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# Gender Differences in Expressing the Job Satisfaction Among Scientists

Željka Bojanić

Provincial Secretariat for Science and Technological Development, Novi Sad, Bulevar Mihajla Pupina 16, Serbia,  
[Zeljka.Bojanic@Vojvodina.gov.rs](mailto:Zeljka.Bojanic@Vojvodina.gov.rs)

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## Abstract

*On a sample of 400 respondents, consisting of scientists working at the University of Novi Sad, a study was conducted by means of an on-line questionnaire based on the theoretical concepts of Herzberg's two-factor theory of motivation, with the aim of testing the attitude of scientists towards their job satisfaction. The starting point in the study is the expectation that there is a significant correlation between the human capital features and job satisfaction at the institutions of higher education of the University of Novi Sad. Job satisfaction of researches has been measured with regard to the gender of respondents. The method used to demonstrate the differences in attitudes of scientists in job satisfaction with regard to their gender was method of variance analysis. According to the study, when considering gender and job satisfaction according to gender, the results indicate that men demonstrate a higher degree of job satisfaction compared to women. The male respondents surveyed are more satisfied with their job than their female colleagues, in terms of advancement, amount of salary and overall appreciation of them as professionals. Female scientists are of the opinion that they are not adequately rewarded for the tasks they perform. Additionally, they are dissatisfied with the conditions in respect of the personal promotion and professional advancement at the faculty. They do not consider being good at one's job a necessary prerequisite for promotion. This study has substantiated the results indicating that there are more male than female PhD title holders. Due to a range of obligations ahead of women (such as marriage, family, children), they find it more difficult to harmonise their personal and professional life.*

**Key words:** human capital, job satisfaction, gender differences, scientists

## 1. INTRODUCTION

A number of scientific papers have confirmed that job satisfaction is one of the most precise indicators of the work motivation. Job motivation is conditioned by a range of correlated factors of variable relevance, depending on a series of objective and subjective conditions. Job satisfaction is generally considered from two standpoints. There are attempts to determine the factors conditioning the satisfaction on the one, along with the consequences the job satisfaction / dissatisfaction has on other attitudes, productivity and various other forms of the work, on the other hand. In the beginning, the studies of factors that lead to job satisfaction implied that there is only one general factor. However, an indisputable fact was verified later on, stating that there are numerous factors influencing the job satisfaction. The factors are interactive and change depending on personal traits of employees, socio-demographic characteristics, jobs performed, work situations, characteristics of the organisation and the level of life satisfaction in general.

## 2. MOTIVATION TO WORK

If motivation is defined as the process that initiates, guides and maintains goal-oriented human behaviour, a person's motivation is one of the most significant factors, able to a great extent, to organise, guide and influence the quality and intensity of employees in the work process. Work motivation is analysed on the basis of employees' satisfaction with particular job aspects, by studying the employees' attitudes towards individually analysed job segments [1].

One of the crucial issues in occupational psychology is understanding the relations between the outer (extrinsic) and inner (intrinsic) work motivation. Psychologists, as well as all those having knowledge of the human nature, emphasise the importance of the inner motivation, while those with only a superficial understanding of a person's attitude towards work, mainly recognise the outer work motivation only. A theoretic approach justifying the outer work motivation is found in the perception of an individual as a rational economic being, originating from classical, the so called machine theory of organisation, while the perceptions of an individual as a social being or perceptions of an

individual as self-actualised person represent the theoretic approaches justifying the use of the inner motivation, originating from subsequent, the so called psychological theories of organisation [2].

In early 20<sup>th</sup> century, a dominant perception of an economic man referred to the idea that an employee was only motivated to work by earnings. An employee commences employment at a work organisation in order to earn the money he needs to satisfy his other needs, primarily basic, existential needs, such as the need for food, housing, clothing and so on. Satisfaction of other needs is accomplished outside the work organisation, i.e. in the employee's private sphere. Outside the work organisation the employee satisfies various social needs and needs of his ego, experiences love and friendship, demonstrates creativity in sports, arts and his social life. An employee modelled upon the economic man, satisfies, within the work organisation, his existential needs by ensuring earnings, but all his other needs are not satisfied there, as their satisfaction is postponed until the period other than working hours. In this manner the role of work is separated from a work-free life and is placed in the world of necessity, because "he works in one place to live in another one". The rational economic motivation of employees, if not combined with other motivational approaches, cannot be sufficient [3] because, if it only stimulates the employees to come to work and carry out the tasks assigned by their superior, it may lead to working without enthusiasm and interest, resulting in the employees that are neither satisfied, nor efficient [4].

The well-known Hawthorne studies shifted the focus of work motivation to the social motivation, indicating the motivational value of interpersonal relations at work. In an early phase of this study, at the plants of Western Electric Company in Hawthorne, USA, it was detected that mere attention paid to the work of the observed female employees resulted in their greater commitment and work performance [5]. It was the phenomenon that was later referred to as the Hawthorne effect, stating that working for money only is not sufficient to employees, it is their human need to work for someone, in presence of someone, that is, to receive the social recognition of their work and work behaviour in the form of paying attention to them, showing approval or appreciation. In this respect, a new approach was developed according to which an employee is primarily a social being and work motivation based on the social motives is equally significant as the one founded on the economic motives, even more significant than that. That new concept has received a number of other empirical verifications in different studies that followed, also becoming the backbone of the Human Relations School of Management. George Elton Mayo, 1933, is the most prominent representative of the Human Relations School of Management. He introduced the importance of the human factor in the work organisations, stressing out the relevance of satisfaction of the employees' social needs. First of all, the emphasised the importance of the employee and significance of establishing friendly interpersonal relations, as opposed to the physical conditions at work. Work motivation,

working morale and productivity are connected to social relations among the employees and between the employees and their manager. According to Mayo's conclusions, based on the Hawthorn studies results, it was perceived that working in large organisations, industrial ones in particular, was fragmented into small operations whose purpose is difficult to discern, so the employee sees no other purpose of such work except that it produces his earnings. In the social component of that work, however, the purpose has been preserved if the employee belongs to a particular group in which he acquires and maintains his reputation, which shows appreciation for him and accepts him. This supports the arguments in favour of applicability of social work motivation.

Mayo's conclusions at the same time prompted the questions whether it is possible to help the employees to discover the lost purpose, by sharing the fragmented operations, whether these operations could gain a new purpose and could these tasks be replaced or supplied with a better conceived activity. In practice, it turns out that these possibilities exist in some industrial organisations, but not everywhere, nor in the same amount. This concept of engaging the employees points to the applicability of the egoistic motivation to work, arising out of the need to satisfy our "self" through self-assessment, the need for autonomy and independence and the need for self-actualisation. In dealing with the issue of egoistic work motivation, a new concept is created, according to which the employee is primarily a self-actualising individual, striving, in the work organisation, to offer the best of his skills and other potentials. The notion of the employee as a self-actualising individual, in the organisation's context, is one of the roots of the formulated human resources doctrine.

Previous studies have indicated that motivation and job satisfaction depend on the two sets of factors: general (pertaining to the socio-economic conditions, type of job, working conditions) and individual socio-psychological factors (such as position, social background, employee's qualification, personal traits and value systems determining the employees' behaviour).

In order to obtain answers to issues regarding motivation, a great number of theories may be classified into two groups: content theories and process theories.

## 2.1 Content theories of motivation

Content theories discuss the content and types of motives, i.e. all the things that motivate people. These theories are attempting to answer the question: Why do people work? If we had the answer to this question and if we knew what needs and motives drive people to work, we would be able to motivate the employees adequately and therefore stimulate the additional commitment to work. These theories are aimed to define the needs that drive people to behave in a particular way. A typical example of an approach to the problem in the content models of motivational theories

may be found in the following quotation by Howell: *“Find out a man’s motives and you have made a great step in resolving the issue of different attitudes towards one’s job and differences in behaviour. Think of the ways how to satisfy the relevant motives and get a recipe for organisational success”* [6]. Content theories of motivation include: Maslow’s hierarchy of needs, Alderfer’s ERG model and Herzberg’s two-factor theory.

**2.2 Process theories of motivation**

Process theories contemplate the motivation process, i.e. how people get motivated. Process theories provide the answer to the question: How do people decide to work? They discover the process in which people get motivated to undertake certain activities. Process theories include the following: the Adams’ equity theory or equality in social exchange, Vroom’s expectancy theory and Porter-Lowler model of motivation.

**3. MOTIVATION – HYGIENE APPROACH TO MOTIVATION (THEORY BY F. HERZBERG)**

In the list of books studying the job satisfaction, the most common starting point is the theory by F. Herzberg. Regardless of the fact that Herzberg established his theory in the late 50’s of the previous century, when the positions on organisation management were much more different from the present day positions, a number of subsequent studies has been based on the fundamental principles of Herzberg’s theory.

Until the emergence of Herzberg’s theory, it was assumed that identical factors influence both job satisfaction and dissatisfaction. The novelty introduced by Herzberg in the theory of work motivation includes the perception that job satisfaction is a continuum influenced by one set of factors, while job dissatisfaction is another continuum influenced by another set of factors. The Herzberg’s [7] two-factor theory is based on the separation of factors of the intrinsic (inner) from factors of the extrinsic (outer) motivation. The survey which formulated this theory was carried out by studying 200 engineers and economists from nine companies, in an industrial environment, i.e. it involved the respondents from among experts. In the survey, the respondents “were required to specify the situations in which, in the course of their employment, they felt very well or very bad. The analysis of the content of 500 answers to that question indicated that the factors listed in these answers could be divided into a number of categories, but those listed for pleasant feelings differed from the factors associated with unpleasant feeling” [8]. According to this theory, the intrinsic factors causing satisfaction are associated with the job content (job, recognition, advancement) and they satisfy the individuals’ need to prove themselves (need for accomplishments, recognition, responsibilities, personal fulfillment through the job nature itself and need for

personal development and advancement, for self-actualisation). They are able to motivate people to work, have motivating needs and are referred to as motivators or job content factors. These needs get satisfied only if a person holds a stimulating and challenging job position, engaging the person in an adequate manner. The absence of motivators still does not lead to dissatisfaction, only to the absence of satisfaction. Dissatisfaction is caused by another set of factors that do not arise from the very nature of work, but from characteristics of the environment in which the work is carried out, mainly referring to the physical conditions of the working environment, social conditions of the working environment (the management and administration system, interpersonal relations), safety at work, salary distribution, business policy and workplace status. These factors are called contextual factors (environmental factors) or hygiene factors, since they have preventive effect; they prevent dissatisfaction, but are not sufficient to cause satisfaction

**Table 1.** Factors influencing motivation (F. Herzberg):

<i>External factors (hygiene)</i>	<i>Internal factors (motivators)</i>
Working conditions	Job purpose and content
Company’s business policy	Achievement and success
Salary	Possibility of improvement and self-actualisation
Benefits	Advancement possibility
Management	Responsibility towards work
Interpersonal relations	Recognition

When studying the influence of these two sets of factors on job satisfaction and/or dissatisfaction, Herzberg concludes that the character of motivational quality of these two sets of factors is essentially different. This means that they represent two completely different sets of factors, one of which causes satisfaction, while the other one leads to dissatisfaction. The positive motivation and increased productivity may only be influenced by the first set of factors, whereas the control of the other set of factors may eliminate or reduce dissatisfaction, but not also increase satisfaction. [9]. Motivators lead to satisfaction and motivate persons to commit, while the hygiene factors only protect against dissatisfaction and do not lead to motivation. Results of subsequent studies have not verified such a clear distinction between motivators and hygiene factors, as demonstrated by the results of studies carried out by Herzberg and his associates [8]. However, the lasting value of this model is in that it enables us to distinguish the motivational influence of the job content from the influence of the job context, or in other words, to distinguish intrinsic from extrinsic factors of motivation. T. Watson [10] criticised the motivation-hygiene theory, believing that Herzberg completely ignored the employees’ participation in management, as one of significant factors of motivation, which, according to Watson, should be classified in the first set of factors, according to Herzberg’s classification.

In 1966, Herzberg supplemented his theory with assumptions on the effects of the employees’ inclusion in the decision

*Howell’s quotation has been translated from the Serbian language for the purposes of this paper*

making process on motivation. However, that supplement was not based on concrete empirical research, and was, therefore, not sufficiently convincing.

Herzberg's theory has neither been verified nor rejected. Numerous studies that applied the same methodology (the critical incident methodology) had similar results. However, the studies in which different methodology was used did not have the same results or the ones similar to Herzberg's. For instance, when people are required to describe pleasant events, it has a connotative effect on them, so they are trying to describe in the most positive way. The same respondents behaved the opposite way when describing some unpleasant incidents. Based on that, the main objection to Herzberg's theory is the subjectivity of the obtained results. A positive side of this theory is the fact that, in addition to strictly psychological factors, Herzberg pointed to the relevance of more extensive physical and social conditions of the working environment as factors of work motivation.

### 3.1 External factors (hygiene factors)

- Physical working conditions
- Company's business policy
- Amount of salary and benefits
- Management
- Interpersonal relations

### 3.2 Internal factors (motivators)

Motivators are factors that may ensure job satisfaction by fulfilling the individual needs for purpose and achievement in work. According to this theory, the following are considered to be motivators:

- Job purpose and contents;
- Achievement and success;
- Possibility for improvement and self-actualisation;
- Recognition;
- Advancement possibility.

## 4. THE STUDY

### 4.1 Problem of the study

The problem of the study was to establish the correlation between job satisfaction and gender among the researches of the University of Novi Sad.

### 4.2 Sample of respondents

The sample of respondents included the scientists employed at the University of Novi Sad, who entered all the data on their previous scientific results and personal and professional information in the scientific records, compiled in the electronic form in the database of the Provincial Secretariat for Science and Technological Development. The overall sample involved 400 respondents, 213 of whom were male and 184 female respondents.

## 4.3 Instruments

A questionnaire designed by the author Željka Bojanić [11] was used to measure job satisfaction. It was developed on the basis of theoretic postulates of Herzberg's motivation-hygiene approach to motivation (describing internal and external factors that influence one's job satisfaction). Several factors were selected according to which job satisfaction was measured. These included the following:

- internal (advancement, recognition, achievement and success, responsibility towards work and self-actualisation) and external (money, amount of salary, benefits, business policy, working conditions and interpersonal relations);
- willingness to accept changes (changes conditioned by the Bologna Declaration);
- evaluation and self-evaluation;
- organisational aspects of the University;
- business communication and exchange of information among scientists at the University of Novi Sad, as well as the exchange of information with other universities at the national and international level and other state institutions in the domain of education and science.

The respondents responded to questions from the questionnaire according to the instructions provided at the beginning of the questionnaire, by choosing one of the five alternatives provided along the summarised attitude scale. It is a Likert type of scale, which contains statements for which the respondents, by giving answers, express their degree of agreement and/or disagreement (starting from 1 which denotes a complete disagreement with the content of the statement, to 5, denoting a full agreement with the content of the statement).

The questionnaire that measures attitudes of scientists regarding their job satisfaction was distributed via electronic mail. It was presented in the form of a Web application, which contributed to the efficiency of responding, and answers were provided in a short period of time. Automatic update of database was carried out after completing the questionnaire.

### 4.4 Hypothesis of the study

The hypothesis was formulated in accordance with the problem being the subject matter of the study, and it reads as follows: "There is a difference in expressing the job satisfaction among the scientists depending on the gender".

## 5. RESULTS

By using the method of variance analysis in relation to an independent variable of gender, the results were obtained indicating that there are differences in attitudes in terms of job satisfaction among the scientists. The results obtained on the basis of respondents' answers to questions from the questionnaire will be presented in the further analysis.

*-I think that people who are good at their job have greater chances of promotion*

GENDER	$\bar{x}$ (arithmetic mean)	Method of variance analysis
MALE	3.24	0.050
FEMALE	2.98	

As expected, to the statement “*I think that people who are good at their job have greater chances of promotion*”, the female scientists responded in a more critical manner than their male colleagues when discussing the attitude that those who are good at their job are more likely to be promoted. This result matches the results of similar studies carried out nationally and internationally. So far, the promotion of women has always depended on different forms of tangible and intangible obstacles, being conditioned by their gender.

*- I think that we would be more efficient than foreign scientists if we had better technical capacities at disposal.*

GENDER	$\bar{x}$ (arithmetic mean)	Method of variance analysis
MALE	3.73	0.036
FEMALE	3.59	

To the statement “*I think that we would be more efficient than foreign scientists if we had better technical capacities at our disposal*”, as shown in the table, the responses were uniform, since the respondents assessed the effects of technical capacities on scientists’ promotion and scientific development in our country. Both male and female respondents are of the opinion that we would be more efficient than foreign scientists if we had better technical capacities at disposal.

*-The Faculty provides me with the conditions necessary for my personal promotion.*

GENDER	$\bar{x}$ (arithmetic mean)	Method of variance analysis
MALE	3.17	0.033
FEMALE	2.88	

To the statement “*The Faculty provides me with the conditions necessary for my personal promotion*”, both male and female respondents said that they do not think very highly of the conditions for their personal promotion provided by the Faculty, noting that female respondents were to certain extent more critical in this respect.

*-I have frequently been invited to participate in scientific conferences organised in our country.*

GENDER	$\bar{x}$ (arithmetic mean)	Method of variance analysis
MALE	3.81	0.027

FEMALE	3.52	
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To the statement “*I have frequently been invited to participate in scientific conferences organised in our country*”, both male and female respondents expressed an average degree of satisfaction. However, a slightly lower degree of satisfaction has been recorded among women.

*-I think that I have been adequately rewarded for the job I perform.*

GENDER	$\bar{x}$ (arithmetic mean)	Method of variance analysis
MALE	3.01	0.026
FEMALE	2.71	

To the statement “*I think that I have been adequately rewarded for the job I perform*”, both male and female respondents expressed dissatisfaction. They think they are not adequately rewarded for the job they perform. Women, in particular, have expressed a lower degree of satisfaction in term of reward. Women think they are less rewarded for the job they perform.

*-I am satisfied with my status among my colleagues.*

GENDER	$\bar{x}$ (arithmetic mean)	Method of variance analysis
MALE	4.21	0.007
FEMALE	3.95	

To the statement “*I am satisfied with my status among my colleagues*”, the respondents expressed a relatively high degree of satisfaction with their status among their colleagues. Among the female respondents, the satisfaction was slightly lower. Nevertheless, it may be concluded that women in the academic environment are relatively satisfied with the status among their colleagues, resulting from the fact that gender differences are more easily overcome in this environment.

## 6. CONCLUSION

By analysing the previously mentioned results, we may conclude that women, female scientists, express a lower degree of satisfaction than their male colleagues. Their dissatisfaction is primarily related to rewarding, advancement and personal promotion. Women are of the opinion that they are not adequately rewarded for the job they perform. They are also dissatisfied with conditions provided for the achievement of personal promotion and advancement at the faculty. They are not of the opinion that being good at one’s job is automatically a prerequisite for promotion. In more recent studies, the results of analyses concerning job satisfaction depending on the gender structure [12] only confirm the results achieved, indicating that female scientists express a high level of job dissatisfaction when it comes to aspects such as advancement, recognition, amount of salary, benefits,

communication and exchange of information. In addition, the results obtained in the study of job satisfaction among scientists working at universities and colleges in the United States of America verify the previous results [13], indicating that female scientists hold a negative perception towards advancement and personal promotion and they are concentrated in lower-rank positions, resulting in a low level of the overall job satisfaction. As opposed to them, male scientists are satisfied with their earnings and advancement policy. They most often hold the positions of associate professors or full professors and demonstrate a high level of the overall job satisfaction.

One of the explanations of the differences that were obtained with regard to gender of respondents could be related to cultural, society-based and social issues or associated with the social status of women in the society, regardless of the nature of their job.

Taking into account all the efforts that women need in order to reconcile a range of social roles they play in our society, it is only logical that they tend to be less satisfied with their job than men, even in the environment such as a university. With all of their regular obligations, women find it more difficult to harmonise their personal life (marriage, family, children) and their professional life.

This study is in favour the opinion that men are more likely to hold the PhD title than women.

One of the recommendations to universities, for the purpose of increasing job satisfaction, would be to pay attention to the advancement and promotion policy and different benefits, regardless of the prejudices and stereotypes in respect of male and female jobs. This is the only way for universities to attract and keep the

high-quality female educational staff that would be able to express a high level of job satisfaction. The success of any university will depend on their ability to accept and keep the high-quality, talented and successful professors regardless of their gender

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## Polne razlike u izražavanju zadovoljstva poslom među naučnicima

Željka Bojanić

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### Rezime

Na uzorku od 400 učesnika, odnosno naučnika koji rade na Univerzitetu u Novom Sadu, izvedena je studija pomoću on-line upitnika zasnovana na teorijskim konceptima Herzbergove motivaciono-higijenske teorije, sa ciljem da se testira stav naučnika prema zadovoljstvu poslom. Početna tačka studije je u očekivanju da postoji značajna korelacija između ljudskog kapitala i zadovoljstva poslom na institucijama visokog obrazovanja na Univerzitetu u Novom Sadu. Zadovoljstvo poslom istraživanja je mereno na osnovu pola učesnika. Metod koji je korišćen da demonstri razlike u stavovima naučnika prema zadovoljstvu poslom na osnovu njihovog pola jeste metod analize varijanse. Prema studiji, kada se posmatra pol i zadovoljstvo poslom prema polu, rezultati ukazuju da muškarci pokazuju veći stepen zadovoljstva poslom u odnosu na žene. Muški učesnici u studiji su zadovoljniji svojim poslom od svojih koleginica, u odnosu na napredovanje, iznos plate i sveukupno poštovanje prema njima kao profesionalcima. Žene naučnici imaju mišljenje da nisu adekvatno nagrađene za zadatke koje ispunjavaju. Dodatno, nisu zadovoljne uslovima vezanim zalično napredovanje i profesionalno unapređivanje na fakultetima. One ne smatraju da je biti dobar na poslu neophodan preduslov za unapređenje. Ova studija je potkrepila svoje rezultate ističući da ima više muškaraca nego žena koji su doktori nauka. Uzimajući u obzir raspon obaveza koje se nalaze pred ženama (poput braka, porodice, dece), one smatraju da je mnogo teže postaviti ravnotežu između njihovog ličnog i profesionalnog života.

**Ključne reči:** ljudski kapital, zadovoljstvo poslom, polne razlike, naučnici