Meta-analysis of gender and science research

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1. Introduction

During the socialist period there were only few research activities connected to feminism. The turning point was the change of regime in 1990; after this time the scientists began their research and studies on feminism – and later on gender – in different workshops and institutions. Firstly they followed the main tendencies of international trends, but for the end of the 20th century they found their own voices and topics as well, and at some universities – firstly at the Central European University, then the Corvinus University – gender departments were built up. These "schools" are based on the concept of gender. They stress that women's history writing is not about the half of a given society, but about the whole society.

Despite this tendency most of the scientists dealing with gender in science wanted to promote the visibility of the female scientists in the scientific society. It was a very important task for them because some new books were published about the history of Hungarian science and the authors forgot to include the famous Hungarian female scholars. That is the reason why we can find so many bibliographical studies dealing with the careers of femals scientists. Besides the biographies research was carried out and articles were published about the history of women in higher education.

Since the beginning of the 20th century more and more studies have been published about horizontal and vertical segregation in science, which scrutinize the reasons of gender bias. Most publications are connected to the SET (science, engineering and technology) subjects, mainly to technology, because these are the scientific fields where the female scientists are underrepresented the most.

There is a commission for women in science within the frame of National Office for Research and Technology. It was established in 2006. The task of this commission is to elaborate proposals for the perpetual resolution of government to support the situation of women is science, to raise gender awareness among policy makers. The result of this groop: some new tenders have to have gender aspect.

Unfortunatelly there is no national policy towards gender equality in science and research in Hungary.

In September 2008 there was established the Hungarian Association for Women in Science. It is a national organization championing the interests of women in science, technology, engineering, and mathematics across all disciplines and employment sectors. By breaking down barriers and creating opportunities, Hungarian Association for Women in Science strives to ensure that women in these fields can achieve their full potential.

In March 2009 the Hungarian Academy of Sciences took in practice a new measure for young mothers – and fathers too, if they stayed at home for "maternity". The parents get extra two years after every child in the case of grants which connected the age limit (35, 40). HAS works on a career model of scientists, how the Academy can become a family friendly workplace, and how it can support the progress of scholars on the similar stages of career.

2. Analysis by topics

2.1. Horizontal and vertical segregation

Research questions

Most of the publications in Hungary about gender and science deal with the horizontal and vertical segregation.

The aim of these researches is to map the representation of women in higher education and science from the beginning to nowadays. The situation of female researchers is traditionally very difficult from the point of view of gender equality. This is especially true for engineering and technology, where the proportion of women is the lowest in all hierarchical categories. Other territory of this type of research shows the barriers for women who want to built up an academic career. Both types of researches focus on all scientific fields and all types of scientific institutions: universities, public and private institutions.

The main research questions that appear are:

- What is the reason why women give the majority of higher education graduates, but their number decreases significantly when they begin to build up their scientific career at the university;
- Why do women usually face great difficulties in developing professional careers in academic research;
- What is the reason why, compared to their share among PhD degree holders, women are underrepresented at general level of participation in research, and their proportion is decreasing when rising on the hierarchical scale of the academic scientific career.

Research approaches

Nowadays the proportion of female students is 59%, while the proportion of those attending Ph.D. courses has also increased significantly, to 44.5%. Examining the undergraduates according to the ISCED categorisation of fields of study it can be stated that the proportion of women exceeds the proportion of men in most fields, but there are still some branches of science where the proportion of women is much smaller in higher education as well, and these are the following: engineering, computing and construction. There have been numerous studies about the giving up of educational disadvantages of women. These studies are quantitative and qualitative at the same time, based on statistical data collections and induction of these data, observation. During the last five years one can find more studies based on interviews and surveys of academic staff of universities (male and female) and academic institutions mostly in the frame of EU FP6 or FP7 projects, and we can also find a PhD dissertation using survey of academic staff. At the same time the quality of analytical research grew.

Findings

- Researches have proven that the career development of professional women is much slower than that of men. Women with a vocation for scientific research are in an even harder situation. In 2005, some 31,407 researchers were registered altogether in public institutions, in the private sector and in the institutions of higher education: 34.2% of them were women. The proportion of women among scientists and engineers was the highest in the public institutions; their number in this sector, however, is not much different from their number in the private sector, while their percentage is a little bit lower in higher education, where — in total and also regarding only women — three times as many researchers work. On the other hand, the higher education sector employs women in the largest number and proportion in technician and other positions.
- Surprisingly the gap in women's proportion among scientists and engineers and the other positions ("technicians" and "other") is the largest in higher education and not in the private sector as one would assume.
- Examining the sectors it must be stated that the general tendencies that apply for most of the members of the European Union, namely that women's proportion is the highest in humanities and the lowest in industrial research, are not completely applicable for Hungary. The first statement applies to universities, but the proportion of women is higher in medical sciences both in the public institutions and in the private sector. The greatest number of researchers is employed by enterprises in engineering and technology and it is particularly interesting that in this field of science this sector employs by far the most women — their number and proportion are both above the values of the other two sectors.
- These studies show that horizontal segregation has been reduced in most areas of science, but it persists in engineering, computing and construction studies. The total number of people with any kind of scientific degree was 12,553 in 2005, of which

women constituted 19%. In 2005, 14 out of the 344 members of the Hungarian Academy of Sciences were women. Considering proportions and numerical figures as well, most degree-holding women are in the fields of social sciences and the humanities (26,2%). Yet both these figures show outstandingly low levels regarding technical sciences (7,8).

- Some studies establish that the glass ceiling effect proves to be more powerful in Hungary than in the EU-25 average, thus it is harder for women to reach executive positions. The effect described by the so called "scissors-diagram" also applies for Hungary. The state trains countless male and female talents but women gradually drop out in the course of time. This means a great loss both for the given sector and the whole economy as society is deprived of the benefits of the money and energy invested in the training of this segment of the human resources.
- The scissors seem to have been closing in the past five years, yet it is uncertain whether this trend is to continue, cease or turn around — based on the example of other branches it can be expected that if there is more money coming in to research, providing better perspectives for research careers, men will return to this field and a part of the women will be supplanted from this profession once again.
- This effect is underlined by the fact that the process of the infiltration of women to the field of decision-making advances very slowly. There are almost solely men among the members of the executive bodies of science policy.
- Male scientists build their own scientific career is much more faster than felames.

Gaps

The analysis is hindered by a shortage of statistical information, in particular

- Sex-disaggregated staff data not available for the staff of universities and academic institutions
    - staff by category and age
    - staff by hierarchical position
    - staff by highest academic qualification
    - members of decision-making boards/panels
    - payments in the different positions
    - citation index and number of publications
    - number of international projects
    - number of national projects
    - recruitment procedures
        - data on applications/admissions
        - promotion procedures (who decides, applications and actual promotions)

There are only few studies about research in the private sector.

2.2. Pay and funding

Research questions

The topic of gender pay gap is absolutely missing from the main line of research in Hungary. However, some studies about horizontal and vertical segregation deals indirectly with gender pay gap and funding.

Research approaches

In public research salaries are fixed on an official scale in Hungary in the public sphere. So the pay gap is very hiden in the research erea. The problem the saleries and wages are absolutely secret and private territory.

Only one survey was done on gender pay gap and fundings in Hungary until 2008. It took place at the Budapest University of Technology and Economics in 2005.

Findings

There are some studies that deal with horizontal and vertical segregation related to the topics of pay gaps and fundings. Main findings of these studies are

- There are no pay gaps between men and women if they are in the same position with the same seniority.
- Looking at data of the universities, there seems to be no significant pay gap, unless we take executive allowances into consideration.
- Women constitute a small minority in top-level managerial positions, so they earn less.
- But if women get to positions later than men on average, their salaries will be lower.
- There is no data on the additional payments, which are common practice in Hungary.
- The lack of funding has been and is a big obstacle in career progress and education especially after dissertation.

The results of the survey of Budapest University of Technology and Economics are very interesting. This time in Hungary the average wages was approximately 628 € per month. The average pay gap is 8,2%. The average wages for male professors (153) was 1611 €, for female (all together 3) 1633; the average pay gap is -1,4. That means female professors earn more than men. But it means only the fact: women professors are older than men, as wages in each position are rising by age in the academic hierarchical system.

Gaps

- In the private sphere the gender pay gap is scarcely terra incognita.
- It needs basic research about gender pay gap and the access to funding.

2.3. Stereotypes and identity

Research questions

There aren't many researches about stereotypes and identity connected to the scientific work. Most of these articles are about women in science, engineering and technology (SET).

- Researches dealing with stereotypes and identity we can be devided into two categories, namely stereotypes about men / women and stereotypes surrounding the SET profession.
- There are only some studies hitting the social construction of science and the social construction of identity and its gender biases. They analyze science from the point of view of sociology and philosophy.
- The first category clarified in research is stereotypes about men and women. This category of stereotypes, often called gender stereotypes, reflect traditional female and male role models, which have been hardened over years and are very resistant to change. They stem from a traditional division of work and power in daily life. Throughout the last centuries men dominated the public and working life sphere while women were responsible for the family and housework.
- The second category is stereotypes surrounding the SET profession. SET professions are sometimes considered boring and lacking in social interaction. Furthermore, stereotypes have an impact on the segregation of jobs into “male” and “female” jobs, and the media often perpetuates these stereotypes. As a result people have subconsciously assigned certain industries and types of jobs to women and some to men. Both gender and SET profession stereotypes lead to barriers in career choice and the recruitment, retention and promotion of women in SET.
- There were several monitoring audits targeted to investigate the gender equality in the public education aiming to tackle stereotypes concerning the teaching of girls and boys in Hungary from 1995.
- Some studies enumerate and analyse the social factors determining the opportunities of further education.

Research approaches

The social construction of science

Research about the gender perspective from a multidisciplinary point of view, with contributions from the philosophy of science, the sociology of knowledge, the sociology of science and feminist theories of science, is an absolutely missing territory in Hungary.

The social construction of identity

There are more research and articles that deal with the reproduction of gender roles and stereotypes in socialization, analyzing the stereotyped transmission of science as an activity associated to the traditional masculine attributes of 'objectivity' and 'rationality' in contrast to the feminine attributes of 'subjectivity' and 'emotionality'. The most studies use the quantitative techniques, but there is some very good studies using qualitative techniques that are interviews and content analysis. Some researchers used software for analysis.

Findings

Men dominated workplaces , sometimes teachers at scools and the families also help the stereotypes reproduction. The engineering profession is still thought to be a typical male profession in our days. However, at the beginning of the 21st century, one quarter of all engineers in Hungary were women!

On the other side, statistical data also show that engineering is one of the intellectual professions that receive the least women of all. One of the main reasons for this phenomenon is the fact that earning a degree in technological studies became possible for women much later than for men.

Social prejudices, stereotypes on engineering profession considered as typically male-like, in disharmony with traditional female roles, appeared as the main obstacles for women to enter this profession. Even a film (Egy csók és más semmi – A Kiss, Nothing More) shot in the 30ies was built on a conflict that an affiliation case was brought against a chemical engineer, named Toni Schön, chosen from the telephone directory by chance, and the fact that she is a woman, not a man turns out only during the court trial. This proves how unusual or unimaginable the fact that a chemical engineer can be a woman was until the end of the 40s.

- Studies about stereotypes of women in SET in academia
  - We can see from the data that the less female scholars in proportion are in the field of engineering. Within the fields of SET the proportion of graduated women cannot be held among the conferees, the directors of an institute, the applicants of a grant, the winners of a grant or the jury of a grant.
  - The stereotype is that the career in these fields of study does not really fit for the women. But in fact mostly the women help and prepare the experiments and studies achieved by men with scientific success.
- Studies about stereotypes of women in SET in industrial research
  - The engineer career is for men, they have to supervise labourers. The following is a typical argument to why women are not able to manage a field of engineering: "A woman should not be a supervisor, because she is unable of cursing."
- Studies about the origin of stereotypes of women and men in SET
- According to some studies, the differences between male and female pupils are able to be oriented into three different dimensions in public education:
  - Depending on the advances of the school-system, in connection with the available educational orientations,
  - According to the learning efficiency of the pupils, and
  - In context of the social effects of the education methods.
- These research studies show that there are no relevant differences in the gender equality of girls and boys in the kindergartens and elementary schools. Although the rate of the quitting pupils without finishing the eighth class of the elementary school is approximately 1.5 times

higher among the boys than among the girls, the gender rate of the pupils without further learning after the elementary school is almost the same.
  - During to the educational career, the differences by gender are even more conspicuous after finishing the elementary school.
  - One of the most relevant differences is the rate of the pupils quitting the secondary school without obtaining the graduation: in 1998 52% of the boys and 41% of the girls belonged to this group.
  - There are still sharp borders between the education types of the trade schools for the male and female professions.
  - There are also remarkable differences between the secondary schools according to degree types.
  - There are almost twice as many girls than boys who finish the secondary school with graduation certificate.
  - The same rate is the opposite in the context of the trade-school graduations: the boys are twice as manyas the girls.
- According to the monitoring audits, there are important, even instructive differences between the knowledge level of boys and girls.
  - Although the cognitive abilities of the girls are higher than the boys' in the eighth class of elementary school, it is noteworthy that there is only one field, the reading and text-understanding, where they have also higher efficiency.
  - In 1995 the girls used to be better also in the field of mathematics-algebra, but until 1999 they lost this advantage.
  - In all the other areas the boys have higher knowledge level, than the girls. It is also noticeable, that this difference has even grown in the last few years, especially in the field of mathematical skills and informatics.
  - All of these facts give us the reason to think that the recent pedagogical practice of elementary schools benefits the boys more than the girls.
- Taking a look at the outcomes of the audit from the view of the qualifications of the parents gives and interesting impression.
  - The results show us more differences between the efficiency of boys and girls. The interaction between the social effects of family and school is nicely represented: with the increasing number of the educational qualification of parents, the difference between boys and girls is decreasing (except in case of informatics and natural sciences). This means that the parents' habit of the bringing up process have a notable effect on the gender differences in educational performance.
  - Parents with lower educational level are more influenced by the stereotypes than parents with higher education. In these cases the schools are unable to compensate all the effects of this social attitude.
- The third possible and still unrevealed dimension of the educational inequalities between boys and girls may be the social effect of the education system.
  - This dimension consists of the transmitter role of the school concerning the attitudes related to gender on one hand and the effects on the further positions and life chances of boys and girls in the society on the other.
  - All the pedagogical and educational politics of the developed countries deals with this question as a problem related to the quality of the education system and not as a problem of human rights.
  - To answer this question we might need to analyze the school-syllabuses and school-books used in the educational systems. We would also need to study the behaviour of educators to reveal what kind of gender roles they model and transmit for the pupils.
- In Hungary in the 20th century the more educated the father was, the greater opportunity his daughter had to be admitted to the faculty of humanities.
- Other important factors were the size of the city and the religious and ethnical background. The place of living also had its influence since women were less mobile to move further in order to study than men.
- Finally the authors discuss the question of the choice of subjects in higher education. They make difference between feminine (foreign languages, chemistry), masculine (Greek, Latin, physics) and unisex (Hungarian literature, natural history, history, geography, mathematics) subjects. It is quite surprising that 51,3% of the Chemistry students were women. They also noticed that women from better socio-economical environment were more likely to choose

feminine subjects and women from lower status families were more liable to choose masculine subjects.
- There are some very interesting studies about the role models of successful women scientist who built up their careers on fields which are thought typical masculin fields in public opinion. These studies are against stereotypes and they also help young women to choose between the fields of science.
- There is a project which has aim to publish a book that fills the gap of a publication discussing the excellent female scientists of the 20th century in Hungary in order to raise the social recognition of female scientist, to give visibility and recognition to the scientific contributions of women. This book is necessary to counterbalance the fact that almost only the publications about male scientists are detectable in the common knowledge. (It will be publised in 2009, Napvilág Kiadó Budapest).
- Women with scientific ambitions have two ways: either they start their career young and denounce traditional female roles like giving birth to children, bringing them up and getting married, or they wait until their children become older and they start their scientific career at the age of 40.

Gaps

- The issue of cognitive abilities is completely missing from the Hungarian bibliography.
- The theoretical background of topic is missing.

2.4. Science as a labour activity

Research questions

Researches on this field deal with next questions:
- The historical analysis of the professional and personal paths of female scientists.
- Why can so few women be found in SET?
- Why are there so few women in the top positions of scientific life?
- How is the work-life balance in scientific careers?
- Why do conflicts between the workplace and home duties exist?

The universities opened to women relatively late, so only 60 years were available for women to conquer this area. The share of women among the degree holders was higher than the share of men in 2005. But the number of women in the scientfic labour market is 15% lower.

If a woman decided to enter and graduate at a university, then she chose research as her profession, this seems to be a smooth career, a feasible aim. New questions need to concern why women can not be promoted the same rate as men in the research are. Why cannot they keep the share they represent in the scientific area among institution directors, applicants, winning grant applicants, members of decision-making bodies? Why do they advance slower in career building than men? Are they less ambitious? Or are social effects still strong in the issue that professional success is the duty of men? Yes, presumably this is all true. The view of society is basically men-oriented. Women can work, research, publish, even perform a thesis, but this all depends on their personal ambitions, as circumstances do not really favour their careers and men are also reluctant to accept women managers.

Research approaches

Some studies are based on conceptual contributions. The most of studies are empirical, and use quantitative and qualitative techniques. There are some very important statistical and sociological surveys.

Findings

Findings are diverse, depending on which topic is approached:
- Some studies give an overview of the disadvantageous situation of creative women in the course of history. They examine the social and economic roots that lead to the evolution and to an extent the conservation of this disadvantage, and point out that the

statistical vocabulary is lacking and it does not contain the technical term of creative work. This is why the authors thrive to give a sociological definition of 'creative work'.
- These researches underline the importance of women's participation in higher education, which is the basis of their connection to creative work. The studies enumerate the barriers of the utilization of the skills women acquired and the limits of their labour opportunities.
- One research stresses that women conducting creative work have to face a series of dilemmas and conflicts due to their disadvantaged situation and they have to suffer the consequences as well.
- The sources of the most serious tensions are the following: the difference between the opportunities laid down in the constitution and the reality, the disharmony of the plans, aims and the real opportunities, the conflict between the workplace and home duties, the differences between the requirements in accordance with the changing role of women and the practical, prevailing norms, the problem of the adaptation to norms unfamiliar with the personality, and the difficulties caused by the principle of independence and the fact of dependence and the lack of self-confidence.
- The scientific career of women is mainly restricted by traditional female roles: maternity, household duties and related obligations that they cannot push to the other members of the family to the extent that men do. In case of men, the family background seems to be stronger than in the case of women. Keeping the family together has always been women's duty, and the management of the household is also a challenging task. Furthermore, salaries of researchers and teachers do not permit them to buy services that would ease household duties, the supply of families.

The studies of Hungarian Statistical Office prove that the family as secure background seems to be an indispensable condition for creative or for scientific work. 15% of women in scientific areas are not married, and this rate is worse in younger generations: almost one quarter of women under 40 have not married yet. This rate within the overall population is 5 and 9%, so this fact is evidently due to the scientific career. Female researchers give life to less babies: 34.5% of women with academic degrees do not have any children, while in the case of female researchers it is 40.6%. At the same time, marriages of female scientists are bearing more conflicts: above the age of 50, more of them chose to divorce than of average women.
There is a new survey made at the Budapest University of Technology and Economics in 2007 which is about the working conditions at the university. The most interesting findings are:

- The majority of respondents have less than 25% administration in their workload. Surprisingly male respondents seem to spend more time on administrative work than female.
- Younger respondents take days off more regularly than older ones, especially men.
- In general women and men have similar access to flexible working hours.
- The most regular homeworkers are to be found at older ages in both sexes, with 20% for both men and women over 50.
- Female respondents are less satisfied with the infrastructure than the males.
- Most of the respondents are not satisfied with the time they have for research, with considerable differences.

Gaps

- It would be very useful to have empirical studies about the organization of scientific work and the uses of time or the work/life balance in more institutions.

2.5. Scientific excellence

Research questions

There are no detached studies about scientific excellence in research. The question of scientific excellence is raised in some comprehensive analysis. There is only one study that searches for criteria of scientific excellence.

Research approaches

There is a survey about what male and female scientists are thinking about scientific excellence. The questions of the survey involved gender aspects in the process of becoming an excellent scientist:

- What do you think a good scientist should be like? How do you define an excellent scientist?
- How is scientific competence assessed and excellence measured?
- What is considered as scientific success and how is it produced?
- How are assessment procedures organised and evaluators selected? Can you say that there is sometimes unfair evaluation? Can you provide some examples?

Findings

There are no differences between the opinion of male and female scientists. They think the fololowing about the good scientists:

- A good scientist is someone a theme can be associated with, something, of which he or she knows the ins and outs. Also, in a way, that beyond the facts at the level of instincts, very deep there is an extra, that enables him/her to answer questions which cannot be answered simply by looking at the facts. Who can superbly presume, and is able to tell a student – without dealing with the topic previously – whether it is worth setting off in a direction or not. In science they have the methods to measure scientific competence and excellence. Basically publications are good indicators to decide how valuable a scientist's achievements are.
- The best indicator of true success is when his/her name is well known in his/her field.
- On fields of technology there is no place for individual researchers. The tasks are of such a great volume that their work is impossible without the cooperation of several people. That means all success is achieved commonly. …If somebody wants to be an excellent researcher, they must be enduring. They must speak languages, they must be able to write in style. This is a very important aspect and a lot of people are not aware of it. In technological sciences, business application is an important manifestation of scientific success..

But there are many scientists without gender sensitivity, for example

- In evaluating competence and value there must be unfair decisions as well, but they did not mean any specific examples where it can be grabbed. For example somebody does not think that gender questions can influence a nomination for the head of department position. Or that this would play a more important role than other aspects in a competition between a male and female applicant with significant scientific background. In the competition of two male candidates it is also possible that the less worthy gets the position thanks to a lot of other considerations.

Gaps

- The above mentioned thoughts are very interesting from the point of view of doing research on the topic of scientific publications, the grant winners, business applications, by the numbers of PhD-degree holders of male and female supervisors.
- An understanding should be reached about the measures of scientific productivity and excellence.

2.6 Gender in research contents

Research questions

It is an absolutely new territory among research topics in Hungary. The researchers approach the topic from two points of view:

- The role of female scientists in history of science; what kind of added value can women give to their own research fields or specialities. What is the speciality of gender optic and approach in research?
- To examine how the scientific fields can become gender sensitive territories for the society. How can scientists include the gender aspects into their research area? There are very important differences among different scientific filds.

Research approaches

In Hungary this topic has only been tackled in the field of history, literature, geography and economics.

Only a very low number of publications refer to empirical research. From those more are quantitative. From subtopics most refer to 'conceptual contributions'.

Findings

One of studies points out that the literature history from a feminist point of view is lacking in the Hungarian literary science.

- Nevertheless the author's opinion is that it would not be appropriate to adopt the different theories of fashionable feminist schools without a critical examination.
- The exclusive usage of the feminist point of view is as one-dimensional, simplifying and rejecting as the men's point of view was. The author points out that in writing the history of the Hungarian literature, the dominating approach excluded women.
- The main challenge now is to re-evaluate the literature composed by women. It is a strange situation that literature science did not treat the female writers of the second half of the 20th century unfavourably, but the researchers' approach was biased by the traditional prejudices relating to the previous times. It was so in spite of the fact that in the literary life of the 19th century and the first half of the 20th century women played an important role.
- The problem is that the literature critics of those times pushed women behind. The author takes the work some female writers as examples of women with significant writing, translating and editing activity. An analysis of high standards is still missing, although some of them wrote a series of novels from a feminist point of view that feminist literary scientists are looking for today. On the other hand the influence of their own time made these great Hungarian female writers averse to feminism.

There is an article where the author first talks about the difficulties with the denomination of the topic: the variations are geography of women; feminist geography; geography of gender. Then she tries to answer the question why Hungarian geography has been uninterested in this topic.

- There have been self-determined departments for studying feminist geography at the universities of the western countries from the 1960's, meanwhile Hungary followed the Soviet example in this field as well, and consequently there was no human but economic geography.
- Geography was rather indifferent to gender than biased. After the democratic transition a new situation arose, which resulted in new conditions for the gender relations. One of the most important fields of the geography of women could be the investigation on the spatial inequalities of the social conditions of men and women.
- Another research area of geography of women could be the examination of the differences between men and women in terms of space, more exactly the ways they produce, form and use space. In this matter there are interesting and important differences both in the correlations of town–village and men–women.
- According to the author investigating the differences in the comprehension of place and the need for space between men and women could be the task of small-scale geography, which is not very popular in Hungary yet. The conclusions of this study are based on an extensive sociological survey made in the neighbourhood of Kecskemét, a city in the Great Hungarian Plain.

Another article investigates the current status of the research carried out on women's economic position in Central and Eastern Europe, focusing on the current treatment of feminism in these countries.

- The authors report on the legacy of what has been termed 'statist feminism' and explore various strategies to strengthen feminist economic research in CEE countries. They outlin three ways that feminist academics who wanted to strengthen their position could choose: assimilation, adaptation or rebellion.
- The authors vote for the development of links and networks with orthodox scholars, their colleagues at home and abroad, political organizations, and women's NGOs.

For this time there are holes to be filled as results earned by women in sciences have not even entered the history of sciences, as if the performance of women had been forgotten to be written in the history of science.

Gaps

- Lack of researchers' inclination of integration into their research the gender aspect.
- Inexistence of gender perspective in life sciences.
- Lack of women literature history

2.7 Policies towards gender equality in science

Research questions

Is it a well-explored topic or not? The main questions of research recently have been: how should we increase the proportion of female scientists in the leadership of universities and research institutions, andhow can we reach the critical mass in the decision-making bodies, funding bodies, academic committees and panels:

- Implement systematic collection and dissemination of statistics with gender-classified data with regard to boards and high level management.
- Encourage women to become top level management.
- Develop training on gender sensitivity for managers.
- Produce and collate statistics with gender-classified data for all staff levels.

Research approaches

In Hungary, the equality issues in the workplaces are legislated by the CXXV Act of 2003: law on Equal Treatment and Promoting Equal Opportunities. It stipulates that only state-owned companies employing more than fifty people are required to draft an Equality Plan. The Act obliges the universities to incorporate the promotion of equality in the annual personnel development plan or labour protection plan. BME did its own Plan for Equal Opportunities in 2005. But in this plan there is only one statement about women: "plan for equal opportunities applies to women also". It is only a formal equality between the sexes, not real gender equality. It lacks the implementation of the measures.

- As a part of the survey the data of the applications have been statistically examined, their content analysed, the questionnaires researched, and the co-ordinators interviewed and these interviews analysed.

Findings

We can find a new tendency from the governmental side:

- In the National Development Plan, in the research and development priority applied in the Economical Competitiveness Operative Programme (GVOP) the establishment of gender equality opportunities was listed as a horizontal aspect. The goal of a study is to traverse how equal opportunity was presented in the 2004-3.1.1. project applications; and to show how the aspect of equal opportunities for men and women as a horizontal aspect was realised in these research and development projects were financed from the Structural Funds, and what difficulties and factors might have hindered this realisation.

The scientific examination looked at the applicants that came from inside and outside the non-profit public financing, and also considered the big companies.

- Out of the 168 relevant applications some 45 had women co-ordinators. Taking all the projects into consideration it is obvious that 53 (32%) have failed to address the gender equal opportunity aspect which would have been necessary in order to win at the competition. Some 38 applications have outlined a different type of equal opportunity: one according to regions or social groups, etc. The 115 projects that did in fact include the idea of equal opportunities can be classified into the following categories according to the content displayed in them: neutral (in 15 projects); traditional (in 35); neutral and traditional (in 4); formal (in 23); and those that demonstrated genuine approach towards gender (38).
- Following up the applications with the help of questionnaires and interviews it has been revealed that the majority of even those who gave relevant answers in the equal opportunity subsection felt that they needed to fill in this part only because it was necessary for winning at the competition, and not out of conviction. Out of the possible 70 points 2 could be given to the equal opportunity aspect, on the condition that if the application does not include this aspect, or if its evaluation does not reach the necessary 40 points, the application cannot be awarded a grant. Despite of this, some 15 applicants chose not to list any kind of an equal opportunity aspect. Most of the applicants decided not to ask for assistance in the professional phrasing of the equal opportunity expectations.
- Finally, the authors took a stand on the need to expressly include the horizontal aspect of equal opportunities between women and men in the calls of domestic research and development applications. Additionally they make suggestions on how equal opportunities could be further enforced in the application process and in the realisation of the winning applications.

Gaps

- The scientific institutions and universities do not have a gender-sensitive evaluation system.
- There is a lack of work-life balance policies.
- There are no annual monitoring of the collected data year by year.
- Lack of independent experts to controll/monitor the institutional gender policy
- There is no solutions for the ageing of academic and research staff (apparent at the universities – the majority of researchers are more than 60 years old).

3. Conclusions

Most of the studies and researches connected to gender and science are dealing with state-of-the-art, compilation of statistical data, there are only few conceptual studies. Those kinds of philosophical and psychological studies that approach gender and science from the epistemology of science point of view are absolutely missing. There are also few studies about involving the gender aspect into a scientific field.

Hungary needs a fundamental change in the policy-making to prove that the promotion of women's scientific career is a serious economic and labour market interest. Securing the equality of chances is crucial for the operability of the society and the economy; it would assure the realization of equal treatment of men and women in the field of scienctifics and educational policy, harmonized with the same measures of other policy areas. Women represent such a mentality in leadership that the society cannot go without. In spite of the fact that there are no legal obstacles in the way of the realization of gender equality, international comparative studies (ENVISE report, ETAN report) and domestic status reports have revealed that in practice female researchers are underrepresented in research and development in general and especially in some fields, types of occupation,sectors and in executive positions. That is why harmonized support of the scientific careers of women is a preferential objective.

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