the technology, feeling it as part of their ordinary lives and having a tacit understanding of it. Experimenting with new media on higher education is a bit more complex in terms of research, design, and testing, as some of the population in this user group is still not immerse in mobile and pervasive technology.With the evolution of mobile media and the facility of being connected in an ubiquitous way, social activities are transforming gradually. But besides the social consequences that technology always involves, its impacts in culture and education are also meaningful and encouraging.

The idea of thoughts and image sharing has been flying over the net for some time; millions of people have been sharing their experiences and thoughts with personal web blogs and their personal special moments or interests in image blogging or sharing like flickr or zooomr. This idea of sharing and commenting has become so popular that nowadays mobile enterprises as NOKIA[4] are starting to consider them and so creating new applications to fulfill this concern. Due to the inevitable phase that evolution of technology has, at least for 3 years on, forced to predict. If social communities (friends and family) are willing to share visual and audio information for telling about their lives or their experiences, why not take advantage of that and lead it to learning communities? Many learning communities have experimented with using wikis and weblogs as an external learning tool to share found information and open discussions. In e-learning communities the use of those media tools and the designing of new more specific ones could be more exploited.

After some research on the use of media for learning purposes I found very much probable of becoming successful to develop an idea which considers the mobility of personal media and the fact of having information and sharing tools always in a handy way.

[4] Nokia has released a PC and mobile application for storing multimedia information. (Nokia Lifeblog) Although this tool is designed with a strong social purpose, it is very helpful as background for the development of CAS

Weaknesses in Distance Learning

Toady's use and study of digital technologies and information networks for educational purposes is an important issue worldwide. Governments in high developed countries as well as in developing ones, accredited institutions, and businesses are the prime stakeholders and, at the same time, they have the responsibility of the continuous process on creative development in this complex ICT environment.

In terms of distance learning (and e-learning), the outcomes by use of networking have not been as satisfactory as it was expected from the beginning, when institutions around the world started considering this modality as an important branch of their offers in curricula. Most of the difficulties that had to be faced for recovering expectations in this matter are related to media illiteracy and lack of motivation from both students and pedagogical staff in a mediated learning environment. Problems like the ones mentioned above have roots in lacking a solid methodology specifically designed for this modality of studies. Having a methodology for pedagogical design within e-learning environments is prime. That does not mean taking away the freedom of teachers and tutors; but it does mean having a strong basis to help achieve expected results.

Besides problems and failures, e-learning is still considered within the curricula of some of the most important universities around the world, due to the clear advantages that this modality provides. The question now is how new media design is capable, and at what scale, to increase success in distant learning experiences.

PRINICPAL PURPOSES OF CAS

By conceiving this project, my aim is to contribute in the motivation of e-learning communities by integrating new tools, taking advantage of the current social assimilation of technology (including personal computers, mobile devices, and the use of Internet to access information).

CAS is based in a collaborative work between designer and user, willing to propitiate accessible and practical results.

The main aspects to consider for making of this project an important contribution to the artistic e-learning community are: The needs of having a personalized system that is easy to understand, that works the way users expect it to work; a system that allows communication and storage no matter where the user is or at what time; a system that combines the basis of social practices with learning activities.

EXPECTED OUTCOMES

This project should lead to a thorough research on the use of mobile technologies for distance learning. At the same time, it shall bring or stimulate new creative solutions to increase motivation by taking advantage of mobility in new media and combine this with alternative pedagogical methods. It is also meant to propitiate a more seriously study of how visual fields could be aided by technologies for the purpose of integrating them in a distance learning environment in a more solid worldwide context.

By researching on the possibilities of designing new tools for storing, organizing, and sharing audiovisual information within a learning process, the aim of CAS is to move a step forward in facing the oncoming mobile learning "revolution", especially in distance learning environments. The basic aspects I am willing to consider are those of collaboration and sharing. Motivation is easily augmented by means of communication and that is a basic aspect in learning processes; creating new channels for participation between a group of people involved in a learning process will be favorable to their learning outcomes.

FOCUS GROUP

To propose alternatives for solving educational limitations within distance learning it is important to start by focusing in one specific group and determine their communicational weaknesses. With e-learning relying in the Internet and network administrators, the flow of information is mostly text based; therefore, visual areas of study have not been paid much attention in terms of learning strategies. The importance of sharing audiovisual material and promoting group work has been mostly left to tutors within this kind of education. These tutors may be qualified and motivated but most of the time they have difficulties on creating new strategies when an e-learning environment mediates studies.

During the observation of e-learning communities on visual art studies, a series of needs was detected:

- Share artwork in a community where participants live far away from each other.

- Leave and get feedback in an easy and natural way

- Store audio-visual (both as video or one at a time) information temporarily in a common database

- Keep a record of the work processes

- Easy access to common information.

- Motivation to work continuously in a group environment.

- Feel constantly communicated and integrated with the group.

As a result of studying the problematic in the field of interest, the user group is clearly defined. The development of CAS focuses on a group of MA on Art Education studying the complete degree by distant-learning[5].

From a first meeting with the head of the degree where the focus group is located, we agreed to work in a collaborative way: I would be invited to some meetings and be able to test the results in their working environment while they would be benefited by the research in terms of using this new strategies for improving motivation and collaborative work within the MA distance program.

Focusing in this group brings the possibility of concentrating deeply in the whole elements of design, technology, and pedagogy that will aid this community in achieving their learning outcomes. It also allows the testing to be more real and therefore more successful. Anyhow, keeping the project in a short sphere does not mean that this group will be the only possible benefited by CAS, in the contrary, by fulfilling one specific group's needs, the scope of utilities may increase easily.

The first stage of research was held with the purpose of approaching a complete understanding on the needs of art students involved in a distant learning environment. The most relevant aspect determined from that first stage of analyzing the focus group is the concern of lacking effective tools for sharing student's work within their groups. That limitation leads to a somehow consistency individual and isolated study method which can be very harmful in the instruction of art teachers.

THE IMPORTANCE OF SHARING IN ART STUDY COMMUNITIES

Art has a big responsibility on depicting social situations and the way in which this is done defines the output of the work. Visual production is always related to people, to the way they act, they think or feel. Artworks take their inspiration from the artist's environment; therefore, an artist must not be isolated from the social sphere and from other works of art. Discussing the purpose of art would be an exhausting task and this paper does not intent to do that, but it is fundamental to understand the importance of sharing and collaboration in the production of art.

[5] More specifically: a group coursing "final thesis seminar" tutored by DA Juoko Pullinen at the virtual MA degree on Art Education at University of Art and Design Helsinki: "virt@".

By making of sharing an everyday practice, users can easily identify themselves with other students or with the group. Identification within any area of study is the basis for networking and development of new projects. In a globalized context, working within a community gathered together by common interests can bring solid results and open doors for future collaborative projects.

FEATURES IN CAS

Collaborative Artwork System is founded in four basic concepts:

-Ubiquity and mobile technologies.

-Collaborative, constructive and meaningful pedagogy.

-Motivation in designing learning activities, in teaching-tutoring and in learning.

-Sharing artwork, thoughts, comments, and opinions.

Besides allowing distance-learning communities to explore new possibilities of communication, CAS makes it possible to keep a record of works and feedbacks. With the integration of mobile technology to e-learning practices, this record of information will be more accessible and, therefore, the system will contribute to the analysis of working processes.

Working with art demands a lot of effort in terms of practice. In this sense, sharing experiences, knowledge, and works can be very helpful to diminish the difficulties that could affect motivation or self-esteem if the student has problems with the basic elements for completing certain tasks. The profession of art education requires the domain of certain knowledge and skills so the practical work can flow easily. Further more, these students will become teachers, and for that reason group work, commenting, and fetching common results are essential elements to consider within the process of learning.

Leading e-learning communities to share information actively is a complex task and it depends not just on having good tutoring and a nice social environment within the studies, it also demands for educational tools to be simple but efficient, proper for the students' and teacher's (tutor's) needs.

In that sense, CAS allows and motivates the flow of communication by being adaptable to the user's attitude, occasion, personal context, and other situations that affect the user. Allowing the student or tutor, in a very easy way, to choose the means of sharing, the tool becomes personal and comfortable. The user can choose to record audio, send text or even images to describe their works, make contributions or leave feedback. They are also free to share works by taking professional photographs, digitalizing them, and sending them to the system, or

by easily using their mobile phones to take a picture and *mmsing*[6] it. The same could be done with videos or other kind of files.

Give freedom to the user in terms of communication is a fundamental aspect in CAS. By letting the students take the decision on how they want to communicate, They will feel more confident and even anxious to use the system constantly. Three future users interviewed made it clear that by being able to choose between audio and text for leaving feedback and comments, their participations would increase considerably comparing to their actual contributions by web learning environments.

Adaptability is also a quality of this project. The system must be facilitated to all the individuals in the group without limiting to certain platforms or models of devices. CAS does not pretend to replace e-learning environments in terms of administration, but it aims to support them and give a more personalized atmosphere where users can feel comfortable and socially integrated. In technology, as well as in terms of the way of communication, CAS is a system adaptable to the characteristics of the user.

CONCEPT DESIGN

The first aspect considered for starting visualizing the interface is “sharing”. Secondly, that this sharing has to be possible by easily sending images, texts or voice messages. And third that all these can be done either from a PC or from a mobile device. From the beginning of shaping CAS the project has been supported by interviews, web and library based research, and feedback from different perspectives of the problematic.

At this point, the tool I am proposing is very simple and consists in technological features that have already been explored, though mostly in social or family environments. The reason why I still chose to work, at least in a first stage of this project, in a very simple network design is because basic needs and problems within distance learning environments have not yet been solved; and before developing very complex systems for learning and working within digital technologies and mobile networks we first must find solutions to overcome the very essential lacks.

Commonly used learning administration software has the possibility of uploading files as text, images or videos. Anyhow, art students are sometimes forced to work in various places and that is when mostly this kind of software for e-learning

[6] MMS stands for Multimedia Messaging Service, a technology that allows you to create, send, and receive text messages that also include an image, audio, and/or video clip. MMS messages are sent from one mobile phone to another, or to an email address. (Source: NOKIA)

purposes becomes a limitation. For sharing within this learning management systems the students need to follow a large procedure: take pictures with one device, store it into a computer, save it in certain place in the hard-disk, log to the course web page, go to the forum, add a description or an informative text and then upload the image; which is an extremely long and complicated procedure to share work.

First approach to the concept design

Taking into account the specific needs of the group I am researching and the information gathered so far, the development of some ideas as a concept design started to flow. First, I visualized a tool, which would stimulate art students to keep a digital record of all their works through a certain course and add to each of those works a track of information regarding the process, the place in the work evolution, and the feedback received through its development.

> Mary comes back home after an exhausting day. She is an art student at the university. She goes directly into her room planning to take a long nap and forget about deadlines, examinations and all those worries. But as soon as she opens the door... Oh no! It is such a mess! Her works are everywhere around, over and even under the bed. She wants to throw everything away and forget for a while all the stress of school and all these works.
>
> Mary doesn't have any idea of what to do with all that stuff, a bit frustrated, she just lays down between the mess in her bed and falls asleep. Meanwhile, the things in her room start to disappear, little by little. She does not notice anything till she wakes up. As soon as she realizes that all her room is clean, she gets pretty scared and starts to worry about all the work she has done. She in fact wanted to get rid of it, but now that it is gone... She feels all her effort and hard work are lost.
>
> Exploring her room quite astonished, she notices one strange small book lying on her working table. She opens it with curiosity. Mary is so happy to find all her works inside, and not just that… She finds a description of each and everyone, there is also audio and written anecdotes form teachers and classmates, lots of bibliography related to that work and contacts to all the people that took part or was around her while she did that art work! And if someone wonders what happened with Mary's art pieces…
> They ended up in galleries, homes, and even department stores all over the world!

This idea was illustrated in a metaphorical way, using a traditional book as a tool where one can store all the visual, text and audio information. The idea seemed to wake up interest in art students and the way it was illustrated showed the changes that this tool could stimulate on student's life. As a first address to the issue, capturing the scope of the project in a simple scenario turned out to be very useful. The scenario was presented to two art education students and they both showed interest and motivation in the idea. The story depicts the fact that the material that is stored in each student's personal "portfolio" has been shared and commented, it also shows that visual, audio, and text-based information are gathered in a practical framework.

Second approach to the concept design

After analyzing the results from the first scenario, the importance of sharing actively and promoting synchronic communication came through. A second approach had to display those facts and integrate the aspects of ubiquitous and mobile learning. The idea was basically built on the accessibility of information and communication by the use of mobile devices.

The idea for this instance is to depict the possibility of sharing artwork and having pervasive access to learning material by taking advantage of the common acceptance of mobile phone as a personal, practical, and comfortable item. No matter where the student is working, she/he can share material, leave comments or go back to some lecture/tutoring that has been stored on a common network.

Scenario:

"Designing digital tools for encouraging collaborative environments in visual studies"

Hanna studies a degree in art education; she is working in her studio in a watercolor painting for the course "traditional art techniques". After a long hard work, she feels quite happy with her art piece and feels like showing it to someone.

She is very exited of her results as she enjoyed a lot working on it. Using her mobile phone she takes a picture of the finished work and adds it to her sharing space; immediately after she posts it she can see the works of her classmates that had already completed the "water-color" exercise. After a fast review of the other works she finds happily identified with especially one work so she decides to let her pal know about it. As she is using her mobile phone she finds very practical to leave an audio message, and she records her opinion of her pal's work.

> Later, after all the works from that task have been shared in the network and seen by the professor, he decides to review the skills practiced in that exercise. He uses his mobile phone also to record a small video where he explains certain techniques and correct some general mistakes.

This scenario was developed as a video and it helped to preview in a more realistic way the future possibilities of introducing into learning communities a new application that stands up to mobility. It also helped to clarify the concept making it easier to keep on working with designing solutions.

After sketching the system in a video scenario, I needed to preview the concept regarding the basic guidelines for the interface and the probabilities of being effective. I, therefore, decided to use the video to illustrate the idea of the project and to make some informal interviews with students and teachers that could probably found a use on it.

Preliminary approach to the interface:
The basic idea for conceptualizing CAS resulted already from the first two approaches. Focusing in a schedule of the plan and building the system's structure becomes the next step.

Before starting to work on the interface, it became necessary to interview future users, in order to consider the basic elements and functionality to fulfill the focus group's needs. Two real users were interviewed[7] after explaining them the basic concept of the project.

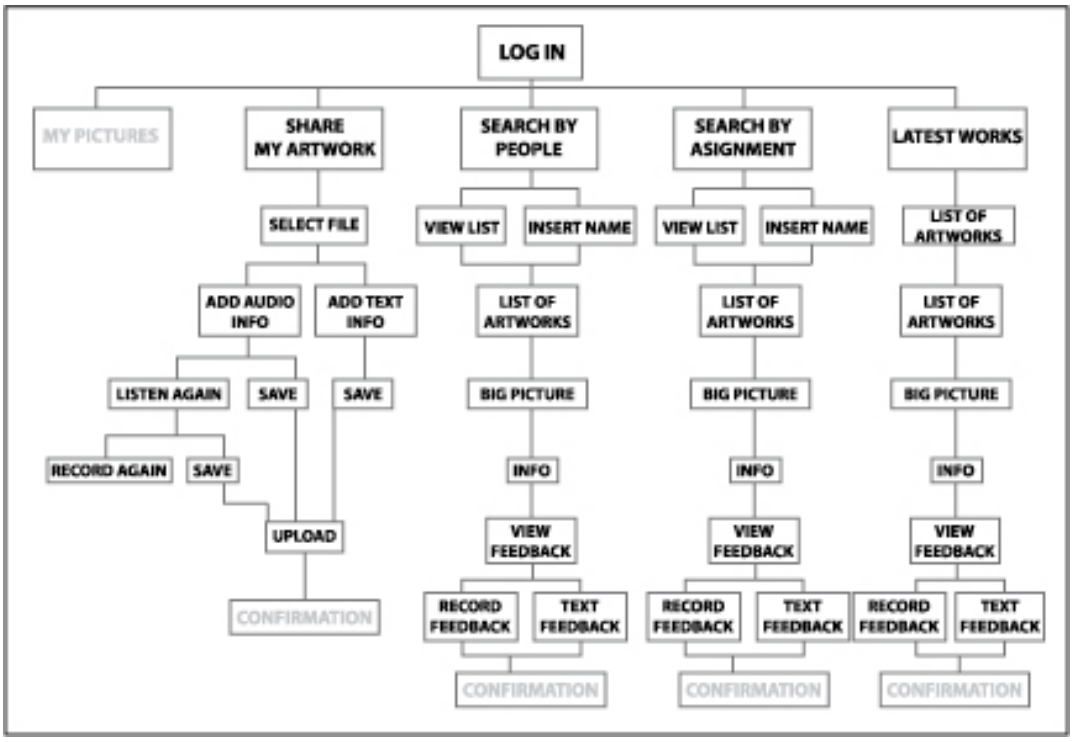
The first analysis of the interview resulted in several worries and also expectations about the system. The principal concerns of the users were related to accessible technology and media literacy, aspects that will be treated more carefully in a second phase of the research.

From the first moment of the interview it was clear that for the e-learning art community, any technological innovation must be very easy to use. New tools shall be designed in the way that they simplify the process of knowledge building, without meaning the need of accomplishing difficult tasks. The interviewed were concerned on the idea that having more technology-mediated activities could lead to obstruct the working flow. Their most meaningful worries with introducing new tools in their learning processes were related to the possible implication of heavier load of work and problems to manipulate technology, instead of propitiating better learning outcomes.

[7] A group interview was held to both users in an open style, leaving the users the opportunity to expose their most important concerns and needs as it was still the first interface design plan and it would be effective to identify the biggest changes on the idea from this first stage

After considering the interview results, we started to work in planning the interface. The basic aim in this prototyping would be to design the structure of the system so that it will be easy to use, logical to follow, and motivating for the user.

We build a preliminary map of the functionality, in order to understand clearly the basic elements and navigability of the system.



Having the basic elements organized, we can start the process of thinking about the interface; this process starts with making a prototype, which helps to visualize the starting point of the system's functionality. Before developing a whole digital application it is very important to make simulations and testings of the product, this part of the process can avoid making big mistakes during the design which could lead to the failure of the project.

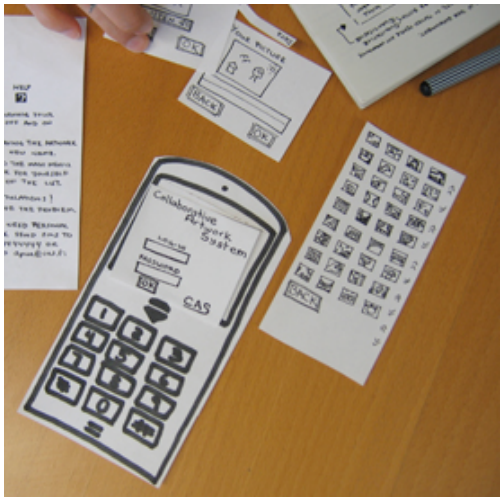
Prototyping

The first prototype was focused in the web interface through a mobile device; this was done with the technique of paper prototyping, developed and tested in an early stage within the development team and in a second stage directly with real users.

Building a prototype requires identifying and gathering all the important

elements that designing a system implicates. The principal benefit from prototyping lays in previewing the different aspects that affect the effectiveness of a design, as usability, accessibility, ergonomics, and motivation on using the system. Another important fact about prototyping is that there can be an evaluation of the system before all the hard work and investment has been done; therefore, even radical changes in the design or in the concept can be made, preventing high losses on time and money in future stages of the development. (Marc Rettig, 1994)

The paper prototype, the first approach to the real system design, was developed in teamwork. Working in collaboration made it easier to identify simple and obvious problems within the basic idea and also helped to observe from a critical perspective the evolution of the design. The interface was tested in two stages, the first one within the designer's environment and the second one with true users. Small but important aspects were fixed by redesigning the architecture in a simple way after each session. In the first stage of the testing, we identified and repaired the big "bugs" and tried to reconsider the elements affecting usability. The second stage was testing the real users who happened to act very enthusiastically and contributed with a critical and constructive perspective.



From the development of the paper prototype and after doing the user testing, the problematic became even more interesting; users acted enthusiastically during the trial and gave very important feedback. Some extra motivations and ideas were brought from this experience, for instance, the possibility of further uses besides distance learning, which was a clear interest from the users (who had experience teaching and learning through both traditional and e-learning)[8].

[8] Further applications alike will not be studied in this research paper, but can be considered later on if there is opportunity for it.

Prototyping resulted in a clear recognition of interface design in two levels which can be regarded as positive (to maintain) and negative (to reconsider): in the first group, those that were tacit for the user and let the navigation flow as it was expected; and second, those that were giving problems for completing a task, that were implicating too many steps, or just generating needless complexity.

Regardless of the interest demonstrated by the interviewed and tested users, the success of CAS as an e-learning tool for improving learning practices depends in great level on the pedagogic part. It is important to take into consideration that the first interaction of the users with CAS resulted more attractive than what is expected from daily use, as when experimenting anything new. In real learning practices the users must be in constant activity and in constant artistic production in order to get tangible benefits from the system.

After the first prototyping of the interface there is a second phase of research in which the whole technical and design aspect is analyzed and considered for the second version of prototyping.

Background technology

Concerning the technological requirements for building up CAS, a thorough research is required on what kind of tools has been developed in relation with the purposes of this project.

Practices of moblogging are the first thing to consider in this technological background. Moblog stands for the use of mobile devices for adding posts (images, videos or plain text) into a weblog. The use of weblogs has a primary function in web publishing information nowadays, basically in the aspect of news through personal resources, opinions or findings within particular fields of interest. The weblog phenomenon has become quite strong in terms of free access to information and therefore is closely related with the study of learning technologies. Regarding the focus group that has been described in this paper and their needs as learning communities, blogging is an effective information environment but it is kept in a very personal sphere, even if the possibility of commenting is one of weblog´s basic characteristics. The principle of CAS, quite the opposite, is the building of collaborative practices; where, even if each student keeps her/his own record of the working process, the input of the whole group must be always strong. The flow of information must be built collaboratively.

Technologically, the gain from the latter is found in the possibility of storing material into the web either by p.c. or directly from a personal mobile phone. The information uploaded from mobile devices is simply sent via mms or e-mail to a predefined address, the system receives this data and stores it directly into the network. This basic functionality is pretty much what can be

used in CAS in terms of keeping the accessibility through various media. The organization and structure of my project, though, is different than in a weblog, in this concern more research and testing are being done.

Diverse networking tools related to this research, besides weblog and moblog, are already working on the net or in process of being completed. Further research and testing will be done on sharing media, as with Flickr for image sharing, Youtube for video sharing and general pod-casting for audio sharing.

One specific project that will work as technological base for CAS is a web photo-sharing interface called EnComPAs[9]. The way this software stores visual information is done on the concept of *kori* (in finnish: basket). The *kori* works as a virtual space where information is gathered, allowing users to organize the visual data into different sets. This project is web based but has a symbian application for mobile phone, which enables the data stored in the website to be displayed in the screen of a personal mobile device as well. The very important added value of EnComPAs is the fact that it enables users to upload and view the shared images from a mobile phone. Such a web based system, which allows the sharing process to happen either from a personal computer as well as from a mobile device, at the same time that is based on the purpose of sharing images, makes it an important technical element in the background research for the development and implementation of CAS.

This sharing interface is maybe the most valuable antecedent within the ethnographic research in the sense that EnComPAs will be studied as a particular case to which certain aspects (limited in terms of technological complications) of design and functionality will be proposed in order to develop the field research and analysis of the implementation within the focus group of CAS. The user focus group of EnComPAs is "family community" and, therefore it is in certain way limited to the kind of image sharing practices in e-learning communities. The most important aspects to be studied in this interface is the possibility of implementing audio recording for feedback and comments; as well as considering having at least two hierarchies in the system (administrator or tutor and users or students), and also a very important aspect that will be deeply studied further on: the graphic design as key for motivation.

Having the opportunity of experimenting a little with this system (EnComPAs) is a great advantage for my project. It will let me focus in the aspect of concept and graphic design, on the study of sharing practices as learning motivation, and on the analysis of how it can influence the activity of collaborative learning.

[9] Enabling Community Communications: Platforms and Applications, is a project that is being developed within the Eureka Celtic Project since April 2004 by Arki Research Group at University of Art and Design Helsinki (source from Kirsti Lehtimäki and Roman Susi)

Next step
The existing technology will be analyzed and worked over, basically in terms of design and some added elements. In the design development it is important to consider the educational purpose of the tool and avoid resemblance to other image sharing interfaces; which could lead the users through different communicational channels.

After researching in the possible use of the existing technology and proposing graphic and technical adaptations, the next stage of the project will be a high-fi prototype testing. The testing will need a preliminary planning of sharing practice into a mobile community; which means introducing the system parallel with group activities guided by the tutor. The most relevant aspects to find out within that first prototyping will be:
Socially.- Detect the transformation on networking and information flow when artwork (or general visual information) as well as opinions can be shared dynamically.
Usability.- Identify difficulties for the users to communicate freely through the system.
Educationally.- Analyze the possibilities of the system to motivate students to learn in a collaborative way and teachers (coordinators/tutors) to develop interactive activities and keep the community in constant production and growing.
Economically.- Make a study of the cost of the service of MMS or e-mailing (the final most convenient version of sending pictures from mobile devices to the web server). Analyze the strategies that could be taken for the institution to pay for the service.

PRELIMINARY CONCLUSIONS

Based on this early stage of the research I was able to analyze the context where CAS will be implemented. Some facts are clue at this moment to start working with the interface in a high-fi prototyping.

The results obtained from the project so far are listed below, mostly after developing the concept scenarios, carrying out the interviews and also from the observation of the attitude and reaction from the interested party.

-The e-learning community of art education in UIAH is not used to share their visual material or work collaboratively through their studies.
-The community (teachers and students) is aware of the importance of keeping a constant active channel of information other than text based. The introduction to their learning environment of an interactive system which not just allows but motivates and stimulates the constant sharing of material, opinions, and ideas will encourage a new perspective of distance learning as a social environment

where students may feel being part of an active community even when they are far away physically from other mates and from their p.c.

Some interest findings through out this first stage are for example, the reconsideration of the product as something that can be used in much further ways than as it was first conceived. People within the teaching and learning community seemed to be interested on using this system in other very different ways and with different groups, still in education.

CAS will be part of the transformation of distance or electronic learning where ubiquitous systems start to integrate learning into our daily lives in an atmosphere of social networking. Mobile learning can be integrated as part of e-learning processes increasing motivation and participation in learning communities and therefore augmenting the quality of this modality of education.

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