Title: ***Refresher Training Course for Afghan Women Engineers - Professional Development in the Post-Taliban Era***

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Abstract
In the current period of reconstruction of infrastructure in Afghanistan, the need for a well qualified engineering workforce is high. As opposed to many countries of the West, the ratio of female engineers in Afghanistan is high (approximately 30%) but because professional women, including women engineers, were banned from working during the Taliban regime, they face a gender-specific disadvantage in terms of degenerated skills and qualifications. Therefore, in this post-Taliban era there is a need for special refresher training for women engineers and this project was designed in response to this expressed need.

The overall objective of the project was to increase equity between women and men in Afghanistan. A more specific objective was to update skills and qualifications of a number of Afghan women engineers so they can compete on an equal footing with male colleagues for the growing number of positions within the engineering labour market. Another specific objective was to build capacity within the engineering sector.

In the paper I will describe the project, including the course curriculum, the participants and the teaching methodology which included project work. Further, I will reflect upon what I perceive as a 'cultural clash' between a national educational system based on teacher-controlled teaching and an internationally designed training course based on student-centred learning. Finally, I will assess whether the project objectives have been fulfilled. The questions which I want to discuss in the Round Table will mainly be centred around the issues of learning style, teaching methodology and cultural differences, including gender differences.

1. Introduction

Higher education in most Western European countries have in the last 10 – 20 years undergone substantial transformation in a number of areas, one of which is concerning study form, where a shift has taken place from teacher-centred teaching to student-centred learning. In connection with this transformation, problem-based and project-organised group work has been introduced in many curricula, including in engineering education. At the Faculty of Engineering and Science, Aalborg University, Denmark, where problem-based and project-organised group work has been the norm since the inauguration in 1974, the UNESCO Centre for Problem-Based Learning in Engineering Education (UCPBL) was established in 2002, with the aim of supporting and assisting engineering educational institutions throughout the world introduce problem-based learning. I am concerned about the implicit 'learning

imperialism' and in this paper I will raise some of the important questions which in my opinion need to be discussed in connection with such an endeavour.

2. The case study

The case study is an Oxfam project, designed by a Gender Adviser and an Afghan Minister of Women's Affairs, with the purpose of conducting a 7 weeks Refresher Training Course for Afghan Women Engineers, at Faculty of Engineering, Kabul University during June – August 2002. The ratio of female engineers in Afghanistan is high (approximately 30%) but because professional women, including women engineers, were banned from working during the Taliban regime, they face a gender-specific disadvantage in terms of degenerated skills and qualifications. This project was designed in response to this expressed need for special refresher training for Afghan women engineers.

The overall objective of the project was to increase equity between women and men in Afghanistan. A more specific objective was to update skills and qualifications of a number of Afghan women engineers so they can compete on an equal footing with male colleagues.

The following project description is based on the Final Report (Dahms, 2002) and on the End-of-Course Questionnaires (33 out of 51 returned), administered by the end of the course to provide information on the opinion of course participants about the course.

Teaching *staff* for the engineering part of the curriculum were 4 international (i.e. Oxfam) trainers and 4 university lecturers, while English and computer lessons were taught by teachers from private language and computer schools in Kabul. Written course *material* had to be translated into Dari and lectures by the international trainers were verbally translated in class.

The course *participants* were a total of 51 female engineers with a background in civil engineering, construction and similar engineering fields. The majority (3/4) were graduates from Polytechnic Institute, Kabul, an engineering institution which during the communist regime was strongly supported by the USSR both in terms of teaching materials and human resources. Many of the female engineers had considerable work experience (60% more than 5 years) but only one indicated that she worked as an engineer during the Taleban regime. The 51 participants were divided into 3 classes of 16 – 18 women, i.e. each lecture had to be repeated 3 times (apart from some few cases where 2 or 3 classes had a lecture together). The classes were further divided into 3 - 4 project groups of 4 – 6 women each.

The course *curriculum* included the topics and the indicated number of teaching hours, shown in Table 1:

Topic	**No. of teaching hours planned**	**Approximate no. of hours actually taught**
Civil engineering	40	50
Water and sanitation engineering	30	30
Project management	16	16

English	30	40
Computer training	24	32
Project work	133	75
Self study	0	15
Total	**273**	**258**

Table 1: Course topics, including planned and actual number of hours taught.

The *didactic* approach planned for the course was a combination of teacher-controlled lecturing in class, using audio-visual teaching aids and student-controlled project work in project groups, using the computers to produce written project documentation, including a project report to be produced by the end of the course. As can be seen from Table 1, there was a marked discrepancy between planned and actual project work hours which was partly due to the fact that the international trainers could not cope with the tasks of preparing course material and project tasks at the same time as teaching in class. I will elaborate on this issue in the next section.

The discrepancy between planned and actual total teaching hours was due to the inclusion of extra-curricula activities, such as ceremonies, presentations by relevant NGOs, a session on networking etc. Time for such activities was normally taken from the project work time. Thus, project work time came to function as the 'elastics' which allowed flexibility to cope with a number of unforeseen situations.

Teaching *time* was from 8:00 am to 3:30 pm, 6½ hours per day, 6 days per week, 7 weeks, i.e. a total of 273 teaching hours. The timetable was divided into two 2-hour morning sessions and an afternoon session of 2½ hours, with a 10 minutes break during the morning and a 50 minutes lunch break. English classes and computer classes were concentrated during the first 3 - 4 weeks, with the rationale that after these first weeks participants would be able to understand sufficient English to make translation superfluous and be sufficiently familiar with computers that they be able to produce project documentation in English on the computer. This did not happen!!

For reasons of *monitoring and evaluation* of the course, a Students' Committee was formed which met 4 times during the course, a Mid-Term Evaluation was carried out and an End-of-Course Questionnaire, translated into Dari, was distributed to all 51 participants, of which only 33 returned the filled questionnaire.

Assessment of participants' learning outcome in the form of tests, exams etc. was not carried out. The plan had been to assess the project work – and via the project work assessment also assess the learning outcome of lectures which were meant to support the project work – by having the project groups write a project report in English and then have an oral exam, based on a discussion of this report. Due to the poor English language capability of the participants and the limited translation capacity available, this plan had to be given up and no attempt was made to put in place another assessment of learning outcome, since this would have meant extra work for the trainers.

3. Reflections on teaching and learning in a cross-cultural setting

The following reflections are partly inspired by the article "Cultural Differences in Teaching and Learning" (Hofstede, 1986) which deals with the 'school' as one of the

fundamental institutions in any human society and the 'teacher-student role pair' as one of the archetypes of interaction between human unequals which is not only a product of a given culture but is also the device by which this culture reproduces itself. When teacher and student come from different cultures, a number of complex problems may arise. Hofstede (1986) lists the following areas as problematic:

- differences in social positions of teachers and students;
- differences in the relevance of the curriculum;
- differences in the profiles of cognitive abilities;
- differences in mutual role expectations in teacher-student interaction.

In his article Hofstede (1986) mainly discusses the last area, the discussion being based on a 4-dimensional model of cultural differences developed in connection with research on work-related values (Hofstede, 1980; 1983). The 4 dimensions of the model of cultural differences are:

- Individualism as opposed to collectivism.
- Power distance, i.e. the degree to which the less powerful persons in a society accept inequality in power.
- Uncertainty avoidance, i.e. the degree to which people within a culture try to avoid situations perceived as unstructured, unclear and unpredictable by maintaining strict codes of behaviour and belief in absolute truths.
- Masculinity as opposed to femininity, i.e. the degree to which social roles attributed to men are dominated mainly by male values (such as competitiveness, ambitiousness and material success) or by female values (such as caring for the weak, interpersonal relationships and non-material qualities of life)

Based on each of these 4 dimensions Hofstede presents 4 lists of suggested differences in the teacher-student interaction and he describes these differences as the extremes where real life situations lie in between the extremes (Hofstede, 1986).

According to Hofstede 'culture' is defined as "the collective programming of the mind which distinguishes the members of one human group from another" (Hofstede, 1980, p. 25) and 'values' are "broad tendencies to prefer certain states of affairs over others" (Hofstede, 1980, p. 19). For the following discussion I will adopt these two definitions and although I do find the 4-dimensional model of culture much too rigid to be useful in cultural analysis, I will not go into a critical discussion of the model in this paper. Rather, I want to discuss a problematic area not mentioned by Hofstede: differences in teaching methodology. As mentioned in section 2 the course consisted of lectures and project work and differences in teaching methodology were most pronounced in the project work which will therefore be the topic of discussion in the remainder of the paper.

The rationale for introducing project work into the curriculum was to create a learning situation where the participants could interact in an active way and would be able to draw upon the work experience they already had, thus securing a learning rooted in present knowledge and thereby a deeper learning than what was judged possible by lecturing. Another aim of the project work was to allow the participants to look for

necessary information and facts for themselves rather than to expect the teacher to present it in a lecture.

The plan was that project facilitation be carried out by a team of 1 university lecturer and 1 international trainer per project group. In order to prepare the university lecturers for this task, a training-the-trainers session of 4 hours was conducted before the start of the course. In this session the importance of independent participant work was stressed and the role of the teacher as a facilitator, not a teacher, was discussed. The language barrier did, however, create a problem for the project facilitation. Project facilitation (as I know it from Aalborg University) is mainly based on discussions with the project group, trying to assist them in formulating clear questions and encouraging them look for answers in the sources of information available to them. This way of project facilitation was obviously not very feasible because translation was required throughout. Therefore, the university lecturers took over most of the project facilitation which then – in spite of the training-the-trainers session – quite often took on the form of lecturing in class during project work time and thus eventually changed most of the project work from a student-centred learning situation to a much more teacher-controlled teaching situation than was the original intention, a situation which seemed to be not only accepted but even welcomed by both participants and teachers.

The project work was intended to take place in the smaller project groups, but the women preferred to work in bigger groups, i.e. in the class. Spontaneous observations indicate that whenever the project facilitator was not present in class a good deal of peer learning took place, in the form that a more experienced woman engineer would be at the white board lecturing to the other women present in the class, sometimes interrupted by other participants. Thus, the project work did indeed further an active interaction between participants which is confirmed by the overwhelming satisfaction with the project work as expressed in the questionnaire: 30 of 33 found project work 'good' or 'very good' and 19 stated that the project work contributed very much to the learning outcome of the course. A few comments in the questionnaires does, however, seem to indicate that the concept of student-centred learning was not fully appreciated. One participant said that the worst thing about the project work was when the head of the group was absent and another participant commented that it would have been better if every group had a teacher to advice the group.

From the list of differences in teacher-student interaction related to power distance (Hofstede, 1986, p. 313) a few differences should be brought out that might illustrate the above:

Small power distance societies	**Large power distance societies**
Teacher expects students to initiate communication	Students expect teacher to initiate communication
Teacher expects students to find their own paths	Students expect teacher to outline paths to follow
Effectiveness of learning related to amount of two-way communication in class	Effectiveness of learning related to excellence of teacher

From the list of differences related to uncertainty avoidance (Hofstede, 1986, p. 314) some differences worth mentioning are:

Weak uncertainty avoidance societies	**Strong uncertainty avoidance societies**
Students feel comfortable in unstructured learning situations: vague objectives, broad assignments, no timetables	Students feel comfortable in structured learning situations: precise objectives, detailed assignments, strict timetables
Teachers are allowed to say "I don't know"	Teachers are expected to have all the answers
Students are rewarded for innovative approaches to problem solving	Students are rewarded for accuracy in problem solving

In planning the project work, an attempt to adapt what might in Aalborg have been an unstructured problem-based project work to an Afghan situation, it had been agreed that in the beginning the project work would take the form of small and simple group assignments, with all necessary facts and information being provided and with necessary procedures for problem solving being presented in a lecture before the project work. From these simple assignments the project work would then gradually move on to more complex assignments with a larger degree of independent work and by the end of the course the sum of documented assignments would constitute the project report.

In spite of this attempt to create a structured learning situation while still doing project work, the participants expressed uncertainty about what they were supposed to do, often they opted out from project work because there was no fixed time table and many of them felt considerably more comfortable when the university lecturers took over the project time for lecturing on the project tasks. Similarly, the lecturers were working hard on providing the 'correct' solutions to the project questions, not appreciating attempts from the international trainers to suggest that more than one solution might be possible to a given problem.

A problem which does occur regularly in project groups is that not all group members participate on an equal footing in the discussions and not everybody contributes equally to the project work. Spontaneous observations during project work time seemed to confirm that this has also been the case in the project work but even so all participants (33 of 33) answer that everybody participated equally in discussions and 26 of 33 say that everybody contributed equally to the work. This might be due to the difference stated by Hofstede in relation to the individualism versus collectivism dimension. In individualist societies "formal harmony should be maintained at all times" while in collectivist societies "confrontation in learning situations can be salutary; conflicts can be brought into the open" (Hofstede, 1986, p. 312). The hesitation to express any dissatisfaction might also explain the fact that hardly any critical comments were brought forward in the anonymous End-of-course questionnaires.

4. The Important Questions

This section will not be a conclusion but rather some of the most important questions which arises in connection with cross-cultural teaching-learning situations. The concept of situated learning, where learning is seen as a social process taking place in a given context, is often stressed as a given. This being the case, one important

question to ask is: Is there a universal learning style that can be supported by a universal teaching methodology? In discussing this question social categories such as age, sex, ethnicity, language etc. should be taken into account.

The next question which begs answering would be: If there is a universal teaching/learning methodology/style what is it like? And how best to develop this style and methodology?

Another question which arises in a situation as described above is: In which ways do former teaching-learning experiences influence the way adult learners learn in universities?

The core of the problem can be expressed in the following question: Can problem-based learning be exported from one cultural context to another cultural context?

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