ORIGINAL ARTICLES

An Analysis on the Effectiveness of Undergraduate and Graduate Programmes Management Through an Iso Certification Scope Merger

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ABSTRACT

The quality of teaching and learning for undergraduate and graduate programmes at Universiti Kebangsaan Malaysia (UKM) has been assured through the ISO Quality Management System under separate scopes. To date, both programmes have undergone several continual improvements since their certification to ISO 9001:2000. In year 2009, in-line with the requirements of the International Organisation for Standardisation (ISO) which makes it mandatory for all organisations to shift to ISO 9001:2008, the merger of the QMS for the undergraduate and graduate programmes was proposed and implemented. The merger was expected to benefit UKM as it will optimize the utilization of human resources and finance. A year after the implementation, a study was conducted to assess the awareness and acceptance of staffs on the QMS, apart from assessing the effectiveness of the merger. The study was carried out using questionnaires with a Likert scale rating. The questionnaires were distributed to all faculties and four categories of staffs were identified as respondents namely academicians with administrative posts, academicians without administrative posts, administrative staffs and support staffs. Results of this study indicated that all categories of staffs particularly the support staffs concurred that the merger provides positive implications to time management and documentation. Besides, commands and procedures on ISO have become more effective. Results from this study will be used as inputs for further improvement to UKM's quality management system.

Key words:

Introduction

The Universiti Kebangsaan Malaysia (UKM) attained its ISO9001 certification for the management of undergraduates' examination in 2003. Since 2006, the registration scope has been extended to include six other core processes related to teaching and learning namely: programme development, promotion and students enrolment, students registration, teaching, management of examination and conferment of awards. As part of university's initiatives on continual quality improvement for teaching and learning processes, an evaluation on the effectiveness of the ISO implementation has been carried out for different level of staffs as well as internal customers that include students. This paper reports the findings from a recent study aimed to ascertain staffs awareness, acceptance and appreciation of the university's ISO QMS scope merger and eventually to study staffs' perception on the effectiveness of the merger.

Literature Review:

Researches related to quality management system in institutions of higher learning are not new, however availability of resources from previous studies are rather limited. The literature review presented in this paper may vary but to a certain extend the theme is similar to the quality management system practiced in any organizations. Generally, there are two themes in the literature review. Firstly, discussion on the importance and benefit or good practices of the ISO9000 series and secondly, weaknesses or limitations in the ISO 9000 series implementation.

Curkovic & Pagell (1999) addressed the importance of ISO9000 certification as a business benchmark. The benefits of ISO 9000 implementation are significant as it can be the key to a successful organisation, in addition to improving efficiency. Despite all the positive impacts of ISO implementation, it is also claimed to be time consuming and costly. The study concluded that the benefits of implementing ISO9000 outweigh the limitations

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since ISO9000 is fundamental to continual improvement and problem solving. It is also acknowledged that the success of ISO9001 implementation requires training at all levels of staffs.

Kadir (2009) argued that ISO quality management system assists an organization in the planning, management, production and development of human capital on quality apart from providing goods and services that meet customer requirements. Analysis on the ISO9001 implementation in Malaysia is conducted through comparative studies at the global level that includes countries from the Far East and ASEAN as well as the public and private sectors in Malaysia. The study reaffirms that implementation cost is still an issue and that ISO9001 adversely affects other core activities such as increment in the workload of staffs.

Mola (2007) studied the implementation of ISO9001 in some libraries of institutions of higher learning. The study has found that ISO implementation is capable of promoting a dynamic continual improvement with clear responsibilities, standardisation of work procedures and renewal of the documentation process. In short, ISO9001 enhances the efficiency of the libraries. Rospian (2003) observed that the ISO quality management system is encouraging and provides positive expansion in multinational companies. Benefits may be reaped instantly or otherwise several years after its implementation.

Casadesus *et al.,* (2001) observed the internal benefits from the aspects of human resource management such as an increase in job satisfaction and communication between management and staffs. The external benefits will include increase in customer satisfaction, reduction in the number of complaints and increase in sales. Most companies that implement ISO9001 obtained internal and external benefits leading to opportunities for restructuring and clear management responsibilities.

Nevertheless, ISO implementation has its setbacks. Ionna Papasolomou-Doukakis (2003) conducted a study on quality management through internal marketing in the banking sector in United Kingdom. In order to achieve the aim of becoming an effective and successful organisation, this internal marketing method focuses on the understanding of internal customers, importance of training, compliance to the standard of internal marketing as well as strategy for rewards to services that meet targets. Overall, the case study indicates that these four methods are the basis to internal marketing and for the top management it is a pre-requisite for achieving customer satisfaction. Both aims will be attained i.e. change in the attitude of staffs and success of the organisation (Kelemen 2003).

Khairul Anuar (2002) identified the relationship between quality management practices and the level of internal customer satisfaction to the performance of the service sector in local authorities. He proposed elements of an excellent quality management practices, customer focus, workforce focus, quality training, supplier relationship, information technology and communication as well as process management. The study has found that there is a significant relationship between the elements of an excellent quality management and internal customer satisfaction and organisational performance.

Rahman *et al*. (2005) has been set up higher education quality management system (Prince 3Q) is based on MS ISO 9001: 2000 in Universiti Putra Malaysia (UPM). The main focus of this book is about the implementation of quality management system for higher education process handling activities include teaching, particularly in offering courses at undergraduate and postgraduate students as a core activity or process. These findings have led to information about the mandatory documents in accordance with MS ISO 9001: 2000, service and management based on customer needs for improvement. The author has explained the matter in detail through three separate volumes so that it can be used by other faculty as well as the Faculty of Engineering UPM.

Rosli & Melissa (2007) studied staffs perception on ISO implementation at private colleges that includes academic and non academic staffs. The study focuses on staffs awareness on the quality programme, understanding on the benefits and setbacks of ISO, operations management and overall staffs satisfaction. It was observed that academic staffs satisfaction is lower than non-academic staffs on the aspect of implementation, perception on the quality of operations management, have no interest on the certification process and has the impression that certification will not improve the existing operations management. The respondents in the study argued that they are overloaded with too many responsibilities apart from teaching and learning which is the core activity. Non academic staffs on the other hand, felt that ISO certification enables them to be more efficient and responsive to the needs of their internal and external customers. They also felt that ISO certification has improved the quality of their service towards customers, reduced number of complaints and failure in delivering their services.

In line with the consolidation of the QMS ISO undergraduate and graduate at UKM, a study was made to assess the awareness, acceptance, appreciation and effectiveness of the merger of ISO QMS getting direct feedback about employee satisfaction, which is the internal customer. The study is expected to contribute to continuous improvement in QMS ISO UKM

Problem Statement:

Undergraduate study programs received the ISO 9001 in 2002 followed by the graduate program in 2004. Because both programs registered with the scope of a separate registration, the audit was also made separately. This practice has caused some difficulties such as repetitive audit preparedness as well as involving the same personnel in each audit. This has affected the involvement of staff time and costs.

Objectives Study:

Specific objectives of the study are as follow:

(1) Determining the level of awareness, acceptance and appreciation of UKM staff of ISO 9001:2008 merger Undergraduates and Graduates.

(2) Identify the effectiveness of the merger of ISO 9001:2008 Certification Undergraduate and Graduate.

(3) Obtain the relationship between the level of awareness, acceptance and appreciation of the effectiveness of staff with UKM staff on ISO 9001:2008 Certification merger Undergraduates and Graduates.

Methodology:

The study is conducted using questionnaires with a Likert Scale rating. It is a descriptive study based on the perceptions of UKM staffs. The questionnaires were distributed to all faculties and four categories of staffs were identified as respondents namely academicians with administrative posts, academicians without administrative posts, administrative staffs and support staffs. The method used is among the better methods as this study aims to measure and assess attitudes, perceptions and attainments of a certain programme (Wiersma 1995). Sample selection is based on random sampling method. The Sample Size Determination Schedule is used to determine the number of respondents (Krejcie & Morgan 1970).The sample size is determined to be about 218. In order to ensure that every faculty is represented, strata random sampling is applied. The research instrument which is a set of questionnaires are written in a positive form and respondents are required to rate their perceptions according to the Likert Scale.

The questionnaire was validated through discussions among the researchers. Alpha Cronbach with a value of more than 0.60 was set for each part of the questionnaire to ensure its reliability. A pilot survey was done to ascertain the weaknesses and strengths of the prepared questionnaire. A pilot study which involved 50 staff was carried out and findings from the pilot study indicated that respondents did not face any problems with the questions. The questions are deemed appropriate based on their Alpha Cronbach value of more than 0.60. Descriptive statistics such as the frequency, percentage and average score or mean are used to determine the background of respondents and assess the level of awareness, acceptance, appreciation and effectiveness. From a total of questionnaires which were distributed to 14 faculties, a total of 218 questionnaires were returned.

Results and Discussion

Analysis of the results is presented starting with an overview of the respondents followed by an analysis of the research results based on the research objectives. Respondents comprised four categories of staff at the faculty, centre and institute. The respondents' background is asked in Section A of the survey questionnaire. Table 1 shows the analysis on respondents' background. The survey includes gender, age, years of service, category of position, job scope and a description on the merger.

From the total of 218 respondents, 145 respondents (66.5%) are women. The age category that comprised of the most respondents is 40 years and below. Table 1 shows that almost 48% respondents have worked less than 10 years in UKM. With regard to job scope, 21.1% respondents are academician with administrative position, 26.6% are academician without administrative position, 6.4% are administrative staff and 45.9 % are support staff. In terms of job scope, 30.7% respondents are involved with the job scope for undergraduate only, 17.0% are involved with the job scope for postgraduates only while 39.9% are involved with both the job scope of undergraduate and postgraduate. Meanwhile, 4.6% respondents did not provide any answer to the question.

i.   Analysis on the 1st research objective: Identifying level of awareness, acceptance and penghayatan among staff on the ISO merger.

Results from the study as shown in Table 2 indicates that the level of awareness among respondents are high. This is proven from their agreement on the statement that PPA is the secretariat for the ISO merger and all faculties, institutes and centres are covered under the certification scope of ISO9001:2008 Management of Undergraduate and Graduate Programmes.

Respondents also felt that after the implementation of ISO, they become more responsible and positive of their job, work has become more systematic and tidy. It was also indicated that courses organized by the PPA and Training Unit have created awareness on quality management system (QMS). The staffs also understood that the merger has taken into consideration MQA requirements and that continual improvement is necessary in teaching and learning.

Table 1: Respondent's background.

N=218	Quantity	Percentage(%)
(1) Gender		
Men	73	33.5
Women	145	66.5
(2) Age		
40 years and below	118	54.1
41 years and above	91	41.7
No answer	9	4.2
(3) Years of service		
Less than 10 years	105	48.2
11-19 years	41	18.8
20 years and above	57	26.1
No answer	15	6.9
(4) Category of position		
(a) Academician with administrative position	46	21.1
(i) Dean	1	.5
(ii) deputy dean	4	1.8
(iii) head of department	11	5.0
(iv) head of program	5	2.3
(v) coordinator	23	10.6
(b) Academician without administrative position	58	26.6
(i) professor	3	1.4
(ii) associate professor	8	3.7
(iii) lecture	25	11.5
(iv) senior lecturer	20	9.2
(v) tutor	4	1.8
(c) Administrative staff	14	6.4
(d) Support staff	100	45.9
(5) Job scope		
Undergraduate	67	30.7
Postgraduate	37	17.0
Undergraduate and Postgraduate	87	39.9
None	27	12.4
(6) Awareness on the ISO merger		
Yes	140	64.2
No	68	31.2
No answer	10	4.6

Table 2: Level of awareness among staff on the ISO merger

Item	Disagree (Quantity and Percentage)	Agree (Quantity and Percentage)	No answer
PPA is the secretariat for the ISO merger	27 (12.4)	84.4 (87.2)	7 (32.2)
All faculties, institutes and centres are covered under the certification scope	20 (9.2)	196 (89.9)	2 (0.9)
ISO implementation has made my work easier	75 (34.4)	141 (64.7)	2 (0.9)
I am more responsible and positive after ISO implementation	45 (20.6)	170 (78.0)	3 (1.4)
My work has become more systematic and tidy after ISO implementation.	42 (19.3)	173 (79.4)	3 (1.4)
I am aware of the on-line Document Management System	64 (29.4)	152 (69.7)	2 (0.9)
Courses organized by PPA and Training Unit has made me aware of Quality Management Systems.	56 (25.7)	156 (71.6)	6 (2.8)
I am aware of the ISO merger that takes into consideration MQA requirements.	54 (24.8)	159 (72.9)	5 (2.3)
Continual improvement to teaching and learning is required by the university.	16 (7.3)	200 (91.7)	2 (0.9)

This indicates that UKM staff are aware of the ISO implementation and merger, with the support of online communication system such as the e-warga and internal communication systems. This is also in line with the ISO concepts that emphasized the importance of internal communication within the organization.

With regard to the statement on whether ISO has made their job easier and the existence of the online Document Management System, only more than 60% agree with the statement. This is due to the fact that ISO implementation will require some time before it can be a culture among the staff who have been accustomed to the old procedures. Staffs are also more comfortable to refer to documents manually compared to those available on-line that requires password for access.

Table 3: Level of Acceptance on the ISO merger

Item	Disagree (Quantity and Percentage)	Agree (Quantity and Percentage)	No answer
Filing work is not a burden	40 (18.3)	175 (80.3)	3 (1.4)
I am comfortable working under the control of ISO	63 (28.9)	152 (69.7)	3 (1.4)
Quality procedure does not affect my daily tasks.	68 (31.2)	149 (68.3)	1 (0.5)
Changes in the work instruction, procedure and format of forms do not affect my routine tasks.	76 (34.9)	140 (64.2)	2 (0.9)
I am ready to accept responsibilities related to ISO	31 (14.2)	185 (84.9)	2 (0.9)

Table 3 indicates that the level of acceptance among staff are high. As an example, staffs are more ready to accept responsibilities related to ISO and that work related to ISO is not a burden since preparations for audit etc. are only done once after the ISO merger as compared to twice when the scope of certification was separate.

Staffs are also comfortable to work under the control of ISO and they felt that their creativity was not affected by ISO. This is due to the availability of a complete documentation of the procedures and work instructions. Staff will only need to refer to the documents when the need arises.

Table 4: Level of Penghayatan on the ISO merger

Item	Disagree (Quantity and Percentage)	Agree (Quantity and Percentage)	No answer
Dealings involving protocols and procedures in ISO have facilitated my tasks with all parties.	57 (26.1)	157 (72.0)	4 (1.8)
My work satisfaction has increased after ISO implementation	66 (30.3)	150 (68.8)	2 (0.9)
I implement work instructions and procedures with sincerely without being forced.	59 (27.1)	157 (72.0)	2 (0.9)
I frequently attend activities related to ISO	96 (44.0)	119 (54.6)	3 (1.4)
I frequently refer to the ISO main documents when implementing quality activities	68 (31.2)	146 (67.0)	4 (1.8)
I am always ready in accepting changes during ISO implementation	37 (17.0)	177 (81.2)	4 (1.8)
I am ready to be audit at any time.	67 (30.7)	148 (67.9)	3 (1.4)
Non conformity has helped me to improve efficiency in delivering my tasks.	49 (22.5)	166 (76.1)	3 (1.4)

Table 4 shows that the level of appreciation on the ISO merger. After 12 years of implementation and 2 years of ISO merger, the staffs have started to appreciate ISO process implementation. For example, staffs have indicated that they are ready to accept any changes during ISO implementation and also they are ready to be audited at any time. They have also indicated their sincerely in implementing ISO and that their work satisfaction has also improved.

The results indicated that the process of appreciation and inculcating ISO has improved in UKM. A higher penghayatan, will eradicate the feeling of being burdened with the ISO implementation. This is in line with the ISO requirement that emphasized the need to implement an effective quality management system that delivers outputs or services which meets stakeholders' requirements and the relevant regulations and legislations.

i. Analysis of Second Objective: to determine the Effectiveness of Undergraduate and Graduate ISO 9001:2008 Certification Merger

Table 5: Effectiveness Level of ISO SPK Merger

Item	Disagree (No. and Percentage)	Agree (No. and Percentage)	No Reply
Increasing cooperation among staff after ISO merger.	59 (27.1)	155 (71.1)	4 (1.8)
I am very satisfied with implemented ISO merger.	57 (26.1)	157 (72.0)	4 (1.8)
More efficient time management after ISO merger such as less no. of audits and meetings.	52 (23.9)	159 (72.9)	7 (3.2)
Cost savings with ISO merger.	52 (23.9)	161 (73.9)	5 (2.3)
More efficient and effective file management.	37 (17.0)	174 (79.8)	7 (3.2)
More effective ISO instructions and procedure.	50 (22.9)	163 (74.8)	5 (2.3)
More effective internal communication among staff	51 (23.4)	161 (73.9)	6 (2.8)
Easier task with ISO merger.	40 (18.3)	173 (79.4)	5 (2.3)

Table 5 shows the effectiveness of implementing ISO merger based on UKM staff perception. This effectiveness is seen in terms of staff cooperation, satisfaction with the merger, more efficient time management,

cost savings, more efficient and effective document management, better communication among staff, and easier daily ISO-related tasks. Results of study clearly show the implementation and merger of ISO have good implications for UKM staff in terms of time, cost and job satisfaction.

This matter is emphasized by ISO 9001:2008, that is, an organization needs to create and control processes within the organization in order to fulfill the requirements of its formation, as well as to make continuous assessments and improvements on the processes concerned so as to be able to provide quality service, fulfill requirements and expectations of clients and parties with vested interests.

ii. Analysis of third objective: to determine the relationship between the levels of Awareness, Acceptance and Appreciation of UKM Staff towards the Effectiveness of the Undergraduate and Graduate ISO 9001:2008 Certification merger.

Pearson Correlation Analysis was done to study the significance of the relationship among respondent awareness, acceptance and appreciation towards Undergraduate and Graduate ISO Certification merger. The mean value is obtained from all the items questioned in every aspect of awareness, acceptance and appreciation and used to determine the relationship among these three aspects. It is found that the levels of respondent awareness, acceptance and appreciation are very much interrelated, with an increase in one of the aspects resulting in an increase of the two other aspects. This is shown by the high positive correlation value (insignificant p-value and correlation value more than 0.70) as displayed in Table 6.

Table 6: Correlation Analysis between Awareness, Acceptance and Appreciation toward ISO- SPK Merger

Correlation	Correlation Coefficient, r	*p-Value*
Awareness ←→ Acceptance	0.742	< 0.001
Awareness ←→ Appreciation	0.719	< 0.001
Acceptance ←→ Appreciation	0.792	< 0.001

Analysis of relation between awareness, acceptance and appreciation toward undergraduate and graduate ISO certification merger is extended by studying its effect on the effectiveness in some aspects. The mean of all items in terms of awareness, acceptance and appreciation is used to study the contribution and effect towards the effectiveness mean using multiple regression model analysis. Effectiveness is shown, among which is through the increasing cooperation among staff, efficiency in management and process, cost saving and staff satisfaction. Table 7 displays the findings of regression analysis.

Table 7: Multiple Regression Analysis of ISO- SPK Merger Effectiveness Response Variable: Effectiveness

Independent Variable	Regression Coefficient (S.p.)	Standardized Regression Coefficient	*t-Value*	*p-Value*
Awareness	.344 (.090)	.254	3.840	< 0.001
Acceptance	.241 (.077)	.238	3.140	.002
Appreciation	.407 (.077)	.380	5.325	< 0.001

$R^2 = 0.636$

The regression model which links the aspects of awareness, acceptance, appreciation and effectiveness is found to be significant (*p-Value* ANOVA test < 0.001, *F value* = 122.214). The three aspects of awareness, acceptance and contribution are found to contribute a significant and positive effect on effectiveness. Value of $R^2 = 0.636$ shows that effectiveness variance of ISO-SPK effectiveness is explained by respondent awareness, acceptance and appreciation by as much as 63.6%, with the highest contribution by respondent appreciation aspect. The contribution values are shown in Table 7.

The Regression Model obtained is:

$$\text{Effectiveness} = \beta_0 + 0.344(\text{Awareness}) + 0.241(\text{Acceptance}) + 0.407 (\text{Appreciation})$$

Comments and Suggestions for Respondents:

This study managed to gather sound comments and suggestions from respondents. Some of their feedbacks concern with the problems to implement ISO 9001:2008 due to the lack of cooperations from the staffs. The implementation of ISO QMS would be more efficient had the faculty members given their full commitment. There is a suggestion on the need for a course on awareness and training at every level to enhance understanding about ISO. Besides, there is also the need for sharing of information and best practices between faculties, institutes and centres as not all of work procedures are outlined in the work instructions such as some procedures in the management of graduate programs. Furthermore, there is suggestion to consider the involvement in ISO QMS for promotion purposes.

Moreover, the implementation of ISO QMS in UKM has some benefits as follows:

•   Staff are provided with a manual to guide them effectively to reduce corrections and corrective actions for noncompliances. Therefore, the management do not have to attend to the daily operations of the organization.

•   Planning can be done ahead of time as a standard operating procedure and manual. Thus, the staff are well-informed of their responsibilities and the organization can monitor their job directly.

•   Management practices and working processes can be documented efficiently as an input for staff training programs for the purpose of improving work performance.

•   The organization can identify problems and avoid their recurrences. This can be done through the procedures to control noncompliances in identifying the root causes and corrective actions.

•   The staff can perform their job right the first time and everytime by creating work instructions, effective control mechanisms, sufficient resources and training, job motivation and a conducive environment.

•   The organization can prove to any external assessors the quality of UKM services and the QMS in place by a systematic storage of documents and records.

•   The management can decide and take necessary actions based on audit findings, the management review and quality control.

Conclusion:

Findings show a positive perceptions among respondents towards the awareness and acceptance of the ISO 9001:2008 QMS merger. Findings also show that the merger has benefited the organization in terms of financial cost and time. The study concluded that the categorization of respondents job has influenced their agreement towards the various statements in our survey. The respondents comprising support staff especially show a high degree of agreement towards all statements, followed by academicians without administrative positions, academicians with administrative positions, and administrative staff. This finding can be attributed to the important role of support staff in the implementation of ISO 9001:2008 in their work place. This scenario must be changed as the implementation of ISO 9001:2008 requires the involvement and full commitment of every category of jobs, not just the support staff.

This study also concludes that the terms of service of respondents have influenced the level of agreement towards our statements in the survey. Staff who have served below 10 years are likely to be prepared for every change in the implementation of ISO 9001:2008. This finding show that new staff are more willing to change compared to staff working more than 10 years.

This finding also demands a drastic change by UKM administration to make sure the university can maintain the certification of ISO 9001:2008. Staffs from all categories must work together to embed of ISO 9001:2008 in their work especially in teaching and learning. Staff with more than 10 years of service have to learn to accept the implementation of ISO 9001:2008. This is important for quality assurance in teaching and learning in UKM as an effort to produce a high quality graduates.

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