

THE IMPACT OF CREATIVITY AND INNOVATION ON THE LEVEL OF KNOWLEDGE AND UNDERSTANDING OF TOTAL QUALITY MANAGEMENT BENEFITS AMONG HEALTHCARE MANAGERS IN JORDAN

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Abstract

This study aims to investigate the effect of creativity and innovation on the level of knowledge and understanding of total quality management TQM benefits in healthcare sector. A survey conducted through self-administered questionnaires distributed among healthcare managers working in six Jordanian hospitals. The questionnaire consisted of three parts; demographic variables, creativity and innovation data, and TQM level of knowledge and understanding data. Study sample included 292 respondents. The results found that there is a statistically significant impact for the patterns of creativity and innovation on the overall level of knowledge and understanding of TQM benefits in the Jordanian healthcare sector.

Keywords: Creativity, innovation, total quality management, health sector, Jordan

Introduction

As health care organizations strive for ways to control health care spending, address the growing needs of an aging population, and respond satisfactorily to a more informed and demanding consumer base, the

opportunities for creativity and innovation have increased exponentially (Varkey P, et al. 2008). Therefore, many health services organizations, including hospitals, have responded to the current challenges by adopting Total Quality Management (TQM) as a management approach in order to provide new solutions through creativity and innovation.

TQM in healthcare sector

TQM concept was implemented first in the manufacturing sector in early 1980s followed by the service sector like the health care sector, and there are many reasons behind the wide acceptability of TQM in health care institutions (Talib et al., 2011). In the recent years, many health care institutions have applied the principles and practices of TQM in order to solve most of the problems that they are currently facing (Chesanov, 1997; Counte et al., 1995; Kim et al, 1994). TQM in health care context has been defined as the satisfaction of patients, doctors, nurses, and suppliers (i.e., social shareholders) and other interested groups, achieved by implementing effective planning, programs, policies and strategies (i.e., hard issues), and human and all other assets (i.e., soft issues) efficiently and continually within a hospital context (Arasli, 2002).

Moreover, the TQM in health sector focuses on patient satisfaction, continuous improvement, teamwork, process management, systemization, organization culture and structure, and lastly commitment from management and supportive leadership (Talib et al., 2011). Several studies have also emphasized that successful implementation of TQM can result in significantly superior outcomes in health care institutions (Short, 1995; Yang, 2003; Counte et al., 1995), some of these outcomes are: upgraded quality of service, improved health care quality and performance, patient satisfaction, reduced operating cost of health care institutions, employee satisfaction, and patient safety.

Therefore, health care institutions have started to implement it strictly. Some of the studies show the positive aspects of implementing TQM philosophy such as quality improvement, financial performance, competitive advantage, and employee commitment in various health care organizations (Alexander et al., 2006; Chesteen et al., 2005; Douglas et al., 2001).

Creativity and Innovation

Creativity refers to the development of novel product and service ideas, processes and procedures by employees or a small group of employees (Woodman et al, 1993) to be successfully implemented within the firm to develop innovation (Amabile et al., 1996). The evolutions in technology, science and management formulate worldwide successful organization to act depending on creativity and innovation (Shahrari, 1997). Although creativity

and innovation are distinct constructs (Shalley et al, 2004), they are perceived to be so closely linked that the constructs have been used interchangeably (Ford, 1996; Georgsdottir, 2004).

A review of the relevant literature has shown that no study has yet addressed the effect of the creativity and innovation among managers on the level of knowledge and understanding of TQM benefits in healthcare sector. Accordingly, very little is known about the effect of creativity and innovation level on TQM practices, especially in healthcare organizations and hospitals. Therefore the current study aims to reconcile the gap in the literature in this study subject.

Methods and Subject

This study utilized the descriptive-analytical design. Descriptive design helps describe the phenomenon of interest as they currently exist without manipulation, and analytical design to investigate the correlation and relationships between the study variables.

Study Setting

This study was conducted at six Jordanian hospitals. Recruitment of the participants took place in different departments in these hospitals, the reason for recruiting managers from these hospitals was that, demographic characteristics (educational level, gender, specialty.....etc) might vary. The experiences of managers might differ also in these hospitals that would broaden the range of experiences with creativity and innovation and TQM practices therefore. The researchers were able to recruit a sample of maximum variation from these settings. Study hospitals were chosen according to its size and territory.

Population and Sample

The target population for this study was the managers who are working in the hospitals of the Ministry of Health in Jordan. Accessible population of this study was managers who were working at six different hospitals representing different regions of the country. A simple random sampling technique was used to obtain the required sample size. The total number of health care managers in these six hospitals was 377 managers, who were holding managerial positions i.e. hospital managers, head of department/ unit/ directorate, supervisors and administrative staff. Each healthcare manager working in the selected six hospitals had the same probability to participate in this study by filling the study questionnaire. The returned questionnaires were 292, and the response rate was 77.4%. Most of the respondents agreed to participate in the study up to their best knowledge.

The study tools

For this study, a structured self-administered questionnaire was designed as a data collection instrument. The questionnaire consisted of three main parts which include the following information:

4. **Demographic Data:** demographic variables included personal information, such as age, gender, years of experience, the educational level, and the profession or position like (manager, supervisor, administrative staff, head of department etc.).

5. **Creativity and Innovation Data:** The study used the multifactor creativity questionnaire which was developed by Townsend, J. and Farrier, J. (1989) to measure creativity. It is a three parts measure: part one consists of 16- item which measure personality of manger, part two is a 16- item scale which measure problem solving approach that mangers adopted it, and part three 16- item which measure work environment of organization. This 48- item, self-report instrument is responded to on a 5-point Likert scale ranging from one (always) to five (never) for odd numbered questions (1, 3, 5, 7, 9, etc). While, for even numbered questions (2, 4, 6, 8, 10 etc) should be scored from one (never) to five (always). Possible scores for this scale can range from a minimum of 48 (indicating a very low level of creativity and innovation) to a maximum of 240 (indicating a very high level of creativity and innovation). This instrument was previously applied in other related study (Shehri et al., 2013).

6. **The level of knowledge and understanding of TQM benefits:** The TQM part of the instruments used in this study was largely derived from the literature review. These include the adoption of questions from successful studies previously conducted in related field of study such as: Vouzas and Psychogios's (2007) study, and Salaheldin and Mukhalalati's (2009) study. The distributed questionnaire contained 14 questions in different areas of knowledge and understanding of TQM benefits as follow:

A. TQM is a management philosophy and practice to ensure effective and efficient use of all available resources.

B. TQM aims to make customers the focus of a business.

C. Teamwork and participation are important for achieving continues improvement culture.

D. TQM helps ensure problems are prevented through effective management decisions and operating systems.

E. Customers drive the improvement efforts in all affected business processes.

F. Business performance management (including product/service quality level, customer and employee satisfaction level, delivery time) must be given the same priority as financial measures (profit/loss, etc).

G. Training and education are vital elements when adopting TQM.

- H. Quality systems standards such as ISO 9000 will not on their own ensure high-quality of products and services.
- I. Statistical techniques (such as statistical process control, design of experiments, etc.) are important to ensure consistency of products and process quality.
- J. Quality improvement can only be conducted when proper policies are in place.
- K. Supplier involvement is vital in supporting quality improvement.
- L. Management leadership, commitment and support determine the success of new change initiatives.
- M. A work environment which is conducive to improvement is created through management-worker partnership.
- N. Initiatives such as Kaizan, suggestion schemes, quality circles, etc. will motivate employees.

Reliability and Validity of the Instruments

The study questionnaire was evaluated for reliability by Cronbach's alpha, All scales have reliability coefficients ranging from 0.73 to 0.94, so it can be concluded that all the alpha values indicate that the study's instruments are reliable.

Moreover, the questionnaire was pre-tested to ensure that the wording and sequencing of questions were appropriate and it was also validated (face validity) by five experts academicians and managers who are familiar and from the Jordanian healthcare sector.

Data analysis

One-way analysis of variance (One way- ANOVA) was used to examine difference in the patterns of creativity and innovation among healthcare managers concerning their level of knowledge and understanding of TQM benefits. And multiple regression analysis was conducted to test the impact of independent variable (patterns creativity and innovation) on dependent variables (the level of knowledge and understanding of TQM).

Hypotheses Testing

This study attempted to test the following hypothesis:

H.1: There is a statistically significant difference between the patterns of creativity and innovation among healthcare managers concerning their level of knowledge and understanding of TQM in the Jordanian health sector.

H.2: There is a statistically significant effect for the patterns of creativity and innovation on the level of knowledge and understanding of TQM from the perspective of healthcare managers in the Jordanian healthcare sector.

Hypotheses One

As shown in table 1, the One-Way ANOVA test shows that there is a significant difference between the patterns of creativity and innovation of health care managers in their level of understanding and knowledge of TQM ($p \leq 0.05$) in all matters except “quality systems standards such as ISO 9000 will not on their own ensure high-quality of products and services” where ($p = 0.273$).

The similarity of understanding between the different healthcare managers’ patterns of creativity and innovation for the sentence that quality systems standards such as ISO 9000 will not on their own ensure high-quality of products and services could be justified by the fact that almost most of healthcare managers in the Jordanian ministry of health MOH hospitals, regardless of their position and creative and innovative level, are believing that quality system standards or systems such as ISO 9000 or accreditation will not on their own ensure high-quality of products and service. This belief is based on their experience that after MOH that represents the health sector in Jordan received the accreditation from the Health Care Accreditation Council HCAC, they acknowledged that these quality systems are the first step towards a continuous quality improvement journey and should never be the aim or the end. This finding is supported by the study of McAdam and Barron (2002) that discussed that ISO, accreditation and certification is attractive as a way of attracting new customers and assuring existing ones that they are dealing with a progressive company. Salaheldin and Mukhalalati (2009) also stated that these quality standardization methods were seen as a stepping-stone on the journey in the direction of excellence, interest for TQM can quickly weaken if there are no materialistic results.

Other than this one not significant difference issue, H.1 is fairly accepted, and there is significant difference between the patterns of creativity and innovation of health care managers in their level of knowledge and understanding of TQM.

Table 1. Significant levels (P values) for the differences between the patterns of creativity and innovation among healthcare managers concerning the level of understanding and knowledge of TQM.

The level of understanding and knowledge of TQM benefit	Sig. (p)
TQM is a management philosophy and practice to ensure effective and efficient use of all available resources	.000*
TQM aims to make customers the focus of a business	.000*
Teamwork and participation are important for achieving a continues improvement culture	.000*
TQM helps ensure problems are prevented through effective management decisions and operating systems	.000*
Customers drive the improvement efforts in all affected business processes	.000*
Business performance management (including product/service quality level, customer and	.004*

employee satisfaction level, delivery time) must be given the same priority as financial measures (profit/loss, etc)	
Training and education are vital elements when adopting TQM	.000*
Quality systems standards such as ISO 9000 will not on their own ensure high-quality of products and services	.273
Statistical techniques (such as statistical process control, design of experiments, etc.) are important to ensure consistency of products and process quality	.033*
Quality improvement can only be conducted when proper policies are in place	.000*
Supplier involvement is vital in supporting quality improvement	.000*
Management leadership, commitment and support determine the success of new change initiatives	.000*
A work environment which is conducive to improvement is created through management-worker partnership	.000*
Initiatives such as Kaizan, suggestion schemes, quality circles, etc. will motivate employees	.000*

*Significant at level .05 based on One Way ANOVA.

Hypothesis Two

H.2 investigates if there is a significant effect for the patterns of creativity and innovation on the level of knowledge and understanding of TQM, from the perspective of healthcare managers in the Jordanian healthcare sector.

As shown in regression table 2, path between the patterns of creativity and innovation, and the level of knowledge and understanding of TQM was positive and significant ($\beta=0.489$, $t=1.88$, $p\leq 0.10$), and the prediction of the level of knowledge and understanding of TQM is explained by 25% of the level of creativity and innovation. Thus H.2 is supported.

Table 2. Regression analysis results between the patterns of creativity and innovation and the level of knowledge and understanding of TQM benefits.

R2=.257 Adjusted R2=.255 Sig=0.000					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.489	.259		1.885	.000
Patterns of creativity and innovation	.914	.091	.507	10.027	.000

a. Dependent Variable: level of knowledge and understanding of TQM

Findings

In terms of the study assessment for the effect of the creativity and innovation on the level of understanding and knowledge of TQM, it is implicit by the respondents' patterns of creativity and innovation that it has a

significant effect on their level of knowledge and understanding of TQM benefits.

More importantly, the pioneer comparison between different patterns of creativity and innovation for healthcare managers in the Jordanian hospitals revealed that the understanding of some philosophical issues as quality systems standards such as ISO 9000, will not on their own ensure high-quality of products and services is not different between the healthcare managers' patterns of creativity and innovation.

Although this not difference of understanding is fairly justified, the study found that there is significant difference for all other issues of knowledge and understating of TQM that were included in this research like TQM is a management philosophy and practice to ensure effective and efficient use of all available resources, TQM aims to make customers the focus of a business, teamwork and participation are important for achieving a continues improvement culture, TQM helps ensure problems are prevented through effective management decisions and operating systems, customers drive the improvement efforts in all affected business processes, business performance management (including product/service quality level, customer and employee satisfaction level, delivery time) must be given the same priority as financial measures (profit/loss, etc), training and education are vital elements when adopting TQM, statistical techniques (such as statistical process control, design of experiments, etc.) are important to ensure consistency of products and process quality, quality improvement can only be conducted when proper policies are in place, supplier involvement is vital in supporting quality improvement, management leadership, commitment and support determine the success of new change initiatives, a work environment which is conducive to improvement is created through management-worker partnership, and initiatives such as Kaizan, suggestion schemes, quality circles, etc. will motivate employees.

The Managerial Implications

The following managerial implications of the current study will be introduced to the Jordanian healthcare sector regarding the importance of creativity and innovation and its impact on the level of knowledge and understanding of TQM benefits:

- Healthcare managers and decision makers in health sector in Jordan should pay more attention to the vital role of the creativity and innovation in the TQM implementation.
- Another implication of this study is that it draws attention to increasing the healthcare managers' awareness for the positive impact of the creativity and innovation on the level of understanding and knowledge of TQM benefits in healthcare organizations..

- An important implication of the current study is that the healthcare organizations in Jordan can adopt the creativity and innovation programs as a method to ensure the implementation of TQM philosophy successfully through enhancing the creative and innovative working environment that increase the level of knowledge and understanding of TQM in healthcare organizations.

Conclusion

This study contributes to what is currently a very limited amount and almost absent of empirical research in the impact of creativity and innovation on the level of knowledge and understanding of TQM benefits in health sector in developing countries. A pioneer contribution of this study is it revealed the crucial role and the positive impact for creativity and innovation on increasing the managers' level of knowledge and understanding of TQM in healthcare sector.

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