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***Quality of Education:
Quality Assurance
Quality Evaluation
and Management***



Total Quality Management in Public and Private Jordanian Universities: A Comparative Study

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Abstract

The purpose of this study is to investigate the perceptions of faculty members at Jordanian public and private universities regarding the application of Total Quality Management (TQM) to university operations and management. The target population consisted of a representative sample of one public and one private university in Jordan, including faculty members. The study used a questionnaire divided according to the following topics: (1) Preparing the quality requirement in universities, (2) Improvement of teaching and learning processes, (3) Human resource development, and (4) Decision making and community service. The researcher adapted the TQM survey developed by Tan.

Results of study revealed that (41.2%) of public faculty members described themselves as knowing TQM «Very Well». and (47.4%) of private faculty members described themselves as having a «moderate» Knowledge 39% of public faculty members (39.2%) indicated there was no effort to implement TQM at their universities VS 31.1% of private faculty members regarding their universities. T-test indicated no differences among public and private faculty members regarding adoption TQM., and no differences related to gender of public and private faculty members' perceptions of TQM implementation.

I. Introduction

Higher education in Jordan began in the second half of the twentieth century, namely the sixties, when numerous Teacher training Colleges were established throughout the country. Their establishment provided the necessary teaching manpower needed to meet the high demand on school education characterizing that era. The first public Jordanian university, the University of Jordan, was established in 1962. Yarmouk University followed in 1976, and nine more public universities have been established in different parts of the Kingdom since that date.

In 1989 the Higher Education council endorsed the first policy document authorizing the establishment of private universities. Amman University, the first Jordanian private university, was established in 1990. An impressive number of twelve more private universities have been founded since that date.

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Non-university education is offered at Community Colleges, which were created in 1981 by converting and expanding the existent Teacher Colleges. These institutions are meant to offer specialized, career-oriented training, and prepare their students for work in mid-level professions. All community colleges are supervised by, and affiliated to, Al-Balqa Applied University, which is a Jordanian public university.

The Jordanian Higher Education Council established in 1982 in response to the need for regulation and planning of higher education policies and coordination among Jordanian public universities. The Council formed the core for the Ministry of Higher Education & Scientific Research, which was established in 1985. The Ministry and the Council undertook the mission of applying the government's educational policies at post-secondary level, and of legislating up-to-date laws on higher education. The Ministry of Higher Education was disbanded in 1998, but was re-established according to law no. 41 for the year 2001, which cancelled the previous Law. By this law, a Ministry of Higher Education & Scientific Research was established, which took over supervising all higher education issues, and includes the following Councils: The Higher Education Council (which comprises the Higher Committee for Scientific Research), and The Accreditation Council. The new Higher Education Law assigned the Ministry of Higher Education & Scientific Research the following prominent functions: 1. Implementing the general higher education policy in Jordan. 2. Coordinating between higher education institutions and public and private centers for consultations and research. 3. Signing cultural and scientific agreements in the field of higher education and scientific research. 4. Representing Jordan in international conferences and symposia on higher education. 5. Recognizing foreign institutions of higher education and equating certificates issued by them. 6. Setting student eligibility rules for scholarships inside and outside Jordan. 7. Supervising Jordanian students abroad through Jordanian cultural counselors. The Law gave the Higher Education Council the following main functions: 1. Formulating the general higher education policy in Jordan. 2. Endorsing the establishment of new higher education institutions. 3. Issuing instructions concerning administration and finance of the higher education sector. 4. Coordinating among local higher education institutions. 5. Evaluating the quality of higher education in terms of sufficiency and efficiency. 6- Determining the basic admission requirements at higher education institutions.

The Accreditation Council is given by the same law the following major duties: 1. Defining, amending and developing the regulations for the accreditation of higher education institutions, in light of the general higher education policy. 2. Supervising the performance of higher education institutions and their commitment to applying the rules of accreditation. 3. Appointing the specialized committees needed to carry out the tasks of the Accreditation Council. 4. Ensuring that institutions of higher education reach their pre-defined goals through continuous evaluation of their programs. 5. Proposing schemes for regulations and rules of the Council's duties. 6- Publishing the decisions the Council takes concerning accreditation in the official media.

At present (2009), there are eleven public and sixteen private universities in Jordan. While Bachelor degrees are offered by both sectors, Master's and Doctorate degrees are confined to public universities, except for the "Amman Arab University for Graduate studies", which is a private university specialized in offering Master's and Doctorate degrees.

The concerned authorities began showing interest in taking the necessary measures in quality control at the level of education inputs. Accreditation became compulsory in 1990; following that, an Accreditation Council was established in 1998. Quality control concentrated on admission criteria, infrastructure, and the level of education and preparation of faculty members. Quality evaluation launched in 2001 by an initiative from the Hussein Fund in cooperation with the Quality



Assurance Agency (QAA) of the United Kingdom. Legislation related to accreditation was developed and the duties of the Accreditation Council established in the 2001 law on higher education.

II. Challenges facing Higher Education

Colleges and universities in the twenty first century are feeling increasing pressures to reform and improve. Changing population demographics and decreases in standardized test scores for students are forcing faculty and administrators to re-think academic curricula and structure. In addition, dwindling government funding and increased competition in higher education have enhanced the need for reform (Birnbaum, 2000; Bryan, 1996; Lewis & Smith, 1994).

Over the last 10 years in Jordan, many studies have been conducted to identify, analyze and address different challenges facing HE in Jordan (AL Adwan & Qtaishat, 2007; Abu-Sharar, Yaghi, & Al Yousef, 2007). These challenges can be categorized into: increasing demand on higher education, lack of vocational education orientation, incompatibility between higher education outputs and market needs, financial challenges, deteriorating quality of the education process. In the 1990's, in response to these threats, many colleges and universities attempted implementation of new management programs such as Total Quality Management (TQM) (Birnbaum, 2000; Cornesky & McCool, 1992; Lewis & Smith, 1994). TQM is a holistic management system that seeks to integrate functional areas across an organization to increase customer satisfaction and achieve continuous improvement (Crosby, 1979; Deming, 1986; Feigenbaum, 1991; Ishikawa, 1985; Juran, 1988; Juran & Gryna, 1993). Many institutions of higher education initiated quality efforts in an attempt to improve student satisfaction and reform administrative structures (Brigham, 1995).

III. Total Quality Management

Total Quality Management programs have a variety of names. For example, Eastman Chemical Company referred to its quality initiative as "QMP," or "Quality Management Program" (Nabours, 1994). TQM has also been called "Quality Education Development" by some higher education institutions (Demicheill & Ryba, 1997).

Although defining TQM in higher education is important, equally important is a definition as to what does not constitute TQM in higher education. TQM should not mean faculty are permitted to design course content that meets with the satisfaction of every student or even that each student will graduate (Yudof & Busch-Vishniac, 1996). TQM should also not be regarded as a vehicle to allow students to determine the contents of the course material, the grading system, or the course structure. If this were the case, the need for instructors would cease.

A Total Quality Management program must meet four criteria in order to succeed. First, TQM must be based on a quality mindset and quality orientation in every activity, including every process and product. Every aspect of the organization must have quality at its core. Second, employees need to be given the same quality treatment as the final product. Third, TQM must be based on a decentralized approach that provides empowerment at all levels, especially at the front line. Finally, TQM must be applied holistically so that its principles, policies, and practices reach every aspect of the department (Creech, 1994).

Stated simply, for TQM to be successfully implemented in higher education institutions, the entire organization must believe in its principles and everyone must be involved in the transformation (Hughes, 1996). Consequently, the following conditions must be met: Educate



and obtain commitment from the administration, maintain an atmosphere of trust, create pride in workmanship, transform the culture of the institution (Cornesky, McCool, Byrnes, & Weber, 1992). According to Thor (1994), when implementing a TQM program, confronting employee fears about the TQM process is the most critical item. In other words, the "human side" of the process needs to be remembered. Van Allen (1994) believed a college or university should first determine whether or not adequate funds are available to support a TQM movement. Van Allen also believed leadership must estimate the pace of the change because a rapid pace is necessary to sustain momentum. Finally, Van Allen believed leadership must understand employee feelings about management. If employees have faith in management, the transition process is more likely to be successful than if employees do not have faith in management. A major impediment to successful implementation of TQM in higher education has to do with the nature of higher education, itself. The culture of higher education presupposes input from faculty and unfortunately, this is not always the case (Winter, as cited in Sherr & Teeter, 1991). Ironically, a survey of colleges and universities that began the TQM process showed one of the major concerns to be the fact that higher education institutions are highly decentralized and may not be able to work together once the TQM process is initiated (Seymour & Collett, 1991).

Harris (as cited in Kwan, 1996) stated Total Quality Management can be used effectively in higher education in one of three ways: serving students utilizing staff training and development, increasing the contributions of all staff to make the school more effective, or improving service by conforming to specifications stated at particular points of the educational process. The numerous benefits of utilizing TQM in higher education include: a justification of the search for constant improvement, a promotion of change and flexibility, a provision for decision making to take place by those involved in the process rather than by a few individuals at the top of the institution, a positive change in employee attitudes toward students and toward each other, and a change from external to internal indicators of performance (Yudof & Busch-Vishniac, 1996).

According to Bosner, Ruback, and Stratton (as cited in Bland, Maynard, & Herbert, 1998), higher education became interested in TQM due to the numerous challenges facing colleges and universities, including: increasing operational costs, tuition fees increasing at a rate faster than the Consumer Price Index, changing student demographics, increases in technology costs associated with the advances in technology, and employee demands for better-prepared graduates. Lewis and Smith (1994) also cited reasons for the need for TQM in higher education including higher education's diminishing perceptions of quality by the general public, apprehension from legislatures and employees to commit funds to higher education without evaluating its performance, and increase in skepticism and loss of confidence in higher education's ability to produce a quality product, concern about the increasing costs to obtain a higher education degree, and the return on investment in higher education. Other reasons for incorporating TQM principles into higher education include diminishing resources and increasing public pressure for accountability (Entner, 1993). However, the strongest argument as to the reason TQM should be used in higher education may not have been stated by anyone advocating the use of TQM to higher education.

In 1991, state funding for higher education decreased for the first time in more than 30 years (Michael, Sower, & Motwani, 1997). When the state funding decreased, many individuals considered TQM to be a possible solution to assist with the new funding challenges faced by higher education. As an indication of the higher education's interest in TQM, in 1991 the American Association of Collegiate Schools of Business (AACSB), the main accrediting organization for business schools, gave TQM their "stamp of approval" by changing their accreditation standards to align more closely with the principles of TQM (Presutti et al., 1995). Another indication of

higher education's interest in TQM was the second annual conference entitled, Academia and Total Quality Management, that attracted representatives from almost 100 higher educational institutions in 1991 (Keller, 1992).

Feminist leadership in nursing can be achieved through Total Quality Management. Total Quality Management (TQM) is a philosophy and technology that represents the foundation of a continuously improving organization. The feminist leadership ideas practiced by nurses, such as empowering staff and decision by consensus, are also central to TQM. Feminist leadership utilizing TQM enables employees to creatively contribute to the system without fear or intimidation. Employees at all levels in the organization are then empowered. The role of the feminist leader using TQM is one of facilitator rather than authority figure. Feminist leadership in nursing can spearhead the opportunity for improvement to provide high-quality, cost-effective health care in a troubled and complex economic environment (Lanza, 1997).

TQM in Jordan

It is fair to say that Jordan was one of the first countries in the region to have real experiences in Total Quality Management in organizations. The universities that participated in this study claimed to have initiated quality effort. If these universities have effectively established TQM, it may be due to their endeavors to include internal stakeholders in the process. This understanding of stakeholders' perceptions is needed in the implementation process of TQM in higher education. Al-Marsumi's (2007) study "Total quality management in a chosen section of the hospitals in Amman, Jordan", the application of total quality management (TQM) is investigated in five hospitals in Amman, Jordan. The study was conducted using a five-point Likert scale survey, and reliability of the data was established by computing Cronbach's alpha. Although the extent of TQM application showed some variation, the investigation showed that each hospital applied TQM at a relatively high level, and that the correlation between the extent of the overall application and the values of the chosen performance indicators were direct and positive.

Another study conducted by Elmuti, Kathawala, & Manipallil (1996) identified total quality management (TQM) familiarity and utilization, and the perceived effects of TQM programmes on overall organizational effectiveness among ten selected institutions of higher education. Results of study revealed that TQM technique improves participants' morale, responsiveness to customer needs as well as the quality of teaching and research. Also, results show that a positive impact of TQM programmes on employee perceptions of their own productivity and overall organizational effectiveness in most of the institutions surveyed. However, almost one-third of the respondents indicated that TQM programmes have failed to achieve their stated objectives of improving quality and productivity.

According to Rawabdeh (2002), the increasing impact of international competition and changing business environment has given a more prominent role standardization, which was reflected in national standards. His paper presents the effect of companies' characteristics on both the importance and satisfaction level with Jordanian Standards (JS), identifying reasons for using foreign standards and the need for new JS in manufacturing sectors. The findings revealed that there are no statistically significant differences in the way Jordanian companies perceive the importance of having JS and the level of satisfaction or interest. Regardless of the company characteristics, it is concluded that targeted companies consider JS important to their business and JS are satisfying the companies' interests. The surveyed Jordanian companies show a serious interest in foreign standards. However, the lack of familiarity with the existing JS in some small and medium enterprises and its benefit to their industry was observed.

Rawabdeh's study (2008), about the essence of the Jordan Quality Award (JoQA) that was

developed and implemented in Jordan, described the award characteristics, framework, examination criteria, objectives, benefits and comparative assessment. The JoQA is benchmarked with two international quality awards: Malcolm Baldrige National Quality Award and European Quality Award. A sample of 49 companies which had applied for the award was selected to test a set of hypotheses regarding the award's objectives, benefits, problems, and criteria weights, and to determine areas of weaknesses and potential improvements.

Findings: The testing of the hypotheses shows that the objectives of the award, externally, and internally viewed, were achieved. However, various implementation problems exist. Based on the findings, a recommended change is proposed for the weights of the award criteria. Although the findings confirm the theoretical framework, more empirical work is needed to better understand the award's impact over a longer time span. Further research should also identify if and how the award influences the participating companies in managerial, technical and financial aspects. Chapman & Al-Khawaldeh (2002) study proposed and identified the degree of application of total quality management (TQM) philosophy and practices in industrial corporations in Jordan. Results of study through survey responses were classified into two groups: high-TQM implementation and low-TQM implementation; that mean labor productivity measurements for high-TQM companies were significantly higher than for low-TQM companies over the period 1993 - 1998. Mean growth rates of labor productivity measurements for companies with high-level TQM were higher than for those with low-level TQM during this period. Results of study reveal a statistically significant positive relationship between TQM and labor productivity.

TQM has been suggested as a vehicle to design the mission statement describing the services provided by higher education. Sophisticated colleges and universities today are utilizing current business strategies. An interesting dilemma faced by higher education institutions that teach TQM is whether or not to utilize the principles of TQM. Those institutions that both teach and research TQM but do not utilize it will, most likely, lose credibility (Ho & Wearn, 1996).

IV. Statement of the Problem of study

In a college or a university, as with any successful organization, management is the catalyst that keeps change moving in a positive direction. In general, higher education institutions are constantly altering themselves to survive and often adopt successful business practices, such as TQM.

Five conditions are necessary to implement a TQM program at a higher education institution. These five conditions are: (1) Commitment from the administration. (2) Commitment from faculty and staff. (3) The establishment of trust. (4) The establishment of pride in one's work. (5) Institutional cultural change (Cornesky, McCool, Byrnes, & Weber, 1992).

With any organizational change, a number of factors increase the success of that change. One of those factors is the organization's level of "readiness" (Armenakis, Harris, & Mossholder, 1993). "Readiness," similar to Lwein's concept of "unfreezing," is an indication of level of acceptance of the changes needed by an organizations members and their belief in the organization's ability to make the necessary changes successfully (Armenakis et al., 1993). Therefore, a college or university must be ready to implement an initiative as large as TQM Lack of readiness is similar to resisting change and, clearly, resistance to change is a barrier to the implementation of TQM. The purpose of this study is to investigate the perceptions of faculty members at public and private universities regarding the application of TQM to university operations and management. In addition, the study examines the extent to which these universities faculty members differ in

their perceptions and the extent to which differences in perceptions are influenced by gender. This information will provide a foundation for future studies regarding the implementation of Total Quality Management principles at public and private universities in Jordan.

This study will answer the following questions:

One: To what extent do important faculty members understand the philosophy and knowledge of TQM as perceived by themselves?

Two: To what extent has there been an effort to implement TQM at participating universities?

Three: What perceived impact has the implementation of TQM made at participating universities?

Four: To what extent are the principles of TQM adopted at participating universities?

Five: To what extent do public and private faculty members differ in their perceptions of TQM at participating universities?

Six: To what extent do men and women differ in their perceptions of TQM implementation at participating universities?

V. Research design

This study is based on the survey method, where a sample is selected and participants are given a questionnaire to collect data.

1. Instrumentation

The researcher adapted the TQM survey developed by Tan (1997). The instrument sections were as follows:

Section one: Demographic data.

Section Two: Questions regarding TQM at the participants' institution. This section used a Likert-type scale to measure public and private faculty members' perceptions of:

- faculty understand the philosophy and knowledge of TQM
- the effort to implement TQM at their institution
- the evaluation of TQM's implementation at their institution

Section three: Institutional questions. This section used a likert-type scale to measure public and private faculty members' perceptions of their institution's use of TQM principles grouped into five areas: assessment (6 questions), continuous improvement (9 questions), collaboration (8 questions), communication (7 questions) , and organizational goals (6 questions).

The specific questions relating to TQM assessment principles were:

Item	Content
5	The college favors objectives testing.
6	The college incorporates real life learning events in the assessment process.
7	The college relies heavily on tests as a major means to assess student performance.
18	The college administrators are considered to be progressive educational leaders.
22	Students are afraid of faculty.
29	The college relies on grades to reflect the efficiencies of learning and improvement.



The specific survey questions relating to TQM continuous improvement principles were:

Item	Content
1	The college as a whole has shown consistency of commitment for quality education.
2	The college has adopted the philosophy of continuous improvement.
3	The college administrators, teachers, and students understand the college education philosophy.
9	The college empowers teachers and students to continuously improve the quality of education.
10	Opportunities are provided for individualized educational experimentation by teachers and staff.
11	The college continues to improve the quality of education after temporary setbacks.
12	The college institutes a comprehensive orientation program for new teachers.
36	Educational improvement retraining opportunities are provided in the college.
37	The college administrators constantly participate in in-service training.

The specific survey questions relating to collaborative relationships were:

Item	Content
4	The college believes in empowering the teacher-student teams.
8	The college establishes good working relationships with their community.
13	The college training programs are constantly re-evaluated by all staff.
15	The college administrators empower teachers and students in decision making.
16	The college administrators constantly encourage faculty and students to be coaches in the effort of improving the quality of education.
27	Teachers, students, administrators, and support staff collectively arrive at slogans and exhortations for improvement rather than fixing the blame on individuals or groups.
32	The college dedicates itself to removing the systematic causes of failure through close collaborative efforts.
33	Teachers and students commit themselves to bringing pride, encouragement, and talents to the betterment of the college.

The specific survey questions relating to TQM communication principles were:

Item	Content
17	The college administrators appreciate new input from faculty and students.
18	The college personnel, students, and teachers feel comfortable while presenting their ideas.
20	The college administrators act as counselors to help create a respectable atmosphere.
23	There are communication barriers among departments, teachers, and students.



- 24 The college administrators constantly work to eliminate communication barriers between subject areas and programs.
- 25 The college has communication barriers at some levels.
- 26 Area and departmental information is communicated by all college personnel in a timely manner.

The specific survey questions relating to organizational goals were:

Item	Content
12	The college institutes a program for teachers in the area of their expertise and goals.
21	The college administrators are afraid to face failures during the process of change.
28	Administrators establish slogans and targets for improvement.
30	The college favors short-term goals.
34	The college minimizes award presentations.
35	The college encourages ideas beyond the boundaries of the work assignment.

The responses to questions dealing with assessment, continuous improvement, collaboration, communication, and organizational goals were tallied using the following scoring: Not Applicable= 0, Low= 1, Medium= 2, and High= 3.

The answers to six questions of the study were obtained by comparing the responses of public and private faculty members using frequencies, means, standard deviations and t-tests.

2. Sample of the study

The sample of study consisted of two universities (one public and one private) chosen purposively for specific reasons; the public one chosen because the researcher of this paper works at this university, and the private university chosen because its site is not far from the public university and it's easy to reach it and distribute the questionnaires to faculty members.

There were 602 faculty members in the sample of study. There were 393 (327 male and 66 female) in the public university, and 209 (174 male and 35 female). In the private university Survey packages were sent to all faculty members (602) and 531 responses were received. The respondents were 346 (287 male and 59 female) in the public university, and 185 (154 male and 31 female) in the private university, i.e. an 88% response rate.

Of the 531 individuals who responded to the survey, 346 were faculty members at public universities and 185 were faculty members at private universities. The majority of public faculty members (82.9%) and private faculty members (83.2%) were male.

VI. Results of the Study

The purpose of this study was to investigate the perceptions of public and private faculty members regarding the application of TQM to university operations and management. In addition, the study examined the extent to which these two universities (public and private) differ in their perceptions and the extent to which differences in perceptions are influenced by gender.

Also, the two universities that participated in this study claimed to have established quality effort. If these universities have effectively established TQM, it may be due to the endeavors to



include internal stakeholders in the process. This understanding of stakeholders' perceptions is needed in the implementation process of TQM in higher education. It appears from the research anecdotal and empirical studies of TQM in higher education that an examination of stakeholder perceptions of the process is missing. This research study attempts to explore this problem.

1. Research question one: To what extent do important faculty members understand the philosophy and knowledge of TQM as perceived by themselves?

Table 1 indicates faculty members understanding of TQM as perceived by themselves. The majority (41.2%) of public faculty members described themselves as knowing TQM "Very Well." The majority (47.4%) of private faculty members described themselves as having a "moderate" knowledge of TQM.

Table 1: Understanding the philosophy and knowledge of TQM as perceived by Public and Private Faculty Members

Knowledge of TQM	N	Very Well	Moderate	Slightly	Don't Know
Public Faculty members	346	41.2%	52.3%	6.5%	0.0%
Private Faculty members	185	41.3%	47.4%	8.6%	2.7%

Scale: 0=Don't Know; 1=Slightly; 2=Moderate; 3=Very Well.

2. Research question two: To what extent has there been an effort to implement TQM at participating universities?

Table 2 indicates the effort to implement TQM at participating universities as perceived by faculty members. The majority of public faculty members (39.2%) indicated there was no effort to implement TQM at their universities. The majority of private faculty members (31.1%) indicated there was no effort to implement TQM at their universities.

Table 2: TQM Implementation Efforts

Efforts to Implementation TQM	N	Major Effort	Mod. Effort	Slightly Effort	No Effort
Public Faculty members	346	15.3%	24.8%	19.7%	39.2%
Private Faculty members	185	15.7%	22.1%	31.1%	31.1%

Scale: 0=No Effort; 1=Slightly; 2=Moderate; 3=Major Effort.

3. Research question Three: What perceived impact has the implementation of TQM made at participating universities?

As indicated in Table 3, TQM has had some impact at participating universities as perceived by public and private faculty members. As indicated in Table 3, the majority of public faculty members (35.9%) indicated "not applicable" regarding the question, "What perceived impact has the implementation of TQM made to participating universities?" Also, as indicated in Table 3, the majority (42.0%) of private faculty members indicated TQM has had a positive impact on their universities.



Table 3: Impact of TQM implementation at participating universities as perceived by public and private faculty members

Impact of TQM	N	Positive Impact	No Impact	Negative Impact	N/A
Public Faculty members	346	27.3%	31.7%	5.1%	35.9%
Private Faculty members	185	42.0%	27.6%	4.3%	26.1%

Scale: 0=N/A; 1= Negative; 2=No Impact, 3=Positive.

4. Research question Four: To what extent are the principles of TQM adopted at participating universities?

As indicated in Table 4, continuous improvement principles (M=2.31) had the highest adoption rate followed by organizational goals principles (M=2.25) followed by assessment principles (M=2.01) followed by collaborative relationship principles (M=1.78) followed by communication principles (M=1.62) as perceived by public and private faculty members.

Table 4: Adoption of TQM Principles as perceived by public and private faculty members

	N	Mean	SD
Use of continuous improvement principles	531	2.31	.337
Use of assessment principles	531	2.01	.245
Use of collaborative relationship principles	531	1.78	.378
Use of communication principles	531	1.62	.431
Use of organizational goal principles	531	2.25	.312

5. Research question Five: To what extent do public and private faculty members differ in their perceptions of TQM at participating universities?

Table 5 shows differences between public and private faculty members of TQM principles. Examination of means and t-tests ($\alpha = 0.05$) for independent samples indicated no statistically significant difference between perceptions of public faculty members and private faculty members.

Table 5: Differences in perception of adoption of TQM principles

		N	Mean	SD	t value	p
Use of continuous improvement Principles	Public	346	2.29	.344	1.04	.283
	Private	185	2.21	.332		
Use of assessment principles	Public	346	1.98	.258	.132	.831
	Private	185	2.01	.337		

Use of collaborative relationship principles	Public	346	2.19	.389	.327	.771
	Private	185	2.01	.458		
Use of communication principles	Public	346	2.01	.315	1.063	.665
	Private	185	2.27	.289		
Use of organizational goal principles	Public	346	1.63	.328	.319	.507
	Private	185	1.75	.317		

6. Research question six: To what extent do men and women differ in their perceptions of TQM implementation at participating universities?

Table 6 shows the gender differences of public and private faculty members' perceptions of TQM implementation at participating universities. Examination of means and t-tests ($\alpha=.05$) for independent samples indicated no statistically significant difference between perceptions of public faculty members and private faculty members.

Table 6: Public and private faculty members perceptions by gender

		Gender	N	Mean	SD	t value	P
Use of assessment principles	Public	Male	287	2.01	.221	.099	.813
		Female	59	2.02	.256		
	Private	Male	154	2.07	.291	.974	.284
		Female	31	2.03	.405		
	Total	Male	441	2.04	.287	.843	.324
		Female	90	2.03	.331		
Use of continuous improvement principles	Public	Male	287	2.41	.441	.708	.323
		Female	59	2.45	.424		
	Private	Male	154	2.29	.415	.415	.652
		Female	31	2.31	.398		
	Total	Male	441	2.35	.428	.452	.317
		Female	90	2.38	.413		
Use of collaborative relationship principles	Public	Male	287	2.07	.453	.639	.425
		Female	59	2.10	.428		
	Private	Male	154	2.07	.451	.224	.647
		Female	31	2.01	.491		
	Total	Male	441	2.07	.425	.217	.573
		Female	90	2.05	.462		

Use of communication principles	Public	Male	287	1.99	.209	1.081	.108
		Female	59	2.06	.220		
	Private	Male	154	2.03	.284	.418	.567
		Female	31	1.91	.287		
	Total	Male	441	2.01	.243	1.047	.247
		Female	90	1.98	.223		
Use of organizational goal principles	Public	Male	287	1.87	.361	.087	.884
		Female	59	1.82	.287		
	Private	Male	154	1.80	.301	.652	.345
		Female	31	1.85	.342		
	Total	Male	441	1.84	.329	.229	.821
		Female	90	1.83	.311		

VII. Discussion

The application of TQM in universities is a controversial topic. One of the first questions with which the researcher has struggled deals with whether or not TQM belongs in universities, or, for that matter, higher education. TQM began in the manufacturing industry. Perhaps TQM should not be adapted to non-profit entities such as higher education institutions. Clearly, the extreme departmentalization of colleges and universities makes campus-wide collaboration of TQM difficult (Lewis & Smith, 1994). The fact remains, however, that colleges and universities, are organizations that contain the same basic elements as any for-profit entity. Although TQM was designed for private industry, the fundamental components of TQM are applicable to any organization (Yudof & Busch-Vishniac, 1996).

One of the findings of this study supported the literature acknowledging the difficulty of implementing a TQM program. The implementation of a TQM program involves a cultural change in the organization and this type of change has traditionally been difficult in the higher education environment.

Another finding of this study supported the literature that TQM has had little impact at institutions that have attempted to implement TQM. However, TQM has been successful when applied to some of today's critical higher education issues. The key to applying TQM is to incorporate TQM as part of the mission addressing those critical issues (Ho & Wearn, 1996).

The finding of this study showed that gender is not a factor in the implementation of TQM at public and private universities. The feminist leadership style incorporates many principles of TQM such as power sharing, a focus on consensus, and decisions based on facts. Feminist leadership can be accomplished through TQM. Feminist leadership and TQM share the same focus of employee empowerment (Lanza, 1997). The possibility also exists that only a small percentage of females exhibited a feminist leadership style but not a large enough percentage to make a significant difference in the response.

VIII. Recommendations

The study provided information that may be useful to public and private universities. Investigate the extent to which faculty members are more knowledgeable of TQM than others. A reason given for the slight effort that has been made to implement TQM at the university level has been the governance system in higher education that prohibits top leadership from making the changes necessary to fully implement TQM. An examination of the governance system should be conducted to determine if this system is a hindrance to the implementation of TQM. The slight effort that has been made to implement TQM at public and private universities does not suggest faculty members are ignorant of TQM. The slight effort may be an indication that faculty members are aware of TQM but choose not to implement it.

Practitioners should establish a climate of trust in which to empower faculty and staff. Making data available to faculty and staff on campus to view performance results and to encourage the use of such data in decision-making would help engender a climate of trust and empowerment. The establishment of cross-functional teams on campuses would be useful for problem-solving, practice improvement, and producing positive change.

Further research is needed into the differences in the perceptions of faculty members and other stakeholders regarding TQM principles. Further research into the connection between gender and TQM implementation are needed.

Institutions of higher education appear to be no different from other companies and businesses in their attempts to successfully implement TQM principles. Successful implementation of TQM principles takes a minimum of 5-10 years. Business and industry in some cases have been implementing TQM for over twenty years; they still have a long way to go. Full implementation of TQM is a complex, never ending series of improvements. Measurements are critical, and provide feedback necessary to determine, continue, and evaluate successful implementation.

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