

Investigation into Issues Related to the Productivity of Employees in an Oil and Gas Industry

Khalida Al Hakmani
Oman Gas Company
Muscat, Sultanate of Oman

Hamdi Bashir
Department of Industrial Engineering and Management
University of Sharjah
Sharjah, United Arab Emirates

Abstract

This paper summarizes the results of a study investigating how well the factors affecting employees' productivity in an oil and gas industry. Data required for this study were collected from 207 employees in the oil and gas industry in Oman. A general conclusion that can be drawn from the findings of this study is that in private companies, management and organization, career development and performance appraisal, and health and safety factors are better addressed than that in governmental organizations. As a result, employees in state-owned organizations are significantly less satisfied with their employers. This result might explain the reason behind the high worker turnover problem that has been suffered by several organizations in this industry especially the governmental ones. The findings of this study will be beneficial for organizations that are planning to enhance the productivity of their employees.

Keywords

Productivity, employees, oil and gas industry, Oman

1. Introduction

Today's intense market competition forces organizations to examine how to improve productivity and seek to enhance their competitiveness. Consequently, the issue of assessing and improving productivity in different industry of several countries has received increased attention in recent literature. Productivity is one of the most widely tools used for evaluating and monitoring the performance of industry and the national economy. At the national level, productivity indicates how well an economy uses the resources in producing goods and services. Decline in productivity can lead to slow economic growth and high inflation. On the other hand, improved productivity leads to a higher trend rate of economic growth and higher living standards for a nation (Bitran and Chang, 1984).

At the organizational level, productivity measures how well an organization converts input resources (labor, materials, machines, etc.) into goods and services. A decline in productivity means an increase in costs and therefore deterioration in the competitive position of an organization. On the other hand, an improvement in productivity can lead to a decrease in cost and duration of production, an improvement in quality, and therefore a growth in the market share (Kazaz and Ulubeyli, 2007).

According to Kazaz and Ulubeyli (2007), productivity is one of the most important factors affecting the overall performance of any organization, large or small. It is defined as a measure of the relationship between the physical volume of goods and services produced and the resources used in the production processes adopted by the economy. Productivity is a measure of the efficiency with which employees, capital, and natural resources are combined in the economy.

Productivity of employees depends on skill, knowledge and attitude towards the job. If the attitude towards the job is positive and there is internal satisfaction with the job, the work will be honest and there will be a sense of loyalty. The link between employee job satisfaction and productivity has been addressed by several studies (e.g., Schlesinger

and Heskett, 1991; Baxter, 1996; Davidhizar and Shearer, 1998; Crossman and Abou-Zaki, 2003. The main findings of these studies are as follows:

- Unhappy employees are less productive and more likely to have higher absence rates;
- Satisfied employees are more productive, innovative and loyal;
- Increased job satisfaction leads to increased employee morale, which in turn leads to increased employee productivity;
- Increased job dissatisfaction leads to increased employee turnover.

Several studies have investigated factors affecting productivity in different industries, e.g. construction (Sanders and Thomas, 1991; Abdul Kadir et al., 2005; Alinaitwe et al., 2007; Enshassi et al., 2007; Chan and Kaka, 2007; Kazaz and Ulubeyli, 2007; Dai et al., 2009), manufacturing (Shikdar and Sawaqed, 2003, Steenhuis and de Bruijn, 2006), and service (Carnevale, 1992; Leaman, 1995; Crossman and Abou-Zaki, B. 2003; Hameed and Amjad, 2009; Lan et al., 2010). However, there has been no study that has investigated how factors affecting employees' productivity are addressed in an oil and gas industry.

2. Problem Statement and Research Objectives

Oman's economy is heavily reliant on oil revenues, which account for about 75% of the country's export earnings and 40% of its gross domestic product (GDP) (Oil & Gas Directory Middle East, 2009). Since oil and gas is a key industry in Oman, efforts should be made to assess and improve its productivity. The need for such efforts is becoming increasingly important in the present era of globalization. This need has become even more important in order to address the issue of high worker turnover that has been experienced by several organizations in this industry, especially the public ones (Swales and Al Fahdi, 2010). In response to this need, an empirical study has been conducted to

- investigate how well the factors affecting employees' productivity in the oil and gas industry in Oman are addressed
- determine whether there is a significant difference between governmental and private organizations in terms of addressing the factors affecting their employees' productivity

This research has focused on white-collar employees in the oil and gas industry in Oman. While-collar is an office job or service job and usually requires a college degree.

3. Data Collection

In order to control the data collected and for easier analysis, it was decided to use a questionnaire with closed type questions where most of the questions are based on a 5-point Likert scale using 1= strongly disagree, 2= disagree, 3= somewhat agree, 4= agree, 5= strongly agree, or 1= very low, 2= low, 3= moderate, 4= high, 5= very high. The questionnaire consisted of 7 sections. The first section contained questions relating to the profile of respondents. Sections 2 to 6 addressed major factors affecting employees' productivity, management and organization, incentives and salary, career development and performance appraisal, and health and safety. In the sixth section, respondents were asked to indicate the extent to which each of these issues affected their productivity. In the seventh section of the questionnaire, respondents were asked to rate their overall satisfaction with their employers.

To ensure the clarity and completeness of the questionnaire, a pilot study that included 10 employees in two major organizations in the oil and gas industry was conducted. The responses received from these employees were used as a guide for refining the questionnaire. The refined questionnaire was then sent to a random sample of 320 managers, supervisors, engineers, and other administration jobs at governmental organizations and private companies. A total of 207 respondents replied, representing a 64.7% response rate; 72.5% of responses were received from governmental organizations, while 27.5% were received from private organizations.

4. Results

The results of survey are summarized in this section under six headings: management and organization, salary and incentives, career development and performance appraisal, health and safety, issues affecting productivity, and employees' overall satisfaction. It is worth noting that for easier analysis, it was decided to combine the "agree", "somewhat" and "strongly agree" categories to obtain the percentage of agreement.

4.1 Management and Organization

Figure 1 shows that generally all factors related to management and organization are well addressed by both governmental and private organizations. A comparison between these two types of issues shows an approximate similarity in most issues such as treatment with respect, fair treatment by the supervisor, attention to employee's suggestions, availability of resources to accomplish work, good usage of employee skills and abilities, encouragement of creativity and innovation being considered as the most important asset in the organization, and having confidence in the organization leadership. However, according to the hypothesis test for the difference between proportions at the 0.05 level of significance, there is evidence to suggest that there are significant differences between governmental organizations and private companies in terms of the engagement of employees in the decision making process, having flexibility in self directed work hours, and existence of a common spirit among team work.



Figure 1: Employees' Satisfaction with management and the organization issues

The differences between governmental organizations and private companies in terms of engaging employees in the decision making process can be justified by realizing the bureaucratic style being followed as part of the conventional cultural behavior of the Omani governmental organization culture behavior. All bureaucracies have certain characteristics as a well defined hierarchy; all responsibilities in an organization are rationalized to the point where each employee will have necessary expertise to master a particular task, have rules and regulations, and impersonal relationships between managers and employees. On the contrary, private companies are characterized as being more results oriented, with a more personal relationship between manager and employee, which facilitates more participation in the decision making process.

The significant difference between governmental organizations and private companies in terms of the flexibility of work hours can be explained by understanding the working hours for both parties, where governmental organizations have fixed working hours mainly from 7:30 a.m. to 2:30 p.m. with no lunch break, while private companies usually have more flexible working hours with a lunch break in between. Moreover, governmental organizations mainly have a recording system to register the timing of employee attendance timing, which does not exist in most private companies. A common spirit of team work among employees is extremely important to unify

the efforts towards one goal. Private companies are approaching this critical criterion more effectively than the governmental organizations.

4.2 Salary and Incentives

As shown in Figure 2, it appears that the majority of employees in both governmental and private organizations are satisfied with their organizations' benefits package, whereas only 50% of them are satisfied with equality in payments in both governmental and private organizations. Moreover, the result of the hypothesis test for the difference between proportions at the 0.05 level of significance does not support any significant differences between the two parties in terms of any of the incentives and salaries that are received.

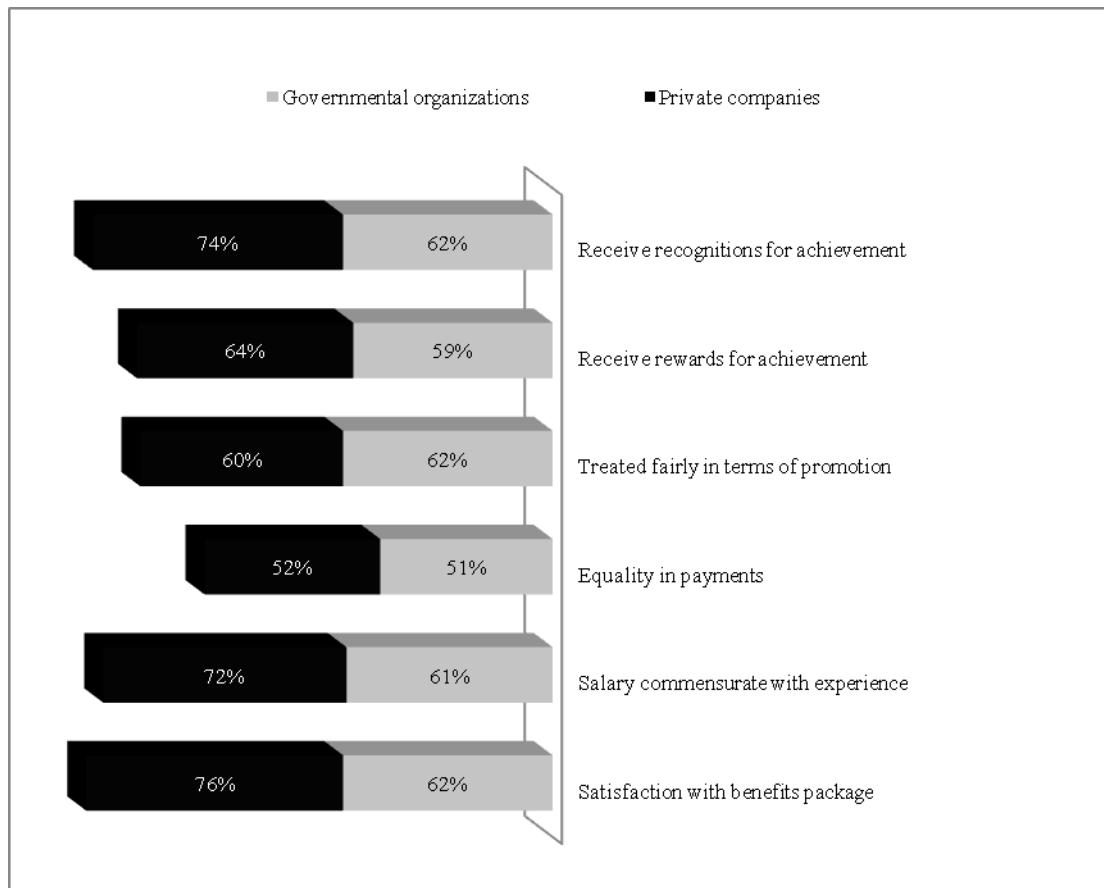


Figure 2: Employee's satisfaction with incentives and salary Issues

4.3 Career Development and Performance Appraisal

Respondents were asked if their performance appraisal is affecting their productivity in a positive way. As shown in Figure 3, employees in governmental organizations show a better score in this regard with 65% compared to 57% for private companies. In terms of the ease of getting the training required, the figure shows that both parties show the same percentage of 62%. On getting the performance appraisal on time, Figure 3 shows employees in private companies show a better position with 88% compared to 76% for governmental organizations.

However, considering the hypothesis test results, there are three issues that indicate a statistically significant difference in the satisfactory measurement between the employees in governmental organizations versus private companies. These issues are as follows:

- Fairness of performance appraisal
- Opportunity of career development in terms of receiving the opportunity for career development
- Sufficient training to accomplish the work well

4.4 Health and Safety

As shown in Figure 4, employees in private companies show full satisfaction with health and safety policy, ability to refuse any dangerous tasks that might affect employee's safety, confidence that any safety concerns will be addressed, safety is a top concern for their company, full understanding of safety regulations, and sufficient lighting in working areas. On the other hand, employees in governmental organizations show a full satisfaction only with the ability to refuse any dangerous tasks that might affect employee safety.

Both parties show major concerns in some health and safety issues like having neck and back aches, eye pain, and possibility to rest during shifts. Here, governmental organizations have less control on maintaining such safety issues where only 58%, 55% and 52% respectively of respondents replied positively to questions about not having neck, back and eye pains after the working day, which are considered high rates affecting employees' safety. On private companies' side, it is slightly better where 61%, 61% and 60% respectively of respondents replied positively to questions about not having neck, back and eye pains after the working day.

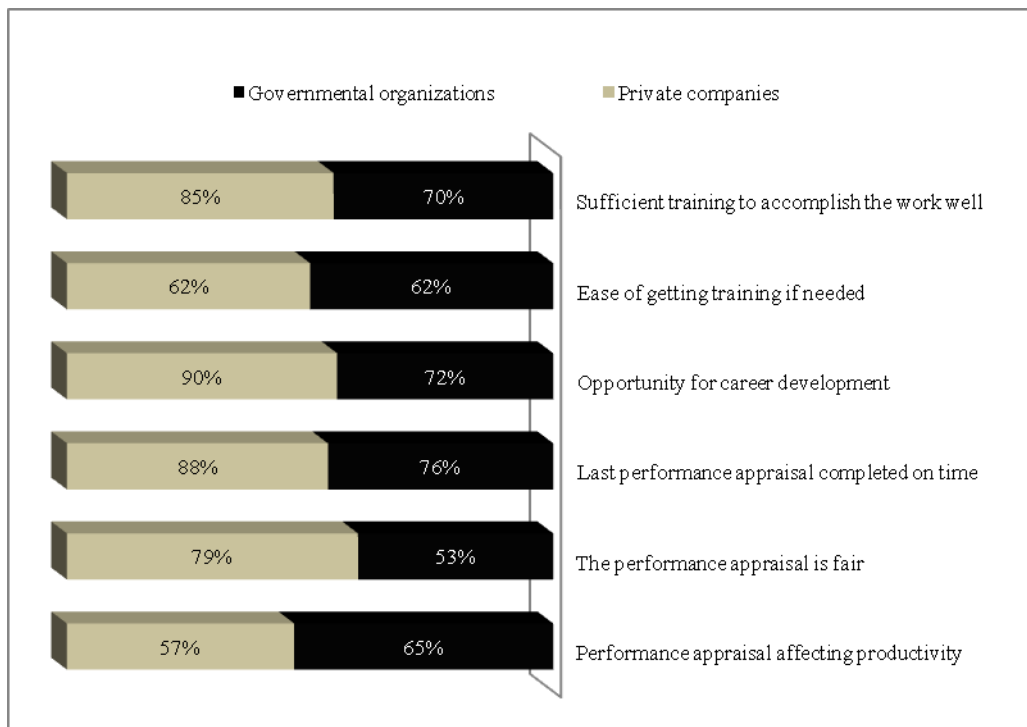


Figure 3: Employees' satisfaction with career development and performance appraisal issues

According to the results of the hypothesis test, there are number of issues that show significant differences exist in the satisfactory measurement between the employees in governmental organizations and private companies. Those issues are as follows:

- Sufficient lighting in work area
- Sufficient length of meal breaks
- Safety regulations are understood by employees
- Safety is a top concern
- Confident that safety concerns will be addressed
- Satisfaction with health and safety policy

4.5 Issues Affecting Productivity

The sixth section addresses the issues affecting employee's productivity in general, where the respondents were requested to indicate the extent to which each of the discussed issues affects productivity. As shown in Figure 5, for employees in governmental organizations, management and organization scores the highest percentage, followed by

career development and performance appraisal with 55% and 52% respectively as the main issues affecting productivity. Surprisingly, incentives and salary have the lowest influence on productivity. However, this finding is consistent with the argument by Herzberg (1987) that motivation, and thus the productivity of employees can be enhanced not by meeting “extrinsic” needs, such as pay, benefits and other tangible advantages, but also through “intrinsic” needs such as the needs for involvement, recognition, control and freedom. On the other hand, for employees in private companies, incentives and salary are the main issues considered to affect their productivity (74%), followed by career development and performance appraisal (61%).

According to the hypothesis test for the difference between proportions at the 0.05 level of significance, there is evidence to suggest that there are significant differences in employee satisfaction between governmental and private organizations by the fact that incentives and salary affect employees' productivity in private companies. It's worth to mention that salaries in the private industry can be much higher than in the public industry, especially for university graduates (Swailles and Al Fahdi, 2010).

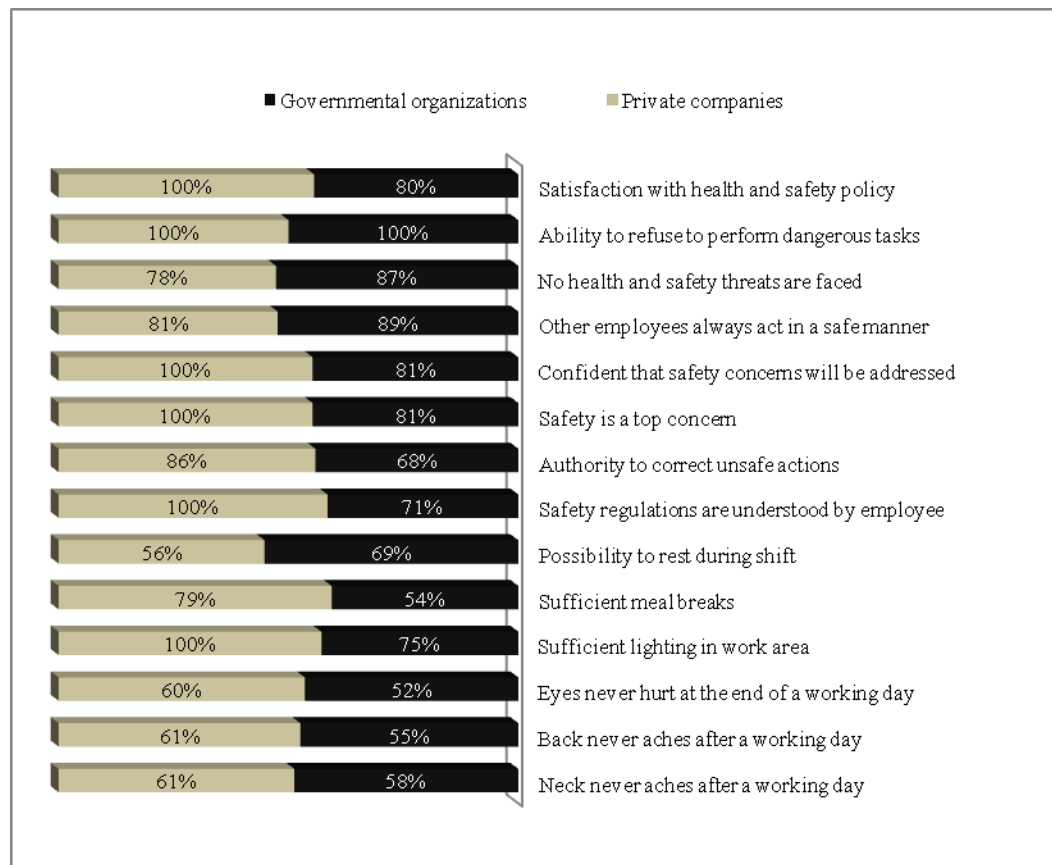


Figure 4: Employees' satisfaction with health and safety issues

4.6 Employees' Overall Satisfaction

In the last section of the survey, the employees were requested to give their overall satisfaction with their current employer. The general satisfaction of employees in governmental organizations is 77%, whereas it is 91% for those working in private companies. This significant difference between the two parties is confirmed by the hypothesis test result for the difference between proportions at the 0.05 level of significance. It is worth mentioning that this significant difference might due to factors that have not been addressed in the survey.

5. Conclusions

This study has shown that generally management and organization, career development and performance appraisal, and health and safety factors are better addressed in private companies than in governmental organizations.

Managerial factors were found to have more influence than economic factors on the productivity of workers in governmental organizations. Therefore, governmental organizations need to give more attention to create one common spirit of team work and allow for self directed flexibility of work hours, and participation in decision making.

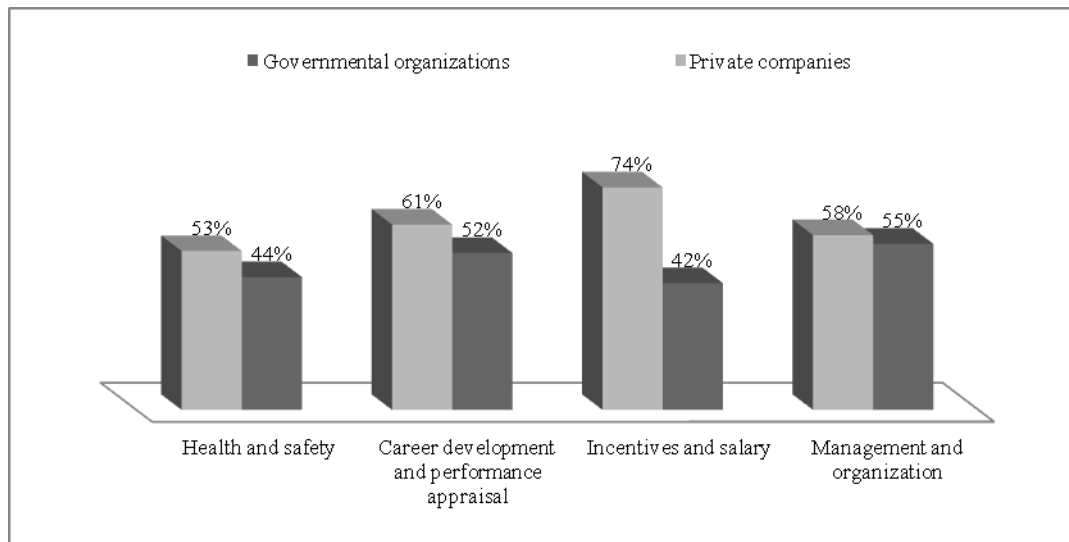


Figure 5: Factors affecting employees' productivity

Moreover, employees in both governmental organizations and private companies are placing career development and performance appraisal as the second highest issue affecting employee productivity. Therefore, it is essential that organizations place a high value on career development. This will allow employees to fulfill their career needs, and organizations will benefit by retaining a greater number of their competent and qualified employees. Many organizations are faced with the problem of retaining employees. It is expensive to replace employees who leave for greener pastures or are lured away by other organizations. New employees have to be selected, recruited, oriented and trained. In fact, it is estimated that it costs an organization approximately 1½ times the salary of the vacated position to replace an employee (Merchant, 1996), hence, organizations need to become more active in implementing career development programs.

In terms of health and safety issues, the results showed that governmental organizations need to give more attention to health and safety issues including ergonomics. Adopting an ergonomics approach in designing a workplace will definitely minimize worker's injuries and improve their productivity. In this regard, keeping records of accidents is important not only to meet compliance issues, but also for identifying ergonomic problems in the workplace. Records should be kept not only for visible injuries, but also for musculoskeletal injuries such as strained backs, pulled limbs, necks ...etc.

The results of the study also showed that employees in governmental organizations are significantly less satisfied with their employers. This result might explain the reason behind the high employee turnover problem that has been suffered by several organizations in this industry.

6. Limitations and Suggestions for Further Research

The sample of this research is limited to Oman, so the results and implications should be interpreted with this context in perspective. It is recommended that future studies conduct a similar investigation with a larger sample size. It is also recommended to conduct a study on assessing and improving ergonomics in Oman's oil and gas organizations.

References

- Abdul Kadir, M.R., Lee, W.P., Jaafar, M.S. Sapuan, S.M. and Ali, A.A.A., Factors affecting construction labor productivity for Malaysian residential projects, *Structural Survey*, vol. 23, no. 1, pp.42 – 54, 2005.
- Alinaitwe, H.M., Mwakali, J.A., Hansson, B., Factors affecting the productivity of building craftsmen - studies of Uganda", *Journal of Civil Engineering and Management*, vol. 13, no. 3, pp. 169-176, 2007.
- Baxter W. G, The business argument for flexibility, *HRMagazine*, vol. 41, no. 5, pp.104-110, 1996.
- Bitran, Gabriel and Chang, Li., Productivity measurement at the firm level, *The Institute of Management Sciences*, vol.14, no. pp. 29-40, 1984.
- Carnevale, D.G., Physical settings of work: A theory of the effects of environmental form, *Public Productivity and Management Review*, vol. 15, no. 4, pp. 423-436, 1992.
- Chan, P.W. and Kaka, A., Productivity improvements: Understand the workforce perceptions of productivity first, *Personal Review*, vol. 36, no. 4, pp.564-584, 2007.
- Crossman, A. and Abou-Zaki, B., Job satisfaction and employee performance of Lebanese banking staff. *Journal of Managerial Psychology*, vol. 18, no. 4, pp.368 – 376, 2003.
- Dai, J., Goodrum, P. and Maloney, W., Construction craft workers' perceptions of the factors affecting their productivity, *Journal of Construction Engineering and Management*, vol. 135, no.3, pp. 217–226, (2009).
- Davidhizar, R. and Shearer, R., Rewarding with Dignity, *Hospital Materiel Management Quarterly*, vol. 20, no. 1, pp., 84-89, 1998.
- Enshassi, A. , Mohamed, S., Abu Mustafa, Z. and Mayer, P. E. (2007), Factors affecting labor productivity in building projects in the Gaza strip", *Journal of Civil Engineering and Management*, vol.13, no. 4, pp. 245-254.
- Hameed, A. and Amjad, S. Impact of office design on employees' productivity: A case study of banking organizations of Abbottabad, Pakistan, *Journal of Public Affairs Administration*, vol. 3, no 1, pp. 1-13, 2009.
- Herzberg, F., One more time: How do you motivate employees?. *Harvard Business Review*, September-October, pp. 5-16, 1987.
- Kazaz, A. and Ulubeyli, S., Drivers of productivity among workers: A study in a developing country, *Building and Environment*, vol. 42, no. 5, pp. 2132-2140, 2007.
- Lan, L., Lian, Z. and Pan, L., The effects of air temperature on office workers' wellbeing, workload and productivity – evaluated with subjective ratings, *Applied Ergonomics*, vol. 42, no.1, pp. 29-36, 2010.
- Leaman, A., Dissatisfaction and office productivity, *Journal of Facilities Management*, vol. 13, no. 2, pp. 3-19. 1995.
- Oil & Gas Directory Middle East., Oman Labor Law, Available: www.omannet.com/english/government/lobour.asp?cat=gov, 2009.
- Sanders, S. and Thomas, H., Factors affecting masonry-labor productivity, *Journal of Construction Engineering and Management*, vol. 117, no. 4, pp. 626–644, 1991.
- Schlesinger, L. and Heskett, J., Breaking the cycle of failure in services, *Sloan Management Review*, vol. 32, Spring, pp. 17-28, 1991.
- Shikdar, A.A. and Sawaqed, N.M., Worker productivity, occupational health and safety problems in selected industries, *Computers and Industrial Engineering*, vol. 45, no. 4, pp. 563–72, 2003.
- Steenhuis, H-J, and de Bruijn, E.J., International shop floor level productivity differences: An exploratory study, *Journal of Manufacturing Technology Management*, vol. 17, no. 1, pp. 42-55, 2006.
- Swales, S. and Al Fahdi, S., Voluntary labor turnover in the Omani public sector, *International Journal of Public Administration*, vol. 34, no. 10, pp. 682-692, 2010.

Biography

Khalida Al Hakmani holds a master degree in industrial engineering from Sultan Qaboos University, Oman and MBA from Hull University, UK. Currently, she is the contracts manager in Oman Gas Company.

Hamdi Bashir holds a Ph.D. degree from McGill University, Montreal, Canada. He is currently an Associate Professor in the Department of Industrial Engineering and Engineering Management, University of Sharjah, United Arab Emirates. Prior to joining this University, Dr. Bashir held faculty positions at Concordia University, Canada and Sultan Qaboos University, Oman. His current research interests are in the areas of project management, quality management, and cellular manufacturing systems. Dr. Bashir is a senior member of the Institute of Industrial Engineers (IIE).