Creating an Academic Network with Women in Computer Science in Afghanistan

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ABSTRACT

In Afghanistan, all development in the area of information technology (IT) is still quite young, but this in particular provides an opportunity - especially for women - to actively participate in the process of rebuilding, and to strengthen their role in the Afghan society. Thus, offering women an integrative room is crucial, a room where they can exchange information without being disturbed and where they can get to know each other, create an academic network, develop ideas for new projects and discuss them. It is the idea, to interconnect the Afghan female computer science students, because they are young, open minded and very motivated. Nevertheless they are often limited by social boundaries within the Afghan society. These female computer science students have been asked about their familial background, but also about their motivation to start the computer science study course. Based on the results, a concept is being developed which shall support the female students during their studies, but also on their way into their working life.

Keywords: Women, Computer Science, Afghanistan, Academic Network, Developing Countries

INTRODUCTION

In Afghanistan, female students have a strong presence within the study course of computer science (CS) as they make up more than one third of all students. But in the work force, and in the society as a whole as well, they don't play an active role. If those female CS students of today are to become role models for the younger generation, they have to be enabled to be more visible within the society. This is why it is ever more important to create a network amongst them, composed of communities both virtual and real. Such an association allows for bundling the competencies of all female Afghan computer scientists and strengthens their role in the area of IT, hence within the whole society.

Aiming to create a sustainable and demand-oriented network, the concept is based upon surveys taken with female Afghan CS students at the University of Herat and University of Kabul.

CURRENT STATUS AT AFGHAN UNIVERSITIES

There are 22 universities in Afghanistan. During the years of war, most of the institutions of higher education and the infrastructure has been destroyed, in 2002, there was no electrical power and water supply.

Also, there is a severe lack of teachers. This is a result of the emigration of the intellectual elite during the war, the little attention to tertiary education in the past, the low quality and inhomogeneous education system and the administrative obligations of professors.

Under-qualification, lack of motivation and low salaries are typical characteristics of the education system in Afghanistan. This results in poorly educated students and deficient curriculum. Also, there is a lack of technical literature in the Afghan native languages, libraries and a good organization.

All in all, there are almost 42,000 students registered at the universities in Afghanistan. Kabul University, the biggest university of the country, has 7,000 students.

The enormous needs in the area of IT and the demands for IT experts, from private companies, but mostly NGOs, makes the CS study course attractive for many students. Particularly among women, CS is the most favorite subject within the natural sciences.

The most important goal of the development of the whole education system is the assured supply of a toll-free basic education, an increase of quality of education, a steady-going development of both urban and rural areas of the country as well as the education of lecturers.

At present, there are four different CS departments and one CS faculty existing in Afghanistan. The first CS department was founded at the University of Kabul in 1995. At first there was no equipment at all, and the education was carried out by four professors only. By now, the curriculum was modernised, and 4 PC pools (150 PCs) were built, and a specialised library was opened. Today there are 14 lecturers working at the department, among them four women.

In Herat a CS faculty was recently founded. Currently the Berlin Institute of Technology (TU Berlin) is responsible for the further establishment of the faculty, and it both supports building structures and conducting most of the teaching. The proportion of women are relatively high: at the University of Herat 71 out of 230 students are female, adding up to a percentage of 33%, and at the University of Kabul there are 85 female students out of 210 in total, a share of 40%. The occupational image of a 'computer scientist' has quite a positive connotation. All female students consistently emphasise their study motivation based on their future contribution they

want to make to their country. On a closer look regarding the status of women at the universities, the following deficits and shortcomings can be noticed:

- At Afghan universities, the only decision-making body for all matters concerning women is the head of the administration.

- At all universities and faculties, all questions and subjects specifically concerning women are still discussed without their participation.

- At all universities, there are still no structures specifically oriented to act on behalf and for the issues of the women; thus they have no possibility to define their position.

This emphasises the need for a thorough mentoring concept and discussion of the questions specifically concerning women.

Prerequisites

A successfully integration of women into the Afghan society needs a certain basis. Equal basic rights for both women and men have already been legislated, but this approach has yet to be acted upon. Additionally, a debate concerning issues specifically related to women has to be initiated and clarification processes have to be started. On university level, this implies e.g. the integration of women in decision-making processes, and the nomination of women's representatives.
Women shall be incorporated sustainably and with an integrated approach at all Afghan universities and their administration. This integration task can often be solved locally, but it has to be accounted for by a centralised policy.

Target group

The yet to be created network aims to appeal to and integrate all female CS students, graduates and lecturers from all Afghan universities. Currently there are 156 female CS students enrolled at the Universities of Herat and Kabul. Unfortunately there are no exact statistics about the enrolled students at the other four CS departments. Hence the total number of about 200 female Afghan CS students is only estimated. There are four female CS lecturers at the University of Kabul, two more are currently trained at the University of Herat. Four lecturers are working at the CS department of the Polytechnics in Kabul, three of them female. They are all quite young, and have only recently graduated with a Bachelor degree in CS at the University of Kabul and are in a master program right now. Some of the graduates are currently working, though not professionally, but mostly as secretaries in the management of governmental organizations.

Data surveys

In 2006, a data survey was conducted to analyse the situation of women, composed on partially standardised interviews and questionnaires. Female students from both the University of Herat and Kabul were surveyed. Three main areas were targeted:

Familial situation: Questions about the familial situation shall give information in about the familial background, in particular about the existence of role models for academic education within the family and which value gender equality has in the family. In addition to that, questions about the financing of the studies and about dealing with a potential pregnancy.
The parents of the female students belong to the most diverse occupational groups, so that a categorization was not possible. But it is remarkable, that 80% of the polled students have employed mothers. All polled students were unmarried. The age of the students varies between 21 and 26 years, with an average of 23 years.
70% of the students are financing their studies with the sole support of their parents, with the rest getting funding by the government. 35% of the students did not reply to the question, if they would quit their studies in case of a pregnancy. Half of the students don't know what they would do in such a case. Only 15% stated, they would continue their studies and can imagine to get support from their husbands.

School education: Questions about school education shall permit conclusions about previous knowledge and interests of the female students in the area of IT.
65% of the polled students finished their school education in Afghanistan and 35% in Pakistan.
To the question about their favorite topic, the students named mathematics without exception, followed by English language and a further topic like basics of computers.
The command of English of those polled students, who finished their school education abroad, is outstanding. Also, some of those students who were educated in Pakistan got basic skills of computer literacy.
There was no PC lab at the schools though, so that there was no education at the computer on a regular basis. Those students who spent their school time in Afghanistan had no access to computers whatsoever.

Study course: Questions about the study course were targeted at the reasons for their choice, fields of interest in the area of CS and chances on the job market. To the question, why they are studying CS, 75% stated personal interest, 15% economic reasons and some stated they did not know, why (see fig. 1). The personal interest of the female students is presumed to be the acquisition of new technologies, the improvement of the economic situation of the parents and to actively strengthen the role of women within society.
Operating and communication systems, followed by software engineering and database systems can be clearly identified as the main focuses within the CS study course, which are of interest to the female students. Some of them also stated technical computer science, theoretical computer science and computer graphics. Pure theoretical interests hardly exist, the studies shall be application-oriented or at least have a practical background.
All of the polled female students have a computer at home, not all of the have access to the Internet (see fig. 2). The following reasons for this have been stated: „It needs money", „telephone line is necessary", „we can't support it.".
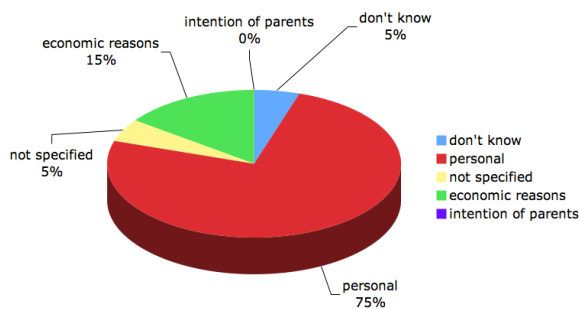
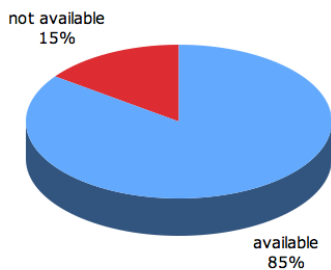**Figure 1:** Reasons for an CS study course

Figure 2: Internet at home

All polled students have at least once installed an operating system on their own and declared to at least once have installed a computer network on their own. On upcoming problems, all of them try to solve it by themselves. If this doesn't work, most of them ask their brothers for help. Some of them also get help from friends, use tutorial programs or the system help of the computer or try continue to solve the problem by themselves. (see fig. 3).
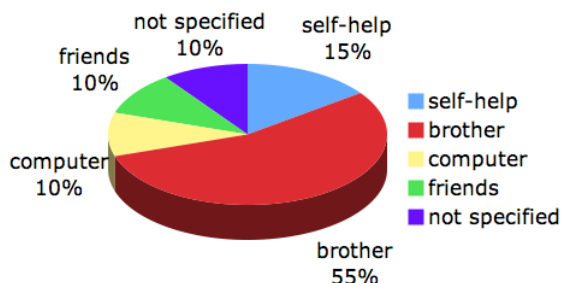

Figure 3: Help by computer problems

95% of the female students see their chances on the job market in education at the university or at school. The rest of them can imagine to work in the industry. One of them stated: „I can't see any job market for me!"

The results of the whole data analysis can be found in [5]. According to the analysis, most of the answers given seem to reflect the viewpoint of women that are quite self-confident, goal-oriented and hopeful. But spoken from my own experience, this does not reflect reality. To my knowledge, most female students consider studying as if granted a privilege,

hence are highly satisfied with their study course. Only a few freely admit to encounter some problems in due course. Having trouble with anything is often regarded as someone's personal weakness, therefore most female students try to conceal it.

Particularly in Afghanistan, problems or personal matters are not discussed outside the family.

If asked about their occupational perspectives, all female students will give the same answer: in theory, these are great. In reality, most of them see their future lying in the field of education. Only a few of the companies will actually hire female graduates. Quite often companies are afraid that women will have problems combining both family and work issues. So they avoid these apprehended problems by not hiring a woman in the first place. In addition, there are still some prejudices: of women having less practical experience than men, or not being able to perform physical tasks like laying out cables and networks. It still seems to be common sense that men need less vacation, are more focussed on their work and are more capable to deal with pressure. Women still have to take on dual capacities whenever wanting to pursue a profession, despite their job they still are expected to do the whole housework. In casual talk most of them do not even complain about the fact that almost all companies do not fully hire them but assign them with assistant or temporary jobs. Moreover, most women make excuses for these companies, claiming family and childcare to be the highest priority in their lives. And this approach is clearly not represented by the self-confident answers given in the data survey.

CONCEPT OF A NETWORK

Creating this academic network aims to integrate female students, graduates and lecturers on equal terms and with equal rights. Relations shall be established between all participants, forming a basis for all women to work together. This aims to support knowledge and information exchange, provide all women with assistance and counselling, enable them to further develop their competence, hence prepare them for a smooth transition into the working world.

Establishing this network is a way to advocate the participation of women within the Information Society, hence reorganising the society in an active approach. An academic network designed as described will bring new ways of communication to Afghanistan. The network aims to provide both a virtual and real room for all female Afghan CS students, graduates and lecturers. The current status of IT in Afghanistan is still quite difficult, there are deficiencies in infrastructure and expertise [5]. Technical expertise as well are not yet sufficiently available for immediate use, thus a solely virtual community will not be successful and can not be reasonably used to its full extend. An accompanying programme has to be established, including trainings, counselling and discussions taking place in the real world. Hence the concept as a whole comprises of inter-blending virtual and real communities. This combination will add to the successful implementation of the designed network. Especially in a society that has undergone many disturbing times, trust in new projects can not be presumed and is not easily built.

Virtual community

There are some obvious advantages of a virtual room, primarily the lack of communication barriers due to age, class and race. In the Afghan society in particular, where various ethnic groups coexist, prejudices are wide-spread. But it is not only the affiliation to any ethnic group that determines the role in the Afghan society, there is also the strong sense of belonging to and tight relationships within an extended family. All these barriers will fade into the background in the anonymity of the virtual world.

Due to the socio-cultural background, many men will not easily give women any free space in society, and they will assign them with only passive roles, hence the drafted network will only be open to women. To overcome gender-based discrimination, even though it may evoke malevolence, it is of core importance and relevance for the community to absolutely have only women participating in it. Only in an explicitly female community, women will talk about their personal problems and deficiencies.

An Online-community cannot fade out all problems, but the women can make their own decisions, express themselves more freely and are under less social pressure than in the real world.

Neither knowledge acquisition or mere technical knowledge exchange is the prior aim of the drafted network as it would be in learning communities, nor is it the development of unidirectional mentor-student relationships. The overall aim is to enable and support the establishment of informal learning groups where integrated knowledge and experiences can be exchanged. Here new ideas and projects can emerge, and solutions can be developed. Communities based on these principles will lead to a higher study motivation, and a raised sense of responsibility regarding the own learning success [7].

All female students, graduates and lecturers shall communicate and work on the same level and are attributed with equal rights. Implementing this approach is difficult due to the exceptional strong hierarchical structure of the Afghanistan society, where roles are assigned following strict regularities, and it will need much patience.

Real world community

As the group of female CS students at Afghan universities is small and manageable, most of the students at the same university will know each other. Despite that, socialising processes within the community have to be supported. Joint activities and meetings will contribute to strengthen any given community, and will initiate new impulses. Moreover, a first face-to-face encounter will help building up trust to each other.

Further meetings will intensify the relations between all women, and further education and training courses, for example in soft skills, will raise the self-confidence as well as the motivation to study, and each encounter will give worthwhile impulse for each of the women's future working life.

SUMMARY

The introduced concept of an academic network aims to integrate women in the area of IT, with special regards to higher education. It is only one approach to further strengthen the women's role in the Afghan society, it does not guarantee sustainable changes and progress, but it will facilitate the introduction and provides backup for improvements. The mere existence of programmes for the women's advancement does not imply at all that they are given any priority by the policy decision makers. Especially in the case of such an academic network, the backing by the Ministry of Higher Education and the universities itself is of great importance. The Afghan government, the Ministry of Higher Education together with all universities, they all have to contribute in changing the underlying attitude towards women and especially their nowadays assigned role within the society.

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