Strengthening women research careers: successful experiences in the Catalan universities

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Abstract

This article shows the results of a research project analysing the factors which contribute to the success of women academics engaged in research activities in the social sciences. The information was obtained by means of interviews carried out with women in academic positions, all of whom were leaders of research groups recognized by the Generalitat de Catalunya (SGR-AGAUR) at the public universities in Catalonia. The results show that there are at least three levels of determining factors: personal, group and institutional. This suggests that besides personal factors that have to do with individual motivation and "the love of knowledge", organizational and group-related factors are particularly significant in determining professional success in research. The article also discusses the roles of mentoring, group support, professional autonomy and the culture of the workplace.

The results of the present study could improve our knowledge of the factors associated with excellence in research amongst academic women. This could assist in the development of institutional policies and practices at the level of higher education and
such organizations could adopt approaches which would assist women to build successful research careers.

Keywords: university, women researcher, academic career

**Introduction**

While research represents only one facet of academic work (along with teaching and administrative tasks), some authors have identified it as one of the most important academic activities in the current university context (Hobson, Jones, and Deane; 2005). At present a lot of attention is focused on the performance indicators of academic staff in research activities (Bruneau & Savage, 2002; Morley, 2003; Ramsden, 1999) including such aspects as number of publications, the projects budget, and the communication of results. All these factors can be significant in determining promotion to higher professional levels, or for obtaining professional "benefits". In addition, research is one of the principal aspects to determine the orientation which the university has towards the market and society (Olssen & Peters, 2005).

There is a vast body of scientific literature dealing with the barriers affecting women's participation in research and management at the university. On the one hand research has focused on the ways in which university activities are differentiated in terms of gender - focusing, for example, on the traditional relationship between men and science. The increasing number of women at universities has led to changes neither in the kinds of activities nor in the roles and tasks which they undertake. Academic positions are still perceived as being elitist, masculine and patriarchal (Asmar, 1999, Poole et al. 1997). Although recent years have seen some changes, such perceptions are still the norm (Amâncio, 2005; Asmar, 1999; Bagilhole, 2007).
On the other hand, the literature shows that although some progress has been made in the level of women's participation in higher education, there is still gender differentiation in terms of the roles they play within universities (Sagaria & Agans, 2006; Smeby & Try, 2005). For example, it has been suggested that women are more commonly associated with teaching activities while men are more likely to achieve recognition for their research (Bagilhole & White, 2003) and management abilities (Bagilhole, 2007; Tomàs, Duran, Guillarmon & Lavie, 2008).

Another common topic discussed in detail in the literature on gender shows that universities remain male bastions and that gender discrimination still exists. One of the contexts which appears to sustain this is the prevalence of academic networks, especially where research is concerned (Kyvik & Teigen, 1996). In addition other issues arise, for example concerning the circumstances leading women to be less productive than men when it comes to research (Walby & Olsen, 2002) and the identification of the obstacles faced by women in their research career. Among these obstacles it has been established that women are less confident about their skills and have less access to academic networks (Britton, 1999; Dean, Johnson, Jones & Lengkeek, 1996, Doherty & Manfredi, 2005). Women prefer the so-called 'soft sciences', namely the humanities and social sciences, while men are represented in larger numbers in areas regarded as 'hard', such as empirical science and technology.

It is well established that the evaluative criteria used to assess professional trajectories are better suited to the logic of 'hard' sciences rather than 'soft' sciences (Arranz, 2004). The criteria used for the assessment of research productivity are often considered to be obstacles for women in the development of their careers and along with the lack of
networks and collaborative work, the tension between professional and personal life can exacerbate the difficulties faced by women in academia. (Forster, 2000; and Probert, 2005). As a result, when compared to men, women's access to funding for research is less (Lafferty & Fleming, 2000) and women also have fewer resources and fewer research staff (Toren, 1993). As Soliman & Soliman have shown (1997) women produce fewer publications, which result in less funding for their projects (the cycle of research productivity). The majority of women teachers at universities have little awareness of these determinants of inequality, and in consequence, their motivation to meet the criteria needed for professional promotion can be diminished (Arranz, 2004).

Despite the obstacles mentioned there are women teachers whose careers can be considered to be successful and some of them have achieved considerable professional recognition. It is enlightening to identify the conditions which need to be met in order to overcome the barriers mentioned above and to see how those women teachers have succeeded. It should not pass without remark that there has been little research into the factors associated with the success of women in academic positions, while the obstacles to success have been widely researched. However, some relevant studies have been published both internationally and within Spain and Catalonia. Some of the areas identified relate to training programs and their role in professional development and the acquisition of research skills (Devos, 2000; Godden, 1996, among others); and to mentoring programs (Groombridge & Worden, 2003, Higgs 2003 and Guillarmon, 2011). Other aspects associated with building a successful career are the culture within the workplace and the social context (Dever & Morrison, 2009). The relationship between teaching and research has also been studied and evidence indicates that
research contributes to the improvement of teaching and its quality (Brew, 1999 and Taylor, 2007). Accordingly, some authors have proposed new models for organizing teaching and research, doing it in a way that enables teachers to devote themselves exclusively to one of the tasks for a period (for example, one semester for teaching and another devoted to conducting research), improving flexibility, increasing autonomy and making more effective use of one's time (Carvalho & Santiago, 2008).

The degree of teacher satisfaction with research activities is another of the personal factors contributing to professional success. Women perceive their working environment in an “intrinsic-subjective” way, while men are more influenced by “extrinsic - objective” factors: professional status, salary and working conditions (Poole & Langan-Fox, 1997).

Summarizing we agree with Fox and Colatrella who consider that: “Women’s participation, performance and advancement are not a simple function of their individual characteristics, such as their doctoral achievement, training or skills. Rather their participation and professional achievement reflect and are affected by features of the organizational context in which they work - which includes the working environment and its culture, work structures, evaluative practices and reward patterns, among other factors.” (2006:377).

In the light of the above mentioned research, our study was designed to investigate the specific factors, strategies, work cultures and other factors associated with female academic success.
Methods

The participants in the study were fifteen women who were responsible for directing consolidated research groups in the social sciences, all of them working at public universities in Catalonia. The teachers’ ages ranged from 30 to 60 years old and their professional status varied from lecturer to associate professor and senior professor.

The methodology comprised interviews with the participants, who are all actively engaged in research and have achieved a degree of public recognition in their respective fields. A qualitative approach was used in analysing the interviews and exploring the participants' perceptions of their experience in developing a successful professional research career.

Consolidated Research Groups (Grups de Recerca de la Generalitat de Catalunya) represent the highest academic level that a research group can achieve at a university in Catalonia. Research groups are allocated funding allowing them to pursue their research projects. Of the total of consolidated research groups in Catalonia 65% are led by men while 35% are led by women. The participants in the study were selected from the women group leaders, all of them coming from within the field of social sciences, a total of 15 women.

The information was collected by means of face-to-face interviews carried out by the researchers undertaking the study. On average, interviews lasted 45 minutes and followed a structured set of questions focused on the following areas.

- Background and context which frame the current professional situation of the teacher
- The role of research and its impact on the other functions related to the professional profile
- Success factors perceived by the teacher
- Personal factors
- The culture and dynamic of the working environment
- Other topics: accreditation and evaluation model, mentoring actions, formative role of the group, among others.

Interviews were typed and the record approved by the subjects interviewed. Qualitative analyses of information were done using MAXQDA 2007 software. Three factors associated with success were identified, each of them containing several subcategories. Table 1 summarises the categories and subcategories used to analyse the data obtained in the interviews.
Table 1: Categories and subcategories of analysis

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**Results and discussion**

**General vision**

The interviews revealed a set of factors that were associated with successful careers for women researchers: training for research, interest and motivation, the choices they have made throughout their careers, the different stages of their academic careers, time spent abroad and the role of 'mentors' in assisting the development of their academic profile. In addition to these, group factors had an impact on the quality of the interpersonal relationships within a research group - for instance the working culture within the group, networks and the degree of institutional support received from academic heads. Some of the most significant areas of this research examined the way female researchers defined their first steps in the research career, how they managed key moments, the
principal milestones in their careers, how they developed their status as well established researchers and also their ability to ensure that the work of ongoing research programmes was continued by new researchers.

**Personal determinants of success**

None of the respondents downplayed the role of motivation, hard work, a passion for the subject and an interest and curiosity about research and learning. These personal qualities and individual factors were considered more important for research than any institutional factor. In this respect our results are consistent with previous studies such as that of Dever & Morrison (2009), pointing to the fundamental role of motivation over and above that of institutional or group factors in the development of a research career.

Other individual characteristics complete the scheme of personal determinants of success in research: patience, the ability to manage stress, maintaining a consistent level of work - “When you do research the goal can seem quite distant and it’s very hard”, “Be very persistent, very stubborn, very sure of what you want to do, but also keep trying to improve” ; refining research skills, especially through postdoctoral training programs and studying abroad - “It was there where I became aware of the importance of research and, in fact, where I really learned”. In addition, other aspects were also highlighted because of their degree of impact on the researcher’s career: the role of the family and the support they received outside the university - “Another of the factors is the support you have from the person you live with. A woman working as a research group leader and having a research group leader as her partner is more likely to encounter difficulties in her personal life. Men have to learn to accept their role may not have the same status as their partner's and they have to accept that their female
partner may earn more money and have more recognition”. The dynamics within relationships have been studied by several authors. A study by Ginther (2003) shows that in the social sciences, other than economics, domestic factors impact less on scientific productivity. Marriage is not, of itself, a significant factor in determining the likelihood of success. In the field of social sciences, there are no significant differences between single women and single men nor are there any significant differences between married women and married men.

In the words of one of the subjects, building a research career starts with the completion of one's doctoral studies, or even earlier. During this initial stage the researcher begins to have confidence in his/her ability, which is characterized by "perseverence, creativity, innovation and spontaneity, vision and a desire for improvement". This initial phase underpins the growth and continuous development from an "apprentice" to a successful researcher (Akerlind, 2008).

At this early stage of the research career, postdoctoral training (especially research opportunities abroad) was mentioned by several respondents as a key factor: "In my case something very important occurred: having the opportunity to study abroad and being fluent enough in English. This was the key for me, having the ability to write papers in English, publishing regularly in international journals and having a Master's degree from the United States" ; "It is very important to go abroad, international stays are vital in order to develop a broader perspective, make new contacts and progress". Evaluation and accreditation, both extremely important for professional consolidation, were also mentioned by teachers as key factors: “I think that young people who have entered academia in recent years tend to be more involved in research, and not only in
research... research is very important but the publication of its results is even more important. It serves as a stimulus to further research in our Department and maybe we will start to get the recognition that Science Departments get"... “As far as accreditation goes, it is really important that you get involved in Research and Development projects, so what we do is try to invite all the members of the group, including those still in the process of completing their degrees to take part in our research projects. For example, we have two people working on projects in order to ensure their names will appear on the research and that they will be accredited and get recognition for their participation.”

In the current context, in which academics are obliged to undergo a constant process of evaluation (Morley & Walsh, 1995), accreditation has become one measure of a successful researcher. Although there are teachers who consider the new model, based on qualifications, as a motivating career factor, some of the subjects interviewed identified disadvantages: "We need to keep the broader picture in mind, to look at different circumstances, different areas, different resources; otherwise we could find ourselves trapped in a vicious circle". "It is necessary to see how people strike a balance between their different tasks and responsibilities, otherwise it becomes dysfunctional. The assessment of teachers can be very unfair if it only looks at the results of research."

Concerns relating to family factors or to age were also common amongst the participants in the study. The evaluation of the performance of women researchers was reported as one of the key issues especially when used to assess professional development.
Some subjects expressed their concerns about self-esteem and self-worth. Many of the respondents were worried about the system of evaluation, especially with regard to the high value given to articles published in journals with high impact profile. In contrast, other types of research, such as reports or books are not given so much importance in the current evaluation system. “I disagree if assessment is based on the publication of articles in certain journals. I know it is important to publish in journals but other assessment factors could be included! It puzzles me. There are also reports. I have written reports for the European Commission which have never been published but which have a huge value, are highly relevant and include very pertinent information. Well, since these reports were never published in any of those journals...they don't count.”

How do these women face their professional challenges and build a successful career? As we have seen, by working hard, showing passion for research and being competitive. But in addition, other factors such as "models", "identification with their mentor" and "collective action" made a contribution to their success. In this respect, our results coincided with those of Bagilhole (1994) who identified the different strategies used by women to overcome obstacles in their research career, including dedication and the support of professional networks.

In our research, the participants recognized they worked hard and invested a lot of time in their research: "Even on holiday I would have a suitcase full of books, and I was almost always working, everywhere I went. I was lucky to find a place to work near the sea, but the work has always been constant", "I needed to do some work every day. Working more than eight hours a day proved very difficult, but I always did at least a
few hours every day". Holidays were spent working. "Waking up early in the morning" so as to have "peace of mind to write" or "finding ways to combine work and domestic duties" are other references participants mentioned when describing their working methods.

Other participants stressed the way mentors had assisted them to develop effective models. Participants described their mentors as people, who had helped them, providing guidance and support in difficult times: "That is very important. When you're young, it is great to have a template, and a person who is available to say 'this is the way to do it, this is how I did it, this is what I did well and this what the academy recognizes, and you can't go far wrong if you do it like this’. "In college, just like any other environment, it is very important to have a person who can show you the right approach to adopt." “Everyone needs a sort of algorithm, something that shows you the way, a pattern you can follow step by step ”.

The teachers interviewed pointed out that college can be a difficult place to survive without support (Caplan, 1993, Toth, 1997, among others). In this regard one participant added, referring to the role of the mentor, that “There has to be a person who can say ‘You should do it this way. We just need a little clarity. There will be difficulties, but we can overcome them. You can achieve this and I’ll help you get there’”. It is clear that mentors and the support they provide are vital and this demonstrates the importance of groups in helping to build a successful career (Acker & Armenti, 2004).

**Group determinants of success**

The power of networks and groups has been widely discussed by authors such as Davies (2003) and McLaren (2002) and our study confirms their results.
A group offers the possibility of “sharing” and “establishing more support networks. When you work under these circumstances, the responsibilities for collaborative work are transferred to everyone in the network”. This brings us to another important element in professional success: the need to share a culture of collaboration and the need for continual mentoring within a group: "This group has been working together for 15 years, and the shared approach to work is excellent; this is one of the best things about the group". "Working as a group adds another dimension You get to interact with lots of other people, and you get to see things from different perspectives and get ideas you would never even have considered, or at least not in those ways. There always seems to be a sense of progress and extraordinary intellectual pleasure, and that attitude is something we all share, so there's always a great atmosphere, filled with enthusiasm."

The research group may well be one of the most important factors in achieving success in research. Our subjects identified two considerations: firstly, they regarded autonomy at work as a central and particularly important issue at the start of a research career, and secondly, they stressed the potential of group activity.

Autonomy is related to independence in the work: "At least in my case, the environment at work allows me to have certain level of freedom of choice". "At first I used to work alone", "I also work at home, in the mornings". These factors have been also described in other studies (Lambright & Teich 1981). In these circumstances, researchers can be thought of as being free and independent, if sometimes quite isolated (Travaille & Hendriks, 2010). Internalization, socialization and the balance that needs to be struck between them are significant factors, needing to be taken into account when
considering the results of the production of knowledge, as sometimes it can be a key determinant of professional success. Besides this, the process of writing articles, projects and training activities were frequently described by the participants in the study as **collaborative activities**. In this respect, our results are in line with those of Grbich (1998). Many of the participants highlighted the fact that creation of knowledge is associated with: collaboration with other members of the group; "working meetings"; "interactions with specialists"; “leadership strategies”; “interactions with group leaders” and "participation in seminars".

One characteristic shared by all the groups represented by our respondents was the constant worry about applying for and obtaining 'modest' grants for research. That is to say, the women interviewed are fully convinced that by applying for modest amounts, they have a better chance of obtaining funding or grants.

Another of the factors tending towards success described by the women we interviewed was the ability to anticipate social trends in research: "*You have to be alert to all kinds of signals. Which, in effect, means you have to try to anticipate the direction in which research is going. In my case, that is on immigration issues, and being a pioneer in the field is crucial*".

Many of our subjects remarked that, in a highly competitive context, being able to obtain the resources to undertake research activities can in itself be a source of pride. Obtaining funding is one of the ways that research groups achieve recognition and when funding is granted it can have a very positive effect on the mood of a group: "*Two years ago we got an Exploratory Workshop from the European Science Foundation. The*
competition for such funding is very stiff, and I think I'm more proud of that than the national projects”.

The participants highlighted the importance of training within their research groups. The research group can provide a supportive environment which ensures that high standards are maintained and it can incorporate and train the next generation of researchers. Our subjects reported three principal approaches to training methods: visiting speakers, 'in-house' training organised by the research group itself and participating in training offered by external organizations. "One of the things we do is to invite an expert in the field to deliver a talk", "Once a month we get together and do two things: we update each other on how the research is progressing and we engage in some training activities", “We also use external training, especially in the area of statistical methodology”.

Training is essential for development of younger researchers: "Teamwork is an essential factor for success”; “The direction of research groups is also important, especially for promoting a good, cooperative working environment.” “In fact, there are a lot of senior researchers in my team, and most of them have their own projects, I like to delegate tasks”...” Generosity is also a value shared by researchers. Every small grain of sand adds to the whole, and we are looking to make advances in sciences, so it is important that knowledge spreads through all levels of the group”;"I don’t want knowledge just for myself, I want everyone to have access to it”.

Management style was also discussed. Most of the subjects who participated in the study reported that their preferred management type is one where responsibilities are delegated, and it is the most commonly used approach in their research groups. The
participants considered that directors of research groups should encourage all the members of the group to develop their own individual professional careers within the group. During this process directors should mediate any “small” conflicts of interest that might appear between the members of the group. In addition, all the women who had overall responsibility as group directors saw one of their most important roles as being the maintenance of a positive and supportive environment for everyone.

Some of the subjects reported that it was very important to ensure the progression and development of researchers and they felt that this was linked to recognising the diversity of individuals within the group. In the participants’ words, professional success is related to progression and timing and it depends on the particular personality of each member in the research group.

**Institutional determinants of success**

In addition to the personal and group factors some institutional factors were also identified because of their impact on the professional success of women engaging in research. The institutional context is established primarily by the departments and faculties and by the complex interaction of the many variables involved at these levels.

Some of the women interviewed considered that their department or organization offered positive support to research groups. Likewise, the presence of a lot of other research groups was regarded as positive, and very helpful in promoting excellence and improvement. In addition, one of the participants highlighted the importance of networks amongst women in promoting mutual support, not only at the institutional but at a wider level. "It is very important for women to be actively involved in horizontal networks at the academic level. The typical vertical hierarchical structure is not
enough, and as women we need to have a network of colleagues on the same level as ourselves, and not only locally but internationally too”.

However, one of the participants reported that organizational influence is of little importance in the development of research and only in a very few cases does it exercise either a positive or a negative influence. In another instance, one of women interviewed said that organizational requirements demand a lot of time and her research team could better employ that time directly on its research. “I do not feel the university has supported my research career, and though that might sound unfair, that's how I see things. I received some very modest financial support but really I could not say that the University has supported my work”.

When speaking about institutional support, the women interviewed discussed this almost exclusively in terms of budgets and the allocation of funding. Most economic resources for research projects came from a competitive call-for-research by public bodies at either national or international level.

Faculty managers are in charge of matching teaching responsibilities to the available staff and sometimes this can be a contributory factor in successful research. Some studies have not found a direct relation between teaching and productivity (Hattie & Marsh, 1996). However, as other authors have stated, the interaction between these factors depends on the context (Griffiths, 2004). In addition, the gender factor also plays a role, with women commonly associated with teaching activities rather than research (Poole, Bornholt & Summers, 1997). The results presented in this study show that teaching and researching in the same field might help to improve the relation between
those factors: “Ideally, teaching should be closely related to your research. It should lead to improvements in teaching and you can teach what you found in your research”.

Establishing a balance between research and teaching requires extra effort by everybody at the institutional level and the results obtained in this study confirm the interrelation of teaching and research and how these two factors can be mutually supportive. In addition, some of the women interviewed pointed out that supervising doctoral and master degree students contributed to the development of their own careers: “Having master and doctoral students and supervising their research can be very helpful” - a conclusion which other researchers have also reached (Dever & Morrison, 2009).

If the relation between research and teaching is widely recognized as contributing to the career development of teachers, management activities are sometimes regarded as having a negative impact on research careers. The women academics interviewed in this study considered that management activities are “Too heavy. Sometimes we have to deal with very unrealistic matters and take decisions we are not accustomed to. In addition we are expected to know everything, from accounting to managing budgets.” Management is considered to be a very “time-consuming activity”.

Being a woman has been described as an obstacle to building a successful academic career. As pointed by other authors (Guillarmon, 2011) some of the women interviewed in this study said that: “Despite the high number of women occupying different levels within the university: undergraduates, PhD students and those in the early stages of their careers, there are only four senior women professors in Spain. In addition, these professors are currently undergoing a very demanding accreditation process in which
they have to travel all around Spain to find a tribunal; it could be said that this field is not particularly friendly towards women”.

However, the recognition of the barriers that women in research director positions have to deal with at universities is one of the factors that might improve the chance of success for other women teachers. If academic women start to recognize the impact of gender disparities within the university environment, they can work together to reduce such disparities and to promote successful careers for other women: “There are only few [women], like me, who have occupied the position of editor of a Journal for such a long period of time. For many years I was the only woman chairing a committee, and when I left I was able to promote two female colleagues”.

Conclusions

A successful research career can be considered to result from the high quality and quantity of publications, one's reputation and prestige within one's field and the personal satisfaction one gets from achieving one's goals. Success at university is also associated with organizational factors and depends on the effective functioning of the research group. With regard to a research group, if women research directors achieve a certain level of success it is seen as reflection of the efforts of the whole group and the success is shared among all its members. At the same time, the success of women research directors is also seen as a motivating factor at both the personal and group level. The characteristics of successful women leaders in research groups include a willingness to share knowledge, to collaborate effectively and to maintain a clear vision and a set of objectives. All these factors are essential for the achievement of success at both the personal and group level for any length of time. Passion for knowledge, perseverance,
curiosity and initiative, all combined with autonomy are also key determinants of success.

Women acting as directors of research associated personal success with the success of the group and the sharing of knowledge. The ability to work in a group, creatively and collaboratively, to interact with others and share responsibility were also mentioned as determinants of success. Successful research groups can be recognised by the quality of their publications and the results of their research (budgets, training), by their good working environment, by their ability to meet technical and financial conditions and by the reputation and professional recognition of their leaders. Group factors are necessary for success, as they ensure that the individual researchers partake in the overall success of the group.

This article summarizes the factors that determine the success of women who are directors of research groups. Despite institutional, group and personal obstacles, women in such positions promote academic development, better research and the effective communication of results. A willingness to continue working and changing the intellectual environment are among the objectives successful women occupying directorial roles within research value most highly, even though universities in Catalonia are still perceived to be dominated by masculine cultural values.

The results of the present study could improve our knowledge of the factors associated with excellence in research amongst academic women. This could assist in the development of institutional policies and practices at the level of higher education and such organizations could adopt approaches which would assist women to build successful research careers.
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