

WOMEN'S EDUCATION AND EMPLOYMENT IN SCIENCE AND TECHNOLOGIES

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Women's Education and Employment in Science and Technologies (WEEST) is a European project carried out in the context of the European initiative CONNECT. The project supported the creation of a Web site that aims to "connect" the different aspects involved in the education of young people towards scientific careers: the influence of culture and society, school education, the world of science and research.

The WEEST project partnership brings together the competencies of different types of institutions in France, Spain and Italy. CNIDFF – *Centre de Documentation e d'Information des Femmes et de la Famille* – is a national network in France that promotes equal opportunities. IRENE is an Italian association working in the field of vocational training with the specific objective of increasing women's participation in scientific careers. IPSIA Bernini is a secondary school in Naples. *ARENOTECH* and *GEA 21* are Spanish and French organisations developing different initiatives to encourage the participation of women in social and cultural issues. *Pax Mediterranea* is a Spanish agency for the propagation of innovation and technology. Finally, *Cité des Sciences et de l'Industrie* (CSI) and *Città della Scienza* are two important science centres in Europe engaged in the dissemination of scientific culture and education.

The Web site mainly addresses students, teachers and others working in the field of education, training and vocational guidance. The products and materials collected by the partnership have been organised in the Web site into four main sections:

- Exhibition,
- Meeting women scientists,
- Education and training,
- Employment.

Exhibition

In 1995, in a discussion with women scientists who were producing a video, Julia Goodfellow, a professor of biomolecular sciences at the University of London, showed us the results of a study on career selection in England. The image of science that women had was very negative. Girls were less interested in the technical and physical sciences. One of the reasons for this was an image of science linked to old stereotypes: *"It's about wearing white coats and being stuck in laboratories"*. Another image pertained to science itself, not the scientist: *"Science is often perceived as something which runs counter to society, rather than trying to improve the quality of our lives"*. This unattractive image still exists today as far as girls are concerned. This is the reason why we decided to set up a small exhibition with fifteen posters, which can be easily reproduced and distributed throughout Europe. The first part of the exhibition examines the role of women in the history of science from the beginning of civilization (eight posters), the second part explains the themes of the current discussion of women's views about science and technology (two posters). The last part underlines the weak presence of women and the difficulties they encounter in their careers (three posters). The poster exhibition is available on the Web in all European languages.

Meeting women scientists

In order to improve the image of science, it is necessary to establish personal contact with scientists, particularly, in this case, with women scientists. This is the aim of the women's portraits presented by WEEST. Women working in various scientific fields were interviewed, and portraits of them were published. These sixteen portraits present women who practise scientific careers today. Tiphaine Bichot, for example, Product Marketing Manager at Alcatel said:

"I think it's incredibly exciting to work with various careers, and trying to make progress in one of them is not a question of focusing on technique as far as I am concerned, but about helping other people employed in the high-tech business to formulate new approaches. Engineers, for example, work on technology not simply at the request of others but for themselves. They also need to consider the issue of how to market their discoveries. That's the idea of

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collaboration as far as I am concerned: products have to be thought out and created for users, and users have to feel that their interests shape the process. My job might be scientific but I have a very human job, a very specific job, where the

way in which I work differs considerably from day to day. In my job I meet all sorts of scientists, product engineers, artistic designers, publicists, etc. You don't have to be a pure scientist to work in a technological sphere today. All types of knowledge can be integrated very successfully."

The same objective was proposed for the three "chat sessions", organised as an on-line debate between secondary school students and women scientists. It was great to see how women can communicate their enthusiasm and sometimes justify the tricky choices they have to make. It seems easier for women to communicate their passion and the reasons that have informed their decisions.

Education and Training

The work implemented in this field is based on two premises: first of all, training is a vital thing for the actual building of human personality; secondly, school is not the only place where one can learn.

In the context of WEEST, a specific list of tools for activities to conduct in class have been collected throughout Europe: questionnaires, teaching activities, and publications designed to help create modules for experimenting with educational programmes that are sensitive to gender differences. Also, best practices in the field of education and training for the involvement of women in scientific careers have been identified and reported here on the Web site.

School is still, of course, the principal location of primary and secondary education for young people. It is in this very area that the old stereotypes are often inculcated. The role of teachers, therefore, is vitally important, but we have not yet managed to convince all of them to teach in a way that respects all of their students. School textbooks in science and technological issues are often

far too male-biased. The question of equal opportunities at school is restricted to a number of activities and is not really fully integrated in school life. The education of teachers is often insufficient to enable them to carry out more personalised forms of teaching that take the differences between their students into account. We often hear about aptitude, but the idea that men and women might have different methods of learning is something that has not yet been grasped.

The activities carried out in science courses should attempt as much as possible to diversify and use all possible methods of learning, stimulate all the senses, get people involved hands-on, get them involved in team work, move from a global to an analytical approach, stimulate the curiosity and imagination of the students, and use the scientific knowledge gained to carry out socially worthwhile activities, etc.

The entrance into professional life

Choice of profession is a key element in the lives of young people. This decision, whether taken under pressures from school or other influences, is vitally important. Those who help young people to make these choices should help them fulfil their own desires by putting together a personal project that is well thought-out and is not simply influenced by the stereotypes and standards put forward by society or the opinions of their peers. It is vitally important in this very sensitive stage of life to make people aware of women who have successfully entered into so-called male careers, and to show the broad range of possibilities that are available to young people today. Thanks to the contribution of all the partners, a portal now invites surfers to visit other sites showing scientific careers, examples of women in what are perceived as masculine careers, types of courses, and how to obtain scholarships for study abroad.

www.cittadellascienza.it/weest