A Cross-Cultural Evaluation of Contemporary QWL and its Managerial Implications

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Abstract Number 7445

Abstract

ICT is now ubiquitous and overtly efficient. But while ICT might raise the perception of QWL, culture and gender could also impact it and thus job design and productivity. This study has probed perceptions of QWL and ICTs in UAE's cross-cultural Diaspora. The method it uses avoids loss of information due to factor analysis to lead to richer and *actionable* management interventions. To do this it invokes the Kano model of customer satisfaction to assess items influencing QWL. It finds differences in the worker's perception of QWL amongst male/ female and between national and the expatriate work-forces. On the other hand, ICT is seen as a "must"- but a basic rather than a delighting or functional element of the workplace.

1. Introduction

Pace of progress in information and communications technology (ICT) has greatly influenced work and also the workplace for today's workforce. Hardly a business transaction now occurs without at some point the data being captured digitally. As expected, such widespread incursion of ICT has generally affected efficiency and responsiveness of organizations. But it has also influenced the *quality of work life* (QWL) for the workforce—particularly those that are "knowledge" workers. Massive amounts of data are now collected, processed, summarized and transmitted at rapid speed, cutting delays and typically improving time, quality and resource requirements in production of goods and the delivery of service. This higher level of productivity is by and large appreciated by most of us. However, in this new era face-to-face interaction among humans has typically reduced. For interaction we now send text messages, email, share documents electronically and do video-conferencing. Over 15% of the workforce already telecommutes. Today an office, a hospital, an educational institution or a retail business engages ICTs manifestly as never before.

A recent study completed at George Mason University (GMU) has provided considerable insight into what is recognized by workers as *quality worklife*. This study surveyed various sources of dissatisfaction and satisfaction as it evaluated work-related perceptions of the workplace held by different categories of employees at GMU. This study brought out two aspects of *work* and the *workplace* very clearly. First, workers repeatedly cited certain specific and measurable attributes of the job as sources of satisfaction or dissatisfaction. These are the determinants of QWL. Second, relationships and interactions with one's co-workers appear to have a lot to do with a person's *perceiving* his or her job to be satisfying, or not so. Hence, regardless of the facilities one is provided as technological or other aids, the "human" content of one's work life has a lot to do with the individual's perception of *quality* in his/her work life.

Thus, the GMU study forms a fair basis to start formulating a deeper probing into how ICTs—a modern incursion in one's work life—would be perceived to be proffering "quality." A key constituent here would be the extent to which human interaction is present in one's job, exceptions being specialized jobs where technology controls almost all of the ingredients needed to accomplish the job satisfactorily. Thus the GMU findings would form a legitimate starting point for designing jobs to ensure superior QWL.

Besides the GMU findings the other constructs affecting of quality of work-life are rooted in health and well-being, job security, job satisfaction, competence building, work-life balance etc. (Rethinam & Ismail 2008). These too would contribute to QWL. Furthermore, literature also records that when organizations invest in information and communications technologies, a variety of other effects on work life are commonly observed. To probe these some researchers have focused exclusively on directly investigating the impact of ICTs on workers' well-being and their perceived quality of work life (Salanova, Cifre and Martin 2004).

However, it is observed that QWL perceptions are not universal. There is evidence to suggest that the influence of *ICT*s in the workplace, in particular, may not appear to be identical to all individuals. This is probably influenced not only by the predisposition due to one's education or technological literacy, but also by his/her cultural orientation. The term "culture" here is meant to imply "the totality of socially transmitted behavior patterns, arts, beliefs, institutions, and all other products of human work and thought"[2]. For instance, a study conducted involving three ethnically comparable communities—the residents of Beijing, Hong Kong and Taipei—revealed considerable differences in the manner ICTs along with conventional telephones were viewed to be of utility by these three groups. While Taiwanese and Hong Kong residents attributed high value to Internet, Beijing residents regarded the telephone to be the most useful technology, even if they could easily access the Web**.**

The present study seeks an answer to this question, albeit within the limited domain of organizations employing a mixture of national as well as an influential expatriate Diaspora that comprises today's United Arab Emirates (UAE). In many ways this mixed population is unique and distinct from the typical relatively homogeneous populations of the West. The Emirati culture has successfully juxtaposed tradition with modernity, yet one is influenced to a high degree by family and social milieu. Yes, in the UAE formal interactions generally occur in the Western format, yet, for instance, one profoundly values and actively seeks out opportunities of personal interaction with one's compatriots.

2. ICTs in the Workplace

ICTs are still evolving. Still, literature evidences that ICTs have already complemented many worker skills, provided better job opportunities, and generally made organizations more effective and responsive. But even if some two decades have passed since ICTs were actively introduced in the workplace, the impact on job satisfaction (vis a vis QWL) resulting from the incursion of ICTs in the workplace is as yet little known. *Job satisfaction*, as implied here, may be evaluated through a number of QWL factors including job challenge, job security, autonomy, financial rewards etc. etc. We may use Table 3.1 to select these aspects. On one hand, ICTs within the work environment would be expected to complement worker skills by reducing drudgery and monotony. This should reduce stress and tension and thus produce a positive impact on QWL. On the other hand, ICTs have been noted to create new tensions and stresses and reduce face-to-face interaction, perhaps denying humans some of their instinctive social needs. What is then the overall picture? And would new insights developed here facilitate superior job design and QWL for today's workforce? Literature hints at this possibility (Huber 1990).

The present study aims to extend our understanding of the manner in which the quality of work life has been noted to be affected for those whose jobs engage and surround them with ICT—not occasionally as in checking email, but as the indispensable element of their job. To set a reference point for this study, we adopt the following as the definition of QWL.

2.1 Meaning and Definition of Quality of Work-Life (QWL)

Worrall and Cooper (2006) reported that a low level of *perception of well-being* at work is estimated to cost about 5-10% of Gross National Product per annum. Perhaps only the naïve would select to ignore this huge and in our mind avoidable loss to society for which it pays materially and emotionally. There is thus some parallel between the notion of QWL and COQ, the cost of poor quality that society suffers (Juran et al. 2000).

QWL means the sum total of values, both material and non-material, attained by a worker throughout his career life. QWL includes aspects of work-related life such as wages and hours, work environment, benefits and services, career prospects and human relations that is possibly relevant to the worker's satisfaction and the sustainment of his/her motivation.

While the primary aim of this study is to uncover any dependency between use of ICTs in the workplace and QWL, we remain open to other insights. For instance, it is evident that the lack of resources in many universities has led to stressful administrative work-life, which is perhaps not the only reason for system performance deteriorating and the front-line staff experiencing burnout. What then are these *other* factors and can one re-design the jobs to correct the situation? What would be their managerial implications? Furthermore, even though investment in ICTs has clearly risen, the related studies on organizational designs to cope with new technology adoption are not much evidenced. The desired re-engineering of the ICT-rich workplace is likely to be rooted in a better understanding of factors affecting QWL of the humans deeply submerged in the use of ICT. Literature so far has reported mixed impact of ICTs. Thus a question to investigate would be whether greater exposure to ICTs usage leads to greater level of job satisfaction. Additionally, this study—conducted on the mixed cultural backdrop of UAE—also probes whether the perception of overall QWL is influenced by culture and gender.

3. Literature Review

Professional literature now acknowledges that Information and communication technology (ICT) is playing a critical role today (Johansson 2004). ICT has become a strategic and competitive tool. While the remarkable growth witnessed in investment in ICTs is very impressive, does the workforce forming the front-line perceives this new mode of working only positively? A good fit of this new capability can go a long way to enhance organizational productivity and competitiveness, while if humans find it constraining in meeting their personal and social needs, the outcome at best can be a forced fit, as it happened in the early days of the introduction of Taylor's scientific management in the 20th century. Perhaps one solution would be to automate the *total* information management process and to remove humans altogether—with appropriate innovations. Some of this is already happening as the cost of physical labor goes up. Automated telephone responses and web-enabled interfaces are typical examples. For the moment though, in the great majority of service industries applications of ICT require a human layer between the data and its ultimate user.

Some positive implications of ICTs noted in the education sector in distance learning indicate a welcome trend for teaching and learning, as the result of which e-education is gaining popularity. Still there are issues to be understood and resolved in order to maximize the utility of ICTs in the workplace. Thus, in order to have clearer picture of its impacts, it is important to understand what factors contribute positively to or encumber the Quality of work-life for users whose job is to provide a service through ICTs.

Table 3.1 Summary of literature on QWL*

	Definition/Factors	Authors
1	Described as psychological growth needs as relevant to the consideration of Quality of working life. Several such needs were identified; Skill variety, Task Identity, Task significance, Autonomy and Feedback. They suggested that such needs have to be studied if employees are to experience high quality of work life.	Hackman J & Oldham G (1974)
2	Identified the essential components of Quality of working life as; basic extrinsic job factors of wages, hours and working conditions, and the intrinsic job notions of the nature of the work itself. He suggested that a number of other aspects could be added, including; individual power, employee participation in the management, fairness and equity, social support, use of one's present skills, self development, a meaningful future at work, social relevance of the work or product, effect on extra work activities. Taylor suggested that relevant Quality of working life concepts may vary according to organisation and employee group.	Taylor J C in Cooper, CL and Mumford, E (1979)
3	Considered a range of apparently relevant factors—work involvement, intrinsic job motivation, higher order need strength, perceived intrinsic job characteristics, job satisfaction, life satisfaction, happiness, and self-rated anxiety. They discussed a range of correlations derived from their work, such as those between work involvement and job satisfaction, intrinsic job motivation and job satisfaction, and perceived intrinsic job characteristics and job satisfaction. Warr et al. found evidence for association between total job satisfaction and total life satisfaction and happiness, with a lesser, but significant association with self-rated anxiety	Warr, P, Cook, J and Wall, T (1979)
4	Suggested that Quality of working life was associated with satisfaction with wages, hours and working conditions, describing the "basic elements of a good quality of work life" as; safe work environment, equitable wages, equal employment opportunities and opportunities for advancement.	Mirvis, P.H. and Lawler, E.E. (1984)
5	Listed what they described as typical indicators of quality of working life, including: job satisfaction, job involvement, work role ambiguity, work role conflict, work role overload, job stress, organisational commitment and turn-over intentions. Baba and Jamal also explored reutilization of job content, suggesting that this facet should be investigated as part of the concept of quality of work life.	Baba, VV and Jamal, M (1991)
6	Suggested that the key factors in quality of working life are: Need satisfaction based on job requirements, Need satisfaction based on Work environment, Need satisfaction based on Supervisory behaviour, Need satisfaction based on Ancillary programmes, Organizational commitment. They defined quality of working life as satisfaction of these key needs through resources, activities, and outcomes stemming from participation in the workplace. Maslow's needs were seen as relevant in underpinning this model, covering Health & safety, Economic and family, Social, Esteem, Actualization, Knowledge and Aesthetics, although the relevance of non-work aspects is play down as attention is focused on quality of work life rather than the broader concept of quality of life	Sirgy, M. J., Efraty,, D., Siegel, P & Lee, D. (2001).

** Source:http://en.wikipedia.org/wiki/Quality_of_working_life*

3.1 The Meaning of QWL

A definition views QWL as a philosophy—a set of principles—which holds that people are the most important resource in the organization as they are trustworthy, responsible and capable of making valuable contribution, and hence they should be treated with dignity and respect and provided with facilities and opportunities that maximize their satisfaction at the workplace (Straw and Heckscher 1984). It has been independently established that such fulfilled individuals contribute more to the organization materially and otherwise. It has been observed that factors that contribute to an individual's perception of quality of work life include the task, the physical work environment, and the social environment within the organization, the administrative system, and the relationship between life on and off the job. QWL includes (i) an opportunity to exercise one's talents and capacities to face challenges and situations that require independent initiative and self-direction; (ii) an activity thought to be worthwhile by the individuals involved; (iii) an activity in which one understands the role that one plays in the achievement of some overall goals; and (iv) a sense of taking pride in what one is doing and in doing it well.

Table 3.1 provides a summary of different definitions and constructs of QWL as presented in the contemporary literature. Eight major conceptual categories of job attributes that impact QWL have been proposed. These are (1) adequate and fair compensation, (2) safe and healthy working conditions, (3) immediate opportunity to use and develop human capacities, (4) opportunity for continued growth and security, (5) social integration in the work organization, (6) constitutionalism in the work organization, (7) work and total life space and (8) social relevance of work life. So how one assesses his/her own QWL is not perhaps a 1-1 or linear relationship between some particular job attribute and his/her perception of QWL. From a survey by University of Essex on QWL six independent psychosocial factors could be identified as contributing to QWL. There were tagged Job and Career Satisfaction (JCS), General Well-Being (GWB), Stress at Work (SAW), Control at Work (CAW), Home-Work Interface (HWI) and Working Conditions (WCS). Though some factors are new, they all seem to hint at the importance that a worker attaches to the *softer* side of life in perceiving satisfaction at work, some quite far away from the technical content or constitution of the actual work.

Therefore the study sets forth the following questions: (1) Does job satisfaction of knowledge workers and hence QWL improve with greater exposure to ICT? (2) Does greater use of ICT lead to a decline in human interaction, especially in respect to co-worker relationships? (3) Do male and female workers differ in the satisfaction they derive when they use ICTs as an integral part of their job? (4) Do UAE nationals differ from other nationals working alongside in the satisfaction derived when ICTs are made an integral part of their job?

Since one key objective of this study is to develop actionable management interventions to positively impact QWL, it looks beyond the conventional practice of using factor analysis to uncover latent factors. This is elaborated below.

4. Research Methodology

The objective of the present study is to investigate the association between the ICT's adoption and the quality of work life (QWL) of *academic administrative staff*—who are vigorous rather than occasional users of ICT. This group constitutes intense users of ICT at work, distinct from banks or nursing stations in hospitals, for instance, where the job is primarily technical in context and content. Therefore, in order to reliably discover the underlying association and the impact of ICT on QWL where demography and cultures are divergent, data was collected by questionnaire-based survey of administrative staff across several UAE universities. The inquiry was framed using practical and theoretical bases of QWL and its measurement derived from the related literature. This section outlines the research approach and the data collection methods used. It explains why certain particular data analysis methods were chosen. The ethics observed and specific problems faced in conducting this research are also listed.

4.1 Justification for the Research Approach chosen

In this present research, a questionnaire-based quantitative approach is used. Data is collected through an anonymous randomly administered questionnaire on a target population of users of ICT in several academic administrative setups within UAE universities. Primary data constitute the key basis of this research with statistical tools used as applicable to summarize and to draw inferences from the data collected. Validation is attempted by follow up interviews and recorded as caselets. Earlier research results are used to help formulate questions to probe into the perception of QWL among the target subjects. It is noted that within the geography of UAE few studies have covered the subject addressed by this study; hence the scope for doing such research using secondary data does not yet exist. Also, the researchers remained mindful of the possibility of low returns of questionnaires and hence the limited applicability of the conclusions of this study.

4.2 Data collection methods

In this research primary sources (questionnaire/interviews) were used to collect the primary data.

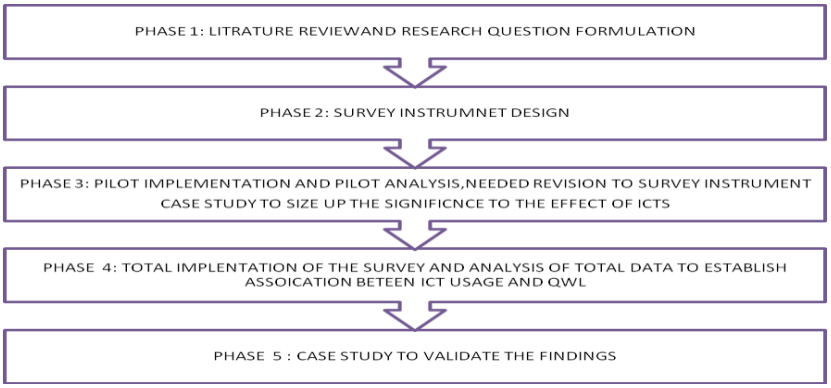
4.3 Units of Analysis

According to Collis and Hussey (2003), unit of analysis is a kind of case to which the variables of phenomena under study and research problem refer, and about which data is collected and analysed. They explain that units of analysis could be an individual, an event, an object, a body of individuals, a relationship, or an aggregate. For the present study, individual administrative employees using ICTs to perform their job in an academic setup, rather than groups of such employees or an overall department, were used as subject units.

4.4 Research Design

Figure 4.1 summarizes the particular research design adopted for the present study. The present study was divided into five distinct phases as shown. These phases are detailed below.

Fig 4.1 Research Design for the Present Study



Phase 1: Literature review and RQ formation.

The relevant scholarly electronic databases were searched in this phase by applying appropriate key words such as impact of ICT's, administrative staff quality of work life, or higher education, etc. Chapter 2 has provided the results of this search.

Phase 2: Survey Instrument Design

This phase involved the design and the development of the instrument for data collection. Literature evidences several instruments that have been developed to evaluate the measurement of job satisfaction/QWL. Use of questionnaire at present is a key strategy in QWL studies, deemed superior to passive observation. Questionnaires are usable when controlled experiments are not feasible to test cause-effect relationships (Cooper and Schindler 2008). Questionnaire survey is also used sometimes as a preliminary study, to be followed by interviews that can explore in depth the findings from the questionnaire survey (Taylor et al 2008). The present study used this mixed approach, as explained in phase three.

A study at the George Mason University (GMU 2000) revealed a multitude of elements (aspects) of QWL perceived and experienced by the academic staff at GMU. A similar study that also employed questionnaires was completed in New Zealand (Zorn, Hector and Gibson 2008). Utilizing the guidance from these two studies a survey instrument was designed for the present study. Table 4.1 outlines these survey dimensions. The questioning format consisted of checklists, Likert scale questions and open-ended questions, administered through personal interviews and Internet distribution to the target subjects.

Phase 3: Pilot Implementation of the survey

In order to test that the instrument was suitable, a pilot study was conducted comprising a sample of size 28. The responses were coded and analyzed. Minor modifications were done to the pilot instrument. The initial data collected was tabulated in a spreadsheet. To administer the survey a master list of employees of higher education institutes was obtained from the UAE Ministry of Higher Education website (www.caa.ac.ae) and from the Dubai International Academic City website (www.diac.ac.ae). From this master list, subsamples of admin staff were randomly chosen and approached for primary data collection.

Table 4.1 The Survey Dimensions Queried

QWL Factors	Variety Of Tasks
	Challenge In The Job
	Amount Of Autonomy
	Financial Rewards
	Promotion Or Advancement Opportunities
	Quality Of Supervision
	Co-Worker Relations
	Workload
	Job Security
	Meaningfulness Of The Tasks
	Growth And Development Opportunities
	Work/Life Balance
	Support From Co-Workers
	Support From Manager
QWL-related Factors	Layers in the management structure
	Work is interesting
	Self managing teams are in workplace
	Pressure on staff has increased
	More independence
	Monotony in the work has increased
	Flexible working has increased
	Employees are more closely supervised
	Employees feel more valued
Demographic Information	Age Number of years of work experience Number of years of work-experience in the present Job Level of Education Sex Nationality Frequency of computer usage

Phase 4: Survey Implementation and Analysis of the total data set

A detailed description of the management and analysis of the data is below. However, data consolidation and analysis continued throughout the data collection process. The qualitative and quantitative data collected were continually revisited in relation to the specific research questions as well as any issues which had evolved beyond their research questions.

To facilitate analysis all data was first processed by coding the survey responses into Excel® spreadsheets, transcribing the interview portions. Data was then divided into meaningful and distinct traceable sections of information. Open-ended questions in the survey required some quantification. However, in order to maximize the benefits inherent in qualitative data, the overall flavor of the responses was preserved as original. The responses to each question were transferred to tables using Microsoft Word®. Keyword and phrases were used as descriptions to establish themes which might emerge from the data. In case a large volume of data could be collected (responses from > 300 target subjects), these themes could be probed by factor analysis and we stayed open to that possibility. The statements were coded accordingly. Issues which emerged from the interview data could be quantified fairly simply as many of the QWL themes and issues which surfaced were similar.

A tentative "ICT index" was created by choosing the questions that captured the positive and negative impacts perceived of ICT-related factors on QWL. This was our attempt to explore any correlation that existed between ICT and QWL, such as those indicated by the New Zealand study by Zorn et al (2008). To examine the relationship between the ICTs and QWL correlation analysis was used. The data was also examined by several tests of hypotheses to see if there is any significant difference in QWL perception between the older/younger, male/female and national and expatriate groups by comparing the appropriate averages, item by item.

A statistical *t*-test would be used to test these. Data was analyzed using Excel®'s Add-in statistical functions. Subsequently qualitative data and focus group interviews would be analyzed to attempt validation of the findings of this study. To find suitable groupings of QWL factors a simple application of factor analysis was attempted using SPSS®, albeit the sample size was too small to lay sound claims.

A novel approach adopted in this study was to classify QWL items into Kano (1984) categories—*basic, functional*, and *exciting*, and then to probe them to extract *managerial implications* thereof.

Phase 5: Case study to validate findings

Collis and Hussey (2003) explain that *interviews* are a method of collecting data in which selected participants are asked questions in order to find out what they do, think or feel. Person-to-person interaction between two or more individuals with such specific purpose in mind is called an interview. Interviews make it easy to compare answers. These may be face-to-face, voice-to-voice or screen-to-screen, conducted with individuals or a group of individuals. Kumar (2005) indicates that interviewing is a commonly used method of collecting information from people. This approach, couched in several small caselets, was used in the present study—to check the validity of what the surveys indicated to be relevant to QWL of ICT users in an academic administrative setup.

A random subsample of 15 original respondents was e-mailed with the stated objective of further requesting for a follow up interview. A semi-structured interview was then conducted to allow the researchers gain a deeper awareness of the individual cultural differences—through mini-case studies. It may be noted that there is strong preference in Arabic culture for face-to-face contact in all kinds of business transactions (Al Bahar et al 1996)

Such case interviews were conducted over a period of four weeks. The interviews ranged from 25-40 minutes. All interviewees were thanked through a personal letter.

4.5 Factor Analysis in QWL Studies

Factor analysis—a statistical data reduction technique—has been recently used to identify the underlying structure of QWL survey data. The objective has been to uncover *latent* variables or "factors" that cannot be directly measured, but that are thought to be more fundamental than the measured QWL variables such as challenge, variety, financial rewards or co-worker relations. Factor analysis is suitable for analysing patterns of complex multi-dimensional relationships. It is often used to examine whether measurements obtained on a large number of variables can be condensed or summarized into a small set of factors. The challenge to subsequently *interpret* these factors in a manner that can then be used to formulate managerial actions, however, is not trivial. In this respect, factor analysis often causes some loss of *actionable information*. Literature indicates, for instance, that using orthogonal rotation results in a loss of valuable information if factors are correlated (Costello and Osborne, 2005). For illustration, job satisfaction characteristics challenge, variety, meaningfulness, autonomy may together be found to form a latent "factor." But what does a manager do next? Should he try to simultaneously improve all four?

A similar dilemma is faced by a manager who is told that financial rewards, promotion, quality of supervision and coworker relations constitute another latent factor as revealed by factor analysis. Again, this information is not directly actionable. One does not know if all four items should be simultaneously and *equally* raised. Faced with this intrigue, the present study invoked an additional recent insightful theory, tagged in marketing literature on customer satisfaction as the "Kano model." This approach, at this time of writing, has attracted a great deal of attention in product and service design and improvement where the need is to make customer satisfaction feedback data rapidly actionable. The approach is summarized below.

5. The Kano Model of Customer Satisfaction

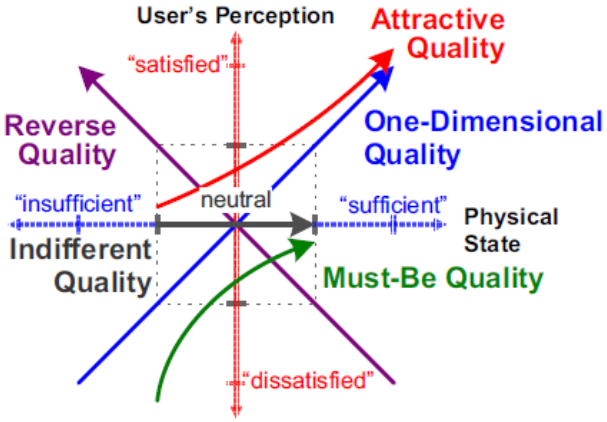
About 1984, Noriaki Kano of Japan recognized the need to link what is measured by quality professionals to *value*. In this manner the nebulous notion of customer satisfaction was made *measurable*. Before Kano, the relationship between product or service characteristics and value existed indirectly. At times these characteristics were materially improved, but it was found that the customer never noticed this improvement. So while all improvements in value require an improvement to the product or process performance, not all improvements result in an increase in value. Thus not all customer requirements are "equal" in value. In the context of employee satisfaction measured by QWL, similarly, expansion of ICT tools and facilities may not get viewed by the employee as significantly as an improvement in work life balance or autonomy.

Present researchers found that such separation among employee needs into "basic", "functional" and "exciting" categories conveniently leads to converting the micro-level QWL survey data into actionable lists of intervention for management. The Kano concept of categorising customer requirements is summarized in the diagram below. Details are available in Kano (1984).

5.1 Kano's Value/Quality Characteristic Model (Kano 1984)

Kano provides a model (Figure 5.1) of the relationship between performance (expressed as performance measures) and value (expressed as customer satisfaction) on the other. This model can be used as a basic tool in the effort to overcome simplistic, linear ("the more the better") thinking regarding the relationship between what a supplier offers and how this is perceived by the customer.

Figure 5.1 Kano Model of Quality Characteristics



The model identifies three types of characteristics, depending upon the type of expectation the customer has for the product or service being delivered. The model defines type of expectation, because it recognizes that these differences go beyond differences in degree; they define different forms of the performance/value equation.

5.2 Employee Expectations may *creep*!

The Kano model depicts the relationship between performance as measured and as perceived. But things change and this is especially true with *delighters*. Once delivered, the employee is delighted. But the employee's expectations are also modified. Soon, customers come to *expect* those delighters. Thus, what was once a delighter evolves to become a satisfier or perhaps a basic characteristic. An example is the presence of ICT facilities at one's work desk. Telephones today are viewed as a basic requirement at one's desk. A computer that once was a sign of prestige and status (thus a *delighter*) is now a *basic* necessity. Remove it, and the employee would be hard pressed to accomplish what her job requires, hence be most dissatisfied. But two or more computers are of little value to her (so "the more the better" also does not apply here any more). Her value of a computer at her desk has thus shifted or evolved from being a delighter to a basic requirement.

"Expectation creep" means that when organizations speak of 'delighting the employee,' they had best be careful. It may be easy to delight the employee once, perhaps even twice, with for instance a cash bonus. But as expectations change, organizations will need to address issues of *sustainability*. Specifically, can the organization continue to deliver a delighter if it evolves into a satisfier or basic characteristic?

The sum and substance of adopting the Kano approach to tag employee requirements appears to be the following. Organizations often survey employees to assess levels of satisfaction and morale. All too often, the approach is a simple set of questions about how employees feel about their salary, benefits, hours of work, relationship with supervisor, scope of work or other variables. This approach ignores the reality that each employee considers these things *differently*. Fair salary, for example, would likely be a basic characteristic - we should not expect any employee to be satisfied simply because they are being paid the *going rate*. Allowing that same employee a little more say in how they do their job may be an example of a satisfier, or in some cases, a delighter.

6. Data Collection and Analysis

This section is divided into two parts. The first part attempts to explore the relationship between the different uses to which ICT is put and the satisfaction that the user experiences as the result of it. A new "ICT Index" is composed for this purpose and evaluated from the responses provided by each user subject. Simple regression analysis is performed plots and it is found that the relationship entails a $R^2 > 0$ and slope > 0 implying a positive relationship between variables ICT (independent) and QWL (dependent). The second part of this chapter is an extensive analysis using response data collected in the bulk of the survey completed in the present study. Statistical procedures of paired *t*-Test and factor analysis are used. The objective is to determine the significant job satisfaction categories that impact QWL ratings given by male and female Arab employees and male and female Expatriates comparably employed. Subsequently the Kano concept of customer (here the knowledge worker) satisfaction is used to interpret the quantitative results and to render them actionable for management.

The Kano model (Kano 1984) is invoked to determine the types of employee requirements that are not met by the workplace. This leads to two revelations: (1) Male and female workers look for different aspects of their jobs in order to derive or assess satisfaction in their work life. (2) Cultural background—both for males and

females—seems to have a lot to do with what one views to be producing satisfaction and what doesn't. Presently Kano attributes of job satisfiers were identified by interviewing a sample set of workers.

The consequent managerial implications of the results of this study are then summarized.

The data was obtained through a questionnaire and some follow-up interviews. All questionnaire data was coded and entered initially into Excel as shown in the Appendix. The analysis comprised paired t-Tests, Factor Analysis, and qualitative evaluation of the job satisfaction categories using concepts provided in the Kano model of customer satisfaction. The procedures are outlined in the following sections.

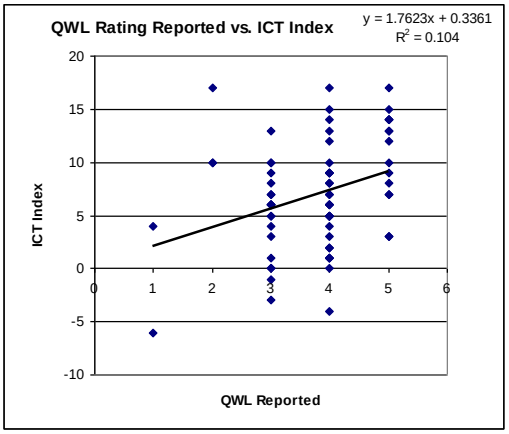
6.1 Exploration of any Correlation between ICT and QWL

A longitudinal study of "before" and "after the introduction of ICT in the workplace" could not be arranged. Instead, perceptions were surveyed in which the subjects were asked to provide ratings of a variety of queries and experiences that they had on a 5-point Likert scale reflecting on their reactions and experiences subsequent to their employers' adopting ICTs in their workplace. Subsequently an attempt was made to correlate this data with QWL ratings of their work life that the same subjects independently provided.

Table 6.1 A Regression of the ICT Index on QWL Scores

ICT query	Proxy variable	Weight Multiplier in "ICT Index" defined
There are now fewer layers in the management structure at my workplace	Layers	+1
Pressure on staff has increased	Pressure	-1
Self managed teams are now used more in the workplace	Selfmanage	+1
I have been given more independence	Independence	+1
Workers are more closely supervised	Closesuperv	-1
Flexible working hours have increased	Flexibility	+1
I work from home more frequently	Homefreq	-1
Others in my workplace work from home	Othershome	-1
The organisation is making more use of part time staff	Partime	-1
I feel more valued after ICTs are introduced	Valued	+1
ICTs undermine Career opportunities	UndermineCar	-1
ICTs create opportunities for new flexible careers	CreateOppor	+1
ICTs expand career opportunities	ExpandOppor	+1
ICTs strengthen connectedness among organizations	Connected	+1
ICTs increase pay as it enhances skills	IncreasePay	+1
ICTS create Employment Opportunities	CreateEmp	+1
ICTs lead to work intensification	Workintensif	-1
ICTs cause pressure to work everywhere and all the time	CausePress	-1

Figure 6.1 The relationship between ICT and QWL perception



6.2 Construction of an "ICT Index"

The impact of ICTs on work life as reflected on by target subjects was measured on a 5-point Likert scale by asking the target respondents how they perceived ICT impacting their work life. A simple "ICT Index" was then computed by algebraically summing up their responses. The questions were worded such that for some variables the higher the score, the better would be the perceived impact of ICT on the respondent's work life. For other questions a high score would indicate impact in the reverse direction. The third column (Weight Multiplier in "ICT Index" defined) in Table 6.1 indicates when the response was added (+1), and when it was subtracted (-1). Rather than weighing the responses with different weights, each response was given an equal weight—to compute the overall ICT Index score for the respondent. Thus this process followed the procedure of "equal weights" adopted by the United Nations economists for Human Development Index (HDI).

6.3 Remarks on relationship between ICTs and Overall QWL

1. A linear regression model was developed using the surveyed *overall* QWL scores independently provided by the subjects and the ICT index computed using each respondent's answers to the applicable ICT query in the questionnaire. The slope of regression line, as shown in Figure 6.1, is positive (> 0). However, from the wide scatter displayed in this plot and its low R^2 (= 0.104) it is evident that QWL of knowledge workers is impacted by *many factors* (job satisfaction items) *besides* ICT. This particular point is studied in the next section.

2. $R^2 > 0$ and a positive slope of the regression line indicate that the use of ICT in the job and the perception of improved QWL are positively correlated. It also appears that ICTs have now become part of the regular tools and aids that a knowledge worker uses on his/her job. Consequently, few workers now think of ICTs *especially enhancing* their quality of work life. Clearly then ICTs have become a *basic* (expected) requirement at the work desk to today's workforce like the telephone. But, when these tools and facilities do not work, they would lead to a great deal of discontent and dissatisfaction at the work place (Kano 1984).

3. Note, however, that in this relationship determined R^2 is quite low. Does this imply that ICTs in 2009 do not matter on the job any more, contrasting what was found by earlier researchers? This answer, we believe, is provided by the stipulated *dynamic nature* or *needs creep* of (job) satisfiers (Kano 1984).

6.4 Qualitative Analysis of QWL Data

In the following pages a qualitative display is presented of the perception of average QWL itemized fewer than fourteen job satisfaction categories and the subject's "overall QWL" feedback as reported on the 5-point Likert scale, classified by demography. Qualitative inferences or remarks are given below Figures 6.2 and 6.3.

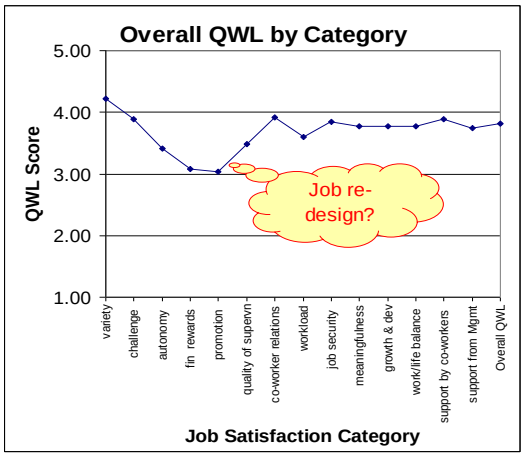


Figure 6.2 QWL perception profile of all subjects regardless of gender and nationality

Remarks

1. Certain job satisfaction items that are widely recognized in the QWL literature to be indicating a positive perception of QWL appear to be rated *low* by vigorous users of ICT.

2. This observation should be explored deeper by Factor Analysis to determine if these indications are statistically persistent and hence may have managerial implication toward **job redesign**.

3. If QWL hence productivity of these workers is to be raised, *managerial action* will be necessary, for instance, to enhance autonomy, financial rewards, promotion, and the quality of supervision received by knowledge workers.

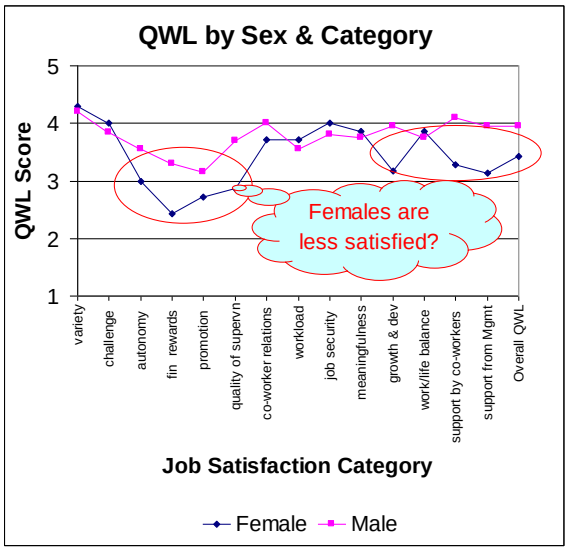


Figure 6.3 Differing QWL perceptions of male and female workers

Remarks

1. The initial assessment of the apparent difference in QWL perceptions between *male* and *female* workers was that regardless of their nationality, in UAE female knowledge workers were less satisfied in certain job satisfaction dimensions. This led to deeper probing, the results of which appear in the following pages.

2. It may be noted that using uniform policies to manage female and male workers, according to this survey, would not be appropriate. In the later pages of this chapter this aspect is analyzed using the Kano model of satisfaction.

7. Factor and Kano Analysis of QWL Survey Data

In the following pages **Factor Analysis** is attempted to identify any *latent factors* that may lead to parsimony (fewer *hidden* dimensions of job satisfaction) in determining quality of work life. This analysis is motivated by the hope of uncovering aspects of job satisfaction that may facilitate easy formulation of *actionable managerial interventions* aimed at improving QWL for knowledge workers in UAE.

A major significance of this study is therefore the following. Unlike in traditional data analysis methods using factor analysis in which a certain "latent" factors called "factors" identified by rotation in Factor Analysis are speculated to be influencing the response, the present approach uses the *Kano customer satisfaction model* to identify specific job satisfaction items and *pin down the malady* where average QWL score is low. These items are categorized in this present study as per Kano's guidelines as basic, functional and delighting factors. The key reference for the method used is the work of Matzler, Hinterhuber, Bailom and Sauerwein (1996). Further, the present study used the following conceptual framework to help with problem identification and the design of remedial action to raise QWL. For each job satisfaction item managerial action/intervention is deemed necessary if an item's QWL score average for the target worker group is below 3.0 on the 5-point Likert scale. These are tagged "areas of concern" deserving management action—to raise their QWL score. Items with scores between 3.0 and 3.5 are tagged as candidates deserving "improvement". Those between 3.5 and 4.0 are tagged "investigate"—to be probed why these are not at 4.0 or above. Items at 4.0 and higher scores are tagged "no action required" as these are already at a sufficiently high level and indicate to be prevailing at an already high job satisfaction level.

Action is also suggested when the job satisfaction item is in the "exciting" category and it scores low (< 3.5) on QWL. Thus, the present approach would enable management to be clear about what specific actions they should initiate to raise QWL, rather than being forced to "interpret" the meaning behind an identified "abstract" (latent) factor located by Factor Analysis, before initiating a corrective action to raise QWL.

Details of the suggested management actions specific to each demographic category are shown in the respective table below marked as "Investigate", "Area of Concern", "No Action" and "Improve."

As noted earlier, the present research does not confine itself to mere mathematical processing of the survey data. Rather, initiatives are taken to probe the issue of job satisfaction deeper—with the help of the Kano model of customer satisfaction (Kano 1984), adopted here to examine the character of job satisfaction items measured in this study.

Sample Factor Analysis of QWL Scores for Arab Males by Job Satisfaction: Rotated Matrix

	Component	
Job Satisfaction Category	Factor 1	Factor 2
Challenge	**0.933**	-0.041
Variety	**0.927**	0.021
Meaningfulness	**0.9**	-0.025
Support from Manager	**0.886**	0.197
Autonomy	**0.738**	0.525
Workload	**0.728**	0.357
Financial Rewards	0.312	**0.773**
Promotion	0.301	**0.881**
Supervision	0.259	**0.889**
Security	-0.085	**0.797**
Coworker relations	-0.405	**0.738**
Development Opportunities	0.595	0.581
Worklife Balance	0.528	0.459
Support from Co-workers	0.502	0.509
OverallQWL	0.915	0.212

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 3 iterations.

Kano Analysis (Kano class identified by survey of employees)

	Factors Identified		**Employee Needs**	**Managerial Implication**	
Job Satisfaction Category	Factor 1	Factor 2	**Kano Class**	Reported	Intervention required
Challenge	**0.933**		Excites	4.09	No action needed
Variety	**0.927**		Excites	3.91	No action needed
Meaningfulness	**0.9**		Excites	3.18	**Improve**
Support from Manager	**0.886**		Basic and expected	4.09	No action needed
Autonomy	**0.738**		Excites	3.64	**Investigate**
Workload	**0.728**		Functional	4.00	No action needed
Financial Rewards		**0.773**	Excites	**3.27**	**Improve**
Promotion		**0.881**	Excites	**2.82**	**Area of Concern**
Supervision		**0.889**	Functional	**3.82**	**Investigate**
Security		**0.797**	Basic and expected	**3.45**	**Investigate**
Coworker relations		**0.738**	Basic and expected	**4.36**	No action needed
Development Opportunities	0.595	0.581	Excites		**Sustain status quo**
Worklife Balance	0.528	0.459	Functional		**Sustain status quo**
Support from Co-workers	0.502	0.509	Basic and expected		**Sustain status quo**
OverallQWL	0.915	0.212			

7.1 Whither ICT?

This study revealed that employees believe it is important to be equipped with ICTs. ICTs had improved their work-life, however they noted the increasing use ICTs in the work-place diminish the face-to face communication with co-workers. At the same time, ICTs were recognized as tools helping them to communicate with internal and external parties effectively. In fact they felt that ICTs strengthened communication by one's getting to know their new colleagues and interact with them quicker. Tasks were also performed quickly. Clearly then in the e-dynamic business world ICT-based interaction plays a vital role and betters QWL**.** But a key realization of this study is that today the availability of ICTs is a necessity (one that meets the worker's *basic needs* like the telephone, or a handy information processor or database rather than something that is "the more the better" or one that "delights" the user by its presence (Kano 1984)).

7.2 Managerial Implications of the Findings

The present analysis used a new approach—that of the *Kano customer satisfaction model*—to identify specific job satisfaction items deserving management intervention—with particular attention given to items where average QWL score is found to be low. These items are categorized here as per Kano's guidelines as *basic, functional* and *delighting* factors. This study says that *different* managerial actions would be needed to address job satisfaction (QWL) issues specific to male and female and Arab and Expat knowledge workers in the mixed UAE diaspora. Such actions and initiatives would have to be targeted toward the particular target group of knowledge workers in UAE for whom an attempt is made to improve their QWL.

To the best of the researchers' knowledge, organizational developmental interventions to date have treated all workplace maladies with *equal weight and with identical strategies*. This study is a departure from that traditional approach to diagnose HR maladies often indicated in worker perception surveys as low QWL ratings. The present approach has harnessed a powerful new approach already familiar to the Marketing community that now aims at specific types of interventions in product modification, and even in new product and service offerings—based on the notions professed by Noriaki Kano of Japan (Kano 1984). Sample managerial Implications may be stated as below:

1. Greater usage of ICTs has a positive relationship with QWL. This thus enables us to accept our initial hypothesis.
2. Although the heavy use of and dependence on ICTs has reduced face-face communication, ICTs are perceived as useful and essential tools whose absence raises dissatisfaction with the job one is performing—when ICT is missing at the desk. Thus today the absence of ICT reduces productivity of today's knowledge workers.
3. This study also reveals that there remains significant difference between male and female perceptions of QWL. Female Arabs rate their QWL low as do male Expats. Furthermore, each nationality indicated difference in QWL perceptions between males and females. However, when each group was taken as a whole (without considering gender differences), Arabs and Expats became comparable in their perception of QWL.
4. There is no significant difference between Expat and Arab national groups when gender differences are ignored in each group.
5. On certain specific job satisfaction categories, namely Autonomy, Promotion, financial Rewards and Quality of Supervision every group indicates low QWL ratings regardless of their nationality or gender.

These point toward aspects of the job in which management action would be necessary if one is to raise QWL scores and thereby positively impact workplace productivity. A major significance of this study is therefore the following. Unlike in traditional data analysis methods using factor analysis in which a certain "latent" factors called "factors" identified by rotation in Factor Analysis are speculated to be influencing the response, the present approach uses the *Kano customer satisfaction model* to identify specific job satisfaction items and *pin down the malady* where average QWL score is low. Action is also suggested when the job satisfaction item is in the "exciting" category and it scores low (< 3.5) on QWL. Thus, the present approach would enable management to be clear about what specific actions they should initiate to raise QWL, rather than being forced to "interpret" the meaning behind an identified "abstract" (latent) factor located by Factor Analysis, before initiating a corrective action to raise QWL.

Details of the suggested management actions specific to each demographic category are shown in the sample tables as "Investigate", "Area of Concern", "No Action" and "Improve."

8. Conclusion

This study aimed to investigate the relationship between (QWL) job satisfaction and the usage of ICTs in the workplace in UAE, specifically targeting knowledge workers engaged in administrative (not-teaching) work in universities. QWL has been the subject of several studies elsewhere in the world by earlier investigators. However, the present study is different in two key respects. First, it addressed itself to probe the perception of QWL in a knowledge workforce that is global in its composition and special in several ways. In UAE the Diaspora is a mix of Arabs (60%) and Expatriates (40%). Furthermore, Arab women in UAE are in a state of transition from caring for home to full-time work. The second is that this study has gone beyond the conventional use of statistical methods, in particular that of Factor Analysis, to probe into maladies that affect QWL—with the help of the Kano model of customer satisfaction. The result has been the production of a list of possible *actionable interventions* by management—segregated by demography (nationality and gender)—rather than deliver some "latent factors" that are often too vague to interpret by their stakeholders.

8.1 The availability ICTs at the workdesk is now viewed as a *basic need*

The findings of this study suggest that the QWL and ICTs are still positively correlated, even if ICTs appeared on the work desk some two decades back. But today the availability of ICT at the desk is no more a source of "delight" or even a "functional" aid; rather it is viewed now as a *basic necessity* whose absence causes a great deal of *dissatisfaction*, using a term from the Kano literature.

The evidence of the acceptance of modern ICT-based communication mode in UAE is encouraging as technologically it yields better organizational connectedness. Thus, even if it may be an expensive proposition for organizations, ICT seems to have emerged as a safe and worthwhile investment. Experts have already noted that ushering of ICT-based change results in mutual adjustment of employees that increases productivity (Mahmood and Mann 1993). Therefore, when employees view it as a *basic necessity* to carry out their jobs as we observe in the UAE, there are good reasons to suggest that ICT positively links employee performance and

productivity. Indeed with the rapid modernization of the workplace taking place in UAE, the adoption of ICTs as a necessary tool to carry out daily operations efficiently and effectively is growing at a pace that is comparable to changes in other parts of the world. Thus in respect to ICTs the results of this study complement the previous research that highlighted the positive impacts of ICTs usage (Gurbaxani and Whang 1991; Axtell et al., 2002; Head, S. 2003).

Lastly, as the present study has demonstrated, seemingly unrelated approaches, such as the Kano perspective of viewing satisfaction as *basic*, *functional*, or *exciting*, may significantly enrich future studies of worker perception of QWL when the goal is to develop strategies to lead to meaningful and effective interventions by management to raise organizational productivity—by improving the worker's QWL. Such an approach was adopted here at the cost of the unknown risk of walking the unknown path away for instance from the conventional approach of finding "latent" factors of significance by Factor Analysis. In the researchers' judgment, the present approach fortuitously mitigated that risk and led to the gratifying discovery of the several *actionable* management initiatives listed above.

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