EDUCATION-ENGAGEMENT-RETENTION:
THE GENDER FACTOR IN DIGITAL ILLITERACY IN GREECE

Dr. Irene Kamberidou[1]

The University of Athens

"The pipeline, which makes women leak out of the scientific and technological world, already starts to leak in primary school. This means that the decision against science and technology is in many cases already made a long time before the choice of study and career […]How could work life be managed, so that both genders find ideal conditions for their development?"[2] (Hubert Gorbach, 2006)

Abstract

Gender-constrained educational choices, traditional-anachronistic perspectives, the life-work balance or rather imbalance, the lack of affordable child care facilities, the glass ceiling, the leaky pipeline, among other things, have contributed to the declining interest of Greek women in science and technology. This paper focuses on the factors that contribute to Greek women's non-engagement or under-representation in ICT related fields, such as computing. It examines the gender-constrained institutions in Greece while providing an overview of the gender distribution in scientific research and in the Greek academia, where only about one third (27%) of the teaching staff in universities are women. Digital illiteracy has been detected amongst university students in Greece, over half of which are women, as well as amongst primary and secondary school teachers throughout the country who explicitly express a technophobic unwillingness to use computers in their classrooms, although they claim to agree on their significant educational value and usefulness. Although the Greek Ministry of Education had implemented the training of 76,000 teachers in ICTs, it seems to have failed to reach the aspired levels of effectiveness, in a society where the participation of women in the teaching profession—primary and secondary education—is over 50%. The majority of the respondents from rural, agricultural, urban areas of Greece claim that they have not benefited by the technology classes or computer lessons they had received in high school, and not only. The gender variable plays a decisive role in the development of attitudes, i.e. the use of computers or the internet as a tool may be *gender-neutral*, however access to and motivation of use is *gender-constrained*. The Greek public school system's inadequate technological infrastructures, deficiencies in the vocational orientation of students and the continuous techno-education of teachers, the lack of collaboration of the education system with the employment sector and the ICT industry— along with the family-career imbalance, namely the incompatibility of private life and career which is essentially a female problem— have made it impossible for the gender subject to keep up with the accelerated speed of technological developments**.** An '*Education-Engagement-Retention Action Plan'* is required to change attitudes and promote women in science and technology, in the academia, etc.: (1) Child care facilities, flexi-hours, family support programmes, and a family-friendly working environment. (2) The establishment of an attractive open labour market that recruits and retains women in science and technology.

Methodology-Introduction

The first unity confirms the gender impact factor on digital illiteracy according to the results of qualitative research—based on questionnaires, group interviews and discourse analyses—with specific focus groups in areas representative of Greece since they include urban, industrial and agricultural populations: (1) primary and secondary male and female school teachers.[3] (2) 'Freshmen' or rather one should say first-year female and male university students of the Aristotle University of Thessalonica, and (3) female students of the Aristotle University of Thessalonica. (Kamberdiou, Patsantaras, Pantouli 2007: 138-151) The qualitative method used to evaluate the material that arose from the questionnaires, group interviews and discourses with these focus groups in Greek society was the interpretative phenomenological analysis (Smith, 1999). The statistical analysis program SPSS for Windows Release 10 was used to analyze the data. The second unity reviews the results of recent studies concerning: (1) the academic hierarchy in Greece, (2) how women perceive strategies of promotion (excellence vs. academic politics) through the 'career narratives' of female associate professors and full professors of the University of Athens (Vlahoutsikou & Abatzi, 2007: 155-160), and (3) the participation of Greek women in Scientific Research (Alipranti-Maratou, Kalliroi, et al. 2004).

Although the public school system in Greece, in its aim to counter digital illiteracy and technophobia, namely exclusion from participation in the information society (IS), has been focusing on the continuous training of teachers and students in new technologies[4] and on an equal distribution of technological infrastructures in high schools, it seems to have failed to reach the aspired levels of effectiveness, (Kamberidou, Patsantaras, Pantouli 2007) Gender-constrained choices, gendered processes that reproduce inequalities in seemingly gender-neutral institutions, including anachronistic perspectives, the glass ceiling, the leaky pipeline, the life/work imbalance, the lack of affordable child care facilities, among other things, have contributed to the declining interest of women in science and technology, in research, etc. What is required in Greece, and not only[5] is (1) 'sensitivity' training to raise gender awareness, (2) the promotion of new pedagogical applications and models, (3) recognizing and recruiting the *large untapped pool of talent*[6] amongst women, along with (3) the establishment of nurturing, socially inclusive and supportive workplace cultures/working environments that allow women to function at their full potential for the benefit of their organization or institution. The compatibility of private life and career is essentially a female problem, a factor that is clearly evident in the latest EU average employment quota for women which is marked by a decrease of 14.3 percent, in contrast to the 5.6 percent increase in the employment quota for men. (EU-Council Presidency, 2006b) The situation is even worse in the science and technology fields. (EU-Council Presidency, 2006a)

Technophobia: the gender factor in digital illiteracy

Primary and secondary school teachers, who were undertaking a training course on computers in regions that are considered representative of Greece since they include urban, industrial and agricultural populations, took part in a study to examine teachers' attitudes. The Computer Attitude Scale (CAS), designed and developed by Gressard & Loyd (1986), formulated through views of teachers who received continued training in ICTs, was applied in order to examine computer competency, attitudes and views. (Pantouli, 2005) The Computer Attitude Scale (CAS) was given

to 135 teachers, 54.1% female and 45.9% male. The majority (54.8%) were between the ages of 35-45: 76 secondary school teachers (high school) of science fields, theoretical studies, foreign languages, physical education, as well as 58 primary school teachers. According to the findings, despite the evolving and transformative process of gender perceptions, stereotypes, and identities, women in particular continue to display technophobia. Female teachers, regardless of their scientific or theoretical orientations, (namely even if they came from a scientific background) displayed 'less positive attitudes' towards computers than their male counterparts. Greater 'anxiety' levels, and negative attitudes in general, were displayed by female teachers as opposed to male, a factor which we believe makes them unwilling to get involved in the process of computer use as a tool for their work in the classroom.

The majority of the female teachers (60%) displayed technophobia. They claimed they felt 'uncomfortable' and 'insecure' using computers. Nevertheless, an overwhelming majority (85%)—male and female—acknowledged computer usefulness and expressed a desire for further computer training and techno-education. They also acknowledged the fact that techno-education today is an absolute necessity in order to avoid marginalization and social exclusion. Specifically, our findings reveal that firstly, teachers' computer attitudes (levels of anxiety/confidence/liking/usefulness) do not seem to be influenced by their specific field of study or specialization, in other words, if they come from a science background instead of a theoretical one. Secondly, a teacher's geographical or demographic district of residence and employment was not a factor that differentiated or influenced attitudes about computers and technology. Thirdly, positive attitudes were shown only by the teachers who had previous experience, familiarization or contact with computers in an out of school context, regardless of gender. Additionally, the 'anxiety' rate for teachers who had previous experience with computers was lower, regardless of gender. Fourthly, female teachers, in particular, expressed 'insecurity', namely technophobia when they had to work with computers (60 percent of the sample responded not to have had previous experience). Fifthly, The results confirm that gender is a factor that influences attitudes towards computer use and new technologies.[7]

Subsequently, the deficiencies in the techno-education programs in Greek high schools were confirmed following the study—with male and female first-year students in three departments/faculties of the Aristotle University of Thessalonica—the Mathematics Department, the Department of Philosophy and Education and the Department of Psychology. (Kamberidou, Patsantaras, Pantouli, 2007:138-151) The study was based on questionnaires, group interviews and discourse analysis. Male and female first-year students were interviewed and responded to questionnaires.[8] The results obtained amongst the students of the Mathematics Department, who had followed a science orientation/namely a science background in high school, served as a baseline for the comparison of primary research data obtained in the Department of Philosophy and Education and in the Department of Psychology. The questionnaire had been formulated on the basis of bibliographical sources related to the subject (Schlager & Fusco 2003, Webster 2002, Erwin & Maurutto1998) as well as the observations and comments of the female university students who had initially been invited to participate in a pilot-test or pre-test session, namely to answer the first questionnaire and subsequently discuss three topics: (1) gender as an analytical category in Greek society, (2) the computer skills they acquired in the school

framework or in the out of school context, (3) their academic experiences, etc. (Pantouli, 2006)

With regard to this pilot study, female students in the Department of Philosophy and Education were interviewed and took part in group discussions to examine women's computer skills, computer competency, attitudes, interest or lack of interest in ICTs. In other words, how women evaluate themselves, (and not how others evaluate them). How women evaluate their abilities, their experiences, their achievements, their social environment, and in particular their school and academic experiences, including teacher's attitudes, the influence and support (or non-support) of their families and peer groups, the personal and social factors influencing their professional choices, etc. Again, the qualitative method used to analyze the material that arose from the interviews (with (7groups/40students similar in gender, age and major/specialization) was the interpretative phenomenological analysis (Smith, 1999). According to the findings the female students did not view their computer competency or incompetence as a matter of capability or aptitude, but perceived it as an issue of interest or lack of interest, especially in regard to the family-children-career balance. Firstly, they claimed that computers conflicted with their interests. They would rather specialize in a field that will satisfy them personally and facilitate their female roles, etc. Secondly, some female students maintained that this was a matter of 'nature', and others a result of socialization. They claimed, among other things, that boys are 'by nature' more involved with machinery and computers. Thirdly, the female students associated the professional use of computers with gender-based employment distribution. On the other hand, they did not question or doubt their intellectual abilities, capabilities, potential or aptitudes.

The female interpretation of technology perceives the use of computers in the service of society, in other words in the service of societal operations and functions in contrast to the male perspective which focuses on the machine itself. Women seem to display more altruism in their professional targets, and according to their gender attitudes, stereotypes and perceptions, prefer professions that offer personal satisfaction, greater humanistic prospects and horizons with emphasis and priority first on children and family, and then on work. Unquestionably, a more family-friendly oriented working environment is needed to change attitudes, including an attractive open labour market that recruits and retains women.

Subsequently, with regard to the study that followed in the three departments/faculties— Mathematics, Philosophy and Education, and Psychology— of the Aristotle University of Thessalonica, the findings reveal that the university students' experience with computers in high school, for both genders, did not assist them in the out-of-school context or in their undergraduate studies— even though the majority of the students participating in the study had been taught 'computer technology' in high school, sometimes under the best of conditions: adequate equipment and computer rooms, one or two students per computer, etc. The data reveals that these high school computer classes were unsuccessful, namely the students lacked needed skills such as text editing, calculation via spreadsheets, connecting to the internet, essentials of web design, use of search engines, etc.

Of particular interest are the results concerning the geographical area of study. The hypothesis that the level of computer competency or knowledge in ICTs is higher for male and female students who come from urban areas could not be confirmed in this

study. In other words, the district, region or residential area of the respondents (agricultural, rural, urban or suburban) did not play a significant role in influencing attitudes and opportunities, or appear as a factor that determines the gender subject's relationship with computers and ICTs in general. The majority of the students claimed that they had not benefited by the technology classes or computer lessons they had received in high school. Irrespective of the area of residence, female and male students claimed to have a 'low' level in computer skills and consistently displayed technophobia or acknowledged they felt 'insecure' when they had to work with computers.

A factor that seemed to play a decisive role was the gender subject's access to a computer at home. Specifically, the impact factors that determine the degree of digital literacy, according to the findings, are: firstly the male or female student's familiarization with a computer prior to high school or access to a computer at home, and secondly, the educational level of his or her father. Students with fathers who had high educational backgrounds displayed positive attitudes towards ICT as well as greater computer skills, in comparison to those with fathers of a medium or lower educational level. Additionally, the gender variable seems to play a decisive role in the development of attitudes about computers and ICTs. According to the results, as was the case with the female teachers, not only the female students enrolled in the theoretical sciences or departments of theoretical studies, but those in the science department as well, who in high school had followed a science orientation, claimed they felt 'insecure' or 'uneasy' when they had to use a computer. In other words, regardless of their scientific orientation and background, women displayed negative attitudes towards computers and a lack of familiarization with ICTs or information technology (IT) in general. They displayed technophobia and repeatedly maintained they had 'low' levels in computer skills, competency and knowledge.

Women in the Academia: excellence or university politics?

Women in the academia seem to display more altruism in their professional targets, and place emphasis on personal satisfaction— as in the case of the female students in the pilot study conducted at of the Aristotle University of Thessalonica.[9] In order to examine how women perceive strategies of promotion, interviews (career narratives) were conducted with nine female associate professors and full professors in the University of Athens. (Vlahoutsikou & Abatzi, 2007: 155-160). Clearly distinguished were two routes or two paths for career advancement. One leads to the top through involvement in university politics and the other through 'excellence'. Involvement in university politics meant compromising on excellence and excellence meant distancing from university politics. In other words the two choices were perceived in bi-polar terms, in an either/or context. The respondents associated promotion strategies and university politics with behaviours that transgress the precepts of female identity, namely behaviours perceived to be profoundly "demeaning" to their self esteem. However, they emphatically denied that women tend to choose the excellence route while men were more likely to prefer the political one. The men and women who follow the political academic game are perceived as entirely self-serving individuals, servile towards their superiors, authoritarian and exploitative towards inferiors. As in the case of the female students of the University of Thessalonica, they attributed their own distaste and distancing from university politics to their "nature", "the way I am", "my personality", etc. They claimed that if they took the political

route and engaged in politically motivated behaviours they would "betray" their values and their "dignity". They did not perceive these qualities as characteristics which are culturally cultivated and associated with femininity.

For instance, in the discussions on teaching, conveying knowledge was associated with personal care, that is to say, in a context of personal and emotional investment in the students' progress and welfare, in preparing lectures that stimulate student interest, keeping the material up to date, showing and receiving 'love' and respect for their work and for their students, etc. Undeniably, the 'excellence' course involves not only dedication to duty but also complete devotion to research, scholarly writing and making a real contribution to knowledge—as opposed to 'publish or perish', in other words writing only for the sake of publishing. Accordingly, in this discourse scientific research and scholarly writing acquire 'feminine' qualities. Specifically, these women conceptualized devotion to professional work in terms which harmonize it with the socio-cultural construction of femininity, and they seemed reluctant to adopt a gender perspective with regard to their choices. Does overlooking or ignoring female identity constitute a 'survival strategy' in the university environment? Could emphasis on female identity harm career prospects? Is this a discourse of transgression? This does not, however, mean that women who have earned their place in the hierarchy through the quality of their work have kept out of the political game entirely. What it does mean is that they feel uneasy or uncomfortable about doing so. Although the respondents tended to marginalize the gender impact factor on their career-related choices, and exonerate or absolve the university's structural inequities in the treatment of men and women faculty, they acknowledged that the way up the career ladder was more difficult for women than it was for men. They attributed the difficulties of career advancement to the responsibilities which society assigns to women in the domestic sphere, and particularly motherhood. (Vlahoutsikou & Abatzi, 2007: 155-160)

A gendered understanding of ones place in the institution—gender exclusion—is perceived and explained as one's personal choice. Subtle, hidden or even covert forms of discrimination, namely unequal treatment that is visible but not often noticed because we have internalised sexist behaviours as "normal", "natural" or "acceptable", is difficult to document, as opposed to the open and obvious discrimination (under-representation) of women in the institutional hierarchies, in decision-making positions, on research committees, etc. Although equal opportunities were an integral part of the EU employment strategy and the Structural Funds covering the years 2000-2006, equal opportunities have rarely been perceived as a strategy by university management due to the gendered processes that reproduce inequalities in our seemingly gender-neutral universities.

The academic hierarchy in Greece

" […] 60 percent of university graduates in the European Union are women […] and only 15 percent of full professors are women […] If we do not create a system, which allows everybody to contribute in the same way, we throw away potential, which in truth we cannot afford to simply abandon […] This gender imbalance and discrimination will not disappear overnight […] it took Italy 200 years to achieve the same percentage, an equivalent percentage, of female and male professors that it has today." [10] (Janez Potočnik, 2006)

Although women comprise over half of the student body in Greece, only about one third (27%) of the teaching staff in universities are women (2,369) as opposed to 73%

men (6,367), and not only. The higher the position in the academic hierarchy, the lower the percentage of women. Namely, there is a gradual reduction of women as they go up the academic ladder, as is the case internationally. According to a study, conducted by Prof. Stella Vosniadou and Lydia Vaiou, covering all Greek universities for the academic year 2003-2004: (1) the percentage of women decreases every step up the academic ladder. This decrease is particularly sharp between the middle and the high ranks of the academic hierarchy, (i.e. Professors: 14% female, 86% male; Associate professors: 26.5% female, 73.5% Male; Assistant professors: 32% female, 68% male, and Lecturers: 61% female, 39% male.) (2) The percentage of women drops sharply in the administrative positions and power structures of the university. (Faculty Presidents in the Sciences: 100% men and in the Humanities: 69% men and only 31% women. Vice-presidents in Science faculties: 93% men, 7% women and in the Humanities: 65% men, 35% women. Department Chairs in the science faculties: 96% men, 4% women and in the Humanities: 61% men, 39% women. Directors/head of Laboratories in the Sciences: 88% men, 12% women and in the Humanities: 76% men, 24% women.) Moreover, women teach more hours and engage in less research in contrast to their male counterparts, have limited access to male-dominated scientific networks that provide sources and funds for research, and subsequently limited opportunities for publications and advancement. Women constitute an 'invisible minority' in decision-making committees (Presidents/Chairs of University Research Committees: 100% Men. Research committee members: (90% men and only 10% women.). Their male colleagues, over the age of 50, dominate in decision-making positions or on scientific committees that grant funds, scholarships, distinctions, and influence the orientation of scientific programs and projects. (Vosniadou, 2004)

In the 2001-2002 academic year women in Greece represented 58.7% of the university student population as opposed to only 31,43% in 1969-1970. They constituted over half the student population in the Technological Institutions of Greece: 52,9% in 1998 as opposed to 49,9% in 1994. With regard to the overall picture for tertiary education in 1997-1998 (universities and technological institutions in Greece) from a total of 135.369 students, 44, 3% were male and 55, 7 were female. In the field of engineering, during this period, women's participation increased from 5,99% to 24,73%. Although during the last three decades gender based difference in participation has been reduced in various scientific fields, the gender factor among the sciences still exists.[11]

At the University of Athens[12]—one of the oldest state institution of higher education in Greece, founded in 1837, and among the largest universities in the European Union today with a student's body of about 92,000 undergraduate students, over 2,000 members of academic staff and 1,000 administrative, secretarial and specialised personnel— 46% of Lecturers and 40% of Assistant Professors are women. This percentage drops sharply to 27% in the higher university hierarchy, namely only 27% of the Associate Professors and Full Professors are women. Moreover, women are a minority in administrative power positions and if you disregard the highest positions and look only at departmental chairs and assistant chair posts, one finds only 17% occupied by women. (Vlahoutsikou & Abatzi, 2007) In spite of the fact that the percentage of women full-professors has increased (from 1,36% in 1971 to 9,94% in 1998), it is still very low since women seem to be promoted at a much slower pace than men, especially when they have family obligations.[13]

Greek Women in Scientific Research

"Excellence requires diversity […] the anachronistic gender science imbalance must be removed […] If Europe is to become a real knowledge-based society, then it needs more researchers. We know that women are underrepresented in research and this is particularly true in the business sector: the industry average is about 18 percent despite the growing number of female university graduates." [14] (Janez Potočnik, 2006)

In order to investigate the position of women in scientific research, the General Secretariat for Research and Technology (GSRT) commissioned the National Centre for Social Research (EKKE) to conduct a study entitled "the enhancement of the participation of Greek women in scientific research".[15] Quantitative data coming from 50 public research institutions and research university institutes was included in the first database, according to which women's participation in scientific research is relatively limited: only 34, 7% out of the registered 3.221 researchers are women. Additionally, women represent only 14, 4% of the permanent (tenured) university teaching staff, even though 45.7% of the staff holds contracts and 38% of the staff under project contracts are women. With regard to the distribution of researchers according to field of study, the percentages of women researchers is lower in the traditionally male-dominated fields such as Engineering (20%), Agricultural Sciences (23%), Natural Sciences (32%) and Medical Sciences (23%,4%), contrary to the female-dominated field of the Humanities where the proportion of women is higher (52,5%). In relation to academic qualifications, male researchers more often hold a PhD (75% men, 25% women), while women mainly an undergraduate degree (37% women, 63% men) or a postgraduate degree (MA, M.Sc.; 43% women, 57 men).

Moreover, in 18 research Centres under the auspices of GSRT, from a total of 835 researchers of all academic ranks (A-D), the percentage of women is lower in the higher ranks (academic hierarchy). For instance, in rank A-equivalent to Professor, only 16,1% are women as opposed to 83,9% men. The percentage of women is higher in the lower academic ranks: in rank B-equivalent to Associate Professor women represent 28,6% of the total, in rank C-equivalent to Assistant Professor 31,4% and in rank D-equivalent to Lecturer 29,8%. A survey was also carried out on a sample of about 300 researchers, primarily women, working in research centres and organizations in order to provide a qualitative analysis on the difficulties women scientists confront, according to which acknowledged was the compatibility of private life and career (Alipranti-Maratou, Kalliroi, et al. 2004)

Conclusion-recommendations: Education, Engagement and Retention

1. Education is the place to start. The institutionalization of mandatory techno-education as an integral part of the curricula in public schools, beginning in kindergarten and extending to vocational training. Additionally required are computers in all classrooms, equitable and non-discriminatory distribution of technological infrastructures, appropriate policies, international educational benchmarking and collaboration with the ICT industry.

2. A widespread campaign to change attitudes about science and technology: to inform, introduce and familiarize citizens with technologies, technological tools, services, best practices, etc.

3. The continued development of a wide-ranging network of public internet access points, free of charge and easily accessible to the public, in every prefecture or municipality, staffed with employees to assist users, and with hours that accommodate women's schedules. Many international studies confirm that awareness, familiarity and a change in attitudes have been achieved through regular use, rather than only formal training. (Warrington & Younger, 2000; Kamberidou, Patsantaras, Pantouli 2008)

4. The establishment of a multicultural interdisciplinary network of researchers from the social sciences, the humanities, gender studies, the sciences, government, industry, and technological research and development, and in particular support of research in the social sciences and the humanities to provide a clearer picture in reference to the topography of the excluded social groups in the EU. Research on information society related technophobia, today's 'digital exiles', is very scarce in Greece, as is the case internationally. Studies have been focusing on socio-economic research, consumer-related issues, market analyses, the user-friendliness and diversity of technologies and designs, etc. However, very little is known about today's social groups that are progressively becoming excluded from this sphere of economic activity as well as the factors that lie behind human 'digital rights' or the disrespect and exploitation of the electronic personality. (Kamberidou & Patsantaras, 2006) A *technoethos* must be established to combat the exploitation of the digital personality: domination of the imaginary (fantasy), electronic conspiracy networks, electronic surveillance, the explosion of pornography, the slave-trafficking of women and children, etc. A techno-ethical code is needed to ensure that Europe's social achievements in the past are transposed into the information society and the virtual environment. (Patsantaras & Kamberidou, 2004)

5. What is also vital is ***retention***. Eliminating the glass-ceiling and the leaky-pipeline, retaining women in their careers in science and technology, in the academia, in R&D by increasing their participation in leadership—from decision-making to execution phases—thereby reproducing female engagement and consequently enhancing and supporting conditions for the establishment of inclusive organizational cultures that allow women to function at their full potential for the benefit of their organization/institution.

6. The promotion and support of multicultural interdisciplinary gender research by women in order to influence mainstream ICT development from a gender perspective. Gender equality in the information society, in science and technology, may be achieved through a better balance of gendered content to change attitudes, perceptions and stereotypes. Closing the gender gap in science and technology education requires new ways of educating girls in the computer age. New teaching methods are needed to eliminate technophobia and ensure that girls and women change their attitudes concerning science and technology. Specifically, methods that are developed by teachers and for teachers through school programs, extra-curricula and intergenerational

activities, as well as teachers and mentors in new roles. International data shows that teachers, who ensure equal opportunities, can be effective in reducing the technological gender gap. (Jenson & Brushwood 2003, Schlager & Fusco 2003)

7. Interdisciplinarity in Education in order to formulate new pedagogical methods and approaches. Education and Engagement for teachers and for children means extra-curricula approaches, new classroom examples and best practice models, examining the role of 'visual literacy, of literature and text, namely traditional literacies and how they fit into the Visual age (the visual media, television, entertainment, abusive media, violation of the electronic personality, etc.). It involves engaging in intercultural and human development education with children, parents and teachers, 'natural' learning, the role of play and creative engagement, the role and participation of parents in developing engagement and life skills, etc.
8. An '*Education-Engagement-Retention Action Plan'* that entails: (1) Learning, continued training and participation in areas of planning, management, assessment and organisation. (2) Family support programmes, flexi-hours, a family-friendly working environment, child care facilities. (3) The establishment of an attractive open labour market that recruits and retains women in science and technology. (3) Alliances with women, gender networking, sharing, mentoring and supporting younger female colleagues. The support of enterprises run by women, encouraging female users to take a more active role, to keep up with developments, to share information, etc. (4) Social mobility in the structure, i.e. learning the system and how to use it in order to make changes. (5) Best-practice models and mentoring projects: the involvement of professional women already employed in the science and technology sectors. (6) Indiscriminate cooperation between all stakeholders, researchers, citizens, policy makers and industry.

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[1] Dr. Irene Kamberidou is a member of the Gender Expert Action Group (GEAG) of the EC DG Information Society and Media in Brussels, where she participated as an expert in the *Consultation Workshops on Gender and Technology* in 2004 and 2005, in the *Women in Science* seminar in 2006, and in the conference "*Move out of the Shadow! Seize the OpportunIy!* in 2008. Dr. Kamberidou is a Lecturer of Sociology at the National & Kapodistrian University of Athens, pending election as Assistant Professor. She obtained her BA and MA at Emmanuel College and Boston College, respectively, Boston, Massachusetts, USA and her PhD from the Sociology Department of Panteios University of Social and Political Sciences in Athens, Greece. Email: ikamper@phed.uoa.gr

[2] The Austrian Minister of Transport, Innovation and Technology speaking at the opening session of the EU-Gender Mainstreaming Conference 'Re-searching Women in Science and Technology', held in the Vienna Museumquartier, 15-16 May 2006.

[3] Specifically, at the 1st and 2nd Regional Training Centers (15.6% and 39.4%, respectively) in Thessaloniki, at the Support Training Center in Katerini (43%) and at the Support Training Center in Aliveri (9.6%). (Pantouli, 2005)

[4] In the 3rd Community Framework Support Programme for Structural Development in Greece

[5]In the EU-27, the share of women graduates is higher in all fields of education with the exception of science, maths, computing, engineering, manufacturing and construction. See: ISCED 5/6, EU-27. (Source: Eurostat)

[6] In recent years, the number of females and males graduating from higher education has increased in all fields of education, including ICT related fields, for example computing, and telecommunications, electronic engineering, etc. The number of computing graduates increased by 133 percent from 1998-2004. The number of females graduating in computing slightly more than doubled in this period (109 percent), whilst the number of male graduates increased by 142 percent, however despite the encouraging increase in female computing graduates, computing is still male dominated. As a percentage of all computing graduates, the share of female computing graduates has slightly decreased in recent years form 25 percent in 1998 to 22 percent in 2004. Additionally, the gender gap between the number of males and females increased from more than 29,000 in 1998 to nearly 76,000 in 2004. (source: Eurostat)

[7]As was the case in a study conducted with male and female high school students in 1995. In 1995 the Greek National Center (IEA) completed a study on performance/capabilities and attitudes of male and female high school students with regard to computers and the role of the family in the development of attitudes. According to the results, family support/encouragement in new technologies was greater for boys in comparison to girls, and female students displayed less aptitude in comparison to their male counterparts, as is the case internationally. (Georgakakos, 1995)

[8]The qualitative method used to evaluate the material that arose from the questionnaires, group interviews and discourses with these focus groups in Greek society was the interpretative phenomenological analysis (Smith, 1999). The statistical analysis program SPSS for Windows Release 10 was used to analyze the data.

[9] The compatibility of private life and career is essentially a female problem,, a factor that is clearly evident in the latest EU average employment quota for women which is marked by a decrease of 14.3 percent, in contrast to the 5.6 percent increase in the employment quota for men. (EU-Council Presidency, 2006b) The situation is even worse in the science and technology fields. (EU-Council Presidency, 2006a)

[10]The European Science and Research Commissioner speaking at the opening session of the EU conference on 'Re-searching Women in Science and Technology', jointly organized by the Austrian Presidency and the European Commission. (author Dr. Irene Kamberidou participated in this EU-Gender Mainstreaming Conference in Vienna on 15-16 May, 2006).

[11] Women's participation in the Natural Sciences has also increased significantly, namely it went from 20,4% in 1971 to 42,64% in 1997. (Alipranti-Maratou, Kalliroi, et al. 2004).

[12] The National and Kapodistrian University of Athens (www.uoa.gr)

[13]As is the case internationally, women in higher education posts also tend to be better represented in the humanities, the social sciences, law and economics. See: Alipranti-Maratou, L; Kalliroi, D. et al. (2004). "Women and Science: Review of the Situation in Greece . Greek National Report of the National Centre for Social Research (EKKE). (www.gsrt.gr/Women&Science) [Laura Maratou-Alipranti, National Centre for Social Research (EKEE) and Kalliroi Dafna, GSRT (General Secretariat for Research and Technology (GSRT).]

[14]The European Science and Research Commissioner speaking at the opening session of the EU conference on 'Re-searching Women in Science and Technology', jointly organized by the Austrian Presidency and the European Commission.,15-16 May, 2006.

[15] A. Teperfoglou (Research Team leader), L. Alipranti-Maratou, I. Tsiganou, M. Ketsetzopoulou and B. Papliakou. (See: Alipranti-Maratou, Kalliroi, et al. 2004)