

Academics Satisfaction Levels Variation Pertaining Continual Improvement of the Jordanian Universities' Resources "Empirical Study"

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Abstract

This study sought to identify variability of satisfaction levels considering the demographic characteristics of faculty members at the Financial and Administrative Sciences' Departments in the Jordanian Universities. Participants included (280) faculty members. The questionnaire was the instrument used to gather data and conclude results. Major results included that:

- 1. The highest satisfaction levels regarding continued improvement practices acquired by participants for all (human, financial, physical, technological, and knowledge) resources by age characteristics were for those in the age group (25-29 yrs).*
- 2. As for gender, males were satisfied regarding continued improvement practices on the composite resources (human, financial, physical, technological, and knowledge) more than females. The highest satisfaction level was on the knowledge resources and the lowest was on the financial resources, by females, too.*
- 3. The highest satisfaction level regarding continued improvement practices on the composite resources (human, financial, physical, technological, and knowledge) was among employees who have been in service (1-4 yrs) and higher those who had one year or less in service who were the least satisfied in the knowledge resources domain, but lower than satisfaction level those who have been in service less than a year in the technological resources domain.*
- 4. There were differences in participant responses by such variables as gender and university proprietorship regarding low satisfaction levels on all resources. This variation is also perceived among participants as revealed by their standard deviations of demographic characteristics, age and university proprietorship.*

Keywords: Satisfaction Levels, Continual Improvement of Resources, Jordanian Academic Institutions, Academic Workers' Demographics.

1.0 Introduction

Generally speaking, continuous improvement in organizational resources is an essential factor contributing to greater effectiveness and increases employee satisfaction levels. Customers will also feel satisfied, because continuous improvement processes affect total quality of product and performance. Additionally, continuous improvement one of managerial fields that attracted much theorization for different reasons such as the consequences of the industrialization era and the World War II which created global markets, proliferation of business organizations and diversified products on a larger scale.

Another influential factor was the knowledge advancement to which contributed the Higher Education Institutions (HEIs) that enriched the culture of consumer and motivated the consumerism thereby customers have become more conscious, with increasingly changing needs, and more ware to quality issues. Faced with all such changes and challenges, business organizations invested much or their capitals in research and development (R&D), and harnessed more resources to enhance their competitiveness and survival on market (Al-Khasawneh et al, 2012). Continuous improvement of resources is vital not only for organization survival, but also to create quality outcomes and performance which will reflect positively on higher customer satisfaction levels, create employee loyalty, creativity, and increases employee retention.

According to Ruth Johnston, University of Washington: Continuous process improvement is an intentional approach to strategic change – focused on planning for a determined future by improving business processes to get there. To be effective, CPI must look for improvement in a myriad of areas, including managing people, reducing waste or delays, understanding and meeting customer needs, and stewarding financial assets (Johnston, 2012).

Quality performance at the Higher Education Institutions (HEIs) is characterized with vulnerability because it deals with a mixture of tangible and intangible resources that they need to work harmoniously to produce intangible service products of teaching and learning. The center of such process is the individual whose performance quality will be directly affected by the quality of service delivered by the Higher Education Institutions (HEI's) (Al-Khasawneh et al, 2012).

- Harvey and Green (1993) suggest five index for quality, Exceptional, perfection, fitness for purpose, value for money and transformative.

The rapid advancement witnessed by the higher education globally and in Jordan in particular, intensifies competition among the Higher Education Institutions (HEIs), which put heavy demand on such organizations to offer wider alternative offerings for potential customers, and invoked challenges elated to increased turnover rates, migration to other educational institutions, the fact that would limit their performance, and counteract their competitiveness, primarily if failed to harness their resources effectively maintain customer satisfaction regarding the service they provide.

1.1 Statement of the Problem

Higher Education Institution's in Jordan are generally faced by a challenge of little attention given by senior administrators the university resources, this could be due to limited funds and leanness of financial capabilities available to universities and ineffective control and monitoring systems both internal self-managed control or external by the Ministry of Higher Education (MOHE). This study is expected to provide a valuable contribution in this field.

1.2 Study Questions

1. What are the demographic characteristics (age, gender, university proprietorship, and service years) most contribute to high satisfaction levels regarding continued improvement on the human, financial, physical, technological, and knowledge/information resources?
2. Are there statistically significant differences in the continued improvement practices of human, financial, physical, technological, and knowledge/information resources attributed to such demographics as gender, age, university proprietorship, and service years?

1.3 Objectives of the Study

The major objects of the current study are:

- 1- Evaluate the satisfaction levels among academic workers at the Jordanian universities regarding continued improvement practices on the university organizational resources by personal demographic characteristics.
- 2- Identify whether there were statistically significant differences in the satisfaction levels regarding continued improvement practices on the organizational (human, financial, physical, technological, and knowledge/information) resources attributed to such demographics as (age, gender. University proprietorship, and service years),

1.4 Significance of the Study

This study addresses an important issue since continued improvement proved successful for many of the Japanese organizations that adopted such approach. The process of resources improvement is also critical for university organizations because its effect on the informational and intellectual outcomes and their final product they introduce to community. Hence, improving university resources will have direct impacts on the satisfaction levels of employees, which will improve performance and upgrade the final product produced. In fact different parties and stakeholders will take benefit from the continued improvement process.

1. Hypotheses

- H₁ Satisfaction levels regarding continued improvement of the human, financial, technological, and knowledge resources variably decrease by such demographics as age, gender, university proprietorship and service years.
- H₂ There are no statistically significant differences of satisfaction levels regarding continued improvement on the organization resources (human, financial, physical, technological, and knowledge/ information) attributed to such demographics as age, gender, university proprietorship and service years

2.0 Study Variables

This study includes two type of variables:

1. Independent Variable

Refer to demographic characteristics of participants (academic workers at the Jordanian universities) and will be measured such demographics as age, gender, university proprietorship, and service years.

2. Dependent Variable

Indicates to variability of satisfaction levels among participants, regarding continued improvement of the university organizational resources. This component will be measured through continued improvement in the human, financial, physical technological and knowledge/ information resources.

2.1 Methods

This study follows the descriptive method approach to test for hypotheses, along with comprehensive review of related literature available in the library resources to develop the theoretical background of this study.

2.2 Population

Population consisted of academic workers (faculty members at the faculties of Economics & Administrative Sciences) employed at the Jordanian universities both public and private located within the North region of Jordan. Participants (N=280) were faculties recruited from four public Universities (Yarmouk, Science & Technology, Aal Al Bayt, and Al Balqa'a Applied University: (Alhusn University College, Irbid University College, Ajloun University College), and four private universities (Irbid National, Jadara, Jarash, and Ajloun National) distributed throughout four northern districts of Jordan: Irbid, Jarash, Mafraq and Ajloun.

This study is based on Al-Khasawneh et al (2012) in terms of methods and questionnaire with some adaptation. Part one of the questionnaire measured the demographic characteristics such as age, gender, University proprietorship and service years of the faculties; and the second part measures continued improvement practices in the human, financial, physical, technological, and knowledge resources and participant satisfaction levels.

The questionnaires were comprehensively sent to participants, and (244) were returned back (8) of which unusable for statistical analysis. Finally, the 236 questionnaires (representing 84% of population) were statistically analyzed. This proportion is considered statistically good and suitable for scientific research purposes and allow for results generalize ability. The reason for involving Jordan universities within the North region is to due suitable size of students population and faculties, and considering their community status, location within the largest area in Jordan.

2.3 Validity and Reliability

The questionnaire was sent to a number of experienced referees in the academic field and professionals in management, statistics sciences to elicit their views regarding content validity. There was general agreement for empirical administration of the questionnaire on the condition of making some modifications, item rewording or deletion of lengthy ones. To ensure intelligibility of items and find out gaps from viewpoints of participants, the researcher administered the questionnaire to a pilot sample of (45) participants of the academic workers. As a result, some items were reworded and others changed to obtain most intelligible and accurate items. The researcher computer internal consistency Chronbach alpha (76%) showing high reliability degree. To find out results and testing hypotheses, such statistical treatments as means, percentages, Independent Sample T-test, standard deviations and ANOVA were used.

3.0 Theoretical Framework

What Is Continual Improvement

Continual improvement is one of managerial practices that target develop and upgrade varied organization resources, which finally would positively reflect upon the v activities. Ultimately, the whole process will help organization achieve its goals effectively in an efficient way with distinguished performance.

A careful review of management literature reveals that continual improvement is an essential component and leverage of the total quality if only there is exists an efficient professional leadership supporting the continual improvement process, pays greater attention to quality and provide resourceful prerequisites to energize the organization whether materially or immaterially and to preserve its survival on market by keep improving its performance to accomplish best performance from employees and the overall success of the organization.

First and foremost, it would be necessary to highlight what is meant by continuous improvement, though most management theorists emphasized more on the total quality viewing the continuous improvement as essential to achieve the quality. Following is a review of some related definitions of the continuous improvement and total quality of performance.

Suresh and Chander (2001: 346) defined continual improvement as the process of keeping focused on the development of every aspect of work, basically human resources, training, team building to be able provide best service. In addition Cole (Cited in Khudair, 1995: 74) described continuous improvement as a managerial customer-centered system emphasizes on customer as a prior goal rather than direct gaining of profits on the short run, and considered customer as the genuine capital for an investor, and total quality of product need to be achieved to ensure customer satisfaction.

Cohen & Ronald (Cited in Allawzi, 2002: 159) viewed continual improvement as the development maintenance of the organization capabilities to achieve total quality that meets needs of stakeholders; in addition to continual development of quality in every aspect to ensure customer satisfaction.

Joudeh (2009: 181) described continued improvement as a management philosophy that should be adopted by senior managers to achieve development of processes and activities related to machines, resources, individuals, and production methods constantly in order to achieve the total quality.

Juran & Godfrey (2000: 5) referred to the continued improvement as the disciplined action intending to bring about meaningful change and obtaining unprecedented performance levels to achieve the total quality and customer satisfaction.

Khasawneh et al (2012) demonstrated an intervening correlation between continued improvement and quality in terms of concept and essential object of the continued improvement process, i.e. quality of product or performance that responds to customer needs.

For this study purposes, continuous improvement can be described as the managerial practices and actions embraced by the senior managers to keep eye on bringing about continuous improvement on the different resources and activities of an organization thereby achieving greater customer satisfaction that would positively reflect upon the final outcomes whether institutional, individual, or group (Al-Kasawneh et al, 2012)

Continual Improvement Methods

The methods for continued improvement are varied, and following are a brief outlines:

First Method is Juran's Triad that refers to continuous improvement process involving planning for quality, control for quality and continuous improving (Juran & Gryna, 1993: 9).

The second method is known as Good Change or Kaisen. Kaisen is a Japanese term meaning good change. This method takes continuous improvement as the central principle that involves the different areas, resources and activities in the organization by focusing on a number of elements such as internal and external actions, ad hoc work teams, technological resources, building quality circles and just-on-time schedules (Geoffrey, 2001: 230).

Enablers of Continued Improvement and Quality Realization

There have been varied approaches and perspectives regarding enablers of quality and continuous improvement. However, there are some essential enablers could not be disregarded that was suggested by prominent theorists whose ideas contributed to far-reaching successes to the organizations that applied their ideas, basically the Japanese organizations that excelled among global organizations with good performance and quality of product and service they deliver. Following is some of basic enablers of continuous improvement and quality as suggested by quality management theorists that helped continuous improvement and development:

Edward Deming: The major contribution by Edward Deming was the fourteen principles he suggested as enablers to create quality and improvement which helped Japanese organizations achieve success and excellence in quality on the global level. The fourteen principles (Deming, 1993: 6-10) were:

- Setting goals and objectives of the organization and generalize them to the overall organization internally and externally.
- Adoption of the new approach of quality, acting by all functional levels, and never making the older mistakes again.
- Never depend on comprehensive test, and instead make sample testing with emphasis on good design of product to minimize time wasted.
- Select a resource depending on efficiency and material quality.
- Providing training to different managerial and functional levels to improve their skills.
- Continuous improvement of production systems.
- Avoidance of intimidate.
- Effective leadership that lead with enthusiasm, and adopt activities and practices that are supportive to creativity and excellence.
- Stressing on building trained and specialized work teams.
- Abandon mottos and extravagant axioms.
- Avoid identify achievement or performance targets quantitatively, so that not to stress quantity in the expense of quality.
- Instill in the employees proud loyalty and belongingness to work.
- Commitment and adoption by the senior manager, of the quality and bringing about suitable changes internally to the organization.
- Encourage development of employee capabilities and acquire them new cognitions and skills by stressing on learning.

Another valuable contribution by Deming to the quality efforts was the quality circles that depend on four principles: plan, act, check and implement, to ensure continual improvement on product and sustainability of the life cycle.

Joseph Juran contributed to quality revolution in Japan by adding on the improvement methods of quality. His major ideas included providing for the climate most suitable for creativity, bring about an appropriate organizational culture, problem solving using scientific methods that depend on data, planning, monitoring and continual improvement, partnership between senior, middle and low managerial levels of the organization because they all are partners, where any inconsistency might happen to a managerial level will influence the others (Juran & Godfrey, 2000: 37).

Philip Crosby: The major contribution by Crosby to quality was the idea of Zeor Defect, i.e. doing the right from the first time in order to avoid unnecessary losses whether material and immaterial. He stressed on the role of senior management in supporting quality realization (Crosby,1992:29-32).

The contribution by Kaora Ishikawa to quality studies is through his suggestions that centered on quality circles, participation, learning, training and employment of the statistical methods (Alwan, 2005: 9).

Genichi Taguch contributed to quality studies by his thoughts regarding good design of product from the start, operation design, customer-centered quality measurement, emphasizing on good product that suits community and harmless, and considered that bad products not only damages organization reputation, but also the community itself. Taguch effectively used intricate statistical methods for quality assurance, and concentrated on quality of raw materials (Joudeh, 2006: 177).

There are many different approaches to continuous improvement which can include (Bailey, 2011):

- Undertaking process mapping and improvement
- Benchmarking internally or externally to identify best practice
- Adopting models and frameworks such as Investors in People, Customer Excellence or the EFQM Excellence Model to self assess and drive improvement activities
- Applying creativity and innovation tools
- Using customer and staff surveys
- External and internal audits.

NWACC (2012) build it's Continuous Improvement Program based on commitment of top management, process-focused, Utilizes teams to do the work and Requires controlled experimentation before adopting formal change. Therefore, Academics' organizations need creative leaders to manage the innovation process, as well on going leadership development process to meet their challenges by adopting efficient continuous improvement programs (Alzoubi, 2012).

3.1 Previous Studies

Al-Azzam (2004) conducted a study entitled "An overview on Total Quality Management" sought to cast light on the concept of Total Quality Management (TQM) including components, basics, and stages. The study revealed little attention being given to commitment and support by the management for the application processes of Total Quality Management (TQM), also the study showed little attention to performance monitoring and assessment to explore how successful was Total Quality Management (TQM) approach, and whether employees are prepared to embrace such approach relying on their content with its role in improving productivity and benefits gained by employees.

Zain and Kassim (2010), study the "Innovations and Continuous Improvement and their Impact on Firms Performance". The study aimed to identify the impact of innovation and continuous improvement on corporate performance. The study involved 108 firms in Qatar. Results indicated that the continuous improvement takes a significantly great part not only on performance, but also achieving competitive edge for organization, and that greater emphasis on the internal environment is essential for adoption the continuous improvement approach and improving performance.

Yan and Makinde (2011) investigated the "Impact of Continuous Improvement on New Product Development with SMEs in the Western Cape, South Africa" for purpose of exploring the effect of continuous improvement on developing new products at small and mid-sized firms in South Africa. For data collection, the study followed the qualitative and quantitative methods with the (40) small and mid-sized businesses surveyed. The study found that organizations in general seek to achieve innovation and competitiveness, by providing best service. The best way for achieving this state is by the continuous improvement and development on the new products. Further, the study revealed that the surveyed organizations failed to meet needed level of continuous improvement because they lack other enablers such as learning and knowledge of how effectively to practice the continuous improvement processes.

Al-khasawneh, et al (2012) conducted a study entitled " Effect of Continuous Improvement in Higher Education Institution's Resources on Total Quality (TQ) Realization from Perspectives of Academic Workers at the Jordanian Universities" with view to identify the effect of continuous improvement in resources to realize total quality. The sample included academic workers at the universities as participants. To gather data, the questionnaire instrument was used, data were analyzed using means, percentages, median, simple regression for testing hypotheses. Major findings included that:

1. There is a strong relationship between continuous improvement on resources and resulting effect on the satisfaction degree of academic workers at the Jordanian universities.
2. The satisfaction level of participants regarding continuous improvement in resources is primarily concentrated in the physical resources (3.71%), followed by human resources (3.62%) next the financial resources (3.41%) and the knowledge resources (2.94%). The least satisfaction level (2.72) was for technological resources.
3. As to effect of continuous improvement in recourses in achievement of the total quality, it is found that the effect on resources is primarily on the human resources (4.07%), followed by knowledge resources (3.86%), next financial resources (3.82), and technological resources (3.32%). The least affected with continuous improvement was the physical resources (2.94%).

4. Methodology and Data

4.1 Reliability and Validity of Results

To measure internal consistency, alpha coefficient was computed for participant estimates on the questionnaire items. Alpha value can be accounted for as the correlation coefficient between the responses ranging between (0-1), and statistically acceptable alpha is being at least (60%) for generalizeability of results (Sekaran, 2006). The validity test revealed alpha was (80%) which indicates generalizeability of results since it is large enough and higher than the statistically acceptable minimal alpha.

Table (1) Reliability Test Results

Variable	Alpha Value
First: Measurement of satisfaction levels as to continual improvement of recourses at the Jordanian universities	
Satisfaction extent as to continual improvement of human resources	78%
Satisfaction extent as to continual improvement of financial resources	85%
Satisfaction extent as to continual improvement of physical resources	74%
Satisfaction extent as to continual improvement of technology resources	92%
Satisfaction extent as to continual improvement of knowledge resources	73%

Results from table (1) shows that Chronbach alpha for the study variables was higher than the baseline indicating validity and internal consistency of questionnaire items along with variables and hypotheses as demonstrated by total alpha value.

4.2 Decision Rule

Whether to accept study hypotheses, the study was based on Jordanian universities pool. The descriptive statistics including means and standard deviations were used. Likert-five point scale ranging between [5=Strongly Agree, 4=Agree, 3=Undecided, 2=Disagree, 1=Strongly Disagree] was used.

To accept hypothesis, the item mean was considered dependable. In addition, overall items mean was computed to confirm acceptance or rejection of the hypothesis. The hypothetical median (=3) was selected to compare means for each hypothesis with the hypothetical median to determine whether to accept or reject the study hypotheses.

4.3 Description of participants by demographics

The following table shows participant distribution by their demographics

Table (2) Description of participants by age

Age	Frequency	Percentage%
25-29	54	23%
30-39	63	27%
40-49	38	16%
50 or above	81	34%
Total	236	100%

Table (2) shows that the age group (50 yrs or more) accounted for the largest part of the population implying that participants had long tenure of service and experience which positively reflects on the study hypotheses, results and recommendations. In addition, proportions converged among the age groups implying confluence of standpoints.

Table (3) Participants Distribution by gender

Sex	Frequency	Percentage
M	190	81%
F	46	19%
Total	236	100%

The former table shows that males predominated the females. This result would be for that the proportion of male faculties holding the Ph.D. in Economics and Administrative Sciences were higher (81%) compared with females faculties.

1. Table (4) description of participants by proprietorship

Proprietorship Status	Frequency	Percentage%
Public	4	50%
Private	4	50%
Total	8	100%

Table (4) indicates that the proprietorship status fifty-fifty shared between the private (50%) and public sectors (50%) by the geographical distribution of the public and private universities.

Table (5) Participant Characteristics by service years

Service Years	Frequency	Percentage%
Less than a year	29	12%
1-4 yrs	51	22%
5-9 yrs	62	26%
10 years or above	94	40%
Total	236	100%

Table (5) shows that participants with experience years within 10 years or more accounted for the largest part of population, which is a positive indication in this study that the questionnaire items were responded to by qualified respondents both academically and professionally considering that the participants are predominantly are Ph.D. holders and the private universities recruit more than 80 per cent of Ph.D. professors as mandated by the Faculty Member Regulations set by the Ministry of Higher Education (MOHE). Hence, the study objects and results proves reliability and validity because it combines between academically higher degrees and long tenure of service in the academic field and practically. Noteworthy, the experience years group of (5-9 years) was placed in the second rank which is also another positive indicator for this study.

4.4 Normal Distribution Test

To test for normality of the distribution of data, (K-S) test was used with study variables and significance was higher than ($P \leq 0.05$) level confirming the normal distribution of the data.

Table (6) Normal Distribution of variables Discussion of study variables in light of statistical analysis results

Variable	Sig. α
First: Measurement of satisfaction levels as to continual improvement of recourses at the Jordanian universities	
Satisfaction extent as to continual improvement of human resources	7.5%
Satisfaction extent as to continual improvement of financial resources	17.2%
Satisfaction extent as to continual improvement of physical resources	7.1%
Satisfaction extent as to continual improvement of technology resources	9.8%
Satisfaction extent as to continual improvement of knowledge resources	12.4%

Table (7) Satisfaction level among participants by age regarding continual improvement of resources

Age	25-29	30-39	40-49	50 or higher
Mean Variable				
Satisfaction extent as to continual improvement of human resources	4.26	3.49	4.41	2.68
Satisfaction extent as to continual improvement of financial resources	3.72	2.91	3.42	3.93
Satisfaction extent as to continual improvement of physical resources	2.81	4.66	3.67	3.28
Satisfaction extent as to continual improvement of technology resources	4.88	3.94	3.13	4.34
Satisfaction extent as to continual improvement of knowledge resources	3.35	3.04	4.09	3.16
Mean	3.8	3.6	3.7	3.5

Table (7) indicates that participants within age group (25-29) were the most satisfied with the continuous improvement of human resources (M=4.26), followed by the age group (40-49) (M=4.14), whereas participants within age group (50 yrs or more) were the most satisfied with the continuous improvement on the financial resources (M=3.93), followed by the age group (25-29 yrs) (M=3.72); further, participants within age group (30-39 yrs) were the most satisfied with continuous improvement of physical resources (M=4.66), followed by age group (40-49 yrs) (M=3.67). Additionally, participants within age group (25-29) were the most satisfied with the continuous improvement of technological resources (M=4.88), followed by the age group (50 yrs or more) (M=4.34). Respondents within the age group (40-49 yrs) were the most satisfied with the continuous improvement of knowledge resources (M=4.09), followed by the age group (25-29 yrs) (M=3.35). Therefore, it is perceived that the age group (25-29 yrs) was the most satisfied with continuous improvement of the human resources with highest mean score and the age group (50 yrs or more) was the most satisfied with continuous improvement of the financial resources, and the age group (30-39 yrs) was the most satisfied with continuous improvement of the physical resources, and the age group (40-49 yrs) was the most satisfied with continuous improvement of the human resources. Since respondents within the age group (25-29 yrs) were the most satisfied with the continuous improvement in the technological resources field, the conclusion is that participants within this age group had the highest mean score, and because they are younger in age and relatively fresh to the academic work they had limited experience and knowledge about university resources. Additionally, the mean scores were close to each other implying good satisfaction level, in general, regarding the continuous improvement of the various resources available at the public and private universities.

Table (8) Satisfaction level of participants by sex regarding continual improvement of resources

Gender	M	F
Mean Variable		
Satisfaction extent as to continual improvement of human resources	4.13	3.08
Satisfaction extent as to continual improvement of financial resources	3.19	2.86
Satisfaction extent as to continual improvement of physical resources	3.86	4.29
Satisfaction extent as to continual improvement of technology resources	4.47	4.23
Satisfaction extent as to continual improvement of knowledge resources	4.86	3.24
Mean	4.1	3.54

Results as revealed in table (8) demonstrates that male faculties had mean score higher than the female faculties regarding satisfaction level on the continuous improvement of human resources (M=4.13). This result seems reasonable considering that males outnumbered the females in the study population since the proportion of males is much greater than females at both public and private universities. Further, females had mean score larger than the hypothetical mean (3), indicating that both males and females were satisfied about the continuous improvement of human resources, though males were more satisfied. Males also had mean score higher than females on the continuous improvement of financial resources (M=3.19) indicating that financial resources are available for males more than females. This result is clearly shown by the mean score obtained by females which is below the hypothetical mean score of (3). In addition females had mean score (M=4.29) much better than males on the continuous improvement of physical resources. This result is evident from their respective mean scores, implying that females more than males were influenced by physical resources at the public and private universities. Furthermore, males and females had converging mean scores on the satisfaction level of continuous improvement of the technological resources, in favor of males (M=4.47). Regarding knowledge resources, males were more satisfied (M=4.86) on the continuous improvement. In general, males had overall mean score better than females on the continuous improvement of all resources for the variable gender.

Table (9) Satisfaction level among participants by proprietorship status regarding continual improvement of resources

Proprietorship	Public	Private
Mean Variable		
Satisfaction extent as to continual improvement of human resources	4.46	3.49
Satisfaction extent as to continual improvement of financial resources	3.72	4.07
Satisfaction extent as to continual improvement of physical resources	3.86	3.06
Satisfaction extent as to continual improvement of technology resources	4.19	4.42
Satisfaction extent as to continual improvement of knowledge resources	4.53	3.23
Mean	4.12	3.65

As shown by the earlier table, public universities had the highest mean score (M=4.46) on the satisfaction level scale of the continuous improvement of human resources. This result seems reasonable since public universities have employees more than private universities that are much concerned with profits. However, private universities had higher satisfaction degree (M=4.07) compared with public universities concerning satisfaction level on the continuous improvement of financial resources. The reason is that the targeted sample was recruited from the Faculty of Economics & Business that attracts larger numbers of enrollments while there is shortage in the faculties holding graduate and postgraduate degrees, especially Ph.D. degree. Additionally, satisfaction degree was better for public universities (M=3.86) than at the private universities regarding satisfaction level of the continuous improvement of physical resources. This result is due to the fact that public universities are governmental, so that their physical resources are free from taxes and duties contrary to the private universities that do not enjoy such advantage. As a result, the satisfaction degree at the public universities was higher than the private universities. Further, the private universities had higher (M=4.42) satisfaction degree than the public universities on the continuous improvement of the technological resources and this result have positive reflections on the teaching process at the private universities, providing them competitive edge with peer private and public universities, and differentiated teaching service. Further, public universities had satisfaction level higher (M=4.53) than the private universities regarding continuous improvement of the knowledge resources. This result can be explained by the seniority of public universities that were founded earlier of time than the private universities. The overall mean score of the public universities was higher than the private universities regarding satisfaction extent as to continuous improvement of all resources, in general. The reason is that public universities receive subsidies for the government, while the private universities are privately owned and self-funded, which would affect the level of their knowledge, technological and physical resources.

Table (10) Satisfaction level among participants by service years regarding continual improvement of resources

Experience Years	Less than a year	1-4	5-9	10 or more
Mean Variable				
Satisfaction extent as to continual improvement of human resources	3.15	3.05	4.19	2.74
Satisfaction extent as to continual improvement of financial resources	3.78	4.17	3.27	4.31
Satisfaction extent as to continual improvement of physical resources	3.49	3.54	3.09	4.61
Satisfaction extent as to continual improvement of technology resources	2.27	4.58	2.44	3.83
Satisfaction extent as to continual improvement of knowledge resources	4.73	4.43	3.76	3.28
Mean	3.48	3.95	3.35	3.75

The previous table shows that respondents with service years (5-9) were the most satisfied ($M=4.19$) with the continuous improvement of human resources, followed by those with service less than a year, and next the group (1-4 years). Respondents within service years (10 yrs or more) had the least satisfaction level. This result can be explained by the fact that typically a faculty member who has been in service five years or more would receive no annual premium, which would affect job stability, especially at the private universities. However, participants who had service years 10 years or more were the most satisfied ($M=4.31$) regarding continuous improvement of the financial resources, followed by respondents with service years (1-4 yrs). Further, respondents within service years (10 yrs or more) were the most satisfied ($M=4.61$) with continuous improvement of physical resources, followed by participants with service years (1-4) group. In addition, respondents within service group (1-4 yrs) were the most satisfied ($M=4.58$) with the continuous improvement of the technological resources, which can be explained by their seek for promotion, meaning most frequent use of the Internet websites and other information technology tools.

5. Empirical Findings

5.1 First Hypothesis

"Satisfaction levels regarding continued improvement of the human, financial, technological, and knowledge resources variably decrease by such demographics as age, gender, university proprietorship and service years". To test the hypothesis, Independent Sample T-Test was administered, means, standard deviations and ANOVA analysis, were computed on the demographic characteristics of participants as shown in table (11).

Table (11) Independent Sample T-Test results regarding demographic characteristics of participants by gender

Sex	M	SD	T	Freedom Degrees	α
M	3.76	1.18	2.94	234	0.34
F	3.24	78.0			

Table (11) shows that ($T=2.94$) value was statistically significant at ($P \leq 0.05$) indicating variation in participant estimates by gender regarding low satisfaction level about continuous improvement of resources (human, financial, physical, technological and knowledge) in realization of total quality attributed to demographic characteristics.

Table (12) Independent Sample T-Test results regarding low satisfaction level associated with continuous improvement on resources (human, financial, physical, technological, and knowledge) in achieving total quality attributed to age

Age	M	SD
25-29	3.07	0.68
30-39	3.83	1.29
40-49	4.12	0.94
50 or above	2.86	1.42

Table (12) shows superficial differences in mean score of low satisfaction level regarding continuous improvement of resources by variable age and to identify the statistical significance, ANOVA analysis was used as shown by table (13).

Table (13) ANOVA analysis results by age

Variable	Total Squares	Freedom Degrees	Mean Squares	F	α
Regression	34.72	2	17.36	24.38	0.34
Residue	165.93	233	0.712		
Total	200.65	235			

Table (13) shows a strong association is low satisfaction level regarding continuous improvement of resources for total quality, where computed F-value (24.38) was less than tabulated F-value (3.8) at ($r=.95$), the implication is a strong significance of participant estimates by age.

Table (14) Independent Sample T-Test results by university proprietorship

Sex	M	SD	T	Freedom Degrees	α
Private University	4.37	0.96	3.79	234	0.49
Public University	3.09	0.48			

Table (14) shows that ($T=3.79$) value was statistically significant at ($\alpha=.05$) indicating variation in participant estimates for university proprietorship regarding low satisfaction level about continuous improvement of resources (human, financial, physical, technological and knowledge) in realization of total quality attributed to demographic characteristics.

Table (15) Independent Sample T-Test results regarding low satisfaction level of continuous improvement on resources (human, financial, physical, technological, and knowledge) in achieving total quality attributed to service years.

Service Years	M	SD
Less than a year	2.76	0.46
1-4 yrs	3.45	0.86
5-9 yrs	3.08	1.29
10 yrs or above	4.03	1.42

Table (15) indicates superficial differences among mean scores of low satisfaction level regarding continual improvement on resources for total quality by variable service years. To identify significance level, one-way analysis of variance ANOVA was employed as show by table (16).

Table (16) ANOVA analysis results by service years

Variable	Total Squares	Freedom Degrees	Mean Squares	F	α
Regression	84.18	2	42.09	58.13	0.47
Residue	168.76	233	0.724		
Total	252.94	235			

Table (16) demonstrates a strong association in the low satisfaction level regarding continuous improvement of resources on total quality with computed F-value being at (58.13) and tabulated F-value at $r=.95$ was (3.8). As computed F value is below tabulated F value, there is strong significance of participant estimates by variable service years.

The above tables related to the first hypothesis indicate differences in participant responses by such variables as gender, and university proprietorship regarding low satisfaction level as to continuous improvement of overall resources. The variance in participant views is also perceived considering the standard deviations by age and university proprietorship. There is a strong association in the variation of participant views regarding experience years and age as demonstrated by comparing computed F versus tabulated F values, and existence of significant differences by service years compared with age regarding continuous improvement of overall resources as shown by respondent views.

5.2 Second Hypothesis

There are no statistically significant differences of satisfaction levels regarding continued improvement on the organization resources (human, financial, physical, technological, and knowledge/ information) attributed to such demographics as age, gender, university proprietorship and service years

To verify hypothesis, Independent Sample T-Test was administered, and means, standard deviations ANOVA analysis were used on the participant demographics domain as table (17) shows.

Table (17) Independent Sample T-Test results on participant demographics by gender

Sex	M	SD	T	Freedom Degrees	A
M	4.27	0.59	6.72	234	0.29
F	3.74	0.46			

Table (17) shows that (T=6.72) value was statistically significant at ($P \leq 0.05$) indicating no variation in participant estimates by gender regarding continuous improvement of university organization resources in accordance to participant characteristics as Computer T-value was greater than the tabulated-T value. However, the standard deviations were juxtaposed indicating converging participant views by gender.

Table (18) Independent Sample T-Test results of continuous improvement on the university organization resources by demographic characteristics related to age

Age	M	SD
25-29	4.72	0.38
30-39	3.51	0.81
40-49	3.86	0.63
50 or above	3.94	1.16

Table (18) indicates superficial differences among mean scores of the improvement practices on university organization resources in accordance with demographic characteristics by age. To identify statistical level, one-way analysis of variance ANOVA was applied as shown by table (19).

Table (19) ANOVA analysis results by age

Variable	Total Squares	Freedom Degrees	Mean Squares	F	α
Regression	29.16	2	14.58	5.244	0.16
Residue	648.72	233	2.78		
Total	677.88	235			

Table (19) indicates a strong association in the continuous improvement of university organization resources by demographics, where computed F-value (5.244) was below tabulated F-value (3.8) at ($r=.95$). As computed F value was less than the tabulated F value, the implication is existence of significance by age.

Table (20) Independent Sample T-Test results of participant demographic characteristics related to university proprietorship

Sex	M	SD	T	Freedom Degrees	α
Private University	3.62	1.52	6.42	234	0.26
Public University	4.03	1.26			

Table (20) shows that T-value (6.42) was statistically significant at ($P \leq 0.05$), indicating strong variation in participant estimates by university proprietorship status regarding continuous improvement of university organization resources in accordance to demographic characteristics.

Table (21) Independent Sample T-Test results on continuous improvement on university organization resources by demographic resources attributed to service years

Service Years	M	SD
Less than a year	3.05	0.42
1-4 yrs	4.28	0.71
5-9 yrs	3.46	0.69
10 yrs or more	3.13	0.34

Table (21) indicates superficial differences among mean scores of the improvement practices on university organization resources in accordance with demographic characteristics by service years. To identify statistical level, one-way analysis of variance ANOVA was applied as shown by table (22).

2. Table (22) ANOVA analysis results by service years

Variable	Total Squares	Freedom Degrees	Mean Squares	F	α
Regression	15.26	2	7.63	2.10	0.19
Residue	846.71	233	3.633		
Total	861.97	235			

Table (22) shows poor association in the continuous improvement of university organization resources by demographic characteristics, where computed F-value (2.10) and tabulated F-value (3.8) at $r=.95$). Since computed F value was greater than tabulated F, this result implies poor significance of participant estimates by variable service years.

The earlier tables related to the second hypothesis reveals no differences in participant estimates attributed to gender in the continuous improvement of the university organization resources by the demographic characteristics, as the computed F value was larger than tabulated F. Results indicated strong variation in respondent estimates regarding effect of the variable university proprietorship on the continuous improvement of university organization resources by the demographic characteristics. As for age, there were superficial differences among mean scores of the continuous improvement on resources of the university organizations under study. For the variable experience years, results indicated poor association in the continuous improvement of university organization resources by demographic characteristics.

6.0 Results & Implications

6.1 Results

The current study concludes with the following results:

1. The highest satisfaction levels for respondents on the continuous improvement of all human, financial, physical, technological and knowledge resources by the demographic characteristics were concentrated in the following age groups: (25-29) (M=3.8%), followed by age group (40-49) (M=3.7%), and (30-39) (M=3.6%) and finally age group (50 yrs or more) (M=3.5%).

2. The highest satisfaction levels regarding continuous improvement of technological resources was respondents within the age group (25-29) (M=4.88%), followed by physical resources domain by the age group (30-39 yrs) (M=4.66%), and for the technological resources domain by the age group (50 yrs or more) (M=4.26), followed by satisfaction for the human resources by respondents in the age group (40-49 yrs) (M=4.14%).
3. The lowest satisfaction levels for participants regarding continuous improvement of the human resources were by those in the age group (50 yrs or more) (M=2.68), followed by satisfaction for the physical resources by the age group (25-29 yrs) (M=2.81%), and the financial resources domain by respondent in the age group (30-39 yrs) (M=2.91).
4. Male faculties were the most satisfied with the continuous improvement of the overall human, financial, physical, technological, and knowledge resources (M=4.1%), whereas females were less satisfied (M=3.54%).
5. The highest satisfaction level regarding continuous improvement was on the knowledge resources domain by the males (M=4.86), followed by satisfaction with the technological resources also by the males (M=4.47%), followed technological resources domain by females (M=4.23%), followed by the satisfaction with physical resources domain by the females (M=4.29%), and finally the satisfaction with human resources domain by males (M=4.13%).
6. The lowest satisfaction level for respondents with continuous improvement of the financial resources by the females (M=2.86%).
7. Public university proprietorship occupied the highest satisfaction level by respondents regarding continuous improvement of the composite resources (M=4.12%), whereas the private universities accounted only a lower satisfaction level (M=3.65%).
8. The highest satisfaction level for respondents with continuous improvement was on the human resources domain at the public universities (M=4.46%), followed by satisfaction with the knowledge resources at the public universities (M=4.53%), next satisfaction with the technological resources at the private universities (M=4.42%) and finally the technological resources at the public universities (M=4.19%).
9. The lowest satisfaction level was for continuous improvement of the physical resources at the private universities (M=3.06%), followed by knowledge resources at the private universities (M=3.23%), next the satisfaction level with the human resources at the private universities (M=3.49%).
10. The highest satisfaction level for respondents was on the continuous improvement of the overall human, financial, physical, technological and knowledge resources by service years which were concentrated in the service year groups: (1-4 yrs) (M=3.95%), service 10 years or more (M=3.75%), next participants with service less than a year (M= 3.48%), and finally the service years (5-9) (M=3.35%).
11. The highest satisfaction level regarding continuous improvement of knowledge resources was for respondents with service years less than a year (M=4.73%), then satisfaction for physical resources domain for those with service years 10 yrs or more (M=4.61%), next the satisfaction for the technological resources for those with (1-4) service years (M=4.58%), then the satisfaction for the knowledge resources also for respondents with service years (1-4 yrs) (M=4.43%), next the financial resources for those with 10 or more service years (M=4.31%).
12. The lowest satisfaction level was for contiguous improvement of the technological resources for respondents with less than a year in service (M=2.27%), followed by technological resources for those in service (5-9 yrs) (M=2.44%).
13. There were differences in respondent estimates of the low satisfaction with overall resources by gender and university proprietorship on the total quality realization. The variation in participant views was due to differences in the standard deviations by the demographic characteristics of age and university proprietorship. In addition there are differences by demographic characteristics of age and experience years.
14. There is no variation regarding the effect of the gender variable in the continuous improvement of the resources at the university organizations under study by the demographic characteristics. As for university proprietorship, participant views did not strongly differ regarding the effect of that variable on the continuous improvement of university organization resources by the demographic characteristics. In addition, there were superficial differences among mean scores of the continuous improvement of university organizational resources by the demographic characteristics of age. Results also found poor effect of service years on the contiguous improvement of university organizational resources by the demographic characteristics.

6.2 Implications

The implications and recommendations that can be concluded from this study results include the following:

1. Public and private universities are called to undertake continuous improvement within an articulated strategy adopted by top management at the universities and to flow down to other more specialized departments.
2. Ministry of Higher Education (MOHE) is invited to set forth regulations and instructions that control the continuous improvement processes on the different resources and to monitor them by applying unbiased criteria or favoring one university to another.
3. A fair salary scale and rewarding system should be in place, basically at the private universities that takes into account teaching competencies and experiences without favoritism, bias or discrimination.
4. Continuous improvement processes should be conducted in a balanced more systematic and integrated way that focuses on the various available resources..
5. Higher Education Institutions (HEIs) are encouraged to keep building partnerships and coalitions and establish ties with other universities and research centers for knowledge sharing, exchange expertise and gain more experiences.
6. Higher Education Institutions (HEIs), basically private universities should take financial resources into great interest by stressing on the infrastructure and superstructure, and providing for various prerequisites needed for faculties such as libraries, gymnasiums, health clinics, banking services, restaurants, recreational halls, and appropriate classrooms and offices.
7. Greater emphasis should be given to human resources through improving staffing process and recruiting most qualified faculties without biasing or favoritism. The staff selection should be institutionalized and based on fair criteria.
8. Further studies similar to this one involving other universities and new business sectors for comparison and contrast purpose are strongly advised.

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Appendix						
Study Questionnaire						
Dear colleagues/faculties at the Jordanian Universities Greeting,,						
This questionnaire is designed to collect data that will be used only for scientific research purposes in a study about " Variability of Satisfaction Levels pertaining Continual Improvement of Jordanian University Resources by Demographic Characteristics of Academic Workers". You are selected as participant in this study, and your responses to this questionnaire are of great value for scientific research purposes and will be treated confidentially. Thank your for the time you have taken to fill out this questionnaire.						
Best Regards,,,						
Researchers						
Part One:- Demographic Characteristics of Participants						
Put (X) in the suitable place						
1- Age	25-29		30-39	40-49		50 or more
2- Gender			M	F		
3- Proprietorship			Public			Private
4- Service Years	<input type="checkbox"/>	Less than a	<input type="checkbox"/> 1-4	<input type="checkbox"/> 5-9		<input type="checkbox"/> 10 or more
Year						
Part Two:- The following items are about satisfaction levels regarding continuous improvement of resources at the Jordanian universities. Please put sign (X) against the statement most match your opinion.						
No	Statement	Very High Degree	High Degree	Don't Know	Very Low Degree	Low Degree
1	Allow job opportunities for academic professionals					
2	Retention of qualified staff with job security					
3	Provide opportunity for training based on my needs					
4	Adopts cooperative ice-breaking approach between administrators and faculties					
5	Undertakes periodical evaluation for correction rather than punishing					
6	Considerate my opinion in a democratic spirit					
7	Allow me the opportunity to teach courses that suit my specific field of specialty and interest					
8	Keeps improving the wages scale to the best interest of faculties					
9	Keeps improving the wages scale in response to economic conditions and price					
10	Provides financial support to researches based on university regulations					

11	Fairly assigns overtime teaching load					
12	Always developing finance methods and diversify investments					
13	Interested in finding external links to support creative ideas and scientific talents					
14	Provides rewards based on fair meritorious system					
15	Always develop the library and items on-demand					
16	Provides entertainment places and halls suitable for the faculties and their families.					
17	Offers medical clinics appropriate for the faculties and their families					
18	Provides suitable restaurants and rest places in the campus					
19	Offers comfortable offices for the faculties					
20	Offers classroom that are suitable for teaching					
21	Offers suitable environment in the campus in terms of spaces and parking lots					
22	Offers advanced learning centers					
23	Provides PCs, Internet access, and modern IT technologies with high speeds					
24	Recruits for the learning centers qualified staff members					
25	Offers computer labs suitable for students					
26	Always update library resources frequently used					
27	Provides portable notebooks or laptops for interested students					
28	Provides portable notebooks or laptops for interested faculties					
29	The university offers databank in my service and provides me information I need on time					
30	My university houses specialized departments and personnel to collect data and building information database					
31	I am pleased with the administration's decision as they are made base don careful information and accurate data					
32	My University keeps building coalitions and partnerships with peer universities and research centers for knowledge sharing					
33	Knowledge handling such as documentation, filing and archiving in my university is traditionally manual more than electronic than					
34	My university administration provides modern means for data collection and processing					
35	My university administration takes in serious reactions and criticism directed by others and try to correct inconsistencies, if any.					