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Life Paths of Successful Women Scientists in Spain

María José Barral Morán¹
Isabel Delgado Echeverría²
Teresa Fernández Turrado¹
Carmen Magallón Portolés³

1) University of Zaragoza. Spain.

2) Government of Aragon. Spain.

3) Fundación Seminario de Investigación para la Paz. Spain

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María José Barral Morán
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Abstract

This article discusses interactions between the life paths of women scientists and their status and contributions to science. It is a qualitative study which highlights factors that influenced the successful career of nine Spanish women scientists. These factors include the family encouragement, the novelty of the scientific field or branch in which they work, the mentors they had along their career and the periods of time spent abroad. The women scientist included in the sample are working in different fields: Physics, Psychology, and Neurobiology. The analysis of their professional paths reveals that to develop a successful scientific career, the organization of daily, domestic and private life is important, as well as the existence of other social opportunities which are outlined in the article.

Keywords: women scientists, gender, life paths, Spain, success factors

Trayectorias de vida de mujeres científicas de éxito en España

María José Barral Moran
Teresa Fernández Turrado
University of Zaragoza

Isabel Delgado Echeverría
Government of Aragon. Spain.

Carmen Magallón Portolés
Fundación Seminario de Investigación para la Paz.

Resumen

Este artículo explora las interacciones entre las trayectorias de vida de mujeres científicas y su estatus y contribuciones a la ciencia. Se trata de un estudio cualitativo en el cual se destacan los factores que influyen en el éxito en las carreras de nueve mujeres científicas españolas. Estos factores incluyen el apoyo familiar, la novedad del campo científico o rama en la que trabajan, las personas mentoras que tuvieron a lo largo de su carrera y los períodos de estancia en el extranjero. Las mujeres científicas incluidas en la muestra trabajan en diferentes campos: física, psicología, y neurobiología. El análisis de sus trayectorias profesionales revela que para desarrollar una carrera científica exitosa, la organización de la vida cotidiana, doméstica y privada son importantes, así como la existencia de otras oportunidades sociales que son destacadas en el artículo.

Palabras clave: mujeres científicas, género, trayectorias de vida, España, factores de éxito

Gender studies have approached women's lives from different perspectives. By means of using the sex as variable and the concept of gender, patterns of exclusion and strategies for progress have been identified (Keller, 1991; Schiebinger, 2001). In this way it was possible to document lives of prominent women who excelled in their time as well as rescue their individual contributions to science, literature or art.

Although there are many studies on barriers raised to women in their career, there are not many focused on studying the keys of success of those who achieved it. This is precisely the objective of this work: the identification of factors which helped some women scientists to achieve a leading position within their fields.

Pnina G. Abir-Am and Dorinda Outram (1987), through cases taken from different historical times, investigated the relationship between the personal lives and different models of careers of women who contributed to science. These authors deepened into the relationship between science and life, how the practice of science affected the subjective experience of women scientists and how "the interplay between career and personal life has affected the participation of women in science" (Abir-Am, & Outram, 1987, p. 1). Their study on difficult private lives and careers of women scientists, called into question two assumptions that are implicit in most works of history of science. Namely, 1) that the personal lives of those who practice science cannot explain the nature of their scientific work, and 2) that the development of modern science can be understood in terms of a gradual "professionalization".

Differently, Abir-Am and Outram hold that the experience of both sexes was not in the past so radically separated (there was a broad tradition of amateurs in Britain and North America), and although most paid positions were occupied by men, these jobs were few and the amateurs, men or women, worked on a domestic basis. In the early nineteenth century men's and women's relations with science were heavily influenced by personal and family situations: "Historians have already stressed the opportunities that women scientists found in the 'family firms' of nineteenth-century science, in which many family members, if not entire households, engaged in the Enterprise of science" (Pycior, Slack, & Abir-Am, 1996, p. 4).

As Abir-Am and Outram had said, it has been overlooked the influence of the exclusion of domestic sphere as a scientific production space in the gender structure of modern science (with its low representation of women). This does not mean denying that the exclusion of women scientists has been exercised primarily by the barriers erected to them in the process of science institutionalization (with the creation of universities, scientific societies and journals), but it could be one more element to take into account. Following this line of work, our group considered the possibility of researching the interactions between the life paths of women scientists and their contributions to science. To this end, our latest research has focused on the lives of successful alive women scientists, from which we have analyzed the factors influencing the development of their careers. We have investigated bridges and barriers within the institutions they worked for, difficulties and facilities they encountered during their training period, and how their personal lives have interacted with such a vocational and demanding activity. As Sandra Harding, we think that giving importance to the contributions of groups different to the hegemonic, in this case women, acts in the interest of science and knowledge (Harding, 1991).

As these studies showed, taking science out of the domestic sphere influenced and contributed to the exclusion of women, although the scope of this change is pending to be documented: how the science left the domestic sphere and why this process affected women's positions more than men's. We find contributions in this sense in the historical studies by Marsha L. Richmond on the group of Bateson (1900-1910), who in the early days of the Mendelian genetics developed scientific research using domestic spaces, with a high presence of women (Richmond, 2001 and 2006).

In this framework, we wonder how it has been in Spain. In this country, along the last two decades have been rescued the context and the scientific profile of the Spanish pioneering women in sciences, as well as have been made biographical, statistical and prosopographical studies of these pioneers (Barral Morán et al., 1999; Santesmases, 2000; Alcalá et al., 2005; Delgado Echeverría, 2007; Magallón Portolés, 2004, 2007a, 2007b, and Miqueo Miqueo, Germán Bes, Fernández Turrado & Barral Morán, 2011). How is it nowadays? What factors influence women scientists' careers?

Material, methods and hypothesis

We focused on the lives of nine successful women scientists of the University and the *Centro Superior de Investigaciones Científicas (CSIC)*, the main research institutions in Spain. The nine scientists we worked on belong to two generations. Four of them were born in the late 30's and the other five in the early 50's. All of them were known by the members of our group because of the results of their researches, related to our respective areas of scientific expertise: neurobiology (4), psychology (3) and physics (2). Many of their papers had been read and cited by us at different times in our research and teaching activities, and in some cases we attended their presentations at conferences or lectures. We collected their CVs and publications, and initiated a personal contact with each of them, which led to the in-depth interviews, previously pre-designed, that were recorded and later on analyzed.

The measure of the "success" of these scientists has been based on the criteria used in scientific circles. Those criteria are not without debate (Monosson, 2008):

- To be appointed to the post of highest rank in the University or Research Center
- Being director of a research group
- Having publications in high impact journals
- Being a director and / or coordinating international groups
- Being a representative in international organizations
- Being referee of journals of high impact

The prior knowledge of their activities and scientific contributions led us to raise a number of questions in connection with their lives. Unlike those Spanish pioneers of the first third of the twentieth century we had previously studied, these scientists have achieved professional success, and they all are internationally renowned. Their desire to pursue research in a particular scientific field has been accomplished, and they have received a deserved recognition from their community of reference. Does this mean that there has been a significant change in the last century in relation to women in science? Has science changed or have women changed?

Even if the very fact of the existence of renowned women scientists means that there has been a change from the existing situation a century ago, following the approach of Enrichetta Sussi (1998) some questions remain: Is our sample an exception? Has there been an adaptation of women to male patterns prevailing in science? Or has there been a real transformation in scientific circles because of the participation of women?

Recent works by Mary Frank Fox, based on her study on doctoral education in science and engineering in America (Fox, 2001), point to the first hypothesis: increasing number of women may not alter the “norms” or “standard practices” of education and work in sciences. Women working in sciences should accept a set of features supposedly “disembodied”, but really associated with men and masculinity”.

It is possible that the changes that have taken place in our society have produced a certain number of women able to cope with the high degree of competitiveness in the scientific world. Surely these women have exceptional qualities, an extremely outstanding intelligence, and a certain type of skills that enable them to cope with environments fraught with difficulties. But we know that many others, with similar desires and capabilities, have been unsuccessful in their dedication to science; what could be the difference?

Our research has provided some answers to these questions, some of them unexpected. Without denying the existence of factors intrinsic to science (from those related to its institutionalization, to its current organizational forms), in the results of our research social factors and personal choices stand out on their own. All this leads us to reconsider the importance of gender roles and the permanence of the sexual division of labour as factors that currently affect the practice of the scientific activity. The main difficulties that the scientists of the sample have had to overcome to pursue their scientific careers, have been those related to marriage and motherhood. They have left their boyfriends or have got married to other scientists. In some cases they have slightly changed their field of scientific expertise in order to work with their husband. In short, they made a series of adjustments in their personal lives in order to safeguard their professional development. Could we say the same for the successful men scientists? Did they have to face the development of personal and professional life as a personal challenge not easy to fit?

Factors influencing the life paths of the scientific sample

Through the life and professional experiences narrated by the scientists of the sample, we found some factors that respondents mentioned as being influential in explaining their trajectories. Among these factors, we distinguish two types. The first type includes factors clearly positive, since it represented a clear boost in the beginning of their studies, and increased their chances of finding ways of integration into the scientific community and making substantive contributions to a branch of science. We might say that this type of factors did not depend on them, but on their environment, and that they knew to take advantage of the situation. In the second type of factors we place a set of circumstances that have influenced in different ways their careers and lives, and have entirely depended on the particular way in which each one of them has faced crossroads in her life.

One factor that we wanted to explore, unrelated to their career but in connection with it (success and ability to influence the scientific community) is the role of being a model for other women, being students or colleagues. We called this factor "presence of women in their environment", in order to accommodate the assessment of that presence. We think over it and check if the success of these scientists has had a positive impact on other women, attracting and providing a channel for the professional development of them. This effect has been analyzed in other works, in which it is emphasized that the involvement of women in science is enhanced by the existence of models or precursors, that is, by the consciousness of having a "feminine genealogy" that offset, to some extent, the predominantly male thinking within the scientific world (Cabré i Pairet, 1996).

Success factors related to the environment

Among the positive factors we found: a) expectations and family influences, b) the novelty and timeliness of the scientific field, c) mentors that offered them options to go on, and d) travels and stays abroad.

a. Expectations and family influences

The main conclusion in our study is that active and successful participation of women in scientific production has been possible through overcoming societal factors that have historically burdened the activity and freedom of women. In the case of the studied women scientists, this improvement came from the influence of the family environment in their childhood and youth.

The nine women scientists share the fact of having had parents with a favourable attitude towards their higher education, with an absolute confidence in their capabilities, and having received support and sustenance from their families at the beginning of their career.

The significant role played by the family environment has been recognized by each scientist interviewed. Their families had no doubt they were going to study. That was so even in the case of a scientist who finished college in 1953.

Among the occupations of parents, being a teacher stands out. There are no cases of daughters of successful women or men scientists, and the choice of studies does not seem to be marked by the interests or professions of their parents. There has sometimes been an economic and local conditioning, choosing those degrees that could be studied in the place they lived. In most cases, the value given to schooling was clearly above the school level of the parents.

Sometimes parents had great influence in the choice of the university degree in an indirect or even accidental way. In one of the cases, the daughter did the same studies as her mother, although she did not follow a scientific career, in another case, the family made her change her mind.

b. The novelty and timeliness of the scientific field

In every case the factors that influenced her option for a researching field were different. Nevertheless, after examining in detail the branch of specialty to which they have devoted themselves, we verify that all of them have chosen innovative perspectives in their field, that they have even been pioneers of new paths of research. The greater likelihood that a woman scientist is better accepted and successful in a new branch of science had been already mentioned by Margaret Rossiter in her classic *Women*

Scientists in America, (Rossiter, 1982) and the same remark is shown in more recent works (Schiebinger, 2001; Richmond, 2006 and 2007).

Our research obtains the same conclusion: the success of women scientist is linked to their involvement in new scientific perspectives within their field. The branch of the optics, the new physics of particles, the study of aging, the glial cells role in neuroscience, the work in the functional assessment and aids technologies for communication or the investigations on the menstruation are advances in novel fields, not classical studies.

The question of novelty in a field is often connoted by the hierarchy of the topics. So that in the topic's choice does not only count the existence of some vacuum space. Some topics are neglected by the scientific community being more available and leaving more room for a successful career. This is the case, inside the neuroscience field, of the studies in the glial cells, work field of some of the interviewed women scientists. Classically, these glial cells were assigned a secondary role in the brain's function, mainly as cells for nutrition and support of neurons. The hierarchy between neurons and neuroglia was projected into the researches focusing on these cells and into the people that studied them. Curiously, neurons were mainly studied by men, while the neuroglia was studied by women. The advances in the study of neuroglia have risen to new knowledge over their role in the brain function, and this has increased their value. Nowadays it is well known that the glia influences over the neuron's excitability and over the synaptic transmission such as the "tripartite synapses" constituted by two neurons and one glial cell (astrocyte). The role of neuroglia in memory and learning processes as well as in the nervous regeneration and degeneration is also well known.

In some cases, the choice of the research topic has become a challenge for these scientists. This is the case of the choice of menstruation as the topic for the Doctoral Thesis of one of our interviewed scientists: this choice supposed an initial reject and isolation of her peers. With time, the relevance of this topic has prevailed over the initial resistances.

Also we have seen that women scientists have been frequently used as luxury workers, repeating the situation of crystallographer Rosalind Franklin: her work was used by Watson and Crick, who took advantage of her plaques to sign the interpretation of DNA helicoidally structure, and they

won therefore the Nobel Prize, consigning Franklin to oblivion. Among the women scientists of our study we also found some cases in which they performed fundamental researching tasks that were used afterwards by their bosses, although this happened at the beginning of their careers.

Another issue discussed was scientific productivity. All the women interviewed present high levels of productivity and all of them are working in a very specialized frame. This circumstance matches with assets by Erin Leahey (2006) on STEM disciplines (Sciences, Technology, Engineering and Mathematics). She introduces the specialization variable in scientific productivity. Six out our nine women scientists are working in the called STEM disciplines, and the other three are psychologists. In this sense, we can say that these women adopt the standard masculine practices (Fox, 2001), as the unique or most professional practices, probably owed to the association of science with masculinity and the professional socialization processes within STEM disciplines (Rothon, 2011).

c. Mentors that offered them options to go on

The mentors we refer to are those persons who at some point met our women scientists. They were not usual mentors, not the type that design the way that a disciple must follow for a successful career (Pritchard, 2006). In most cases, they were persons that our scientists met in their way, and it was their own determination and value what made the relationship start. Our women scientists were in control of their career.

Given the predominance of male power in science, and still more years ago, is not surprising that most of the mentors have been men. It was the same in our sample, in which the majority of the mentors were also men. In some cases, the mentor was the own couple, and in fewer cases they were women, who are valued in a different way, outlining not only their professional values but also their personal qualities.

d. Travels and time spent abroad

It is worthy to remember that, for the Spanish science, as well as for the whole society, the 1936-1939 Civil War represented a tragic break with the previous period. In particular, it meant a major rupture with a scientific

policy that had begun the JAE (*Board for Advanced Studies and Scientific Research*), the most important Spanish institution for development of science in the first third of the 20th century. The JAE launched a scholarship program for Spanish researchers to go abroad whose impact on their return to the country enabled the Spanish science to reach the level of the international science at the time. After the Civil War, Spain was isolated due to the alliance maintained with the Axis Countries during the Second World War. There were no relationships with international scientific institutions neither an established way to Spanish graduates or researchers to go abroad.

Later on, when our women scientists started their career, going abroad was still something not very usual. Given the importance of that point for a scientific career, we think the option of going abroad, that scientists of our sample had, was one of the factors that contributed to their success. Their stays at international research institutions.

They were fortuitous meetings, in Congresses, or conferences, which made it possible to meet a foreign teacher, or the woman scientist concerned decided to travel on her own, to continue her studies.

In relation to foreign travel there is also the age factor: for the younger generations it was easier going abroad, because Spain already had gone out of its isolation. It was also easier for those women scientists who married a scientist, and better if, as happened in some cases, both shared the same field.

Singularities linked to personal options

The second type of factors includes those circumstances that accompany a life, and that, according to how they are solved, can be more a ballast than a support. In the cases of the studied women scientists, what has been decisive for their success is the form in which they have confronted them. The personal choices they made were concomitant of their development and personal balance, allowing them not only to progress in their careers, but continuing with the science option. These factors are: a) the couple, b) the motherhood, c) the teaching, and d) the foreign languages skills.

Once again we found a generational gap in the way of facing these circumstances, in particular the a) and b) factors.

a. The partners

In our sample, it is noteworthy that the women scientists who live with a partner, in most of the cases throughout many years, both partners share the same field of investigation, some of them have linked so completely life and work that woman and husband belong to the same team of research or they direct it together¹.

All of them think that their husbands have helped them very much in their professional career, they have understood their desires and needs, and have collaborated in the housework and in taking care of the children.

The support from their husband, in the sample, has existed even if they had a different job, although she also says that cooking and dealing with household chores is her business.

As for the housework, the answers are very different:

Among the nine respondents, only two women believe that household chores are within their exclusive competence. In this aspect it is important the generation they belong to and their way of thinking. At the other extreme are those who have never liked household chores. This can be inferred from the fact that they do not talk about it, or hesitate when asked. But there are also cases in which they explicitly express it.

Another repeated feature is that their male partners have been ahead of them in developing their careers, reaching earlier the same or higher positions, sometimes, to choose the place of residence, security has prevailed over the desires, and they have chosen on the basis of the position achieved by the husband, later, this scientist returned to the subject she was particularly interested in, for which she performed a one-year stay abroad. During this time, her husband and his parents stayed by the children, the youngest of whom was barely one year old.

Another of the scientists, who adapted her career to her husband, explained her decision by the desire to work together, as for the stay abroad, the situation was similar.

In the two previous cases, the story tells us that "he" got a better job before she did (this is the part where science does not seem to have changed very much), and it suggests that, for women, it was worth it to modify or adapt their careers in order to work together. Regarding the latter, we wonder if men would have done the same in the opposite case.

Only the career of one of the women scientist suggests the opposite: she continued her way and her former partner did the same, living in different places and belonging to different research teams. The success she has achieved has been far superior to her partner's. But naturally, they are different particular cases in which many factors have acted, so we can't draw general conclusions.

The scientists who did not join their life to another person also say that it was their choice. In some cases, considering the dilemma between pursuing a relationship and continuing their career, they chose the profession. Options were not always easy.

These women who have progressed alone in their scientific career are more conscious of biases and barriers than those with scientific couple, confirming the statements of Laura Rhoton (2011). In our sample, four out of nine are in this case.

b. Motherhood

This is a point that embodies the uniqueness of personal choices: to be or not to be a mother. The interviewed women scientists have been successful with either of both options. Five of the women scientists have got children, one of them at an early age, and they all have had a successful career².

Our conclusions are consistent with previous investigations affirming that “gender, family characteristics, and productivity are complex considerations that go beyond being married or not married, and the presence or absence of children (...) Women with preschool children are found to be a socially selective group in their characteristics, particularly in their allocations of time” (Fox, 2005). We can also agree that “women with children are more productive than childless women, which in turn has been the basis for claiming that women's lower productivity cannot be due to maternal responsibilities” (Kyvik, 1990).

Other recent sociological studies analyze the relationship between motherhood and scientific productivity. In her book *Motherhood, the elephant in the laboratory*, Emily Monosson (2008) gives voice to 34 women scientists from different disciplines. Their stories show the many ways in which women can successfully combine motherhood and a career in

science and also redefine and address what it means to be a successful scientist. We have found similar stories in our sample.

For those who chose to be mothers, family support was fundamental once the professional activity started, at critical moments in which motherhood and scientific activity seemed incompatible.

Despite of the opportunities they have had, raising children while continuing their career demanded of these women scientists an extra effort. Most interviewees recognize it.

This great effort comes by the desire to combine all of this something which men seem to care less about. Women scientists, too, seems to be more concerned with children than men.

Interestingly enough, these women consider it as an enjoyable option. They defend their option of taking the time to parenting, although it delays reaching senior professional positions. The importance of this approach is that it denies the dichotomy that is posed to many young women, having to choose between motherhood and career. Some argue that it is an option for personal development, and also a right that we should not resign to.

In any case, the women scientists who have got children have postponed or adapted their careers with the demands of motherhood and some professional plans have been changed.

c. The teaching

To our interviewees, the partial dedication to teaching was not exactly a personal choice. In most centers where they carry out their work, teaching is linked to research. Eight out of the nine are university professors, and therefore have a teaching load. Only one has a job as a researcher that does not include teaching; even so, she participates in some courses.

The place occupied by teaching is very different for each of the interviewees. Some value it very highly, others do not find it attractive, but they do see positive aspects. The downside they find is that teaching leaves less time for what interests them, which is research.

In this aspect, too, they seem to be influenced by the generation to which each one belongs. For the older ones, teaching has been very important, and they have devoted to it much of their professional activity.

The youngest ones would have preferred not to undertake teaching, but eventually they found in it positive aspects.

Most of them consider that the teaching load, along with management tasks, is excessive ... and not well recognized. An excessive teaching load and the continuous changes in organizing the subjects are causing discontent among scientists.

d. The foreign languages skills

Since foreign languages skills are not really common among Spanish people, due to the isolation period mentioned above, for Spanish scientists this is a point to consider. Many men and women scientists with interesting research projects have seen their international projection limited because of lacking language skills.

Although rarely mentioned, all respondents have been forced to use languages other than their mother tongue, and half of them speaks at least three languages: their own, that of the European country where they stayed (mostly French or German), and English. It is remarkable because, at the time these scientists began their careers, in high school it was taught only some French (or German), and at university a second language was not compulsory. The entry of English as a second language began in Spain in the 70's in high school, and reached primary school only in the 90's. By then, these women had already begun their research, learning languages on their own when they received grants for other countries. Nowadays some of them continue attending English lessons.

The predominance of English as a pidgin language in sciences, as imposed in Europe from the 50's, makes it compulsory for those engaged in science activities to use this language. Thus, developing language skills is one of the factors promoting integration in international research teams. This point is underscored by one of the interviewees, which highlights the support provided by her mentor.

Women's presence around successful women scientists

One of the issues we were trying to figure out is the sex ratio among

scientists in the shared scientific areas, and if the presence of women scientists has any influence over other women. We ask if the women scientists in our sample had found support from other women working in the same field. And conversely, we ask whether their career and scientific positions has favored the presence of more women in the field. In short, we look for some answers to the question: does the success of a woman scientist have any impact in the increase of the number of women in her field?

As it is generally known, the existence of greater or lesser number of women depends on the discipline. In the areas of engineering, the presence of women is lower, and some of the women interviewed corroborate it. In Biomedical sciences the proportion among women and men is more balanced, a balance which is displaced towards women in some fields, such as Psychology.

Nonetheless, this balanced presence of women in the laboratory is not reflected in senior positions, confirming the existence, still, of the glass ceiling mentioned in gender studies.

If the area is heavily populated by women, the balance of positions is also more easily achievable.

The difference in the proportion of men and women as we climb the scale of charges is significant in almost all examples.

Presence of women and men, that is, a gender balance in the respective areas of research, is highly valued by the scientists interviewed.

The successful career of these women scientists, and possibly their own action in the recruitment, has had a positive impact in the presence of women in their research teams. Without having any concrete willingness to select women, just applying their criteria, there have been different results than in other teams led only by men. They also identify some difficulties in girls for their incorporation to science.

Epilogue

The analysis of the life paths of these nine women scientists studied shows that effectively there is an interaction between personal life and contributions to science. Life path is the result of living in a particular social and historical context and of making a set of choices that, in this case, correlate with a successful outcome in their scientific careers.

Our study shows that if in the past it was important, for the involvement of women, the practicing of science in the domestic setting, today, in this regard, it is the organization of the household what has its importance, as well as men to assume their rightful tasks. Contrary to what stereotypes lead us to believe, a couple and motherhood need not necessarily to be a drag on the scientific activity, a conclusion which is coincidental with other sociological studies (Kyvik, 1990; Fox, 2005; Monosson, 2008).

Although it is not strictly a biographical study, the explored aspects along our research allow us to check what Linda Wagner-Martin (1994, p. 11) affirmed: *“If biographies of men are dominated by external events, most biographies of women are a blend of external and interior”*. We found similar comments in Helena Pycior *et al.* (1996, p. 29): *“Increasing numbers of senior women scientists have written memoirs or granted interviews that, unlike traditional accounts of men scientists, focus on their family arrangements as well as scientific work”*.

In our case, the inquiry was guided by a questionnaire that included questions about personal life and family, and their answers confirm that indeed these issues weigh a lot in their professional achievements. The women of our sample don't live them apart, but in mutual interaction.

Now, back to the initial questions on the change of science, or the change of women, we can say that, obviously, women have changed. Their willingness and organization as a social movement, feminism, has changed their life circumstances, their social contexts. The important thing is that the new contexts allow a greater compatibility between science and life for women. And also, to the extent that women have been able to develop a successful career, sciences have changed, have received additional contributions, and have been enriched.

Nonetheless, the thing that we cannot say is that the organizational structure of science has changed or promoted women's access. Subtle mechanisms of exclusion seem to keep women away from the highest levels of the scientific hierarchy (the so-called "glass ceiling"), as analyzed in other recent sociological studies (Rosser, 2004; de Cheveigné, 2009). That is worrying for what it means in relation to science. As Pnina Abir-Am wrote: *“If ... science cannot bring itself to reject gender stereotypes, how can science use its claim to objectivity to justify its unique epistemological*

authority in society?”³.

Helga Satzinger (1998, p. 1) also notes: “*In feminist history and philosophy of science of the past few decades, enquiries into the effects of women’s presence in the sciences over the last hundred years—which, while not exactly overwhelming, has at least been documented after much research— have been accompanied by hopes of uncovering positive processes of transformation in the sciences. Today, the search is for changes on the level of working conditions and research contents*”.

The importance of the organizational context of science for the gender (in)equality in Science has been stressed by Mary Frank Fox in her article “Women, Gender, and Academia” (Fox 2001, p. 663): “*Because science is organizational work, subject to organizational signals, priorities, and rewards, it is important to identify and attend to enabling or disabling features of the settings in which scientists study and work*”.

The stories of these successful women scientists underline the importance of everyday, domestic, private life and social factors that determine the roles. In the future, if we want to increase excellence and innovation, we think it would be necessary to take into account these factors, to underline its importance within the organization of science systems. The structure of science has to be made more attractive, accessible and compatible with the life choices of women and men who build it. In a world that squeaks by the separation between production and human development, the importance of harmonization of these spaces to achieve a full life needs to be highlighted again.

Reflecting on what public policies can learn from this study, we conclude that it is not only needed conciliation between familiar and professional life. We need an integrated model, a holistic paradigm capable of explaining and recognizing how our accomplishments are intertwined with our lives.

Acknowledgements

A brief piece of information (name, field of expertise and workplace) about the nine women scientists who have been interviewed for this project is shown below.

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Carmen Basil Almirall. Developmental Psychology; increaser communication. Faculty of Psychology, University of Barcelona.

Esperanza Bengoechea Gonzalez.† Neuroanatomy. Faculty of Medicine, University of Oviedo.

Paola Bovolenta Nicolau. Neurobiology. “Ramón y Cajal” Center (CSIC), Madrid.

Rocío Fernández Ballesteros. Psychology; evaluation and aging. Faculty of Psychology, University of Madrid (UAM).

Berta González De Míngo. Neurobiology. Faculty of Medicine, University of Barcelona (UAB).

Maximina Monzón Mayor. Neurobiology. Faculty of Medicine, University of Las Palmas de Gran Canaria.

Teresa Rodrigo Anoro. Particles Physics. CERN, Ginebra; Institute of Physics of Cantabria; Faculty of Physics, University of Cantabria.

Victoria Sau Sánchez.† Differential Psychology; Feminist Theory. University of Barcelona.

M^a Josefa Yzuel Giménez. Optics, Photoelectronics. Faculty of Physics, University of Barcelona (UAB).

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Notes

¹ On the division of labor within the couple see: Pycior, Helena M; Slack, Nancy G & Abir-Am, Pnina G (1996) and Helga Satzinger (1998).

² The results obtained in our study are not consistent with the results of the report by Jerome Bentley for the National Science Foundation (in Bhattacharjee, 2004).

³ Series Foreword to Pycior, Slack and Abir-Am, 1996, p. XI.

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María José Barral Morán Department of Human Anatomy and Histology, Medical School, University of Zaragoza, Spain.

Isabel Delgado Echeverría Department of Biology and Geology, IES Francisco Grande Covián, Government of Aragon, Spain.

Teresa Fernández Turrado Department of Psychology and Sociology, Faculty of Education, University of Zaragoza, Spain.

Carmen Magallón Portolés Fundación Seminario de Investigación para la Paz

Contact Address: Direct correspondence to the authors at C/ Domingo Miral, s/n, 50009 Zaragoza. Spain.

E-mail address: jbarral@unizar.es