

Motivation Factors in the Portuguese Air Force

Marta Berhan da Costa, Maria Eduarda Soares*
Advance, ISEG, Universidade Técnica de Lisboa, Lisboa, Portugal
mes@iseg.utl.pt

Abstract

Motivation is a critical issue for organizations, since it can enhance employees' performance. Several authors have argued that motivation factors are strongly context-related but many studies use standard motivation questionnaires, including intrinsic and extrinsic aspects of motivation, but without adapting them to the organizations studied.

The purpose of the present paper is to analyze motivation factors and their relationship with job satisfaction in the specific context of the Portuguese Air Force (PAF). Specific PAF aspects were included in the questionnaires used. Levels of motivation and job satisfaction among PAF members and their variance in some groups are also analyzed.

Introduction

Motivation is a theme that has widely captured the attention of both the managerial and the academic world. Several studies have provided evidence that motivation contributes to individual and organizational effectiveness [e.g. 1, 2, 3, 4]. Current motivation theories seek to provide frameworks that help understanding how to enhance individuals' enthusiasm and satisfaction with their jobs and tasks [5]. With this aim, several studies have investigated motivation dimensions or factors [e.g. 5, 6], in order to identify different facets of motivation.

In the vast body of literature on motivation, two issues are frequently mentioned. Firstly, it has often been argued that both motivation and job satisfaction are strongly influenced by the organizational context, namely by the organizational culture [e.g. 6, 7, 8].

Secondly, there is a long-standing debate on the relationship between job satisfaction and motivation [e.g. 9, 10, 11]. This paper aims to provide some empirical contribution to these debates by 1) investigating motivation factors in an organization with a very specific culture – the Portuguese Air Force (PAF); and 2) analyzing the relationship between PAF's motivation factors and job satisfaction.

Research Problem, Objectives and Plan

Despite the fact that it has long been recognized that motivation factors are context-related, most studies use standard motivation questionnaires. Items are often developed based on Herzberg *et al.*'s [6] distinction between intrinsic and extrinsic aspects of the job, while aspects of the organizational culture and values are generally neglected.

Through a small series of interviews conducted with individuals from different military ranks at PAF (officers, sergeants, and soldiers), we first attempted to identify which aspects of the organizational culture are seen as potentially motivating PAF's personnel.

Secondly, a questionnaire was sent to all PAF employees, including items related to intrinsic and extrinsic aspects of the job, as well as aspects of the organizational culture identified in the interviews. Through factor analysis we analyzed whether aspects of the

organizational culture were captured in a separate factor. The questionnaire also included a measure of job satisfaction, so that the relationship between the motivation factors obtained and job satisfaction could be analyzed. Finally, we analyzed levels of motivation and job satisfaction among PAF members and their variance in some groups.

Literature review

Motivation can be defined as “the processes that account for an individual’s intensity, direction, and persistence of effort...” [12, p. 155]. Job satisfaction refers to “the extent to which people are satisfied with their work” [13, p. 155].

Herzberg *et al.*’s [6] two-factor theory identified two distinct facets of work, labeled as “motivators” and “hygiene factors”. While the former are intrinsic to the job itself and seen as contributing to job satisfaction, the latter are extrinsic to the job and seen as contributing to dissatisfaction if they are not met. However, there is a long standing debate as to whether hygiene/extrinsic factors can contribute to job satisfaction [e.g. 5, 14, 15].

The *Work Values Questionnaire* [16] has often been used to analyze motivation factors [e.g. 5, 17]. Factor scores have demonstrated that responses could be classified according to Herzberg *et al.*’s [6] intrinsic/extrinsic categories. For example, in Furnham *et al.*’s work [5], three factors were identified, where extrinsic items largely defined the first factor and intrinsic items were predominant in the remaining two factors.

However, as mentioned before, we were unable to find studies where organizational culture and organizational values were included in the questionnaire used. Since both motivation and job satisfaction are strongly influenced by the organizational context [e.g. 9, 10, 11], we considered that a study that empirically analyzed this issue would be of relevance.

Developing the research model and Hypotheses

The research method followed in this paper is essentially exploratory, since we were unable to find previous studies using aspects of a specific organizational culture as items in a motivation questionnaire. Hence, no hypotheses are formulated.

Population and Sample design

The PAF population consisted of 7833 employees in 2012. Data were obtained for 504 participants, including 237 officers (47%), 190 sergeants (37.7%) and 77 soldiers (15.3%). As far as gender is concerned, 389 participants were male (77.2%) and 115 female (22.8%). The average age was 35 years and the average tenure in the organization was 15 years. For education levels, 255 participants had a university degree (50.6%), 247 completed high school (49%) and only two participants (0.4%) had a basic education level (primary school). The sample includes 358 permanent workers (71%) and 146 temporary workers (29%).

Research Design and Data Collection

The data collection process was divided into two stages, both conducted in the first quarter of 2012. In the first stage, six interviews were undertaken with officers (2), sergeants (2) and soldiers (2), in order to identify specific motivation aspects at PAF. These interviews allowed the identification of 10 items (see Table I). Examples include “Wearing an uniform I am proud of”, “Having the opportunity to serve my country”, and “Following values such as mission, hierarchy, discipline, security and obedience”.

In the second stage, an e-mail was sent to all PAF employees, asking them to answer a questionnaire for which a link to an internet site (Survey Monkey) was given. This questionnaire included three parts. The first part concerned motivation factors and included the 37 items of the *Work Values Questionnaire* (WVQ) [16], as well as the 10 items derived

from the interviews. The second part was related to job satisfaction, with the 5 items from the *Job Satisfaction Index* (JSI) [18], The third part included demographic questions such as gender, age, education level, military rank, tenure in the organization and contract situation. For the first two parts, a 6-point Likert scale was used.

Data analysis

Exploratory factor analysis was conducted on the 47 motivation items, with principal components as the extraction method and varimax as the rotation method. A scree plot led to the extraction of four factors (Table I)

The first factor is largely defined by extrinsic items related to pay, benefits and rewards. It includes one item that was added by the PAF interviews (“Having a job that provides easy access to health care”- PAF9) but this item is also related to benefits. Factor 1 was labeled “Extrinsic Motivation”.

The second factor includes 5 items that were derived from the PAF interviews. The factor also includes 4 items from the WVQ, but these can be clearly related to values considered important at PAF. For example “Having a job that allows me to work for a good cause” may have been interpreted in connection with “Having the opportunity to serve my country” (PAF2). Also, “Having a job that allows me to train others to pass on my expertise” may have been interpreted in connection with “Working in an organization where camaraderie is important” (PAF5). This provides some evidence that items related to the organizational culture form an independent factor. Factor 2 was labeled “Institutional motivation”.

The third factor is predominantly defined by intrinsic items related to personal development and stimulation. It also includes two items derived from PAF interviews (“Having a job that allows me to perform different functions during my career”- PAF1; “Having the opportunity to develop different skills”- PAF10). However, these two items are also related to personal development. Factor 3 was labeled “Intrinsic Motivation”.

The fourth factor includes extrinsic items related to convenient conditions and easy tasks, such as “Having a job that is relatively easy and does not require excessive effort” and “Having a job that is conveniently located and easily accessible”. This factor was labeled “Convenience Motivation”.

Only one item derived from PAF interviews did not clearly load in any of the factors. (“Being given many opportunities to pursue further education”- PAF3)

Subsequently, we analyzed the reliability of the four motivation scales derived from this factor analysis, as well as the reliability of the Job Satisfaction Index. All four motivation scales had a Cronbach’s alpha above .8 (.844; .875; .802; .816, respectively) and all items had item-scale correlations above .4. The Cronbach alpha for the *Job Satisfaction index* was also above .8 (.886) and all items had item-scale correlations above .3. Therefore, the reliability of the measures used in the study can be considered as acceptable for further analysis [19]. To compute respondents’ scores on the scales, we summed the answers for all items in that scale and divided the result by the number of items.

Table I – Factor analysis of the 47 motivation items

	Factor 1 Extrinsic Motivation	Factor 2 Institutional Motivation	Factor 3 Intrinsic Motivation	Factor 4 Convenience Motivation
Using my personal talents, education and training.	.109	.110	.585	-.159
Being involved in many different kinds of activities.	-.058	.055	.677	.073
Having a job that provides me with opportunities to cooperate with others.	-.049	.316	.603	-.049
Having a job that is generally recognized as “high-status” in our society.	.187	.222	.385	.231
Having a job that allows me to perform different functions during my career (PAF1)	-.092	.155	.560	.112
Having a job that allows me to lead a balanced life.	.294	.136	.452	-.188
Having a boss that is fair and considerate.	.399	.129	.399	-.109
Having a job that provides opportunities for self-improvement.	.285	.134	.638	-.180
Having a job that gives me a fair amount of publicity among my peers and superiors.	.222	.102	.514	.156
Having many opportunities for topping up the basic salary.	.607	.045	.224	-.008
Having a job that can be carried out in physically comfortable conditions.	.360	.315	.434	-.103
Having a job that provides me with opportunities to compete with others.	.138	.007	.394	.303
Having the opportunity to serve my country (PAF2).	-.075	.749	.083	-.063
Having a job that I personally find very interesting.	.303	.358	.464	-.007
Having many good opportunities for social contact with others.	.063	.446	.496	.065
Being given many opportunities to pursue further education (PAF3)	.237	.186	.338	.260
Having a job with many appropriate responsibilities.	.098	.342	.381	.226
Having a job that can be carried out in safe and secure conditions.	.296	.479	.228	-.048
Having the opportunity to contribute to the prestige of the organization (PAF4).	.046	.723	.232	.016
Having a job that can be performed in a standard, stable, and controlled manner.	.249	.338	.144	.331
Having a job within an organization that is widely recognized and respected	.268	.587	.244	.179
Having a job that allows me to train others to pass on my expertise.	.213	.569	.323	-.017
Working in an organization where camaraderie is important (PAF5).	.275	.639	.262	-.066
Having a job that allows me to control my destiny and be influential.	.456	.187	.382	.289
Having a pleasant working environment (PAF6).	.368	.418	.268	-.088
Having a job that allows me to work for a good cause.	.267	.553	.350	-.050
Having a job that provides health insurance.	.452	.303	.149	.235
Having a job that is secure and permanent.	.462	.331	.114	.187
Following values such as mission, hierarchy, discipline, security and obedience (PAF7)	.044	.764	.164	.104
Having a job that is well-paid in comparison to the civil world.	.592	.069	.030	.279
Wearing a uniform I am proud of (PAF8).	.234	.703	.010	.099
Having a job that provides easy access to health care (PAF9).	.617	.386	-.030	.055
Having a job that allows me to work autonomously without much supervision.	.325	-.018	.289	.382
Having a job that leads to clear and wide recognition of my achievements.	.562	.104	.295	.202

Table I – Factor analysis of the 47 motivation items (cont.)

	Factor 1	Factor 2	Factor 3	Factor 4
	Extrinsic Motivation	Institutional Motivation	Intrinsic Motivation	Convenience Motivation
Having a job that allows me to work flexible hours to suit my personal needs.	.493	-.135	.127	.405
Having a job that provides opportunities for rapid advancement.	.720	.221	.080	-.036
Having a job that provides many benefits additional to pay (e.g., pension top-ups, extra holidays)	.725	.102	.011	.251
Having a job with clear and well-defined roles and responsibilities.	.498	.291	.259	.003
Having the opportunity to develop different skills (PAF10)	.316	.303	.485	.006
Having a job that is challenging and involves a lot thinking and analysis.	.312	.197	.502	.044
Having a job that can be carried out with up-to-date equipment and technology.	.477	.239	.360	.023
Having a job that is not overly complicated.	-.107	.063	-.036	.824
Having a job that is not particularly stressful.	.090	.082	.004	.711
Having a job that can be carried out in conditions that are safe, modern, and clean.	.439	.444	.080	.079
Having a job that is relatively easy and does not require excessive effort.	-.103	.005	-.110	.836
Having a job that is conveniently located and easily accessible.	.315	.041	.000	.554
Having a job that provides many extras (e.g., company car, discounts on goods, etc.).	.302	-.097	.012	.633

One of the purposes of the study was to contribute to the debate on the relationship between motivation factors and job satisfaction. Table II shows that, at PAF, job satisfaction is significantly positively correlated with “Institutional Motivation”, “Intrinsic Motivation” and “Military rank”. It is noteworthy that the highest correlation is found with “Institutional Motivation” and that correlations with “Extrinsic Motivation” and “Convenience Motivation” are not significant. Therefore, PAF results are in accordance with Herzberg *et al.*'s [6] argument that extrinsic aspects of motivation do not contribute to job satisfaction. Also, aspects of the organizational culture, largely overlooked in previous research, present a significant relationship with job satisfaction.

The final purpose of this paper was to analyze levels of motivation and job satisfaction among PAF members and their variance in some groups.

Table III summarizes the means and standard deviations of the five scales in the sample. Since a 6-point scale was used, the theoretical mid-point is 3.5 for all the measures. With the exception of “Convenience Motivation”, the mean of all scales is above this theoretical mid-point. Therefore, in the total sample, there is indication of high satisfaction levels and that institutional issues, intrinsic motivation issues and extrinsic motivation issues related to pay, benefits and rewards are considered as very important motivation factors. Extrinsic motivation issues related to convenient conditions and easy tasks do not appear to be considered as having a high motivation power.

To analyze differences in sample groups, ANOVA was used. For “Intrinsic Motivation” no significant differences were found. For “Job Satisfaction” a significant difference was found for military rank ($p=.002$). For “Extrinsic Motivation” a significant difference was also found for military rank ($p=.015$). In both cases the mean of officers is significantly higher than the means of sergeants and soldiers.

Table II - Correlations

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1.Job Satisfaction	1	.023	.230**	.174**	.010	.050	.041	.121**	-.033	.065	.023
2.Extrinsac Motivation		1	.528**	.457**	.285**	.056	-.098*	-.121**	.000	-.072	-.048
3.Institutional Motivation			1	.549**	.072	.040	-.117**	-.073	-.089*	.049	.069
4. Intrinsic Motivation				1	.018	.124**	.010	-.002	.016	-.024	-.020
5. Convenience Motivation					1	.031	-.121**	-.179**	.205**	-.127**	-.122**
6.Gender						1	.058	-.134**	.278**	-.342**	-.363**
7.Education Level							1	.679**	.041	-.088*	-.165**
8.Military Rank								1	-.317**	.295**	.199**
9.Contract Situation									1	-.639**	-.709**
10.Age										1	.961**
11.Tenure											1

* p<.05 ** p<.01

For “Institutional Motivation” a significant difference was again found for military rank ($p=.042$) and for contract situation ($p=.047$). Officers’ mean is significantly higher than sergeants’ mean, and the mean for permanent workers is significantly higher than the mean of temporary workers.

For “Convenience motivation” significant differences were found for military rank ($p<.001$), contract situation ($p<.001$), age ($p<.001$), and tenure ($p<.001$). Soldiers’ mean is significantly higher than the means of officers and sergeants; the mean of temporary workers is significantly higher than the mean of permanent workers; the mean of younger employees (less than 25 years) is significantly higher than the means of older age groups; and the mean of employees with lower tenure in the organization (less than 5 years) is significantly higher than the means of employees in higher tenure groups.

Table III – Mean and standard deviation of the scales in the total sample

	N	Mean	Std. dev.
Job Satisfaction	504	4,3337	1,03212
Extrinsic Motivation	504	4,6499	,69083
Institutional Motivation	504	4,9951	,65059
Intrinsic Motivation	504	4,7108	,53037
Convenience Motivation	504	2,9298	,93080

Limitations and Further research

The sample size cannot be considered as representative of the PAF population, which limits the generalization of results. Furthermore, in the officers’ rank, generals were not included. Since employees were asked to participate via e-mail, the sample does not include employees who do not have access to this tool, hence the low number of participants with low education levels. Although anonymity was guaranteed it is not sure whether some participants might have been afraid of being identified. Therefore, results of high satisfaction and motivation levels may have been biased for this reason.

For future research, we would consider it relevant to undertake a similar research in other organizational contexts in order to verify if results are replicated, particularly in the case

of the emergence of a distinct “Institutional Motivation” factor. We would also suggest the inclusion of performance measures, in order to analyze the impact of different motivation factors on performance.

References

1. Gagné, M., & Deci, E. (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior*, 26, 331-62.
2. Islam, R., & Ismail, A. (2008). Employee motivation: a Malaysian perspective. *International Journal of Commerce and Management*, 18, 344-362.
3. Lord, R. (2002). Traditional motivation theories and older engineers. *Engineering Management Journal*, 14, 3-7.
4. Mitchell, T. (1982). Motivation: new directions for theory, research, and practice. *Academy of Management*, 7, 80-88.
5. Furnham, A., Eracleous, A., & Premuzic, T. (2009). Personality, motivation and job satisfaction: Herzberg meets the big five. *Journal of Managerial Psychology*, 24, 765-779.
6. Cohrs, J., Abele, E., & Dette, D. (2006). Integrating situational and dispositional determinants of job satisfaction: findings from three samples of professionals. *The Journal of Psychology*, 140, 363-395.
7. Tsai, Y. (2011). Relationship between organizational culture, leadership behavior and job satisfaction. *Health Services Research*, 11, 1-9.
8. Mitchell, T. R. (1997). Matching motivational strategies with organizational contexts. In L. L. Cummings & B. M. Staw (eds), *Research in Organizational Behavior*, vol 19. Greenwich, CT: JAI Press, 60-62.
9. Herzberg, F., Mausner, B., & Snyderman, B. B. (1959). *The Motivation to Work*, 2nd ed.. New York, NY: John Wiley and Sons.
10. Saleem, R., Mahmood, A., & Mahmood, A. (2010). Effect of work motivation on job satisfaction in mobile telecommunication service organizations of Pakistan. *International Journal of Business and Management*, 5, 213-222.
11. Grenway, B. (2008). The Relationship Between Employee Motivation and Job Satisfaction of African-American Human Service Employees. Doctoral Dissertation in Philosophy Applied Management and Decision Sciences. Walden University.
12. Robbins, S. P. (2003). *Organizational Behavior*, 10th edition. Upper Saddle River, NJ: PrenticeHall.
13. Warr, P. B. (2002). *Psychology at work*, 5th edition. Harmondsworth: Penguin
14. Fried, Y., & Ferris, G. (1987). The validity of the job characteristics model: a review and meta-analysis. *Personnel Psychology*, 40, 287-322.
15. Manolopoulos, D. (2008). An evaluation of employee motivation in the extended public sector in Greece. *Employee Relations*, 30, 63-85.
16. Mantech (1983). *Work Values Questionnaire*, Mantech, Auckland.
17. Furnham, A., Petrides, K. V., Tsaousis, I, Pappas, K., & Garrod, D. (2005). A cross-cultural investigation into the relationships between personality traits and work values. *Journal of Psychology*, 139, 5-33.
18. Brayfield, A., & Rothe, H. (1951). An index of job satisfaction. *Journal of Applied Psychology*, 35, 307-311.
19. Field, A. (2005). *Discovering statistics using SPSS*, 2nd edition. London, UK: Sage