



Contents lists available at ScienceDirect

# Journal of Engineering and Technology Management

journal homepage: [www.elsevier.com/locate/jengtecman](http://www.elsevier.com/locate/jengtecman)

## Work, personal and cultural factors in engineers' management of their career satisfaction



Inocencia María Martínez-León<sup>a</sup>, Isabel Olmedo-Cifuentes<sup>a,\*</sup>,  
M<sup>a</sup> Camino Ramón-Llorens<sup>b</sup>

<sup>a</sup> Universidad Politécnica de Cartagena, Facultad CC. Empresa/Departamento de Economía de la Empresa, C/Real, 3, 30201, Cartagena (Murcia), Spain

<sup>b</sup> Universidad Politécnica de Cartagena, Facultad CC. Empresa / Departamento de Economía Financiera y Contabilidad, C/ Real, 3,30201, Cartagena, Murcia, Spain

### ARTICLE INFO

#### Keywords:

Career satisfaction  
Level of income  
Suitability for the job  
Organizational commitment  
Work-life balance supporting culture

### ABSTRACT

Managing engineering professionals is critical if organizations wish to retain talented employees. Enhancing engineers' career satisfaction through work, personal and cultural conditions is a fundamental tool to address their aspirations and increasing performance. This empirical research examines all this with data from 846 Spanish engineers. With a hierarchical regression analysis, the results show that organizational commitment, level of income, suitability for the job, and work-life balance supporting culture improve engineers' career satisfaction. Organizational commitment is the most important issue. Level of income and suitability for the job are the second most important factors for determining men's and women's career satisfaction.

### 1. Introduction

In today's competitive, complex and global environment, engineers play a key role in all phases of new knowledge creation and innovation processes. The importance of Engineering is increasing in the global world,<sup>1</sup> particularly in high-tech corporations. Therefore, managing engineering professionals is critical.

Simultaneously, organizations require a flexible workforce with competent and talented employees to adjust to a changing environment. Managing engineers' professional and personal capabilities is quite important, as well as their entrepreneurial roles and managerial competences, to improve organizational performance. Engineers are, therefore, considered a strategic asset for their employers, and a carefully monitored workforce (Mignonac and Herrbach, 2003). As good, talented competent professionals are scarce and of strategic importance, organizations (and their managers) may consider it critical to keep them in the organization by considering some professional, personal and cultural conditions.

Furthermore, engineers currently face a very high diversity of career prospects (Igarria et al., 1999), such as technical, manager, project, technical transfer and entrepreneurial orientations (Kim and Cha, 2000). Since companies require the right mix of people and

\* Corresponding author.

E-mail addresses: [ino.martinez@upct.es](mailto:ino.martinez@upct.es) (I.M. Martínez-León), [isabel.olmedo@upct.es](mailto:isabel.olmedo@upct.es) (I. Olmedo-Cifuentes), [camino.ramon@upct.es](mailto:camino.ramon@upct.es) (M.C. Ramón-Llorens).

<sup>1</sup> Because engineers not only understand science and mathematics, working with machines, designs or circuit boards, but they may also be involved in the negotiations, management and supervision of engineering teams, financial decisions, ethical judgments, innovations, creativity, assurance of safe work or preventing environmental damage (Lawlor, 2013). Among the key identified attributes were a highly defined sense of social responsibility and ethics, entrepreneurship, and the ability to deal with complexity and systems thinking. Engineers need to work in multidisciplinary teams and with non engineering specialists, such as policy makers and economists. To carry out their work effectively, engineers must also learn other disciplines, such as business, marketing, the environment and public policy (Chan et al., 2009). Therefore, engineering is becoming increasingly important in society.

skills at appropriate levels, organizations must provide career paths that retain and motivate workers by finding matches between organizational and individuals' needs (Igbaria et al., 1999). The increase in both flattening corporate hierarchies and the number of engineering professionals diminishes engineers' opportunities to reach higher management positions. Internal mobility is thus an important tool for retaining experienced and skilled expert employees to avoid corporate uncertainty and to cut adaptation costs (Mignonac and Herrbach, 2003). Engineers' traditional career development has, therefore, changed drastically, and the transition to management as the only means toward a successful career has significantly reduced.

In these circumstances, corporations manage a large group of engineers without being able to guarantee them traditional career paths. When considering the new specific socio-demographic and psychological trends (Dries, 2013), career satisfaction is an important tool for dealing with this situation. Career satisfaction is a perception that is affected by work, personal and cultural factors if we consider that the time and energy spent on family/personal roles limits availability for work roles, and *vice versa*. It is, therefore, essential that these organizations identify the current aspects that influence engineers' career satisfaction.

For *professional or work factors*, many studies describe objective and subjective career success outcomes (Ng et al., 2005), such as income, status and promotions (DeMello and Deshpande, 2011; Judge et al., 1995; Lepnurm et al., 2006; Martins et al., 2002; Wayne et al., 1999). Full-/part-time work, job position, pay and suitability for the job determine career satisfaction (Erdogan et al., 2011; Peiró et al., 2012; Saravanabawan and Uthayatharshika, 2014). The above first three factors are considered *objective work conditions* because they are based on facts rather than on feelings or opinions whereas, given its characteristics, suitability for the job is viewed as a *subjective work condition*. Objective and subjective work factors predict career satisfaction (Judge et al., 1995; Martins et al., 2002; Wayne et al., 1999), and are positively related to subjective career success (Judge et al., 1999; Ng et al., 2005; Jang, 2008; Valcour and Ladge, 2008; Albert et al., 2010).

Work-family conflict (Powell and Mainiero, 1992; Martins et al., 2002) and organizational commitment (Aryee and Debrah, 1993; Cable and DeRue, 2002; Erdogan et al., 2004) are considered *personal factors* that influence career satisfaction in this research. Traditional socio-demographic variables, such as age, marital status and level of education were not selected (Tremblay et al., 2002; Traavik and Richardsen, 2010; Ituma et al., 2011) because the chosen variables reflect personal situations in a better and more up-to-date way, which make them more powerful and consistent than others.

An organizational culture that supports the work-life balance is a *cultural factor*, which has a huge impact on employees' lives and performance, as well as organizational outcomes (Cegarra-Leiva et al., 2012)<sup>2</sup> such as career satisfaction. Accordingly, we relate this cultural factor to the work-family conflict to understand its influence.

Based on a population of 846 Spanish engineers, this paper reports an analysis of how certain *work conditions* (full-/part-time job, job position, level of income and suitability for the job) and *personal and cultural variables* (work family conflict, organizational commitment and the work-life balance supporting culture) impact engineers' career satisfaction by differentiating these effects between men and women. Gender differences in career satisfaction are analyzed (Igbaria et al., 1999; Tremblay et al., 2002; Martin, 2011) by considering the overall underrepresentation of women in engineering, the influence of gender roles and stereotypes, and lack of studies among Spanish engineers.

## 2. Career satisfaction: conceptual background and importance

One of the most important objectives for engineering organizations is to design a career-management system that adapts a flexible workforce's requirement. This system should satisfy engineers' career values and aspirations, and should allow organizations to obtain high outcomes that derive from their staff's career satisfaction, such as productivity and flexibility, among others. At an individual level, engineers display improved their behavior at work by means of satisfaction, commitment, reduced job stress, and so on. Therefore, quite apart from its evident managerial relevance, career satisfaction influences not only employee performance, especially in professional jobs, but also organizational performance (Mignonac and Herrbach, 2003).

In this paper, career satisfaction has been defined as individuals' perceptions of their career accomplishments to date and their prospects for future advancement (Gattiker and Larwood, 1988; Judge et al., 1995). It reflects an equilibrium between what individuals expect from their career development and advancement across many jobs, and the achievement of their overall career goals (Greenhaus et al., 1990). This refers to their personal satisfaction with various aspects of their career progress and success (Parasuraman et al., 1996), which differs from job satisfaction. As such, career satisfaction refers to "the satisfaction individuals derive from intrinsic and extrinsic aspects of their careers, including pay, advancement, and developmental opportunities" (Judge et al., 1995, p. 487).

If companies are able to fulfill these needs and expectations, they will attract and engage the best professionals which, in turn, increases productivity and performance (Greenhaus et al., 1990; Igbaria, 1991), reduces turnover (Laschinger, 2012) (and saves the opportunity costs of replacing new employees), and improves the service provided. Thus employees become sources of competitive advantage (Aryee and Chay, 1994).

These benefits justify companies' investment in resources to develop career paths for their employees, especially in engineering organizations. Thus companies provide proper training and motivation to generate better performance and to develop lateral and/or upward mobility (Mignonac and Herrbach, 2003) by enhancing engineers' capacity to change, update and improve. However, this can be complemented by taking into account other work, personal and cultural variables which can also influence career satisfaction (Aryee and Luk, 1996).

<sup>2</sup> The existence of a WLB supporting culture rather than the availability of WLB practices offered by the company is the main determinant of job satisfaction.

### 3. Research hypotheses

The review of literature on career satisfaction enabled us to highlight several potential work, personal and cultural determinants of career satisfaction that are useful for studying our research population. First, we analyzed the influence of having full-/part-time work, job position and level of income as objective work conditions for career satisfaction. Subsequently, we considered suitability for the job to be a subjective work condition. Personal and cultural factors, such as the work-family conflict, the work-life balance supporting culture for organizational commitment were also included.

#### 3.1. Career satisfaction and having a full-/part-time job

Previous research has shown differences between part-time and full-time employees (Gannon and Nothern, 1971; Rotchford and Roberts, 1982). It is a fact that part-time or full-time jobs attract different types of employees, which also determines a large degree of their satisfaction (Feldman, 1989), including their career satisfaction. It is also important to note whether the part-time or full-time job has been chosen by the employee or if the time spent at work is imposed by the organization or the labor market. If employees choose to reduce working hours voluntarily, their satisfaction will be higher than if they are forced to work in a part-time job when they want a full-time job.

Miller and Terborg (1979) have found that full-time employees show higher overall satisfaction than part-time ones. In general, full-time employees are more career-oriented, present higher motivation and job satisfaction (Jang, 2008), and have more career opportunities. Part-time employees display lower job involvement (Martin and Hafer, 1995) because they are less integrated into and socialized with the organization (Thorsteinson, 2003), expect for fewer career opportunities. This implies that their participation in professional development activities lowers (e.g., informal learning, training courses, mentoring relationships and interpersonal networking). As a result, their job satisfaction (Hall and Gordon, 1973) and their career satisfaction decrease. Thus we propose the following hypothesis:

**H1.** Having a full-time job generates greater career satisfaction than having a part-time job.

#### 3.2. Career satisfaction and job position

Job position is the rank or place within the organization that an employee occupies that is considered an indicator of labor success in social comparisons. Previous studies have found that the job positions at the top of the organizational hierarchy are associated with more appealing and motivating jobs. If a job position includes higher participation in management decision making (Noah, 2008), more chance and authority to gain access to resources (Abdelrazek et al., 2010), higher perceived innovation and a more positive climate (Lin and Liu, 2012), employees may feel more personal fulfillment (Ponce-Díaz et al., 2005) and obtain more professional competences. Consequently, the job positions at the top of the organizational hierarchy stimulate employees and provide them with higher perceptions of career success (Eyupoglu and Saner, 2009; Yap et al., 2014), which positively influence their career satisfaction (Aryee and Luk, 1996). Moreover, if employees are promoted to a higher hierarchical level, they may feel more satisfied because they are being rewarded for their competence and efforts.

However, if employees reach a career plateau, maintain the same position for a long time and are offered few possibilities of obtaining promotion in the near future (Mignonac and Herrbach, 2003), although they know and do their jobs very well, they may be bored with them and perceive that a gap exists between their career expectations and their current work experience (Bardwick, 1986). This situation negatively influences their work attitudes and behavior (Hall, 1985), and lowers their career satisfaction.

Therefore, job positions at the top of the organizational hierarchy are associated with more satisfaction with employees' careers. So we expect:

**H2.** The level of job position in the organizational hierarchy to be positively related to career satisfaction.

#### 3.3. Career satisfaction and level of income

In this research, level of income is defined as the monthly amount of money that an employee has left to spend after deducting taxes. It still retains vestiges of the perception of success and status in social comparison processes (Rosenberg and Pearlin, 1978) and a feeling of accomplishment (Sinclair et al., 2005), especially for men who may treat it as an indicator of their success (Sekaran, 1983).

Employees who display more positive work behaviors may be compensated for their superior performance (Judge et al., 1999) with higher levels of economic achievement, a greater feeling of job security, more promotions and, consequently, higher career satisfaction (Aryee and Luk, 1996). On the contrary, if employees' level of income is lower than they expect, they are more likely to feel disappointed, which would negatively affect their satisfaction and motivation level (Al-Zoubi, 2012), and consequently their career satisfaction (Aryee and Luk, 1996).

Although most previous research has found that level of income is a key factor for increasing career satisfaction, it does not affect all professionals equally (DeMello and Deshpande, 2011; Lepnurm et al., 2006). Despite this controversy, the following hypothesis is proposed for engineering professionals:

**H3.** Level of income (monthly net income) is positively related to career satisfaction.

### 3.4. Career satisfaction and suitability for the job

Suitability for the job refers to the essential and desirable individual competences required to adequately perform a job (Erdogan et al., 2011). There is a congruence between employees' abilities and job demands, which positively impacts organizational performance (Saravanabawan and Uthayatharshika, 2014). As a result, employees consider their work appealing and tend to be career-involved, which generates job and career satisfaction.

However, if employees feel overeducated, overqualified or underutilized in their positions, they are likely to feel underemployed and underpaid (Feldman, 1996), and can easily get bored with their jobs (Peiró et al., 2012). Thus their career satisfaction will decrease. This situation negatively affects their perception of career satisfaction. If they are underqualified for their job, they need training and have to make great efforts to update their skills to fit job requirements, which lowers career satisfaction. Therefore, we expect:

**H4.** Suitability for the job to generate higher career satisfaction than being overqualified or underqualified.

### 3.5. Career satisfaction and the work-Family conflict

The incorporation of women into the labor market and the increasing number of dual career couples justify the growing presence of the work-family conflict (WFC). WFC refers to "a form of inter-role conflict in which the general demands of time devoted to, and strain created by the job, interfere with performing family-related responsibilities" (Netemeyer et al., 1996, p. 401). So situations come into play in which the demands and responsibilities of work and family roles are mutually incompatible in some respect (Greenhaus and Beutell, 1985).

Previous research has suggested that WFC is an important determinant of career satisfaction (Powell and Mainiero, 1992) because this conflict can be a source of stress, which influences principal psychological and physical outcomes (Frone et al., 1992), and highlights the negative effect between both variables (Martins et al., 2002; Powell and Mainiero, 1992). In fact WFC is negatively linked to: a) stress that makes employees feel lower levels of subjective career success (Peluchette, 1993); b) performance (Frone et al., 1997; Netemeyer et al., 2004) because employees experience negative spillover (Netemeyer et al., 2003); c) career involvement (Tenbrunsel et al., 1995) since individuals with family responsibilities have less time to participate in training and socialization programs, and in networking; d) career progression (Stroh et al., 1996) as a result of less career involvement; e) job satisfaction among those workers who focus considerably on the family role and feel that they are not applying all their potential at work (Carlson and Kacmar, 2000); and f) life satisfaction because WFC is usually reflected as less quality of life (Higgins et al., 1992). These negative effects tend to be stronger for women than for men (Kossek and Ozeki, 1998). Since WFC has become an important determinant of career satisfaction (Martins et al., 2002), we can conclude that the greater WFC is, the lower career satisfaction will be. So we predict that:

**H5.** The work-family conflict is negatively related to career satisfaction.

### 3.6. Career satisfaction and the work-Life balance supporting culture

The work-life balance (WLB) is defined as "the desire of all individuals – not just those with family responsibilities – to attain a balance between their paid work and their life outside work, from childcare and housework to leisure and self-development" (Khallash and Kruse, 2012, p. 682). To achieve this, WLB initiatives are necessary in the organization. However, their existence (some 100 WLB initiatives exist) does not guarantee their use. Employees usually negotiate the use of WLB practices with their managers, and managers' attitude toward WLB practices is a key factor that leads to a WLB culture being supported and encouraged in small organizations (Cegarra-Navarro et al., 2015). The WLB supporting culture is a tool that facilitates the agreement and corresponding implementation of WLB initiatives, which is defined as employees' perception of organizational culture (e.g., shared assumptions, beliefs and values) of the extent to which an organization supports and values the integration of employees' work and family lives (Thompson et al., 1999). When the WLB culture is *family-supportive*, it offers employees benefits by improving their quality of life and their satisfaction, motivation and commitment (Allen, 2001; Hughes and Bozionelos, 2007; Kirby and Krone, 2002). Consequently, some benefits for organizations are also created, such as retaining skilled workers (Cappelli, 2000), and reducing costs through better productivity and efficiency (Cegarra-Leiva et al., 2012). Thus implementing the WLB supporting culture implies recognizing and developing individuals' personal and occupational lives which, in turn, fosters their professional performance and development by enhancing their career satisfaction. In line with this, the present study examines the following hypothesis:

**H6.** The work-life balance supporting culture is positively related to career satisfaction.

### 3.7. Career satisfaction and organizational commitment

Organizational commitment is an important construct with key work-related aspects (Meyer and Allen, 1997). It refers to an

individual's feelings about the organization as a whole (Baek-Kyoo and Sunyoung, 2010). This concept is less global than career satisfaction because it is traditionally conceptualized as employee identification with and involvement in a particular organization (Mowday et al., 1979, p. 4). Career satisfaction, however, reflects the overall affective orientation of individuals toward their career (Gattiker and Larwood, 1988).

Organizational commitment helps employees persist long enough to develop specialized skills (Perrow, 1986) and to make efforts to achieve the organization's goals and objectives (Mowday et al., 1982). Highly committed employees within the organization willingly accept the organization's demand for better output (Etzioni, 1975) and develop high levels of performance and task completion, and better quality production (Maanen, 1975; Mowday et al., 1974). They exhibit stronger positive reciprocity norms (Eisenberger et al., 2001) and are, consequently, more likely to reciprocate through increased job performance and extra-role behavior (Mael and Ashforth 1992; van Knippenberg et al., 2000). Organizational commitment also provides endurance to cultivate business and professional relationships (Perrow, 1986). Therefore, organizational commitment would seem essential for career progression and development<sup>3</sup> (Noordin et al., 2002; Pua and Ananthram, 2006), and positively influences career satisfaction.

On the contrary, employees with lower organizational commitment levels are likely to search for another job and leave the company to improve their job and career satisfaction. So we expect higher levels of organizational commitment to be associated with higher levels of career satisfaction, and we hypothesize that:

**H7.** Organizational commitment is positively related to career satisfaction.

### 3.8. Career satisfaction and gender

The previous literature does not provide conclusive evidence for gender differences in career satisfaction (Schneer, 1995). While Cox and Nkomo (1991) and Cox and Harquail (1991) have found no gender differences between men and women, Judge et al. (1995) and Kirchmeyer (1998) have discovered that women perceive their careers to be as successful as men's. Females are even more satisfied than men in their early career (Strober, 1982), especially women with children, who pursue a flexible career path that leads to higher career satisfaction (Martin, 2011). Indeed female engineers are drawn more to technical career paths and are less likely to be managerially-oriented than males (Tremblay et al., 2002). This is because these paths are more compatible with their family responsibilities and organizational culture. Moreover, organizations are less likely to promote female engineers to managerial positions (Igbaria et al., 1999). These circumstances justify women's higher career satisfaction in technical career paths. According to Schneer (1995), stereotypically speaking, men have been socialized to expect higher career success levels than the women who start and see themselves as successful, but do not get the rewards they expect, or the rewards offered to men, in the end. Along these lines, Blackhurst (2000) has found that women are less satisfied with their positions and tend to leave at higher rates than men. Moreover, if women have child-care commitments and/or suffer from "glass ceiling"<sup>4</sup>; (Evetts, 1997; Ismail, 2003), and they have to face to additional challenges in the workplace, this may force them to reformulate career goals and to delay their potential promotions in the company (Nobbe and Manning, 1997). Hence their career satisfaction lowers. According to Liu and Wilson (2001), the women who lack self-confidence, especially in male-dominated jobs as in the engineering (information technology) sector, are affected by this self-imposed psychological barrier, which leads them to change their career goals and paths, and their career satisfaction can lessen. Consequently, women's career satisfaction can lower with this perception of organizational discrimination and their child-care commitments. Despite this controversy, and by considering "glass ceiling" and organizational culture effects, we therefore hypothesize that:

**H8.** Women will be less satisfied with their careers than men.

## 4. Methodology

The study population consists of Spanish men and women with a degree in Engineering aged between 30 and 49 years. This vital period has been considered key in the development of a professional career (Darcy et al., 2012) because, in this phase, people have matured and are positioned in a certain professional category and at a given remuneration level. They may experience a higher degree of role conflict due to family pressures (having children, taking care of elderly parents at home or caring for a sick partner, children or disabled people, among others).

### 4.1. Data collection and participants

To collect data, a multidisciplinary team designed and developed a questionnaire. Before completing the final questionnaire, personal interviews were held with seven engineers to improve the wording and to correct any mistakes in the formulation of questions.

Thanks to the support of a national research project, an external company carried out data collection using an online

<sup>3</sup> Greenhaus et al. (2000) argue that career development is an ongoing process by which individuals progress through a series of stages, each of which is characterized by a relatively unique set of issues, themes and tasks.

<sup>4</sup> Glass ceiling is women's lack of advancement to leadership and top decision-making positions despite there being no visible barriers.

questionnaire to be answered by the target population. It was sent to engineers thanks to the collaboration of professional associations and Polytechnic Universities that offer engineering studies. The intermediation of the Association for the Rationalization of Spanish Working Hours (ARHOE) and The Spanish Institute of Engineering (which includes all the schools and engineering associations in the country) was very helpful with publicizing the research project and its web-linked survey via their newsletter and institutional web page. The survey took place between late 2013 and 2014.

The sample in the present study consists of 846 responses (no response rate available), where 72.7% are men and 27.3% are women, with an average age of 37.5. 26.8% of respondents are single and 70.7% are married (a minority 2.5% are divorced or widows/widowers). Respondents have an average of .84 children (45.3% of the sample do not have children who live at home). The working day of respondents lasts about 8.5 h and they have worked in their respective companies for an average of 6.86 years. Their qualifications vary: 51.2% are computer programmers and telecommunication engineers, 27.7% are industrial engineers, 9% agricultural engineers, 5.8% building and civil engineers, and the remaining have other specialties (6.3%). Regarding their level of education, 31.1% have a technical engineering degree, 34.9% a superior engineering degree, 6% other degrees, 22.4% a master degree and 5.6% have a PhD. It is interesting to note that the sample size exceeds those used by many studies carried out in the engineering field (Hatmaker, 2013; Kaewsri and Tongthong, 2013).

It is important to highlight some circumstances related to Spanish culture. Southern European countries, including Spain, are characterized by the centrality of the family in social structure and social protection mechanisms (Pérez-Díaz et al., 2010). The presence of traditional values and gender stereotypes in society is considerable, which assigns a caregiver role to women and a ‘bread-winner’ role to men (Bustelo and Ferguson, 2011). Moreover, Spain works longer hours than other countries (Pasamar and Valle, 2013), and takes long lunch breaks (from 1 to 3 h) that cannot be used for family or personal purposes (Poelmans et al., 2003). Likewise, the introduction of WLB practices has been delayed (Pasamar and Valle, 2013) and Spanish organizations do not have a comparable culture to support WLB values with other countries (De Luis-Carnicer et al., 2002), which is possibly due to the education system, customs and established traditions (Maldonado and Pages, 2007). The time spent at the workplace is often used as an indicator of employees’ contributions to the organization (Beauregard and Henry, 2009), especially during the economic crisis.

This culture influences a mother’s decision to return to paid employment, which leads to a significant contribution being made to childcare and to a medium-high work-life conflict, while fathers adopt the traditional bread-winner role (Wheelock and Jones, 2002). The current economic crisis has triggered a growing income polarization between highly-skilled and job-rich dual-earner families and lower-skilled and work-poor male-bread winner and single-parent households (Hemerijck et al., 2012). Therefore, European policies framed within the co-responsibility perspective are likely to contribute to broader processes of increasing economic and gender equality and women’s empowerment (Bustelo and Ferguson, 2011). The gender equality impulse reached its peak in Spain in 2007 when the Law for Effective Equality of Women and Men (LOI) came into force, following a large body of European legislation on equal treatment and labor market access for women and men (European Directive 2002/73/CE). The LOI applied the “transversality” principle as well as a different approach to WLB problems by emphasizing the objective of gender equality and the co-responsibility principle (CES, 2011; Pérez-Camarés, 2010).<sup>5</sup>

We believe that Spanish engineers and other professionals then incorporated co-responsibility into their daily life progressively, and were influenced by the law, their partners’ demands, and society, or were aware that they must and had the opportunity to participate in the care and education of their family (children, parents, partner). These specific cultural circumstances may affect the results of this research.

Finally, Moral-Arce et al. (2012) have highlighted that women’s jobs do not involve the same degree of responsibility or decision-making power as those of men (vertical segregation), and women’s participation is limited to a few sectors of the economy (barely present in industry and construction). Consequently, more educated women suffer the glass ceiling effect in Spain, while less educated ones do not (Arulampalam et al., 2007). The Spanish wage gap<sup>6</sup> is still notable, mainly in the private sector (Arulampalam et al., 2007; Miller, 2009), but is hardly found in the public sector. De la Rica et al. (2008) have found a decreasing gap on the wage scale for less educated women and an increasing one for highly educated women, including female engineers.

#### 4.2. Variable measurement

To measure the variables used herein, we considered some items taken from the previous literature that have demonstrated satisfactory reliability and validity values. All the variables were evaluated on a 7-point Likert scale that ranged from 1 (strongly disagree) to 7 (strongly agree), except where another measure was specified.

*Career satisfaction* was assessed using a 3-item scale adapted from Greenhaus et al. (1990), which is considered “the best measure available in the literature” (Judge et al., 1995, p. 497). The used items reflected satisfaction with success achieved in professional careers, with progress made toward meeting income goals, and also with achieving advancement goals. The scale’s reliability in this study was .880 (Cronbach’s alpha).

A *full-/part-time job* referred to the circumstance in which the respondent worked 35 h or more per week. It was measured using a dummy question where 0 was a part-time job and 1 was a full-time job.

<sup>5</sup> Among other measures, paternity leave (15 days) was introduced, along with mechanisms for transferring portions of maternity leave (16 weeks) to the father, although this remains voluntary and up to the mother to concede.

<sup>6</sup> The gender wage gap is a rough estimate that includes both differences in earnings across “male and female occupations” and differences in male and female earnings within the same occupation.

*Job position* was assessed by asking respondents to identify the current professional category in the organizational structure, with five different options (Eby et al., 2005): 1: Administrative (3.3%), 2: Technical (58.6%), 3: Project Manager (14.9%), 4: Team Manager (15.2%), and 5: Managing Director or CEO (8%).

*Level of income* was measured as the monthly net salary obtained. Respondents were requested to circle one of eight response categories: less than €500, between €501 and €999, between €1000 and €1249, between €1250 and €1499, between €1500 and €1999, between €2000 and €2499, between €2500 and €2999, and €3000 or more (Aryee and Luk, 1996).

*Suitability for the job* was measured by the scale proposed by Peiró et al. (2012) and by analyzing if the current job was commensurate with the employee's qualifications or experience. This variable was assessed by three components: (1) "the job requirements are reasonably commensurate with employee qualifications" was categorized as 3; (2) "the job requirements exceed employee qualifications" (underqualified) was categorized as 2; (3) "the job requirements are beneath employee qualifications" (overqualified) was labeled as 1. We chose one of the three categories as a reference (item 1) and input dummy variables for the other two categories in the regression model (items 2 and 3), where the reference variable equaled one if the current job was commensurate with the employee qualifications, and zero otherwise. The effect size, 95% confidence interval and *P*-value for each category compared to the reference category were correct.

*Work-family conflict* (WFC) was measured using a 3-item scale based on the works of Gutek et al. (1991) and Martins et al. (2002). Respondents indicated whether (1) their anxiety about their job frequently spilled over into their home (personal) life; (2) their job prevented them from spending the desired time with their families or friends; (3) if they had given up performing important functions at home because of their conflict with important job-related functions. The Cronbach's alpha of this scale was .803 in this study.

*The work-life balance (WLB) supporting culture* was adapted from the scale proposed by Cegarra-Leiva et al. (2012) and Kofodimos (1993). Respondents were asked to indicate how the following items were valued in their organization: starting a family, becoming pregnant or adopting a child, going home on a working day to attend to personal responsibilities, such as a sick child, extending maternity leave over and above that legally entitled, setting limits on hours spent at work, and having a demanding family structure (e.g., a couple with several children). The reliability of this scale was .837 (Cronbach's alpha).

*Organizational commitment* was assessed using the 3-item scale proposed by Sánchez-Vidal et al. (2011), which is an adaptation of Mowday et al. (1979). These items analyzed engineers' feelings about loyalty to their organization, their pride by telling others that they form part of their company, and talking about their company to friends as a great organization to work for. The Cronbach's alpha scale was .884 in this study.

Finally, *gender* was a control variable measured through a dummy question, where 0 was male and 1 was female (Eby et al., 2005; Martins et al., 2002).

#### 4.3. Procedure

A hierarchical regression analysis was used to test the hypotheses. Hierarchical regression involves estimating successive regression models. It therefore allowed us to assess our hypothesis that objective and subjective work, and personal and cultural factors, as a set, explain the incremental variance over that explained by career satisfaction (Cohen et al., 2003). The correlation of the independent variables was examined using both bivariate correlation (Pearson's and the Spearman correlation coefficients) and variance inflation factors (VIFs). A paired *t*-test was used to compare the mean differences between the continuous variables, while the chi-square test was employed for the categorical variables. All these calculations were done using SPSS, version 24.

#### 4.4. Potential bias

The authors considered a common method bias to design this study, and developed two different strategies to evaluate this potential bias. First, a *post hoc* analysis was run using Harman's single-factor test, as suggested by Podsakoff and Organ (1986) and Podsakoff et al. (2003). The Harman one-factor analysis with unrotated factor solution and the principal component analysis with varimax rotation showed five factors, where the first factor accounted for 39.83% of the 80.73% explained variance. These results suggested that the bias of the common method variance was not a problem and should not influence the results.

Second, we checked whether the difference between the chi-square values obtained from the first and second confirmatory factor analyses (i.e.,  $\Delta\chi^2$ ) was bigger than the chi-square value at a degree of freedom of 1 and a significance level of  $p < .01$  (i.e., 7.87). This provided reasonable evidence for the minimum effect of the common method bias.

Previously, we also attempted to avoid a potential common method bias by sending a cover letter to the respondents to explain that there were no right or wrong answers, and they should attempt to respond as honestly as possible as their responses would remain confidential. This methodology protects respondent anonymity and reduces evaluation apprehension. Moreover, the questionnaire separated the different variables (dependent and independent) into clearly delineated sections and the objective measures for all our variables (Podsakoff et al., 2003).

### 5. Results

The results of this study are reported in two parts. Table 1 summarizes the descriptive statistics (means and standard deviations) and correlations. Both the Pearson's and Spearman correlation coefficients are reported respectively below and above the main diagonal of the correlation matrix (Table 1). Both were  $< .7$ . The VIF values of all independent variables ranged between 1.279 and 1.695 (Table 3), far below the acceptable upper limit of 10 (Hair et al., 1998; Tabachnik and Fidell, 2001), which reveals no sign of

**Table 1**  
Descriptive statistics and correlations.

	Mean	Standard Deviation	1	2	3	4	5	6	7	8	9
1. Career satisfaction	3.940	1.376	–	<i>–.143***</i>	<i>.262***</i>	<i>.413***</i>	<i>.420***</i>	<i>–0.153***</i>	<i>.460***</i>	<i>.593***</i>	<i>–.087**</i>
2. Full-/part-time job			<i>.182***</i>	–	<i>–.201***</i>	<i>–.331***</i>	<i>–.037</i>	<i>–.036</i>	<i>.007</i>	<i>–.047</i>	<i>.105***</i>
3. Job position			<i>.262***</i>	<i>.112***</i>	–	<i>.355***</i>	<i>.203***</i>	<i>.096***</i>	<i>.083**</i>	<i>.171***</i>	<i>–.137***</i>
4. Level of income	4.880	1.551	<i>.428***</i>	<i>.311***</i>	<i>.317***</i>	–	<i>.232***</i>	<i>.035</i>	<i>.107***</i>	<i>.193***</i>	<i>–.171***</i>
5. Suitability for the job			<i>.423***</i>	<i>.117***</i>	<i>.182***</i>	<i>.235***</i>	–	<i>–.004</i>	<i>.226***</i>	<i>.283***</i>	<i>.024</i>
6. Work family Conflict	4.412	1.608	<i>–.155***</i>	<i>.034</i>	<i>.098***</i>	<i>.033</i>	<i>.002</i>	–	<i>–.297***</i>	<i>–.217***</i>	<i>–.002</i>
7. WLB supporting culture	3.549	1.498	<i>.471***</i>	<i>–.034</i>	<i>.090**</i>	<i>.094***</i>	<i>.234***</i>	<i>–.292***</i>	–	<i>.524***</i>	<i>–.052</i>
8. Organizational commitment	4.185	1.791	<i>.601***</i>	<i>.049</i>	<i>.185***</i>	<i>.190***</i>	<i>.291***</i>	<i>–.219***</i>	<i>.537***</i>	–	<i>–.003</i>
9. Gender			<i>.087*</i>	<i>–.157***</i>	<i>–.139***</i>	<i>–.175***</i>	<i>.024</i>	<i>.006</i>	<i>.048</i>	<i>.000</i>	–

Note: N = 846. Significant at \*\*\*p < .01. \*\*p < .05. \*p < .10; Numbers in italics denote Spearman rho correlation coefficients.

multicollinearity in their analysis. Correlations also revealed interesting issues. A strong negative correlation was found between WFC and the WLB supporting culture (employees suffer from WFC if they do not have enough WLB supporting culture) and organizational commitment (employees may feel less committed to their company by WFC). Finally, level of income and WFC did not appear to be related, which could mean that money does not lower WFC, although employees may pay for outside help with housework.

A paired t-test was used to compare the mean differences among the continuous variables (Table 2), where career satisfaction gave significant differences. The chi-square test was used for the comparisons made among the categorical variables, and significant differences were detected in some variables: age, level of education, a full-/part-time job, job position and level of income.

Table 3 presents the results of the hierarchical regression analysis. Separate regression models were tested for every type of factors (five steps) and traced change in the multiple squared correlation coefficient (R<sup>2</sup>) from step to step. The variables related to work conditions were divided into two groups: 1) objective work conditions (full-/part-time job, job position and level of income) which entered the first step; 2) subjective work conditions (suitability for the job) which entered the second one. Later the personal and cultural variables (WFC, the WLB supporting culture and organizational commitment) were included one by one in separate steps to analyze their effects as no previous analyses existed among engineers. All the explanatory models were statistically significant, although their predictive power was uneven (explained variance ranged from 16.7% to 51%).

As mentioned earlier, the general model was also estimated for two other subsets: men and women. This procedure allowed us to determine whether the variables that affected engineers' career satisfaction differed in gender terms. Table 2 shows significant mean differences between men's and women's career satisfaction, which confirms Hypothesis H8.

Finally, suitability for the job proved to be an important variable in the models. Therefore, it is interesting to highlight its most important results: 64.0% of engineers worked reasonable commensurate, 33.9% were underqualified and 2.1% were overqualified. Men and women obtained similar results (63.2% versus 65.8% respectively enjoyed reasonable commensurate and 34.8% and 31.6% of them respectively were underqualified). No significant mean differences were found between men and women in the chi-square tests.

### 5.1. Influence of work, personal and cultural factors on engineers' career satisfaction

In the general model, the objective work conditions were first analyzed. Having a full-time job and a higher level of income meant that engineers enjoyed higher career satisfaction (although the explained variance was only 16.7%). However, job position was not significant in the general model. Suitability for the job as a subjective work condition made a significant contribution to career satisfaction (more than level of income), and the previous significant variables related to objective work conditions remained still significant, but were not as important. Suitability for the job and level of income were the two main variables that determined career satisfaction (positively), even when WFC was introduced (personal variable). WFC significant and negatively impacted engineers' career satisfaction, although its influence reduced by a third if the WLB supporting culture was included. When organizational commitment (personal variable) was introduced, it became the most important factor to determine career satisfaction (.368,

**Table 2**  
Test of mean differences of continuous variables.

VARIABLES	Men N = 615 (72.7%)	Women N = 241 (27.3%)	Difference	SD	P
	Mean	Mean			
Career Satisfaction	4.013	3.745	.268	1.354	.013
WFC	4.418	4.395	.023	1.581	.856
WLB Culture	3.594	3.435	.159	1.474	.177
Organizational Commitment	4.185	4.185	.000	1.786	.999



**Table 3**  
Results of hierarchical regression analysis for Career Satisfaction.

Variables	General model					Men Model					Women model				
	Standard coefficients (N = 846)					Standard coefficients (N = 615)					Standard coefficients (N = 231)				
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 1	Model 2	Model 3	Model 4	Model 5	Model 1	Model 2	Model 3	Model 4	Model 5
Objective work conditions															
Full-/part-time job	.080**	.061*	.062*	.090*	.081**	.096**	.075*	.078*	.105**	.102**	.059	.032	.027	.067	.054
Job position	.046	.015	.027	.049	.043	.082*	.051	.053	.075*	.042	-.031	-.062	-.033	-.015	.033
Level of income	.355***	.286***	.294***	.329***	.231***	.355***	.295***	.299***	.278***	.257***	.332***	.230***	.243***	.202***	.130*
Subjective work conditions															
Suitability for the job		.340***	.340***	.262***	.204***		.317***	.310***	.225***	.163***		.413***	.411***	.356***	.312***
Personal and cultural variables						Step 3									
WFC			-.181***	-.062*	-.021			-.169***	-.066*	-.010			-.200***	-.053	-.049
WLB culture				.359***	.202***				.382***	.222***				.316***	.146***
Organizational commitment					.368***	Step 5									
FIV max.	1.325	1.367	1.368	1.375	1.456	1.279	1.317	1.318	1.321	1.449	1.390	1.458	1.464	1.489	1.684
F-value	43.75***	61.75***	57.76***	76.93***	96.46***	35.28***	44.08***	40.95***	58.80***	76.76***	8.55**	17.63***	16.92***	19.41***	23.59***
R <sup>2</sup>	.167	.274	.307	.415	.510	.186	.279	.308	.435	.537	.120	.274	.313	.386	.473
Adjusted R <sup>2</sup>	.163	.270	.302	.409	.504	.181	.273	.300	.427	.529	.106	.258	.294	.366	.453
Δ R <sup>2</sup>	-	.107	.033	.108	.095	-	.093	.029	.126	.102	-	.154	.039	.074	.087

Significance: \*\*\*p < .01. \*\*p < .05. \*p < .10.

$p = .000$ ), while WFC was no longer significant. In this case, the variables that determined career satisfaction (from the most to the least important) were: organizational commitment, level of income, suitability for the job, the WLB supporting culture and having a full-time job. These variables explained 51.0% of the variation in career satisfaction (adjusted  $R^2 = .504$ ).

Therefore, the most significant variables in our model were level of income, suitability for the job and having a full-time job (work condition variables), and organizational commitment and the WLB supporting culture (personal and cultural variables). These results support Hypotheses H3, H4, H1, H7 and H6. We found evidence that WFC remained significant until organizational commitment was included. Therefore, Hypothesis H5 is partially accepted, but Hypothesis H2 about job position is rejected.

## 5.2. Influence of work, personal and cultural factors on engineers' career satisfaction according to gender

In the *male engineers' model*, the results were similar to those obtained in the general model because most of the sample was made up of men (72.7%). For them, career satisfaction was determined by (from the most to the least important): organizational commitment, level of income, the WLB supporting culture, suitability for the job and having a full-time job. These variables explained 53.7% of the career satisfaction variation in the male model.

The hierarchical regression for the *female engineers' model* revealed that having a full-/part-time job and a certain job position were not significant for women's career satisfaction. WFC was only significant negatively when the WLB supporting culture and organizational commitment were not included in the model. Interestingly enough, suitability for the job was more important for determining career satisfaction than level of income for women engineers than for their male counterparts. In this way, women's career satisfaction was influenced by (from the most to the least important): organizational commitment, suitability for the job, the WLB supporting culture and level of income. These variables explained 47.3% of the variation in their career satisfaction.

This comparison allowed us to state that gender differences exist at work, with personal and cultural factors that shape engineers' career satisfaction. Furthermore, the previously mentioned mean differences between men's and women's career satisfaction (Table 2) confirm Hypothesis H8.

## 6. Discussion

As engineering organizations need to retain good, talented competent professionals who are scarce and strategically important, motivating them to stay in the organization is critical. This objective implies recognizing a diversity of factors that affect their staff's career satisfaction so that reward systems, organizational commitment, cultural change, worldwide economic development, extensive global communication, rapid new technology transfer, growing trade, individual and organizational talent management, flattening corporate hierarchies, and career paths can be well-managed. The results of the present study indicate the importance of work, personal and cultural factors on engineers' career satisfaction by understanding the variations in influencing factors according to gender.

*Having a full-time job* generates more career satisfaction than having a *part-time job* for engineers in both the general and the male models (Hypothesis H1). However, this premise is not significant for women. According to the literature, having a full-time job implies individuals being more involved with, and integrated and socialized into, the organization as they take part in more professional development activities, and are more likely to receive training (Albert et al., 2010). Consequently, they gain more career opportunities. They hence present higher motivation and job satisfaction (Jang, 2008), which has a huge impact on their career satisfaction (Hall and Gordon, 1973; Martin and Hafer, 1995; Thorsteinson, 2003). However, this result does not appear for female engineers. The above-explained circumstances are more remarkable in the male model, perhaps because a full-time job facilitates the possibility of being the primary income-earner in the family (men still play the bread-winner role in Spain) since they spend more time on professional advancement, which increases their career satisfaction. Nevertheless, women's career satisfaction is not affected by having a full-time or a part-time job. Despite women possibly considering a part-time job a voluntarily labor option so they can spend fewer hours in the workplace to spend more time playing the family role, it can be a limitation for their training and promotion opportunities, and also for their career development and satisfaction. Conversely, a part-time job is a traditional WLB practice chosen to reduce WFC (Cegarra-Leiva et al., 2012; Fleetwood, 2007). It allows employees to focus on their tasks for fewer hours and to avoid certain cognitive difficulties; e.g., stress, staying awake, lack of concentration and low alertness (MacEwen and Barling, 1994). Thus they feel less stress and burnout, higher productivity, and greater job satisfaction, loyalty and organizational commitment (Williams et al., 2000), which results in improved career satisfaction. Their perception of career satisfaction is not significantly affected by the time they spend at work, which does not mean that they are not work-oriented. This only provides evidence that a full-time job is an important option for women, but it is not significant for their career satisfaction. Thus Hypothesis H1 is accepted because the general model shows that having a full-time job relates significantly to engineers' career satisfaction, although this objective work variable is not significant for women.

*Job position* does not significantly impact engineers' career satisfaction, which rejects Hypothesis H2. In all the models, we see that it is not significant in any stage, which is why we consider job position to not be important for career satisfaction. This means that the transition to new career paths (Igarria et al., 1999) is no longer so important because suitability for the job and level of income are also considered.

*Level of income* is the second most influential variable for engineers' career satisfaction (DeMello and Deshpande, 2011; Lepnurm et al., 2006), which confirms Hypothesis H3. These results are maintained for men and women alike, although this variable seems more relevant to men than to women (Sekaran, 1983). Once again, this shows that men still play the bread-winner role. Despite the fact that women experience a gender gap in wages (De la Rica et al., 2008; Moral-Arce et al., 2012), level of income is still important

for shaping female career satisfaction. It has to be noted that earning the expected wage helps increase engineers' career satisfaction because it compensates their efforts, enhances motivation and improves the job security feeling (Aryee and Luk, 1996). These results are consistent with discussion in the literature.

*Suitability for the job* is also a significant variable for engineers' career satisfaction which, according to the three developed models, confirms Hypothesis H4. The current reduction in the number of available hierarchical positions due to flattening organizational structures and the wider use of horizontal promotion systems justifies the considerable importance attached to this subjective working factor. When engineers perceive that their competences are coherent with job demands (63.9% of this study's participants), they better perform (Saravanabawan and Uthayatharshika, 2014). So they hold a positive attitude toward their career satisfaction. However, this subjective work variable is more important for women than it is for men. The reason for this is that many female engineers find it difficult to reach certain job positions at the top of the organizational hierarchy (glass ceiling) (Arulampalam et al., 2007; De la Rica et al., 2008). Women highly value finding a suitable job according to their preparation and skills, their needs and their expectations, and independently of the job title. Men may encounter fewer difficulties with full-time employment and the glass ceiling does not affect them. Surprisingly however, men enjoy more reasonable commensurate (63.3%) than women (65.8%) according to this research.

The effect of *WFC* on career satisfaction is significant for engineers until both the WLB supporting culture and organizational commitment are introduced. So Hypothesis H5 is partially accepted. Some engineering works take place outside the traditional timetable (at weekends, at night, or during assembly line or plant stoppages, and during planned downtimes because of major IT systems setups or upgrades) or in places away from their usual place of residence (businesses, customers offices, infrastructures, among others), which generates WFC. Career satisfaction is negatively affected when work roles affect family roles (Martins et al., 2002; Powell and Mainiero, 1992). However, when a WLB supporting culture is implemented into the organization, the WFC impact is reduced to a third. If engineers' commitment to the company is fostered by the organization, the significance of WFC disappears in the shaping of career satisfaction. Thus WFC does not seem to influence career satisfaction when other personal and cultural values are taken into account. Engineering companies can avoid the negative effects of WFC on career satisfaction by promoting a WLB supporting culture and employees' organizational commitment (Anafarta, 2011). As expected, women are more sensitive to the presence of WFC than men, although WFC completely loses its significance when the WLB supporting culture is included (women's model 4) because it facilitates the use of WLB practices and reduces WFC.

Engineers' career satisfaction is significant and positively influenced by the WLB supporting culture (Hypothesis H6). A family-supportive organization that recognizes its employees' personal and labor needs, and balances them, fosters productivity (Cegarra-Leiva et al., 2012). Along this line, the studies of Budihardjo (2013), Lynch et al. (1999) or van Knippenberg, (2000), among others, show that employees can develop a sense of belonging and emotional attachment to the company when they perceive value, care and support from it. Engineers also feel greater satisfaction, motivation and commitment (Allen, 2001; Hughes and Bozionelos, 2007; Kirby and Krone, 2002), which enhances higher career satisfaction. No differences between men and women appear for this aspect, although surprisingly it is more important for men than it is women in absolute terms. This also happens when organizational commitment is introduced into the model, when we note that the WLB supporting culture is a group of values and behaviors that may reinforce employees' commitment (family-supporting values enhance employees' commitment). Other reasons can be suggested for these results. Men usually occupy higher or different job positions than women in engineering companies, which means more meetings and trips, more work assignment in other areas, less time for personal and family roles, and more WFC. Consequently, men provide a better assessment of the WLB supporting culture. We should note that Spanish men are progressively incorporating co-responsibility into their daily lives by sharing the workload and family responsibilities with their partners because both have a paid job or they prefer to increase their family role. This co-responsibility means that men are starting to evaluate the WLB supporting culture slightly more than women in their career, which means that firms need to introduce WLB practices. Therefore, we consider that organizational commitment, whose influence may increase in the presence of the WLB supporting culture, has a crucial effect on this result.

Engineers' organizational commitment is the most influential variable for their career satisfaction, which confirms Hypothesis H7. Engineers' personal dedication to the company depends on what the organization offers them in terms of attachment, identification and involvement. Our hypothesis confirms that organizational commitment is related directly to employees' career satisfaction, as the previous literature argues (Cable and DeRue, 2002; Erdogan et al., 2004). The reason is attributed to organizational commitment, which helps employees persist long enough to develop specialized skills (Perrow, 1986). It increases performance levels and task completion, and promotes quality production (Maanen, 1975; Mowday et al., 1974), and efforts made to achieve the organization's goals and objectives (Mowday et al., 1982). Therefore, organizational commitment is essential for career progression and development (Noordin et al., 2002; Puaah and Ananthram, 2006), and to attain higher career satisfaction.

Finally, some *gender differences* are observed in the factors that influence the shaping of career satisfaction, as well as some mean differences between men's and women's career satisfaction, which confirm Hypothesis H8. When considering work conditions, having a full-time job is significantly important for career satisfaction in the general and male models, but not for women. As we explained previously, if women can opt for flexitime at work, they are more likely to feel satisfied with their career and may display higher productivity, job satisfaction, loyalty and commitment (Williams et al., 2000). This allows women to avoid some problems like stress, burnout and WFC. Conversely, if females hold full-time jobs, they are more likely to receive training and promotion opportunities, and to feel a higher level of career development and satisfaction.

However, gender differences are less clearly reported for some variables. When considering the objective work conditions, job position is not a significant variable for engineers' career satisfaction in any model, whereas level of income comes over as being significant, and is more important for men than for women. Suitability for the job, as a subjective work condition, significantly

influences career satisfaction, the WLB culture and organizational commitment (personal and cultural variables), but shows gender differences. So most work conditions and personal and cultural factors affect men's and women's career satisfaction. However, their relative importance changes in accordance with gender, which suggests gender differences in the factors that affect career satisfaction for engineers and that deal with the influence of gender roles, stereotypes and preferences

This situation is also further justified because the two-sample *t*-tests report significant differences between both groups for career satisfaction (4.013 vs. 3.745), with higher values for men (Table 2). We also find big differences between the F-value of the final male and female models (76.76 vs. 23.59) (Table 3), which confirms that the chosen variables better predict the career satisfaction of men than of women. This result corroborates Schner (1995) and Blackhurst's (2000) assertions: men have higher levels of career satisfaction than women.

## 7. Implications for engineering management

The results of this research provide interesting insights into the career satisfaction management of engineering professionals for both research and practice. It is progressively imperative that firms have strategies to manage not only the technical side of engineering, but also the human side. Organizations need to take certain actions to facilitate their employees' career satisfaction by considering the drastic change in engineers' traditional career development and the new organizational structures of engineering firms (more flexible, flatter, leaner, networked and innovative).

Recognizing that employees have different orientations toward work justifies the study of career satisfaction, and facilitates employee selection and retention. Williamson et al. (2013) assert that there are many other factors that might contribute to career satisfaction. Therefore, this research considers work, personal and cultural factors.

This paper supports the notion that managers may contribute to engineers' career satisfaction by handling certain objective and subjective *work conditions* variables and *personal and cultural* variables to achieve better human resource management for the company (Gollan, 2005; Roger et al., 1996; Tessema et al., 2005).

Since level of income is a variable that cannot always be used to improve employees' satisfaction and performance, organizations should establish human resource policies to retain talented employees and to improve their results and performance, such as WLB practices (Cascio, 2000; Cegarra-Leiva et al., 2012; De Cieri et al., 2005). As engineers are considered a strategic asset for their employers (Mignonac and Herrbach, 2003) and sources of competitive advantage for enterprises, challenging assignments are given and meaningful career goals are established. Therefore, human resource management (HRM) policies must be flexible and essential enough to accommodate the diverse groups within the engineering profession.

The general model can also be seen from a gender perspective, despite the fact that the majority of the sample is male. First of all according to the mean comparison, men are more satisfied with their career (4.01) than women (3.75). Although engineering is progressively becoming a working option for women, it is still male-dominated in Spain (Carnes et al., 2008) which could explain the higher career satisfaction values for men. For women, less career satisfaction could mean that the glass ceiling effect and horizontal and vertical job segregation may affect women's professional development and performance.

The variables that mainly influence *male career satisfaction* are organizational commitment, level of income, the WLB supporting culture, suitability for the job and having a full-time job. These issues are the same as in the general model, but priorities change.

For *female engineers*, managers should bear in mind that the variables have impact female career satisfaction the most are organizational commitment, suitability for the job, the WLB supporting culture and level of income. Although the most important issues that determine their career satisfaction are the same as they are for men (except having a full-time job), their priorities are not the same. Women are aware of the difficulties they have to gain promotions and access to a certain occupational status (despite extensive training). Thus doing a job that matches their qualification is highly significant for their career satisfaction, but this does not mean that salary is not important for female engineers because level of income is relevant and is likely associated with the tasks they perform.

In short, the contribution of this paper is to offer overall gender-based approaches to improve engineers' career satisfaction management and their enjoyment of the benefits associated with them. Our findings offer guidelines to improve HRM in general, and engineers' career management in particular.

## 8. Limitations and future research

As in all research works, this study also has its limitations. Generalizations to the entire population of engineers may not be appropriate because the results focus on Spanish engineers' perceptions. Other variables may be considered, such as engineers' key personality traits (Williamson et al., 2013), the existence and type of career paths in the company, the family work conflict (how employees' personal and family role affects their work role), employee productivity, performance or well-being. This study is not longitudinal, which does not allow career satisfaction to be studied at different points during an engineer's career.

The results may also be analyzed with a structural equation model, which considers the possible interrelationships among the included variables, such as WFC, the WLB supporting culture and organizational commitment, among others. Therefore, previous results and considerations justify more research to be conducted among engineers and other highly skilled workers in Spain, and also from other countries, to generalize the findings about their career satisfaction.

Furthermore, future research should also examine relationships between employees' career paths, career satisfaction and job performance, as well as their influence on business results by considering current aspects that affect the HRM of engineers (cultural change, worldwide economic development, extensive global communication, rapid new technology transfer, individual and

organizational talent, flattening corporate hierarchies, among others). Organizations should be responsive to their workforce's career satisfaction and attempt to match the career development needs of the workforce and their career paths. Career satisfaction is key for retaining the most talented and qualified professionals (Barnett et al., 2005), who may provide better innovations, projects and business results for companies in a changing environment. Companies need to provide a balance between employees' professional and personal lives (Igbaria et al., 1999) and know their current influence on career satisfaction due to a change in employees' priorities and the (national, sectorial and organizational) culture. Research should extend in several directions. First, the influence of professional (working conditions) and personal and cultural factors on career satisfaction should be explored by considering different countries, various branches of engineering sciences and the age of professionals. Second, the effects of career satisfaction on job performance and business results need to be examined because a mismatch may deteriorate both with time. Stable career satisfaction with time and its effects should also be investigated. Finally, research should explore whether career paths are associated with different levels of career satisfaction.

## Acknowledgements

We acknowledge the reception of funding from the Spanish Ministry of Health, Social Services and Equality – Women's Institute (ref. 80/12) and the collaboration of ARHOE (Association for the rationalization of Spanish working hours) for the data collection.

## References

- Abdelrazek, F., Skyyt, B., Aly, M., El-Sabour, M.A., Ibrahim, N., Engström, M., 2010. Leadership and management skills of first-line managers of elderly care and their work environment? *J. Nurs. Manag.* 18 (6), 736–745.
- Al-Zoubi, M.T., 2012. The shape of the relationship between salary and job satisfaction: a field study. *Far East J. Psychol. Bus.* 7 (3), 1–12.
- Albert, C., García-Serrano, C., Hernanz, V., 2010. On-the-job training in Europe: determinants and wage returns. *Int. Labour Rev.* 149 (3), 315–341.
- Allen, T.D., 2001. Family-supportive work environments: the role of organizational perceptions? *J. Vocat. Behav.* 58 (3), 414–435.
- Anafarta, N., 2011. The relationship between work-Family conflict and job satisfaction: a structural equation modeling (SEM) approach. *Int. J. Bus. Manag.* 6 (4), 168–177.
- Arulampalam, W., Booth Alison, L., Bryan, M.L., 2007. Is there a glass ceiling over Europe? Exploring the gender pay gap across the wage distribution. *Ind. Labor Relat. Rev.* 60 (2), 163–186.
- Aryee, S., Chay, Y.W., 1994. An examination of the impact of career-oriented mentoring on work commitment attitudes and career satisfaction among professionals and managerial employees? *Br. J. Manag.* 5 (4), 219–241.
- Aryee, S., Debrah, Y.A., 1993. An investigation of the impact of family and career variables on organisational commitment. *Aust. J. Manag.* 17 (2), 175–193.
- Aryee, S., Luk, V., 1996. Work and nonwork influences on the career satisfaction of dual-earner couples? *J. Vocat. Behav.* 49 (1), 38–52.
- Baek-Kyoo, B.J., Sunyoung, P., 2010. Career satisfaction, organizational commitment, and turnover intention: the effects of goal orientation, organizational learning culture and developmental feedback. *Leadersh. Org. Dev. J.* 31 (6), 482–500. <http://dx.doi.org/10.1108/01437731011069999>.
- Bardwick, J.M., 1986. *The Plateauing Trap: How to Avoid It in Your Career and Your Life*. American Management Association, New York.
- Barnett, R.C., Gareis, K.C., Carr, P.L., 2005. Career satisfaction and retention of a sample of women physicians who work reduced hours. *J. Women's Health* 14 (2), 146–153.
- Beauregard, T.A., Henry, L.C., 2009. Making the link between work-life balance practices and organizational performance? *Hum. Resour. Manag. Rev.* 19 (1), 9–22.
- Blackhurst, A., 2000. Effects of mentoring on the employment experiences and career satisfaction of women student affairs administrators. *NASPA J.* 37 (4), 573–586.
- Budihardjo, A., 2013. The relationship between job satisfaction affective commitment, organizational learning climate and corporate performance. *GSTF J. Bus. Rev.* (GBR) 2 (4), 58–64.
- Bustelo, M., Ferguson, L., 2011. Social protection, reconciliation or co-responsibility? An analysis of contemporary policies on the care economy and unpaid labour. In: 2nd European Conference on Politics and Gender. Budapest.
- CES, 2011. Tercer Informe Sobre La Situación de Las Mujeres En La Realidad Sociolaboral Española. Colección Informes. pp. 2.
- Cable, D.M., DeRue, D.S., 2002. The convergent and discriminant validity of subjective fit perceptions. *J. Appl. Psychol.* 87 (5), 875–884.
- Cappelli, P., 2000. Managing without commitment. *Organ. Dyn.* 28 (4), 11–24.
- Carlson, D.S., Kacmar, K.M., 2000. Work-family conflict in the organization: do life role values make a difference? *J. Manag.* 26 (5), 1031–1054.
- Carnes, M., Morrissey, C., Geller, S.E., 2008. Women's health and women's leadership in academic medicine: hitting the same glass ceiling? *J. Women's Health* 17 (9), 1453–1462.
- Cascio, W.F., 2000. *Costing Human Resources: The Financial Impact of Behaviour in Organizations*. Thompson Learning, Boston, MA.
- Cegarra-Leiva, D., Sánchez-Vidal, M.E., Cegarra-Navarro, J.G., 2012. Understanding the link between work life balance practices and organizational outcomes SMEs. *Pers. Rev.* 41 (3), 359–379.
- Cegarra-Navarro, J.G., Cegarra-Leiva, D., Sánchez-Vidal, M.E., Wensley, A.K., 2015. Congenital learning, organisational performance and work-life balance culture. *Knowl. Manag. Res. Pract.* 13 (1), 105–114.
- Chan, A., Eng, P., Fishbein, J., 2009. A global engineer for the global community? *J. Policy Engag.* 1 (2), 4–9.
- Cohen, J., Cohen, P., West, S.G., Aiken, L.S., 2003. *Applied Multiple Regression/correlation Analysis for the Behavioral Sciences*, 3rd ed. Erlbaum, Hillsdale.
- Cox, T.H., Harquail, C.V., 1991. Career paths and career success in the early career stages of male and female MBAs. *J. Vocat. Behav.* 39, 54–75.
- Cox, T.H., Nkomo, S., 1991. A race and gender-group analysis of the early career experience of MBAs. *Work Occup.* 18, 431–446.
- Darcy, C., McCarthy, A., Hill, J., Grady, G., 2012. Work?life balance: one size fits all? An exploratory analysis of the differential effects of career stage. *Eur. Manag. J.* 30 (2), 111–120.
- De Gieri, H., Holmes, B., Abott, J., Pettit, T., 2005. Achievements and challenges for work/life balance strategies in Austrian organizations. *Int. J. Hum. Resource Manag.* 16 (1), 90–103.
- De Luis-Carnicer, M.P., Martínez-Sánchez, A., Pérez-Pérez, M., Vela-Jiménez, M.J., 2002. La flexibilidad de la empresa y la conciliación de la vida laboral y familiar. *Boletín Económico del ICE* 2741, 37–50.
- De la Rica, S., Dolado, J.J., Llorens, V., 2008. Ceiling or floors: gender wage gaps by education in Spain? *J. Popul. Econ.* 21 (3), 751–776.
- DeMello, J.P., Deshpande, S.P., 2011. Career satisfaction of psychiatrists. *Psychiatr. Serv.* 62 (9), 1013–1018.
- Dries, N., 2013. The psychology of talent management: a review and research agenda. *Hum. Resour. Manag. Rev.* 23 (4), 272–285.
- Eby, L.T., Casper, W.J., Lockwood, A., Bordeaux, C., Brinley, A., 2005. Work and family research in IO/OB: content analysis and review of the literature (1980–2002). *J. Vocat. Behav.* 66 (1), 124–197.
- Eisenberger, R., Armeli, S., Rexwinkel, B., Lynch, P.D., Rhoades, L., 2001. Reciprocation of perceived organizational support. *J. Appl. Psychol.* 86 (1), 42–51.
- Erdogan, B., Kraimer, M.L., Liden, R.C., 2004. Work value congruence and intrinsic career success: the compensatory roles of leader-member exchange and perceived organizational support? *Per. Psychol.* 57 (2), 305–332.
- Erdogan, B., Bauer, T.N., Peiró, J.M., Truxillo, D.M., 2011. Overqualified employees: making the best of a potentially bad situation for individuals and organizations?

- Ind. Organ. Psychol. 4 (2), 215–232.
- Etzioni, A., 1975. *A Comparative Analysis of Complex Organizations on Power, Involvement and Their Correlates*. Free Press, New York.
- Evetts, J., 1997. Women and careers in engineering: management changes in the work organization? *Women Manag. Rev.* 12 (6), 228–233.
- Eyupoglu, S.Z., Saner, T., 2009. Satisfaction: does rank make a difference? *Afr. J. Bus. Manag.* 3 (10), 609–615.
- Feldman, D.C., 1989. Careers in organizations: recent trends and future directions. *J. Manag.* 15 (2), 135–156.
- Feldman, D.C., 1996. The nature antecedents, and consequences of underemployment. *J. Manag.* 22 (2), 385–409.
- Fleetwood, S., 2007. Why work?life balance now? *Int. J. Hum. Resour. Manag.* 18 (3), 387–400.
- Frone, M.R., Russell, M., Cooper, M.L., 1992. Antecedents and outcomes of work?family conflict: testing a model of the work–family interface. *J. Appl. Psychol.* 77 (1), 65–78.
- Frone, M.R., Yardley, J.K., Markel, K.S., 1997. Developing and testing an integrative model of the work–family interface. *J. Vocat. Behav.* 50 (2), 145–167.
- Gannon, M.J., Nothorn, R.E., 1971. A comparison of short-term and long-term part-time employees. *Pers. Psychol.* 24 (4), 687–696.
- Gattiker, U.E., Larwood, L., 1988. Predictors for managers' career mobility, success, and satisfaction. *Hum. Relat.* 41, 569–591.
- Gollan, P.J., 2005. *High involvement management and human resource sustainability: the challenges and opportunities*. *Asia Pac. J. Hum. Resour.* 43 (1), 18–33. <http://dx.doi.org/10.1177/1038411105050305>.
- Greenhaus, J., Beutell, N., 1985. Sources of conflict between work and family roles. *Acad. Manag. Rev.* 10 (1), 76–88.
- Greenhaus, J., Parasuraman, S., Wormley, W., 1990. Effects of race on organizational experience, job performance evaluation and career outcomes. *Acad. Manag. J.* 33 (1), 64–86.
- Greenhaus, J.G., Callanan, G.A., Godshalk, V.M., 2000. *Career Management*, 3rd. The Drydent Press, New York.
- Gutek, B., Searle, S., Klepa, L., 1991. Rational versus gender role explanations for work–family conflict. *J. Appl. Psychol.* 76 (4), 560–568.
- Hair, J.E., Anderson, R.E., Tatham, R.L., Black, W.C., 1998. *Multivariate Data Analysis*. Prentice Hall, Upper Saddle River, NJ.
- Hall, D., Gordon, F., 1973. Career choices of married women: effects on conflict role behavior, and satisfaction. *J. Appl. Psychol.* 58 (1), 42–48.
- Hall, D.T., 1985. Project work as an antidote to career plateauing in a declining engineering organization. *Hum. Resour. Manag.* 24 (3), 271–292.
- Hatmaker, D.M., 2013. Engineering identity: gender and professional identity negotiation among women engineers. *Gender Work Org.* 20, 382–396. <http://dx.doi.org/10.1111/j.1468-0432.2012.00589.x>.
- Hemerijck, A.C., Vandenbroucke, F., Andersen, T.M., 2012. The welfare state after the great recession. *Intereconomics* 47 (4), 200–229. <http://link.springer.com/article/10.1007/s10272-012-0422-y>.
- Higgins, C.A., Duxbury, L.E., Irving, R.H., 1992. Work family conflict in the dual-career family. *Organ. Behav. Hum. Decis. Process.* 51 (1), 51–75.
- Hughes, J., Bozonelos, N., 2007. Work-life balance as source of job dissatisfaction and withdrawal attitudes: an exploratory study on the views of male workers? *Pers. Rev.* 36 (1), 145–154.
- Igbaria, M., Kasscieh, S.K., Silver, M., 1999. Career orientations and career success among research, and development and engineering professionals. *J. Eng. Tech. Manag.* 16, 29–54.
- Igbaria, M., 1991. Job performance of MIS professionals: an examination of the antecedents and consequences. *J. Eng. Tech. Manag.* 8 (2), 141–171.
- Ismail, M., 2003. Men and women engineers in a large industrial organization: interpretation of career progression based on subjective-career experience. *Women Managem. Rev.* 18 (1/2), 60–67.
- Ituma, A., Simpson, R., Ovadje, F., Cornelius, N., Mordi, C., 2011. Four 'domains' of career success: how managers in Nigeria evaluate career outcomes. *Int. J. Hum. Resour. Manag.* 22 (17), 3638–3660.
- Jang, J., 2008. The Impact of Career Motivation and Polychronicity on Job Satisfaction and Turnover Intention Among Hotel Industry Employees. *ProQuest*.
- Judge, T.A., Cable, D., Boudreau, J., Bretz, R., 1995. An empirical investigation of the predictors of executive career success. *Pers. Psychol.* 48 (3), 485–519.
- Judge, T.A., Higgins, C.A., Thoresen, C.J., Barrick, M.R., 1999. The big five personality traits, general mental ability, and career success across the lifespan. *Pers. Psychol.* 52 (3), 621–652.
- Kaewsri, N., Tongthong, T., 2013. Professional development of women engineers in the Thai Construction Industry. *Procedia. Soc. Behav. Sci.* 88, 291–298.
- Khallash, S., Kruse, M., 2012. The future of work and work-life balance 2025. *Future* 44 (7), 678–686.
- Kim, Y., Cha, J., 2000. Career orientations of R&D professionals in Korea. *R&D Manag.* 30, 121–137.
- Kirby, E.L., Krone, K.J., 2002. The policy exists but you can't really use it: communication and the structuration of work–family policies. *J. Appl. Comm. Res.* 30 (1), 50–77.
- Kirchmeyer, C., 1998. Determinants of managerial career success: evidence and explanations of male/female differences. *J. Manag.* 24, 673–693.
- Kofodimos, J.R., 1993. *Balancing Act: How Managers can Integrate Successful Careers and Fulfilling Personal Lives*. Jossey-Bass.
- Kossek, E., Ozeki, C., 1998. Work–family conflict, policies and the job-life satisfaction relation. *J. Appl. Psychol.* 83 (2), 139–149.
- Laschinger, H.K.S., 2012. Job and career satisfaction and turnover intentions of newly graduated nurses. *J. Nurs. Manag.* 20 (4), 472–484.
- Lawlor, R., 2013. *Engineering in Society. Beyond the Technical ... What Every Engineering Student Should Know*. 2nd edition. Royal Academy of Engineering (Retrieved from Royal Academy of Engineering. <http://www.raeng.org.uk/publications/reports/engineering-in-society>).
- Lepnum, R., Dobson, R., Backman, A., 2006. Factors explaining career satisfaction among psychiatrists and surgeons in Canada? *Can. J. Psychiatry* 51 (4), 243–255.
- Lin, C.Y.-Y., Liu, F.-C., 2012. A cross level analysis of organizational creativity climate and perceived innovation: the mediating effect of work motivation. *Eur. J. Inn. Manag.* 15 (1), 55–76.
- Liu, J., Wilson, D., 2001. Developing women in a digital world? *Women Manag. Rev.* 16 (8), 405–416.
- Lynch, P.D., Eisenberger, R., Armeli, S., 1999. Perceived organizational support: inferior versus superior performance by wary employees. *J. Appl. Psychol.* 84, 467–483. <http://dx.doi.org/10.1037//0021-9010.84.4.467>.
- Maanen, V.J., 1975. Police socialization: a longitudinal examination of job attitude in an urban police department? *Adm. Sci. Q* 20 (2), 207–228.
- MacEwen, K.E., Barling, J., 1994. Daily consequences of work interference with family and family interference with work. *Work Stress* 8 (3), 244–254.
- Mael, F., Ashforth, B.E., 1992. Alumni and their alma mater: a partial test of the reformulated model of organizational identification. *J. Org. Behav.* 13 (2), 103–123.
- Maldonado, J.P., Pages, S., 2007. *La Conciliación Del Trabajo Y La Vida Familiar: Retos Y Dificultades En Las PYMES*. CEU ediciones, Madrid.
- Martin, T.N., Hafer, J.C., 1995. The multiplicative interaction effects of job involvement and organizational commitment on the turnover intentions of full-and part-time employees? *J. Vocat. Behav.* 46 (3), 310–331.
- Martin, C.L., 2011. *Gender Differences in Career Satisfaction Among Postsecondary Faculty in Stem Disciplines* ProQuest LLC, Ph.D. Dissertation. The University of Memphis.
- Martins, L.L., Eddleston, K.A., Veiga, J.F., 2002. Moderators of the relationship between work–family conflict and career satisfaction. *Acad. Manag. J.* 45 (2), 339–409.
- Meyer, J.P., Allen, N.J., 1997. *Commitment in the Workplace: Theory, Research, and Application*. Sage, Thousand Oaks.
- Mignonac, K., Herrbach, O., 2003. Managing individual career aspirations and corporate needs: a study of software engineers in France. *J. Eng. Tech. Manag.* 20, 205–230.
- Miller, H.E., Terborg, J.R., 1979. Job attitudes of part-time and full-time employees? *J. Appl. Psychol.* 64 (4), 380–386.
- Miller, P., 2009. The gender pay gap in the US: does sector make a difference. *J. Labor Res.* 30 (1), 52–74.
- Moral-Arce, I., Sperlich, S., Fernández-Saínz, A.I., Roca, M.J., 2012. Trends in the gender pay gap in Spain: a semiparametric analysis. *J. Labor Res.* 33 (2), 173–195.
- Mowday, R.T., Porter, L.W., Dubin, R., 1974. Unit performance: situational factors and employee attitude in spatially separated work unit. *Organ. Behav. Hum. Perform.* 12 (2), 231–248.
- Mowday, R.T., Steers, R.M., Porter, L.W., 1979. The measurement of organizational commitment. *J. Vocat. Behav.* 14 (2), 224–247.
- Mowday, R.T., Porter, L.W., Steers, R.M., 1982. *Organizational Linkages: The Psychology of Commitment, Absenteeism and Turnover*. Academic Press, San Diego, CA.
- Netemeyer, R.G., Boles, J.S., McMurrin, R., 1996. Development and validation of work–family conflict and family–work conflict scales? *J. Appl. Psychol.* 81 (4), 400–410.
- Netemeyer, R.G., Maxham, J.G., Pullig, C., 2003. *Work–family Conflict, Job Stress, and Customer Service Performance*. Working Paper. McIntire School of Commerce,

- The University of Virginia, Charlottesville, VA.
- Netemeyer, R.G., Brashear-Alejandro, T., Boles, J.S., 2004. A cross-national model of job-related outcomes of work role and family role variables: a retail sales context. *J. Acad. Market. Sci.* 32 (1), 49–60.
- Ng, T.W.H., Eby, L.T., Sorensen, K.L., Feldman, D.C., 2005. Predictors of objective and subjective career success? A meta-analysis. *Pers. Psychol.* 58 (2), 367–408.
- Noah, Y., 2008. A Study of worker participation in management decision making within selected establishments in Lagos, Nigeria. *J. Soc. Sci.* 17 (1), 31–39.
- Nobbe, J., Manning, S., 1997. Issues for women in student affairs with children. *NASPA J.* 34 (2), 101–111.
- Noordin, F., Williams, T., Zimmer, C., 2002. Career commitment in collectivist and individualist cultures: a comparative study? *Int. J. Hum. Resour. Manag.* 13 (1), 35–54.
- Pérez-Camarés, A., 2010. Configuraciones del trabajo de cuidados en el entorno familiar. De la toma de decisión a la gestión del cuidado. *Alternativas: cuadernos de trabajo Social 17. Escuela Universitaria de Trabajo Social*, pp. 121–140. <http://dialnet.unirioja.es/servlet/articulo?codigo=3434608>.
- Pérez-Díaz, V., Chuliá, E., López Novo, J.P., Álvarez-Miranda, B., 2010. Catholicism, Social Values and the Welfare System in Spain. 102b. *ASP Research Paper*. (Madrid). <http://asp-research.com/pdf/Asp102.pdf>.
- Parasuraman, S., Purohit, Y.S., Godshalk, V.M., Beutell, N.J., 1996. Work and family variables entrepreneurial career success, and psychological well-being. *J. Vocat. Behav.* 48 (3), 275–300.
- Pasamar, S., Valle, R., 2013. Work-life balance under challenging financial and economic conditions. *Int. J. Manpow.* 34 (8), 961–974.
- Peiró, J.M., Sora, B., Caballer, A., 2012. Job insecurity in the younger Spanish workforce: causes and consequences. *J. Voc. Behav.* 80 (2), 444–453.
- Peluchette, J., 1993. Subjective career success: the influence of individual difference, family and organizational variables. *J. Vocat. Behav.* 43 (2), 198–208.
- Perrow, C., 1986. *Complex Organizations: A Critical Essay*. Random House, New York.
- Podsakoff, P.M., Organ, D.W., 1986. Self-reports in organizational research: problems and prospects? *J. Manag.* 12 (2), 531–544.
- Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y., Podsakoff, N.P., 2003. Common method Biases in behavioral research: a critical review of the literature and recommended. *J. Appl. Psychol.* 88 (5), 879–903.
- Poelmans, S.A., Chinchilla, N., Cardona, P., 2003. The adoption of family friendly HRM policies: competing for scarce resources in the labour market. *Int. J. Manpow.* 24 (2), 128–147.
- Ponce-Díaz, C.R., Bulnes-Bedón, M.S., Aliaga-Tovar, J.R., Atalaya-Pisco, M.C., Huerta-Rosales, R.E., 2005. El síndrome del quemado por estrés laboral asistencial en grupos de docentes universitarios? *Rev. Invest. Psicol.* 8 (2), 87–112.
- Powell, G., Mainiero, L., 1992. Cross-currents in the river of time: conceptualizing the complexities of women's careers. *J. Manag.* 18 (2), 215–237.
- Puah, P., Ananthram, S., 2006. Exploring the antecedents and outcomes of career development initiatives: empirical evidence from Singaporean employees? *Res. Pract. HRM* 14 (1), 112–142.
- Roger, H., Leonard, S., Zornitsky, J., 1996. Internal service quality: customer and job satisfaction: linkages and implications for management. *Hum. Resour. Plann.* 19 (2), 20–31.
- Rosenberg, M., Pearlin, L.I., 1978. Social class and self-esteem among children and adults. *Am. J. Sociol.* 84, 53–77.
- Rotchford, N.L., Roberts, K.H., 1982. Part-time workers as missing persons in organizational research. *Acad. Manag. Rev.* 7 (2), 228–234.
- Sánchez-Vidal, M.E., Cegarra-Navarro, J.G., Cegarra-Leiva, D., 2011. Infiuye el conflicto trabajo-vida personal de los empleados en la empresa? *Univ. Bus. Rev.* 29, 100–115.
- Saravanabawan, A., Uthayatharshika, M.S.J., 2014. Examining the impact of overqualification on employees' job attitudes and behaviour: evidence from banking sector employees in Sri Lanka. *Int. J. Econ. Comm. Manag.* II 5, 1–14.
- Schneer, J.A., 1995. The impact of gender as managerial careers unfold. *J. Vocat. Behav.* 4, 290–315. <http://www.sciencedirect.com/science/article/pii/S000187918570005X>.
- Sekaran, U., 1983. Factors influencing the quality of life in dual-career families? *J. Occ. Psychol.* 56 (2), 161–174.
- Sinclair, R.R., Tucker, J.S., Cullen, J.C., Wright, C., 2005. Performance differences among four organizational commitment profiles? *J. Appl. Psychol.* 90 (6), 1280–1287.
- Strober, M.H., 1982. The MBA: Same passport to success for women and men? In: Wallace, P.A. (Ed.), *Women in the Workplace*, 25–44. Auburn House, Boston.
- Stroh, L., Brett, J., Reilly, A., 1996. Family structure: glass ceiling and traditional explanations for the differential rate of turnover of female and male managers. *J. Vocat. Behav.* 49 (1), 99–118.
- Tabachnik, B., Fidell, L., 2001. *Using Multivariate Statistics*, 4th edition. Pearson, Needham Heights, MA.
- Tenbrunsel, A., Brett, J., Maoz, E., Stroh, L., Reilly, A., 1995. Dynamic and static work-family relationships? *Organ. Behav. Hum. Decis. Process.* 63 (3), 233–246.
- Tessema, M., Soeters, J., Abraham, K., 2005. Practices and challenges of the training and utilization of labour in sub-Saharan Africa: the case of the Eritrean civil service. *Int. J. Train. Dev.* 9 (4), 214–230.
- Thompson, C.A., Beauvais, L.L., Lyness, K.S., 1999. When work-family benefits are not enough: the influence of work-family culture on benefit utilization organizational attachment, and work-family conflict. *J. Vocat. Behav.* 54 (3), 392–415.
- Thorsteinson, C., 2003. *Professional Development and Study Groups: Perceptions of School Personnel* Doctoral Dissertation. University of Lethbridge, Faculty of Education, Lethbridge, Alta.
- Traavik, L.E.M., Richardsen, A.M., 2010. Career success for international professional women in the land of the equal?: Evidence from Norway. *Int. J. Hum. Resour. Manag.* 21 (15), 2798–2812.
- Tremblay, M., Wils, T., Proulx, C., 2002. Determinants of career path preferences among Canadian engineers? *J. Eng. Tech. Manage.* 19 (1), 1–23.
- Valcour, M., Ladage, J.J., 2008. Family and career path characteristics as predictors of women's objective and subjective career success: integrating traditional and protean career explanations. *J. Vocat. Behav.* 73, 300–309.
- Wayne, S.J., Liden, R.C., Kraimer, M.L., Graf, I.K., 1999. The role of human capital: motivation and supervisor sponsorship in predicting career success. *J. Org. Behav.* 20 (5), 577–595.
- Wheelock, J., Jones, K., 2002. Grandparents are the next best thing: informal childcare or working parents in urban Britain. *J. Soc. Policy* 31 (3), 441–463.
- Williams, M.L., Ford, L.R., Dohring, P.L., Lee, M.D., MacDermid, S.M., 2000. Outcomes of reduced load work arrangements at managerial and professional levels: perspectives from multiple stakeholders. In: Paper Presented at the Annual Meeting of the Academy of Management. Toronto, ON.
- Williamson, J.M., Lounsbury, J.W., Han, L.D., 2013. Key personality traits of engineers for innovation and technology development. *J. Eng. Tech. Manage.* 30, 157–168.
- Yap, M., Holmes, M., Hannan, C.A., Cukier, W., 2014. Correlates of career satisfaction in Canada- the immigrants' experience. *J. Int. Migr. Integ.* 15 (1), 49–71.
- van Knippenberg, D.B., van Knippenberg, E., van Dijk, 2000. Who takes the lead in risky decision making? Effects of group members' risk preferences and prototypicality. *Organ. Behav. Hum. Decis. Process.* 83 (2), 213–234.
- van Knippenberg, D., 2000. Work motivation and performance: a social identity perspective. *Appl. Psychol.: An Int. Rev.* 49, 357–371. <http://dx.doi.org/10.1111/1464-0597.00020>.