

Studying the Effect of Integrated Management System on Occupational Safety and Hygiene Promotion (Employees of Power Management Company as Case study)

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Abstract

The purpose of this study is to examine the effect of integrated management system on employee's occupational safety and hygiene. In order to this, dependent variable is employee's awareness from their role and responsibility in occupational safety and hygiene process and independent variables include employee's awareness from risk and crisis levels, their participation in occupational safety and hygiene process, workplace immunization, their awareness and readiness in term of reaction to emergency conditions, and their education and awareness from problems and concepts in occupational safety and hygiene process. The statistical population of this study is 110 managers, experts, and technicians of Gilan Power Management Company that work at company before and after than implementation of this system. In order to determine sample size, Tuchman and Morgan table of sampling used. This table shows that a sample with 86 members is a good sample size for population with 110 members. A self-administrated questionnaire with 31 items used to gather data from sample members. In order to examine reliability of the questionnaire, Cronbach's Alpha used. The Cronbach's Alpha coefficient is 0.960 for before than integrated management system implementation questionnaire and 0.924 for after than its implementation questionnaire. So reliability of the questionnaire confirmed. Also content validity used to examine validity of the questionnaire. In order to this, some of management and organizational behavior professors asked to read the questionnaire and indicate their correctional and modification opinions. After modifying and correcting the questionnaire, its final version developed and hence validity of the questionnaire confirmed. In order to analyze data and concluding results, descriptive statistic

and inferential statistic were used in SPSS. Two-sample t test is statistical analysis that used to analyze data and concluding results. The results of the study indicate that integrated management system influences employee's occupational safety and hygiene and promote them.

Keywords: Integrated Management System, Occupational Safety and Hygiene, and GilanPower Management Company

Introduction

In the nowadays world quality consider as the main field of products and services, therefore it is necessary that issues and problems of products and services quality attended beside pay attention to environment and also safety and hygiene standards of workplaces. In nowadays competitive world, increasingly advances in industry and technology lead that organizations realize the role of management system in direction and integration of work activities and processes. Therefore, with respect to the importance of damage and risks control, it is necessary to implement quality assurance systems and environmental management and also implement safety and hygiene management. There are different several managerial systems that could use in organizational environments that each of them examines organizations products and services from their own perspective. Implementation of different managerial systems not only leads to occupational complexity, but also this leads to several problems such as resources wasting, mass documents, reworking, decreasing organizational performance, conflict between determined goal and policies for every system. Integration of different systems in a single management system is the most important solution of these problems that characterize as integrated management system in this study. Generally there are three managerial systems that used frequently by different organizations in nowadays world. These include quality management system, environmental management system, professional safety and hygiene management system. Because these have similar structure, so these management systems could implement and operate in integrated management system. Gilan Power Management Company received three standard of quality management in 2008 after its progresses in making its activities process-oriented, adapting with environmental, hygiene, and safety parameters, conducting an auditing system by R-V-TOF organization and its employees and management efforts. These include ISO 9001:2000, OHSAS18001:1999, and ISO14001:2004. Also this company committed itself to modify and improve all of its processes and activities with respect to following goals and strategies:

1. Effort to increasing customers satisfaction
2. Promoting products and services quality and quantity through modern technologies, appropriate facilities, and qualified employees
3. Developing and improving processes of products and services and developing process-oriented perspectives in company
4. Developing its human resources competencies through motivation, culture, and continuous and effective educational periods

5. Minimizing occupational damages, problems, and illness and prevention from environmental pollutions
6. Decreasing risks in all dangers and environmental aspects
7. Effort to maintaining energy sources and improving its consumption, waste management, and maintaining and improving green spaces
8. Maintaining companies capitals, employees, environment, stakeholders, assets, facilities, and raw materials

But this question should answer that whether implementation of integrated management system in Gilan Power Management Company influences its goal (occupational safety and hygiene promotion) or not? If this effect is positive, why and how this happens? Therefore, the main purpose of this study is to examine the effect of integrated management system on employee's occupational safety and hygiene. In order to this, following goals, variables, and hypotheses could develop.

Research Variables

There are one dependent variable and six independent variables in this study that indicated in following section.

Dependent Variable

Employee's education and awareness from their occupational safety and hygiene problems and concepts: it is necessary to decrease employee's errors and mistakes through educating them in occupational safety and hygiene problems and concepts and increase their awareness from these issues. This also makes workplaces safety.

Independent Variables

1. **Employee's awareness from their role and responsibilities in their occupational safety and hygiene process:** with respect to the role of employee's awareness from their role and responsibilities through formal educations in maintaining themselves, colleagues, and clients; this helps them to play supportive and guidance role to increase occupational safety and hygiene.
2. **Employee's awareness from risk and crisis levels:** if employees know risk and crisis levels can help their organization in crisis management area.
3. **Employee's participation in occupational safety and hygiene process:** this helps organizations to improve their conditions.
4. **Making workplaces safety:** it is possible to increase employee's occupational safety and hygiene through creating safe physical structure and predicting necessary safety facilities and equipment and making them accessible.
5. **Employee's education and awareness about problems and concepts of occupational safety and hygiene process:** it is possible to improve employee's preparation in emergency conditions and maintain themselves and customers through continuous and

formal educations and conducting regular and irregular manures. (Namazi et al. 2002: 198)

Research goals and hypotheses

In this section, the main and secondary goals of the study indicated. Also the hypotheses of the study that formulated based on the main and secondary goals indicated.

Main goal

As indicated in later sections, this study was aimed to examine the effect of integrated management system on employee's occupational safety and hygiene. Therefore, this study was aimed to examine whether implementation of integrated management system in Gilan Power Management Company influences its goal (occupational safety and hygiene promotion) or not?

Secondary goals

1. Examining the effectiveness of integrated management systems implementation to promote employee's awareness and identification of occupational risks in Gilan Power Management Company
2. Examining the effectiveness of integrated management systems implementation to decrease occupational incidents in Gilan Power Management Company
3. Examining the effectiveness of integrated management systems implementation to promote employee's preparation in emergency conditions and crisis management in Gilan Power Management Company

Research hypotheses

Based on the later main and secondary goals, following hypotheses could formulate.

1. There are significant differences between employee's education and awareness from their occupational safety and hygiene problems and concepts and improvement of occupational safety and hygiene before and after than IMS implementation.
2. There are significant differences between employee's awareness from their role and responsibility in occupational safety and hygiene problems and concepts and improvement of occupational safety and hygiene before and after than IMS implementation.
3. There are significant differences between employee's awareness from risks and crisis levels and improvement of occupational safety and hygiene before and after than IMS implementation.
4. There are significant differences between employee's awareness from occupational safety and hygiene process and improvement of occupational safety and hygiene before and after than IMS implementation.

5. There are significant differences between employee's readiness to reaction in emergency conditions and improvement of occupational safety and hygiene before and after than IMS implementation.
6. There are significant differences between making environment safety in emergency conditions and improvement of occupational safety and hygiene before and after than IMS implementation.

Research Methodology

As indicated in later sections, the purpose of this study is to examine the effect of integrated management system (IMS) on employee's occupational safety and hygiene promotion. So this study is descriptive-survey from goal perspective and is field research from methodologically perspective. In order to this, dependent variable is employee's awareness from their role and responsibility in occupational safety and hygiene process and independent variable include employee's awareness from risk and crisis levels, their participation in occupational safety and hygiene process, workplace immunization, their awareness and readiness in term of reaction in emergency conditions, and their education and awareness from problems and concepts in occupational safety and hygiene process. The statistical population of this study is 110 managers, experts, and technicians of Gilan Power Management Company that work in the company before and after than IMS implementation. In order to determine sample size, Tuchman and Morgan table of sampling used. This table shows that a sample with 86 members is a good sample size for population with 110 members. A self-administrated questionnaire with 31 items developed to gather data from sample members. This questionnaire developed based on the auditing literature review in Likert five point scale. This questionnaire includes two different parts. The first part consists of 26 items to measuring variables (3 items about employee's education and awareness from goals and necessities of IMS, 3 items about employee's awareness from their responsibilities and role in safety and hygiene system management, 3 items about employee's awareness from risk and crisis level, 5 items about employee's participation in safety and hygiene management process, 9 items about making environment safety, 2 items about employee's preparation and awareness to reaction in emergency conditions). The second part consists of items about demographic variables (including age, gender, educational level, job experiences, and educational status). In order to examine reliability of the questionnaire, Cronbach's Alpha used. The Cronbach's Alpha coefficient is 0.960 for before than integrated management system implementation questionnaire and 0.924 for after than its implementation questionnaire. So reliability of the questionnaire confirmed. Also content validity used to examine validity of the questionnaire. In order to this, some of management and organizational behavior professors asked to read the questionnaire and indicate their correctional and modification opinions. After modifying and correcting the questionnaire, its final version developed and so that validity of the questionnaire confirmed. In order to analyze data and concluding results, descriptive statistic (to summarizing demographic variables in table forms) and inferential statistic (to analyze data and concluding results) were used. Two-sample t test (two dependent groups) is statistical analysis that used to analyze data and concluding results.

Findings and Data Analysis

In this section, first demographic variables of sample members indicated in table of 1 to 5. These variables include age, gender, educational level, job experiences, and educational status.

Table 1: sample member's gender distribution

Gender	Frequency	%	%Cumulative
Male	80	93	93
Female	6	5.8	98.8
Not stated	1	1.2	100
Total	86	100	

Table 2: sample member's age distribution

Age	Frequency	%	%Cumulative
21-30 years	7	8.1	8.1
31-40 years	16	18.6	26.7
41-50 years	55	64	90.7
More than 50 years	7	8.1	98.8
Not stated	1	1.2	100
Total	86	100	

Table 3: sample member's job experiences

Job experiences	Frequency	%	%Cumulative
1-5 years	4	4.7	4.7
6-10 years	11	12.8	17.5
11-20 years	47	54.7	72.2
21-30 years	23	26.7	98.8
Not stated	1	1.2	100
Total	86	100	

Table 4: sample member's educational levels

Educational levels	Frequency	%	%Cumulative
Less than diploma	4	4.7	4.7
Diploma	12	14	18.7
Master of diploma	11	12.8	31.5
BA	57	66.3	97.8
MA	1	1.2	98.8
Not stated	1	1.2	100
Total	86	100	

Table 5: sample member's educational status

Educational status	Frequency	%	%Cumulative
Educated	50	58.1	58.1
Not educated	35	40.7	98.8
Not stated	1	1.2	100
Total	86	100	

In this section, the findings of study indicated to analyze hypotheses. The first hypothesis indicates that there are significant differences between employee's education and awareness from their occupational safety and hygiene problems and concepts and improvement of occupational safety and hygiene before and after than IMS implementation. The results of this hypothesis indicated in table 6 and 7.

Table 7:employee's education and awareness from safety and hygiene problems and concepts before than IMS implementation

	Frequency	%	% cumulative
Low	74	86	86
Medium	12	14	100
Total	86	100	

This table shows employee's education and awareness from safety and hygiene problems and concepts before than IMS implementation. As the results of this table indicate, 86% of

respondents indicated that their educational status was low and only 14% of them indicated that their educational status was medium.

Table 8:employee’s education and awareness from safety and hygiene problems and concepts after than IMS implementation

	Frequency	%	% cumulative
Low	17	19.8	19.8
Medium	65	75.6	95.3
High	4	4.7	100
Total	86	100	

This table shows employee’s education and awareness from safety and hygiene problems and concepts after than IMS implementation. As the results of this table indicate, 19.8% of respondents indicated that their educational status was low, 75.6% of them indicated that their educational status was medium, and only 4.7% of them indicated that their educational status was very high. Therefore it is concluded that there is significant relationship between these two time periods. Also the results of two-sample t test indicate that average of employee’s education and awareness from safety and hygiene problems and concepts before than IMS implementation was 1.88 and this value after its implementation was 2.80. Therefore it is concluded that there are significant differences between employee’s education and awareness from safety and hygiene problems and concepts before and after than IMS implementation. So the first hypothesis of this study confirmed.

The second hypothesis of this study indicates that there are significant differences between employee’s awareness from their role and responsibility in occupational safety and hygiene problems and concepts and improvement of occupational safety and hygiene before and after than IMS implementation. The results of this hypothesis indicated in table 8 and 9.

Table 8:employee’s awareness from their role and responsibility in occupational safety and hygiene problems and concepts and improvement of occupational safety and hygiene before than IMS implementation

	Frequency	%	% cumulative
Low	58	67.4	67.4
Medium	28	32.6	100
Total	86	100	

This table shows employee’s awareness from their role and responsibility in occupational safety and hygiene problems and concepts and improvement of occupational safety and hygiene before than IMS implementation. As the results of this table indicate, 67.4% of respondents indicated that their educational status was low and only 32.6% of them indicated that their educational status was medium.

Table 9: employee’s awareness from their role and responsibility in occupational safety and hygiene problems and concepts and improvement of occupational safety and hygiene after than IMS implementation

	Frequency	%	% cumulative
Low	18	20.9	19.8
Medium	47	54.7	75.6
High	21	24.4	100
Total	86	100	

This table shows employee’s awareness from their role and responsibility in occupational safety and hygiene problems and concepts and improvement of occupational safety and hygiene after than IMS implementation. As the results of this table indicate, 20.9% of respondents indicated that their educational status was low, 54.7% of them indicated that their educational status was medium, and only 24.4% of them indicated that their educational status was very high. Therefore it is concluded that there are significant differences between these two time periods. Also the results of two-sample t test indicate that average of employee’s awareness from their role and responsibility in occupational safety and hygiene problems and concepts and improvement of occupational safety and hygiene was 2.12 and this value after its implementation was 3.05. Therefore it is concluded that there are significant differences between employee’s awareness from their role and responsibility in occupational safety and hygiene problems and concepts and improvement of occupational safety and hygiene before and after than IMS implementation. So the second hypothesis of this study confirmed.

The third hypothesis of this study indicates that there are significant differences between employee’s awareness from risks and crisis levels and improvement of occupational safety and hygiene before and after than IMS implementation. The results of this hypothesis indicated in table 10 and 11.

Table 10:employee’s awareness from risks and crisis levels and improvement of occupational safety and hygiene before than IMS implementation

	Frequency	%	% cumulative
Low	73	84.9	84.9
Medium	13	15.1	100
Total	86	100	

This table shows employee’s awareness from risks and crisis levels and improvement of occupational safety and hygiene before than IMS implementation. As the results of this table indicate, 84.9% of respondents indicated that their educational status was low and only 15.1% of them indicated that their educational status was medium.

Table 11:employee’s awareness from risks and crisis levels and improvement of occupational safety and hygiene after than IMS implementation

	Frequency	%	% cumulative
Low	32	37.2	37.2
Medium	44	51.2	88.4
High	10	11.6	100
Total	86	100	

This table shows employee’s awareness from risks and crisis levels and improvement of occupational safety and hygiene after than IMS implementation. As the results of this table indicate, 37.2% of respondents indicated that their educational status was low, 51.2% of them indicated that their educational status was medium, and only 11.6% of them indicated that their educational status was very high. Therefore it is concluded that there are significant differences between these two time periods. Also the results of two-sample t test indicate that average of employee’s awareness from risks and crisis levels and improvement of occupational safety and hygiene before and after than IMS implementation was 2.03 and this value after its implementation was 2.88. Therefore it is concluded that there are significant differences between employee’s awareness from risks and crisis levels and improvement of occupational safety and hygiene before and after than IMS implementation. So the third hypothesis of this study confirmed.

The fourth hypothesis of this study indicates that There are significant differences between employee’s awareness from occupational safety and hygiene process and improvement of occupational safety and hygiene before and after than IMS implementation. The results of this hypothesis indicated in table 12 and 13.

Table 12:employee’s awareness from occupational safety and hygiene process and improvement of occupational safety and hygiene before than IMS implementation

	Frequency	%	% cumulative
Low	65	75.61	75.61
Medium	21	24.41	100
Total	86	100	

This table shows employee’s awareness from occupational safety and hygiene process and improvement of occupational safety and hygiene before than IMS implementation. As the results of this table indicate, 75.61% of respondents indicated that their educational status was low and only 24.41% of them indicated that their educational status was medium.

Table 13:employee’s awareness from occupational safety and hygiene process and improvement of occupational safety and hygiene after than IMS implementation

	Frequency	%	% cumulative
Low	22	25.6	25.6
Medium	56	65.1	90.7
High	8	9.3	100
Total	86	100	

This table shows employee’s awareness from occupational safety and hygiene process and improvement of occupational safety and hygiene after than IMS implementation. As the results of this table indicate, 25.6% of respondents indicated that their educational status was low, 65.1% of them indicated that their educational status was medium, and only 9.3% of them indicated that their educational status was very high. Therefore it is concluded that there are significant differences between these two time periods. Also the results of two-sample t test indicate that employee’s awareness from occupational safety and hygiene process and improvement of occupational safety and hygiene before than IMS implementation was 2.03 and this value after its implementation was 2.68. Therefore it is concluded that there are significant differences between employee’s awareness from occupational safety and hygiene process and improvement of occupational safety and hygiene before and after than IMS implementation. So the fourth hypothesis of this study confirmed.

The fifth hypothesis of this study indicates that there are significant differences between making environment safety in emergency conditions and improvement of occupational safety and hygiene before and after than IMS implementation. The results of this hypothesis indicated in table 14 and 15.

Table 14:making environment safety in emergency conditions and improvement of occupational safety and hygiene before than IMS implementation

	Frequency	%	% cumulative
Low	54	62.8	62.8
Medium	32	37.2	100
Total	86	100	

This table shows making environment safety in emergency conditions and improvement of occupational safety and hygiene before than IMS implementation. As the results of this table indicate, 62.8% of respondents indicated that their educational status was low and only 24.41% of them indicated that their educational status was medium.

Table 15:making environment safety in emergency conditions and improvement of occupational safety and hygiene after than IMS implementation

	Frequency	%	% cumulative
Low	20	23.3	23.3
Medium	56	65.1	88.4
High	10	11.6	100
Total	86	100	

This table shows making environment safety in emergency conditions and improvement of occupational safety and hygiene after than IMS implementation. As the results of this table indicate, 23.3% of respondents indicated that their educational status was low, 65.1% of them indicated that their educational status was medium, and only 11.6% of them indicated that their educational status was very high. Therefore it is concluded that there are significant differences between these two time periods. Also the results of two-sample t test indicate that making environment safety in emergency conditions and improvement of occupational safety and hygiene before than IMS implementation was 2.12 and this value after its implementation was 2.85. Therefore it is concluded that there are significant differences between making environment safety in emergency conditions and improvement of occupational safety and hygiene before and after than IMS implementation. So the fifth hypothesis of this study confirmed.

The sixth hypothesis of this study indicates that there are significant differences between employee's readiness to reaction in emergency conditions and improvement of occupational safety and hygiene before and after than IMS implementation. The results of this hypothesis indicated in table 16 and 17.

Table 14:employee’s readiness to reaction in emergency conditions and improvement of occupational safety and hygiene before than IMS implementation

	Frequency	%	% cumulative
Low	56	65.1	65.1
Medium	30	34.9	100
Total	86	100	

This table shows employee’s readiness to reaction in emergency conditions and improvement of occupational safety and hygiene before than IMS implementation. As the results of this table indicate, 65.1% of respondents indicated that their educational status was low and only 34.9% of them indicated that their educational status was medium.

Table 15:employee’s readiness to reaction in emergency conditions and improvement of occupational safety and hygiene after than IMS implementation

	Frequency	%	% cumulative
Low	18	20.9	20.9
Medium	57	66.3	87.2
High	11	12.8	100
Total	86	100	

This table shows employee’s readiness to reaction in emergency conditions and improvement of occupational safety and hygiene after than IMS implementation. As the results of this table indicate, 20.9% of respondents indicated that their educational status was low, 66.3% of them indicated that their educational status was medium, and only 12.8% of them indicated that their educational status was very high. Therefore it is concluded that there are significant differences between these two time periods. Also the results of two-sample t test indicate that employee’s readiness to reaction in emergency conditions and improvement of occupational safety and hygiene before than IMS implementation 2.19 and this value after its implementation was 2.95. Therefore it is concluded that there are significant differences between employee’s readiness to reaction in emergency conditions and improvement of occupational safety and hygiene before and after than IMS implementation. So the sixth hypothesis of this study confirmed.

Conclusion

This study was aimed to examine the effect of integrated management system on employee’s occupational safety and hygiene. In order to this, dependent variable is employee’s awareness from their role and responsibility in occupational safety and hygiene process and independent

variable include employee's awareness from risk and crisis levels, their participation in occupational safety and hygiene process, workplace immunization, their awareness and readiness in term of reaction in emergency conditions, and their education and awareness from problems and concepts in occupational safety and hygiene process. The statistical population of this study is 110 managers, experts, and technicians of Gilan Power Management Company. In order to determine sample size, Tuchman and Morgan table of sampling used. This table shows that a sample with 86 members is a good sample size for population with 110 members. A self-administrated questionnaire with 31 items used to gather data from sample members. In order to analyze data and concluding results, descriptive statistic and inferential statistic were used. Two-sample t test is statistical analysis that used to analyze data and concluding results. The results of the study indicate that integrated management system influences employee's occupational safety and hygiene.

Empirical Suggestions

Based on the results of this study, it is suggested that

1. Managers strive to improve safety and hygiene conditions of employees and workplace through making their employees aware from risk and crisis levels in this company
2. Managers strive to increase employee's participation in processes and improve safety and hygiene conditions of employees and workplace through increasing employee's participation in all processes in this company
3. Managers strive to provide employees with safe and health workplace through developing and preparing individual and occupational facilities and equipment in workplaces
4. Managers strive to increase employee's preparation and awareness to react in emergency conditions through implementing periodical regular and irregular manures in this company

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