

# Designing for a Semi-Structured Virtual Group: A Work-in-Progress Report on the Project "Alumni-Web 2000"

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## ABSTRACT

This paper reports on the design of a web information system for alumni – students who leave the university after finishing their studies. The characteristics of such a group are discussed and consequences for design and participation are considered. Current results of the project are reported.

## Keywords

Web information system design, participation, semi-structured virtual groups

## INTRODUCTION

A growing interest of many universities in keeping good relationships with their students after they graduate can be stated. Under the conditions of diminishing budgets and the necessity to develop regional transfers between businesses and the university many educational institutions seem eager to tap this resource. The "social capital" that is represented by the group of former students is suddenly deemed essential by many administrators. Gerhard Fischer captures the individual perspective of this potential asset by describing it as "the incentive to be a good colleague, to contribute and receive knowledge as a member of a community" [2].

As we readily can see in many instances, internet technologies appear to be the appropriate technological enablers for building a common platform for new – virtual – forms of communities. The internet infrastructure and its available web browsers seem to be the software of choice in this case.

Under these premises, the University of Applied Sciences in the German city (and state) of Brandenburg intends to build and integrate such an information system into its services. Since mid-1999 the university supports the project "Alumni-Web 2000", directed by the author, for the design and implementation of a web-based information system.

Design aspects for and experiences from the ongoing process are subject of the following sections.

Starting with a statement of the goals, an analysis of the group in question will follow. Specific requirements for designing the system, approaches to participation, and experiences from the project will be discussed.

## DESIGNING AN ALUMNI-INFORMATION SYSTEM The Vision

The initial goals for the system were articulated with the proposal. These objectives in a broader sense are informed by various sources, and incorporate socio-economic as well as socio-cultural and administrative perspectives.

Socio-economic investigations tell us that regional economic development very much depends on a great number of interwoven relationships. Though being weak these connections nevertheless provide the essential social fabric [3]. The effects are known – in positive and negative ways – from the old industrial belts to Silicon Valley. Thus, an electronic network between an educational institution and its graduates could provide the space where relationships between former students and between them and the institution are enabled. This support is especially necessary in those regions, where the old industry networks do not exist or are not viable anymore.

Viewed from a social point of interests, the university can extend its "space" for social and cultural exchange with alumni and the alumni will get a "space" for expressing their needs and ideas.

It seems also legitimate, as it was brought forth in this case by the university management, to gather data and glean statistics as the interaction with the alumni proceeds. On the other hand the group of alumni should profit from educational offers, keeping them abreast with the newest devel-

In *PDC 2000 Proceedings of the Participatory Design Conference*. T. Cherkasky, J. Greenbaum, P. Mambrey, J. K. Pors (Eds.) New York, NY, USA, 28 November - 1 December 2000. CPSR, P.O. Box 717, Palo Alto, CA 94302 cpsr@cpsr.org ISBN 0-9667818-1-3

opments in their former field of study or in other relevant areas.

In summary, the system should help to provide

- an extension to the social and cultural space of the university,
- a self organized social and cultural space for alumni,
- opportunities for feedback between alumni and their alma mater,
- a knowledge base for the future development of the university,
- a platform for offers of continuing education courses, or life long learning elements, respectively.

Technical requirements are not stated on this level, since it seems obvious that to build such a system is much more a social challenge than it is a technological task. With regard to aspects of use the system should carry three desired characteristics. The system should

- be appropriate for day-to-day use (ease of use),
- be simple to maintain (the system as well as its content),
- foster and invite communication.

#### **A Design Perspective**

It seems clear from the very start that a web information system for alumni, like for any other virtual group, cannot be designed in the classical manner, proceeding top-down from requirement definitions to implementation. On the other hand, there are no standards for alternative design procedures. Thousands and thousands of web sites have been developed, but the design matter itself is still subject to research. Though we know that computerization is closely tied to social organization [4], our knowledge about systems that are mainly based on computer-mediated communication still lacks sufficient theory or even best practice advice.

Though the social organization view does not lead very far at first sight, since there is no previous organization to take care of, it seems essential to adopt a social and not a technological perspective with the design of a web information system. As we have seen from many recent examples, e.g. city information systems, these systems only prevail if they are actually "adopted" by their intended users. The adoption on the other hand only takes place if the systems affords the user's expectation. So the question arising is who a system's main stakeholders are and what preferences these groups might have.

Two stakeholder groups can be initially identified in our case: the various university levels, especially the president's office together with the main administration, and the group of alumni. While the university employees are known and relatively easy to reach, alumni are defined rather by their absence than presence.

## **ANALYSIS OF THE USER GROUP**

### **Some Prerequisites for a View on Virtual Groups**

In "E-topia", a book about the future of communities, William Mitchell cites sociological approaches that discriminate between primary social relationships (family members, very close friends, etc.) and secondary social relationships (acquaintances, co-workers, trades-people, etc.) [5]. On this ground he points out that it is largely the type of secondary relationships that will be changed, what means recreated as well as abolished, by electronic linkages [ibid., 79 f.].

From another angle, Linda Wall has argued in her dissertation that a deterministic understanding of on-line technologies as forms of transmission devices for the exchange of information is not sufficient. It is important to know that members of a community can interpret their social worlds in very different ways. Thus the meaning of community aspects like identity, norms and relationships also can widely differ [6].

### **Alumni – A Semi-Structured Virtual Group**

The group of alumni does not seem to fit into any one of these two categories of primary or secondary relationships. It may temporarily fit the primary form while sharing apartments in a student dormitory. But it is unlikely that this social connection is continued after graduation. The second category on the other hand seems too weak to characterize alumni groups, as the alumni's shared past is more than just an everyday coincidence.

Thus, while a first definition of the user group in question is simple – former students from all departments of a university – it seems not so easy to say what will be the social glue to keep them in touch with the university via using the system. After all, as an alumni system is completely for voluntary use, it has to be adopted by its intended users. It is encouraging though to see through examples of student's adoption of a cooperative system that this is indeed happening, given the system provides the right kind of support and is not perceived to be obtrusive [cf. 1].

Furthermore, alumni cannot be characterized by task orientation as it would be the case with the design of any office information system. In the same reign, alumni are not representing one of the much-quoted communities of practice, since their current interests and work areas may differ widely. Nevertheless it may happen that they have some common interests as well as traits of a common language and culture.

For these reasons alumni are considered to be a semi-structured group: first, there is a well-formed base of experiences in the common course of studies at the same university environment, but the professional experiences afterwards may occur in very different contexts and lead to a wide spectrum of expectations towards a web information system.

### **PROJECT STEPS AND PARTICIPATION PROCEDURES**

All the theoretical underpinnings in the chapters above support the initial statement that the system design cannot purely

rely on designer's definitions, but has to be informed by participation procedures. That means that empirical investigations have to be carried out before and during the design process.

The following main phases in the project can be identified:

#### **Phase 1: Requirements elicitation and definition**

Various participatory procedures were included in this phase to assure participation of the potential users. These were expert talks, an analysis of existing systems/pages, and a questionnaire.

At the same time, and ongoing in Phase 2, email addresses of alumni in several fields were collected (the German data privacy act does not allow to copy the data present in the student administration office).

#### **Phase 2: Prototype building**

Based on insights from Phase 1 a prototype for the user interface of the web information system was designed and implemented. This was accompanied by content design for some exemplary functions.

The prototype was presented to the university management and comments were collected.

#### **Phase 3: System revision (Current state of the project)**

At the time being, the interface and the database of the prototype are both about to be redesigned according to user feedback from within the project group plus from a few student testers. The same questionnaire as in phase 1 was given to some more students. Results will also be used for revision.

Recent technical standards are implemented instead of previous simpler ones (e.g. ASP replaces CGI as the means for web interaction).

#### **Phase 4: System integration and test**

The system has to be integrated into the university's online services. An evaluation phase to follow up will be proposed to the university.

### **SYSTEM REQUIREMENTS INFORMED BY PARTICIPATION AND ANALYSIS**

As described above, the first project phase was started by doing interviews with a few people in the field who have had experiences with an alumni system from their own university environment. The experts' emphasis was put on simplicity of systems and provision of up-to-date information. Interestingly, it turned out that at that time no German university of our type – applied sciences – had a similar information system in place.

The next step was a survey of existing alumni web pages or sites, mainly in Germany, one in the US, mainly to inspire graphical design ideas and to compare the functionality. It turned out that there was no "standard functionality" we could have adopted.

Thirdly, a questionnaire was developed and distributed either to students being in their last semester or to graduates, respectively.

#### **Findings from the Questionnaire**

The questionnaire solicited opinions and preferences for an alumni web site and served as an important input for the requirements definition (cf. Table 1). The questionnaire was first given out to about 130 students and alumni in the area of Business Informatics. The return was at 66% very satisfying.

In a second round about 30 more students of Business Administration were reached, with very similar results. A third round will incorporate international students by an English version of the questionnaire.

The questionnaire contains about thirty items, that are clustered in areas on personal information (though the questionnaire is filled out anonymously), on questions regarding expectations towards the system, questions on prerequisites for internet use together with open input for suggestions, and questions on intended use frequency.

Amongst the more relevant results just three may be detailed here. One is, that more than one half of the questioned alumni does already have two access ways to the internet, at home and in the business. Another result emphasizes the great importance of continuing education to alumni: about 80% are willing to use respective offers from the university. Third, circa 70% think it would be important or even very important to be able to find partners for business projects via the system.

#### **Summarizing stakeholder requirements**

All sources, empirical and analytical, were taken together to arrive at a first requirements definition. The following table of stakeholder requirements summarizes the various inputs.

Here is an example of how to read the table: the university (left upper column) is interested in the following aspects with regard to the group of alumni (far right column),

- to glean statistics from data alumni put in the web system database via the registration procedure
- to strengthen the institution's corporate identity profile
- to foster innovation transfer in both directions
- to get feedback about the university.

So far it can only be an educated guess what the group of alumni as a self-organized body expects, since the group as such has not constituted itself. It will be interesting to see in which ways and to what goals such an articulation occurs.

The incentives that are planned comprise a free life-long internet address for every alumnus.

#### **Implementation aspects**

The system design and revision steps in phases 1 and 2 try to take care of the requirements by ways of functionality offered through the user interface.

Interest in-> Interest by	University	Individual alumnus	Alumni group
University	. .	Contact opportunity	Statistics Corp. Identity Transfer inno- vation of Feedback
Individual alumnus	Information Continuing education Incentives Transfer of inno-vations	Contact opportunity	Articulation of interests Information Transfer of inno-vations
Alumni group	Information Continuing education Incentives Transfer of inno-vations	. .	Articulation of interests Information Transfer of inno-vations

Table 1. Stakeholder requirements.

Interaction design and the graphical interface is not the main subject here, so only a few remarks on the matter shall be made. It has been tried to keep the page hypertext structure of content items simple. Any information should be reached within a maximum of three mouse clicks. Since not all pages can be kept to one page scrolling is required. But navigation buttons have been put in, so getting back to top is easy.

The "core" of the system is the alumni database, containing personal information only accessible by other alumni. Every alumnus must him-/herself enroll first. The idea is that the actual information in the data base about colleagues working everywhere in the world is one of the strongest incentives to look up and use the alumni system. The remaining question is how to solicit the maximal information input. Some of the requested information for enrolment is voluntary and it remains to be seen, whether a laissez-faire attitude is more appropriate than mandatory input.

#### SUMMARY

An analysis of the design context with alumni as a user group of a web information system indicates that the design process must be supported by participatory procedures. Consequently,

empirical steps to elicit user requirements were included into the framework of the project phases of "Alumni-Web 2000". As it was shown, findings from a questionnaire and other empirical sources yielded useful conclusions for the system design.

Currently, a prototype of "Alumni-Web 2000" is up and running and about to be revised. The integration into the university's web services can be expected by yearend. One remaining question to answer is how to reasonably organize up-to-date content maintenance in face of lacking personnel resources at the university.

Open research questions remain on all levels of designing such systems. The proposed evaluation procedure after system integration should help to get further insights into organizational, technical and user aspects.

#### ACKNOWLEDGEMENTS

Financial support from June to December 1999 through a special university program (HSP III) from German federal and state sources and in 2000 by university funding is gratefully acknowledged.

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