

Posters

Leaflet of abstracts

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1 - Serious Games as an Interdisciplinary Approach in Engineering Degree Courses

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Serious games are not applied very often in University lectures in engineering degree courses even if their pedagogical success is unquestioned. Serious games very often require a high part of creativity and interdisciplinarity; this enables the students to develop problem solutions which are not just strictly related to the given task, but which are holistic in the sense of using generic problem solutions. This leads to an education which offers structures and rules for training on-the-job by offering interdisciplinary skill-building at the same time.

The degree courses of mechanical engineering and of security (safety) engineering at the University of Wuppertal decided to offer an interdisciplinary module including management and creative methodologies to increase the number of engineering students and especially the number of women engineering students. A rather big part of this offer is carrying out serious games.

The methodology is learning by serious games, learning by having fun. Computer based and non-computer based games are applied. Games having a one-level learning target as well as games having an implicit, informal, hidden-level learning target are used to support the skills of the students.

The aim of the application is to gain interdisciplinary competence of the students. They are enabled to find an easy access to problems and solutions. This leads to the overall aims of gaining a sustainability and transfer competence, lowering gender specific and cultural barriers as well gathering competition and co-operation competencies.

The results which are gathered by expert and focus group interviews, observation and questionnaires underline the sustainable success of the application of interdisciplinary serious games in engineering degree courses. The students show an awareness and support of gender and cultural differences, they gain competencies of sustainable transfer of competition and co-operation competencies. And last but not least it leads to an increasing number of (women) engineering student.

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2 - Facteurs d'influence des choix d'études en génie des femmes

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L'affiche présente les données relatives à la situation des femmes en sciences et en génie, pour l'Université Laval et l'École Polytechnique de Montréal, en termes de taux de féminité, par année et par programme de génie. Également, les données concernant des programmes communs aux deux universités sont comparées dans un tableau récapitulatif et les conclusions de la recherche menée sont présentées. L'objectif est d'établir si le choix de cours hors spécialité, proposé dans un programme de génie donné, a une influence sur le taux de féminité de ce programme.

3- (No) Career Choice of Women in STEM — Reasons and Obstacles

Bernard ERTL

The paper presents four case studies on facilitators and obstacles for career choices in the field of software engineering. It relates these case studies to the theoretical models and particularly investigates factors important for female and male career choices—from an individual as well as from a socio-cultural perspective. Results of the case studies show that the female subjects had a high personal interest in the subject of computer science and were therefore choosing a career in this field. However, they also reported that their socio-cultural environment was “science-affine”, even if they didn't name this as direct factor. Yet, according to socio-cultural theory, such a “science-affine” environment is an important background for opening the mind for a science career and for developing personal interests.



4 - Gendered barriers to SET careers: are we looking in all the wrong places

Marinda and David MAREE

The poster indicates structural and individual barriers responsible for the under-representation of women in Engineering and Technology (ET). However, it is pointed out that the focus on the removal of structural barriers does not guarantee success for women in ET careers. The project found that social-cognitive factors, such as self-efficacy, contribute to the success of women in ET. The results are briefly illustrated in reference to a study done with a sample of 29 women in successful ET careers in South Africa. These women experienced some form of gender discrimination at stages of their development from school to career. They also struggled with family and work-life balance and similar issues. The women attributed their success to personal characteristics and high self-efficacy beliefs. Aspects such as a drive for achievement, strong goal orientation, passion for their work, determination and perseverance were identified. High self-efficacy beliefs which can be associated with resilience, seem to contribute to success despite structural and some individual barriers.

5 - LeWI - Teaching, Efficacy and Intervention. (Research project to attitudes of teaching staff towards teaching, scholastic success and efficacy of interventions in favour of good teaching).

Wolfram SCHNEIDER

Short presentation of the content: In the project the attitudes of teaching staff towards teaching and how these attitudes are influenced by individual and structural framework conditions, the reform of the structure of studies as well as aspects of gender and diversity are examined in two phases. Aim is to determine scientifically grounded knowledge about the deep structure of daily university teaching life and their influencing factors. The second part of the research is an analysis of the efficacy of coachings in favour of good and gender sensitive teaching.



6 - Féminisation et pluridisciplinarité dans les Cycles Préparatoires Polytechniques (France, formation d'ingénieurs)

Josette COSTES

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Il s'agit de l'étude d'une voie originale d'accès aux écoles d'ingénieurs, en France. Cette structure est pluridisciplinaire et 40% des élèves y sont des filles. Cette étude, qui comporte une analyse de répartitions par sexe des élèves entre 1993 et 2009, l'analyse des notes obtenues selon la discipline et le sexe entre 2005 et 2010, et les résultats d'une enquête par questionnaire auprès des élèves en 2011, vise à préciser le rôle joué par la pluridisciplinarité dans cette relative féminisation.

7 - Are single-sex educational programmes still relevant for young women?

Christel Bächle-Blum, Martina Kaiser, Ulrike Busolt

This paper presents an overview of single sex educational programmes for women in computer science and technology and cognate disciplines over the space of ten years. One important part of these programmes is the single sex educational concept of the „informatica femminile Baden-Württemberg“.

8 – fFORTE WIT - Women in Technology

Brigitte RATZER
Vienna University

"fFORTE WIT – Women in Technology" is a package of measures supporting girls and women in accessing technology and over their whole research careers. Its goal is increasing the quota of women amongst students, decreasing the drop-out rates of female students, and increasing the quota of women amongst Vienna University of Technology's (VUT) scientific personnel.



9 - HELENA software for curricula analysis

Valentina Janev, Jovan Duduković, Sanja Vraneš

This poster aims at presenting the software tools developed in the HELENA project framework in accordance with the adopted HELENA methodology. The HELENA portal, an e-collaboration platform, and the HELENA tools for curricula analysis support data collection and processing, facilitate public dissemination of results and make the work of HELENA researchers coming from different EU partner institutions more efficient.

The HELENA database is a unique repository of three different types of data including collected data about 109 European universities and 189 E&T study programmes, collected gender specific data on enrolled and graduated students, and 156 interviews with female and male students of traditional and interdisciplinary degree courses.

The study programme analysis tools can be applied for analysing complete or parts of tree-cycle curricula offered in different countries and engineering disciplines such as Civil engineering, Environmental engineering, Information and communication technologies, Industrial data processing, Industrial management engineering and Mechanical engineering. The interview analysis tools can be customized for collecting and retrieving different types of common and/or country specific questions, as well as for different types of interviewees (students or teachers).

HELENA software tools can be applied to similar projects where both quantitative and qualitative approaches are needed.

10 - WOMEN'S PARTICIPATION IN COMPUTING IN INDIA

Roli Varma & Deepak Kapur

This paper will address female students' satisfaction in the CS program in India. In particular, it will examine female students' impressions of the program with respect to classes, teachers, program advisers, tutorials, fellow classmates and computer resources. The female students must feel valued by their institutions, CS program, faculty and peers. To heighten the rate of female matriculation and subsequent activity within the field of CS, adequate support and encouragement from the program itself is necessary, if not imperative. It should be noted that in recent years, the West has become increasingly interested in the value of science and engineering education in India and its effects on the migration of Indian engineers and their contributions to Western progress in STEM fields. The paper is based on in-depth interviews conducted with 60 female students pursuing an undergraduate degree in CS at four institutions of higher education in India in 2007-2008.



11 – Redefining Women in IT

**Rashmi DRAVID,
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The project, Redefining Women in IT, funded by the University of Northampton, uses four major strands of developing partnerships, mentoring, coaching and networking to address the gender imbalance in computing. The focus of the project is to develop partnerships between the University, local schools and leading organisations in IT, use cascade mentoring, coaching and networking with professional women in the sector to provide personal development and career guidance through planned activities."