



Meta-analysis of gender and science research

RTD-PP-L4-2007-1



D31 – Country report **Poland**

Elzbieta Pakszys

March 2009

1. Introduction

The beginning of the interests in gender research or then rather women's studies in Poland should be associated with the social-political transformation of the last two decades, which in the late 80's triggered off all 'chain reaction' of tremendous changes in the states of previously Eastern/ Soviet block.

In Poland this process has been initiated by the Solidarity movement's victory in so called Round Table Talks (1989) which projected and determined the new social-political order in the country then liberating itself from 45 years lasting socialist/communist system.

The implantation of women's emancipation/ feminist ideas, however, took place mainly in some universities' units carried there often in the beginning by clandestine activity of the individuals who obtained earlier a consciousness raised enough (often informed abroad) to be ready and determined to proliferate them among the others being prone for this kind of agenda. Also influential was here visible process of newly liberated to launching Polish women's NGO's in the early 90's.

The development through exchange of such ideas was possible thanks for then organized numerous Polish and international conferences as well as personal contacts and support from different foreign foundations (like Fulbright, Soros etc.) offering abundant grants for research planned to be conducted in this direction and spirit.

In result of above and several other circumstances' influence in mid/second half of the 90's have been published the first Polish collections of articles and books concerning women's issues not only focusing on feminist ideas imported from abroad but also trying to begin an independent discourse also devoted to women's/gender issues in science.

There are two different veins of gender in science research/studies which shall be recognized retrospectively with help of the decades span: (1) Originated from Philosophy of Sciences - Epistemological and Historical reflection, defining and justifying sex/gender categories as worth to be studied in this context, effected in the 90's and (2) More diversified and mainly developed within the Social Sciences, especially these designed in agreement with following Poland's accession into EU, being in power after 2000.

2. Analysis by topics

2.1. Horizontal and vertical segregation

Research questions

In the first decade in liberated Poland the studies on horizontal and vertical sex/gender segregation in science have been undertaken and put forward mainly:

- **historical and philosophical questions** in order to possibly explain and introductory interpret then freshly noticed contemporary minority position of women vis-a-vis human general and particular cognition and

- **issues of the main paths of education** available for women living on Polish territory (then under partitions), starting from the end of 19th cent., and recognised as being too narrow for them to carry on professions demanding university/tertiary education comparable to these much earlier available for men.

After year 2000 only some of the studies have continued the previous trends since they were more focused on the **problems of women and men relationship within science and education**, both considered as social phenomena 'here and now', this way enabling also introductory comparisons between the countries of similar in this respect situation - Poland and Germany.

Research approaches

Philosophical approaches used to quite freely investigate the phenomenon of so called pure science, without regarding any contextual (ethnic, cultural) aspects. They were undertaken from within, i.e. reflecting internal positions and problems of science. In particular obeying the system of values traditionally established along the principles and ways leading from the scientific discovery towards its justification and vice versa. Human individual and/or collective agency has been considered as secondary.

While **historical and epistemological approaches** have taken into account the external, or contextual circumstances including sex/gender of the people undertaking the scientific discoveries and justifications, as well as political, social and cultural conditions there pertaining. The **sociological approach in science** is mainly focusing on the human issues, individual and social (concerning groups), which appear there in connection with their psycho-physical constitution and complication, including sex/gender differences, as well as their social roles then in question. On this background only the segregation along the sex/gender category in science openly appears.

Findings

There are at least twofold results:

- the evidence of women's absence, secondary or minority position in science, historical but also contemporary, i.e. disregarding space and time, however, being quite various, depending on the scientific disciplines, their internal history and traditions etc.
- The recognition of the situation having historically similar though various continuation in contemporary/today science, where so called professional pyramid of ranking is clearly visible and its connection with gender still in power.
- Since the 70's has Poland visible majority of women among students and graduates of higher education institutions, both in governmental sector 56,4% (average, disregarding fields, in 2006/7, according to Concise Statistical Yearbook of Poland 2007, GUS,) and 59% in 2003/4 at Non-state Higher Education Institutions (Siemienska, 2007:244).
- Also should be added, that share of Polish women doctors and habilitated doctors was growing intensively through the 90's and reached respectively – 49,5% and 36% in 2006. This is important to notice that women full professors in the years 2005/6 reached 27% while women members of the most prestige's Polish Academy of Science keeps still at 2,7/8% (Concise Statistical Yearbook of Poland 2007, GUS).

Gaps

The studies done till now do not take into account statistics concerning sex/gender display within growing since the 90's private sector of education, except of general data of women's share among students within the non-state institutions of higher education. They don't reflect on domination of men in non-governmental industrial sector connected with science. In the lack of such data they are only in limited way able to recognise the main trends of the social-political transformation in Poland in regard of sex/gender relationship i.e. segregation horizontal and vertical.

2.2. Pay and funding

Research questions

This kind of investigation appears only after year 2000, however, has been done in an introductory way and indirectly, since gender gap in payment and funding demands statistic evidence being monitored through the time. The phenomenon of payment inequality is in Poland, a country of strong equalitarian tradition, if not hidden, so recognised mainly as possible result of sex/gender vertical segregation. This way, it seems, should be considered also process of transformation, from previous unified, only governmental system in science & education, into more versatile, i.e. including private sectors.

Research approaches

The general approach compiling only ready yet statistical data, however, puts forward the issues of pay and funding with ideological intentions rather than with any scientific goals. While the fresh and in depth sociological analysis shows also puzzles in women and men access to funding. It appears in Polish science rather differentiation according to the category of age than of sex/gender, what means that inequality in payment and funding much more concern young academics than full professors, not reflecting their sex/gender.

Findings

The preliminary sociological analysis of the available data shows also possible difference in seeking and usage of funding connected with gendered career strategies, especially in the comparison between Polish and German young academics.

Gaps

There is a lack of any investigations of the problems of money/payment connected with prestige positions within science as institution as well as with the diversification of education system characteristic to transformation process in Poland.

2.3. Stereotypes and identity

Research questions

This is not an issue considered directly in Polish literature of the 90's since the problems of gender stereotypes connected with science had not been yet known and developed enough.

However, one can realize these problems indirectly regarding quite popular **cliché concerning perception of the natural sciences as incorporating and revealing polarity of masculinity -femininity** in so called strict sciences, especially in physico-chemistry, mathematics, also philosophy and others. The scope of the research and problems considered was then quite broad, including: seldom position of women researchers in cosmology, astronomy and space conquer as well as possibly typical women's career in natural sciences, starting from ancient time till today.

In the next decade the problem of **growing in power role of gender stereotypes** has been recognised, or just taken for granted as transferred from social-cultural analyses, at almost every step of the education system including university. Yet it has been reflected only in general way on example of physics. As for an issue of an **individual identity connected with science**, which studies demand psycho-sociological insight, the problem was undertaken only introductory.

Research approaches

Earlier applied historical-philosophical method gives an idea of what is going on, hence has mainly a conceptual value, while later introduced sociological approach demands much broader evidence, which has to be excavated from the contextual, cultural studies, and taken into account in further research.

The method of individual interview, though meticulous, seem to be a proper way to carry on this kind of research.

Findings

Among noticeable results should be regarded: 1. an association of social-cultural concepts of stereo-typing people in connection with their sex/gender as well as professions in science, 2. the demands for certain: educational, political, cultural, counter reactions which should be suggested in conclusion from till now and for further studies and application.

Gaps

Except of not yet enough recognised elements of growing in power gender stereotypes on every step of education and level of science system in the 90's, practically there were not studied any problems from the field of medicine and health sciences, hence valid there stereotypes are beyond the scope of Polish research still.

2.4. Science as a labour activity

Research questions

In the 90's **historical problems of the labour activity in science** performed by women as minority in strict/ natural sciences and technology has been undertaken in connection with medicine practice and pharmacology, in some respect being also continued in later attempts to compare their shape between the decades.

After year 2000 appears **the questions of science as a labour activity mostly in the context of possible connections between individual life path and professional career** as well as the **problem of certain historical traditions ruling in different disciplines of technology** resulting in weak still participation of women.

Research approaches

Conceptual, philosophical and biographical methods are introduced to rarely undertaken problems of applied disciplines and technological practice in the 90's. While in the next decade some historical and sociological comparative analysis has been undertaken raising several problems in longer span, from modernity till today.

Findings

Although still prevails in every studies puzzling **confirmations concerning women's lack of interests in technology**, as the possible results of stereotypes valid in culture and education, some closer historical examples of their presence in the professions of engineer, however, are showing perhaps the way to overcome these obstacles.

Gaps

There is general scarcity/shortage of research focusing on issues of women's labour activity, e.g. their practice in everyday science and technology.

2.5. Scientific excellence

Research questions

In the 90's **the problem of outstanding women scientists achievements** has been considered within several disciplines, especially in: mathematics, physics and biology. In particular the highest possible (Nobel) prize was presented and analysed in the broader context of women scientists or active in science also female genius.

In the next decade this topic has not been continued, though some elements shall be perceived in the issues connected with **recognizing physics as a field unfriendly (very or too demanding?)** for young women, both as a subject of studies and work. Certainly in some connections with stereotypes ruling within culture. These sociological attempts seem to be closer to everyday reality of **the possibilities to have scientific achievements as well as professional career**.

Research approaches

Historical and philosophical 'from the merit' approach in the 90's shall be juxtaposed to the ascribed to the next decade approach towards possible excellence measure in scientific everyday practice, including also gender differences in this respects, i.e. performed by women and men respectively.

Psycho-sociological methods should help in clarifying often high projections of young scientists in balancing their ambitions with the possibilities.

Findings

The results of the historical and philosophical studies mainly convey better recognition of the individual women prizes-winners, not very often/unique examples, as well as evaluating the circumstances/conditions depriving them of such honours in history and today.

Gaps

There is lack of research concerning lower level prizes in science being considered as an instrument of growing motivation in undertaking especially risky attempts in science also for women.

It seems, once again, important in Poland where recognition in science if measured with help of women full professorship share, reached 27%, while women membership of Polish Academy of Science is still at 2,7/8% (Concise Statistical Yearbook of Poland 2007,GUS)

2.6 Gender in research contents**Research questions**

In the 90's there were introductory recognised in Polish studies **positions of sex/gender categories within the sciences and the humanities in general as well as in particular way**. Including: the critical insight towards cultural-social anthropology (in international scope), more focusing on internal history as well as in history of philosophy and contemporary feminist epistemology.

The last decade have brought some continuation of these studies although done differently in more sociological way, **that is regarding the individuals sex/gender in planning or carrying the scientific career**. This kind of interpretation has several values, however, they are not in the relation of an easy correspondence with the previous vain, since the elements of the disciplines' singularity are abandoned.

Research approaches

The earlier philosophical (most general) methodology has been enriched by the characteristic to cultural anthropology multicultural approach showing deep ground of the main categories: sex/gender - masculinity and femininity - crucial to all other research, as well as to the historical disciplines studies conducted in this directions.

In the next decade category of sex/gender appears as quite well established, regular instrument for social-psychological disciplines' analyses in connection with scientific profession. However, such a process of application or operationalisation, is not necessarily commensurable with the previous one, and seems to be less critical.

Findings

The results of merits concern the full literature from the 90's where crucial sex/gender category has been established and interpreted through the scientific 'filter'. Gender issues appeared as justified problems possible to be undertaken in strict/natural sciences as well as the humanities.

Gaps

There is a lack of continuation in this respect in the literature after year 2000, however, it is still possible to fill the several gaps which are recognised till now or shall be foreseen or suggested in future.

2.7 Policies towards gender equality in science

Research questions

In the 90's **general problem of gender inequality in science** has been undertaken rather in an introductory way, however, the issue was put forward.

The following decade brings **studies on conditions/circumstances responsible for women's not fully/yet equal position in Polish science during transition period**. Some issues are continued also in the last done and published research of comparative character: Poland – Germany and Poland – France but still on an introductory, i.e. not of mature character.

Research approaches

Dominating here earlier socio-psychological and historical approach in the comparative studies are conducted with help of their methods combined with the individual interviews. Statistics, however, are treated often as pretexts for too simplistic evaluation, e.g. the attempts to equalise *per force*.

Findings

There are recognized 'puzzles' in connection with a kind of fresh orthodoxy in equality/parity, quite unjustified in Poland, a country of relatively good position of women in science, especially in the lack of any official agendas & institutions monitoring and/or being responsible for such a process.

The tendency is quite stable: since the 70's has Poland visible majority of women among students and graduates of higher education institutions, both in governmental sector 56,4% (average, disregarding fields, in 2006/7, according to concise Statistical Yearbook of Poland, 2007, GUS) and 59% in 2003/4 at Non-state Higher Education Institutions (Siemienska, 2007:244).

Gaps

Lack of the official research planned and done in this respects.

3. Conclusions

The research on gender issues in science undertaken in Poland during last two decades, certainly not being numerous and substantive enough present all plethora of **topics** possible to be reflected with help of two main **methodologies** general approach – philosophical and historical and more particular one – psycho-sociological.

The main positive results concern almost all early research where crucial **sex/gender category** has been established and interpreted as approved scientific data. Gender issues appeared as

justified problems possible to be undertaken in strict/natural sciences as well as in the humanities.

Recognized here **horizontal and vertical segregation** of sex/gender supports the main patriarchal theory denouncing inequality of women position within the most areas/fields of scientific studies in the past and contemporary, being evidenced with help of the applied methods.

Weak representation of the problems connected with inequality in **pay and funding** results in hardly reflected diversification following social-political transformation in Poland and belongs to the main **gaps** among the research concerning education and science, both as institutions and process, done till now. Another gaps concern the lack of research on medicine and health science as well as women's **labour activity** in science and technology.

The issues under label **stereotypes and identity** appear among the most important findings of the research done from the perspective of social policy. They are considered as important element following the educational system changes in connection with the possibility to be implemented in worked out future **policies towards gender equality/parity in science**.

The report has been enriched with some necessary statistical data concerning the sex/gender relationship in Polish science and education.

4. Main bibliographical references

4.1. Horizontal and vertical segregation

Mazurczak, D.1995,'Dazenia kobiet do wyzszego wykształcenia na przelomie XIX-XX wieku' in Humanistyka i Plec I. Studia kobiece z psychologii, filozofii i historii, eds.J. Miluska & E.Pakszys, Adam Mickiewicz University Press, Poznan,pp.179-192.

Sobczynska,D.1997,'Miejsce kobiet w naukach fizyko-chemicznych i technice. Historia i wspolczesnosc' in Humanistyka i Plec II. Kobiety w poznaniu naukowym wczoraj i dzis, eds. E.Pakszys & D. Sobczynska, Adam Mickiewicz University Press, Poznan, pp. 87–113.

Bunio,P.2007,'Walka o niepodleglosc, walka o niezaleznosc. Kobiety i nauka na ziemiach polskich przed I wojna swiatowa i w II Rzeczpospolitej Polskiej' in Idealistki, silaczki, reformatorki. Kobiety w nauce polskiej, ed. E.H. Oleksy, Uniwersytet Łódzki (ON-BPK), Łódz,pp.14-20.

Majcher,A.2007,'Seeking the Guilty – Academics between Career and Family in Poland and Germany' in Gendered Career Trajectories in Academia in Cross-National Perspective, eds. R.Siemenska & A.Zimmer, Wydawnictwo Naukowe Scholar sp. zo.o., Warsaw,pp.298-325.

Siemenska,R.2007,'The Puzzle of Gender Research Productivity in Polish University' in Gendered Career Trajectories in Academia in Cross-National Perspective, eds. R.Siemenska & A.Zimmer, Wadawnictwo Naukowe Scholar sp.zo.o., Warsaw, pp.241-266.

4.2. Pay and funding

Gabryelak,E.2007,'Sytuacja kobiet w Polsce – wyzwania okresu transformacji systemowej lat 90. Nowe nadzieje i szanse rozwoju kariery wynikajace ze wstapienia Polski do Unii Europejskiej' in Idealistki, silaczki, reformatorki. Kobiety w nauce polskiej, ed. E. H. Oleksy, Uniwersytet Łódzki (ON-BPK), Łódz,pp.28-37.

Siemienska,R.2007,'The Puzzle of Gender Research Productivity in Polish University' in Gendered Career Trajectories in Academia in Cross-National Perspective, eds. R.Siemienska & A.Zimmer, Wadawnictwo Naukowe Scholar sp.zo.o., Warsaw, pp.241-266.

4.3. Stereotypes and identity

Bergandy,W.1997,'Kariery naukowe przyrodniczek.Od alchemii do chemii współczesnej' in Humanistyka i Plec II. Kobiety poznaniu naukowym wczoraj i dzis, eds. E.Pakszys & D. Sobczynska, Adam Mickiewicz University Press, Poznan,pp.127-154.

Szczesniak,M.1997,'Obecnosc kobiet w kosmologii. Szkice z historii i wspolczesnosci' in Humanistyka i Plec II. Kobiety w poznaniu naukowym wczoraj i dzis, eds. E.Pakszys & D. Sobczynska, Adam Mickiewicz University Press, Poznan, pp.155-171.

Bunio, P.2007,'Równouprawnienie pozorowane czy dziejowa szansa? Kobiety i nauka w Polskiej Rzeczpospolitej Ludowej' in Idealistki, silaczki, reformatorki. Kobiety w nauce polskiej, ed.E.H. Oleksy, Uniwersytet Łódzki (ON-BPK), Łódz, pp.22-26.

Gabryelak,E.2007,'Sytuacja kobiet w Polsce – wyzwania okresu transformacji systemowej lat 90. Nowe nadzieje i szanse rozwoju kariery wynikajace ze wstapienia Polski do Unii Europejskiej' in Idealistki, silaczki, reformatorki. Kobiety w nauce polskiej, ed. E. H. Oleksy, Uniwersytet Łódzki (ON-BPK), Łódz,pp.28-37.

Zawadzka,B.2007,'Borders of the 'Academic World' as Perceived by French and Polish PH.D. Students: Geography, Structures and Inequality' in Gendered Career Trajectories in Academia in Cross-National Perspective, eds. R.Siemienska & A.Zimmer, Wydawnictwo Naukowe Scholar sp.zo.o., Warsaw, pp.358-377.

4.4. Science as a labour activity

Kabzinska, K.1997,'Bronislawa Dluska, doktor wszech nauk medycznych' in Humanistyka i Plec II.Kobiety w poznaniu naukowym wczoraj i dzis, eds. E.Pakszys & D. Sobczynska, Adam Mickiewicz University Press, Poznan,pp.65-81.

Sobczynska,D.1997,'Miejsce kobiet w naukach fizyko-chemicznych i technice. Historia i wspolczesnosc' in Humanistyka i Plec II. Kobiety w poznaniu naukowym wczoraj i dzis, eds. E.Pakszys & D. Sobczynska, Adam Mickiewicz University Press, Poznan, pp. 87–113.

Magowska,A.2000,'O „swoistosci” kobiecej praktyki poznania (Z historii nauk o leku)' in Pod patronatem Hygiei. Udzial kobiet w rozwoju nauk przyrodniczych, ed. I.Arabas, IHN PAN, Warszawa,pp.124-139.

Sobczynska,D.2006,'Kobiety i mezczyzni, nauka i technika. Osiem obrazków z kalejdoskopu' in Swiat natury i swiat techniki, eds.D.Sobczynska & A.Szczucinski, Wydawnictwo Naukowe Instytutu Filozofii Uniwersytetu Adama Mickiewicza, Poznan,pp.27-53.

4.5. Scientific excellence

Pakszys, E.1997,'Feministyczne rewindykacje wobec nauk o zyciu albo o roli plci/rodzaju w poznaniu biologicznym' in Humanistyka i Plec II. Kobiety w poznaniu naukowym wczoraj i dzis, eds. E.Pakszys & D. Sobczynska, Adam Mickiewicz University Press, Poznan,pp.263-282.

Piotrowska,E.1997,'Emmy Noether (1882-1935) – kobiecy geniusz w sluzbie matematyki' in Humanistyka i Plec II. Kobiety w poznaniu naukowym wczoraj i dzis, eds. E.Pakszys & D. Sobczynska, Adam Mickiewicz University Press, Poznan, pp.37-63.

Szczucinski,A.1997,'Kobiety w fizyce współczesnej' in Humanistyka i Plec II. Kobiety w poznaniu naukowym wczoraj i dzis, eds. E.Pakszys & D. Sobczynska, Adam Mickiewicz University Press, Poznan, pp.115-126.

Chudzicka, P., Diekmann, A. & Miazek, M. 2007, 'Kobiety w fizyce' in *Idealistki, silaczki, reformatorki. Kobiety w nauce polskiej*, ed. E. H. Oleksy, Uniwersytet Łódzki (ON-BPK), Łódź, pp.38-39.

4.6 Gender in research contents

Baer, M. 1997, 'Ewolucja myśli feministycznej w antropologii kulturowej. Szkic na podstawie wybranej literatury' in *Humanistyka i Plec II. Kobiety w poznaniu naukowym wczoraj i dziś*, eds. E. Pakszys & D. Sobczynska, Adam Mickiewicz University Press, Poznań, pp.219-262.

Kusiak, A. 1997, 'O historii kobiet' in *Humanistyka i Plec II. Kobiety w poznaniu naukowym wczoraj i dziś*, eds. E. Pakszys & D. Sobczynska, Adam Mickiewicz University Press, Poznań, pp.197-218.

Pakszys, E. 1997, 'Kobiety w filozofii polskiej. Dwa pokolenia Szkoły Lwowsko-Warszawskiej' in *Humanistyka i Plec II. Kobiety w poznaniu naukowym wczoraj i dziś*, eds. E. Pakszys & D. Sobczynska, Adam Mickiewicz University Press, Poznań, pp.173-191.

Pakszys, E. 2000, 'V. Kategoria płci/rodzaju w naukach o przyrodzie nieożywionej oraz w dyscyplinach formalnych: próba uchwycenia zagadnienia' in *Między natura a kultura: kategoria płci/rodzaju w poznaniu. Studium epistemologii naturalizowanej w perspektywie feministycznej*, Adam Mickiewicz University Press, Poznań, pp.73-81.

Majcher, A. 2007, 'Seeking the Guilty – Academics between Career and Family in Poland and Germany' in *Gendered Career Trajectories in Academia in Cross-National Perspective*, eds. R. Siemienska & A. Zimmer, Wydawnictwo Naukowe Scholar sp. z o.o., Warsaw, pp.298-325.

4.7. Policies towards gender equality in science

Broszko, K. 2005, 'Meska dominacja w nauce' in *Tożsamość społeczno-kulturowa płci*, eds. A. Barska & E. Mandal, Wydawnictwo Uniwersytetu Opolskiego, Opole, pp.57-63.

Gabryelak, E. 2007, 'Sytuacja kobiet w Polsce – wyzwania okresu transformacji systemowej lat 90. Nowe nadzieje i szanse rozwoju kariery wynikające ze wstąpienia Polski do Unii Europejskiej' in *Idealistki, silaczki, reformatorki. Kobiety w nauce polskiej*, ed. E. H. Oleksy, Uniwersytet Łódzki (ON-BPK), Łódź, pp.28-37.

Majcher-Teleon, A. 2006, 'Kobiety i mężczyźni w elitach akademickich. Umasowienie szkolnictwa wyższego i nierówności płci w Polsce i w Niemczech', *Polish Science, POLSIGLE*, Internet.

Siemienska, R. 2007, 'The Puzzle of Gender Research Productivity in Polish University' in *Gendered Career Trajectories in Academia in Cross-National Perspective*, eds. R. Siemienska & A. Zimmer, Wydawnictwo Naukowe Scholar sp. z o.o., Warsaw, pp.241-266.

Zawadzka, B. 2007, 'Borders of the 'Academic World' as Perceived by French and Polish Ph.D. Students: Geography, Structures and Inequality' in *Gendered Career Trajectories in Academia in Cross-National Perspective*, eds. R. Siemienska & A. Zimmer, Wydawnictwo Naukowe Scholar sp. z o.o., Warsaw, pp.358-377.