

Case studies

Analysing employee attitudes towards ISO certification

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Abstract

Employee attitude has often been neglected in most quality endeavors. Both consultants and management hurry to get the project done and omit to measure and manage the soft aspects of the event. The task-orientation approach should be augmented by the people elements. This article illustrates how a company in Hong Kong applied a longitudinal employee attitude survey as a monitoring tool in its journey towards acquiring the ISO certificate. Quality success drivers were found to be the key determinants for the perceived strengths of the company.

Very few people care to measure and manage staff attitude during the process of ISO certification. Too often both management and consultants hurry to get the job done and may undermine the importance of understanding staff feeling and attitude. The feeling and commitment of employees may wax and wane in the course of the ISO certification process which very often lasts for over a year.

The authors were involved in the ISO certification process of a listed public property investment and development company in Hong Kong (referred to as KDC). The management of KDC was convinced of the importance of quality management to maintain and sustain their business success. They decided to adopt ISO as the quality system for the company. They were not compelled by their customers to seek the ISO quality system. They were confident that the ISO certificate would enhance their quality standard and improve their competitiveness.

In order to monitor employee response to the launch of the ISO programme, the management felt the need to gauge staff attitudes by means of a self-completed anonymous questionnaire on a longitudinal basis. Three rounds of survey questionnaires would be administered. The first round was conducted in June 1996, the beginning of its ISO journey. The second one was done in November 1996, i.e. in the midst of the ISO journey. The last one was conducted shortly after the company had acquired the ISO 9001 certificate (i.e. in July 1997).

The survey questionnaire uses a five-point Likert scale and covers the following constructs:

- awareness of quality programmes (AQP) in KDC (items 1 and 2);
- perceived benefits of the quality programme (BENEFIT) (items 3a to 3f);
- quality success drivers (QSD) (items 4, 6 to 9);
- training needs (TN) (items 10a to 10h);
- perceived success factors (PSF) (items 11a to 11m);
- perceived strengths of KDC (PS) (items 12a to 12m);
- perceived performance gap of KDC (GAP) (PSF – PS);
- organizational commitment level (OC) (item 13 to 21).

In the last round of the survey, the questionnaire included four specific questions on employees' views on:

- Item A – whether it was good for the company to adopt the ISO 9000 standard;

- Item B – whether they would try their best to maintain the ISO standard;
- Item C – whether they agreed that the ISO standard had enhanced the management standard of the company; and
- Item D – whether the ISO standard had enhanced the image and goodwill of the company.

The questionnaire also contained personal data such as: length of service; job grade; department; gender; age; educational level; and marital status. These would help discern the staff attitude pattern among various different demographic groups within the company.

Key benefits of ISO certification

It is useful to review the reasons why organizations apply for ISO certification. The key objectives of acquiring ISO 9000 are (Mallak *et al.*, 1997):

- to achieve and sustain the quality of the product or service;
- to give management confidence that quality is being met; and
- to give the customer confidence that consistency is being delivered in the product or service.

Benefits of ISO certification are many and varied. According to Quazi and Padibjo (1997), ISO benefits include: increased customer preference, improved company quality image and competitiveness in the market, compliance with customer requirements, streamlined procedures and documentation, increased awareness of preventive and corrective actions, and provision of a foundation for TQM.

Ho (1994) mentioned the claimed benefits by the British Standard Institution (BSI): marketing tool; buyer acceptance as proof of quality and technical expertise; customers less likely to arrange special assessment; quality performance/morale improvement; reduction of cost of quality; improved customer satisfaction/sales/competitiveness and profitability; confidence; name appearing in reference books for buyers; and help in export markets. Yung (1997) reported the benefits of ISO to include: marketing advantages; better documentation system; quality awareness among staff; and efficiency improvements/cost reductions. McLachlan (1996) revealed 35 benefits of ISO and he related the relevant paragraph of ISO to each of these benefits. Adanur and Allen (1995) reported the following benefits of ISO: more motivated employ-

ees; better product quality; lower quality costs; and more efficient operations.

Dale (1994) outlined the following benefits of ISO 9000: error reduction; reduction of audit time taken by customers; improvement in control, discipline, procedure, documentation, communication, customer satisfaction, problem handling and quality awareness; identification of ineffective and surplus procedures; and better working environment.

As most of the ISO benefits are diverse and yet similar, it is interesting to see how they can be classified. Buttle (1997) identified 23 benefits and the top ten benefits of ISO 9000 certification are:

- (1) improving efficiency;
- (2) improving awareness of procedural problems;
- (3) better management control;
- (4) using the standard as a promotional tool;
- (5) increasing customer satisfaction;
- (6) improving customer service;
- (7) facilitating elimination of procedural problems;
- (8) improving staff motivation;
- (9) keeping existing customers; and
- (10) gaining new customers.

The 23 benefits were more parsimoniously factored into four factors: i.e. profitability; process improvement; marketing benefits; and sundries benefits.

Mo and Chan (1997) classified the ISO benefits into quantitative benefits (expand market share; reduce scrap and rework; increase productivity; and reduce product defects) and non-quantitative benefits (increase employee morale; minimize role ambiguity; better control of suppliers; improve existing system; and improve customer satisfaction). Ho (1994) quoted Bulled's (1987) categorization of ISO benefits into:

- advantages of having the system;
- additional advantages accruing from the result of having an independently assessed quality system.

Possible drawbacks of the ISO scheme

Despite the growth and popularity of ISO certification, the scheme is not without criticism from business practitioners and academics. There are actual and perceived disadvantages in adopting the ISO quality system. ISO was described as being costly and time-consuming (Mallak *et al.*, 1997). Money and time would be the first barrier to over-

come in order to convince the top management to introduce ISO into the organization. Seddon (1997) raised ten arguments against ISO 9000. He pointed out that in addition to cost, ISO would make customers unhappy, demoralize staff and take away improvement. With ISO in place, people had to do "two jobs" – do it and then "write" about it. In a study of quality practice in Asia, Syrett and Pike (1995) noted that it was possible for a company to be certified to ISO 9000 without having initiated any quality programme. Failing to understand the rationale of the ISO quality system, many companies sought ISO 9000 simply because of pressure from customers.

Other criticisms about ISO include (McLachlan, 1996): being too expensive; not addressing the needs of small businesses; being biased towards manufacturing; being irrelevant; and rubbish still being made and sold.

Common barriers in launching ISO 9000

The reasons for many companies failing to recognize and realize the advantages of ISO should be examined. These barriers have to be identified and properly handled so that the quality system can be successfully introduced and sustained.

One barrier, as cited by Mallak *et al.* (1997), was the lack of an appropriate organizational quality culture to induce necessary changes in attitude and behaviour to reinforce the desired change. A study by Quasi and Padijbo (1997) on seven companies identified the following barriers: lack of top commitment; lack of financial and human resources; limited time for implementation; perceived employee resistance; no perceived advantages in certification; and poor training. Mo and Chan (1997) suggested that cost of certification, customers' double-standard attitude (on certification and price) and the increased ISO maintenance overheads were factors inhibiting ISO certification. They pointed out that small firms experienced technical obstacles like high implementation costs, inadequate resources, and insufficient external assistance.

Success drivers for ISO 9000/TQM implementation

Hvam *et al.* (1997) suggest that a prerequisite for successful adoption of ISO certification is

to perform re-engineering in advance. They made a distinction between Hammer and Champy's (1993) *business process re-engineering* (i.e. fundamental alteration approach) and Harrington's (1991) *process re-engineering* (i.e. operationally oriented approach).

Yung (1997) suggests the following factors as drivers for successful implementation of quality management programmes:

- commitment and involvement by top management;
- teamwork approach to solving problems;
- thorough training to promote quality awareness;
- improvement of quality control techniques and methods;
- continuous improvement programme;
- participation of staff at all levels.

Grint (1997) said that one of the critical touchstones of TQM was the involvement and commitment of the workforce at all levels. From a study of the quality circle practice in Hong Kong, Koo (1995) reported that top and middle management support and commitment are the key drivers to good quality management practice.

Key findings

Personal data of the respondents

The response rates for the three rounds of questionnaire ranged from 61 to 77 per cent. Because an attitude survey had never been launched before, there were more respondents omitting to supply their personal data in the first round. Confidentiality was further re-emphasized for the latter two rounds and the situation improved. The respective personal data were compared across three rounds and they revealed a consistent pattern which generally agreed with the personnel profile of the staff population. Therefore the data were likely to represent the whole population reliably.

There were:

- 42 per cent male respondents and 58 per cent female;
- 7 per cent below 20 years old, 44 per cent between 20 and 30, 28 per cent between 30 and 40, 15 per cent between 40-50 and 6 per cent over 50;
- 2 per cent with primary education, 53 per cent secondary, 23 per cent post-secondary and 22 per cent university standard;
- 45 per cent single, 53 per cent married and 2 per cent other marital status;

- 37 per cent had less than 30 months of service with KDC and 63 per cent had worked for over 30 months with the company;
- 34 per cent clerical, 43 per cent supervisory and 23 per cent managerial grade.

Reliability coefficients of the various constructs

Cronbach alphas were computed for the following attitudinal constructs for the three rounds individually and as a whole (Table I). On the whole, the reliability of most of the conceptual constructs was acceptable and rather consistent throughout the three rounds.

Staff attitudes at different stages of the ISO certification process

Table II summarizes the staff attitude patterns at the start, midst and end of the ISO acquisition journey. As mentioned earlier, the different respondent groups at the different stages are representative of the entire population. The comparison on a longitudinal basis depicts how employee attitudes vary at different times.

This longitudinal study revealed that employees felt the decline of quality success drivers in the midst of the ISO journey as compared to the start. However, once the company had successfully acquired the ISO certificate, employees felt that the performance gap of the company dropped significantly as compared to the start. In other words, the respondents perceived that the ISO certification had improved the performance of the company. The gap is defined as the difference between the perceived importance (i.e. PSF) and the perceived strengths (i.e. PS). If the perceived importance is high and the

perceived strengths are also high (i.e. no or little gap), then the company is perceived to be doing all right. Alternatively, if the specific item is perceived to be of little importance and the company is not doing too well in that area, it is still all right. A problem would be perceived to exist if the perceived importance is high and yet the company is perceived not to be doing well in that area. Thus the larger the “gap” the bigger is the need for improvement. Reduction in performance gap is therefore perceived to be improvement made by the company.

These findings are echoed by the scores (on a five-point scale) of the four additional questionnaire items in the last round:

- (1) It was good for my company to adopt the ISO 9000 standard (4.13).
- (2) I will try my best to assist my company to maintain the ISO standard (4.21).
- (3) The ISO 9000 standard has enhanced the management standard of my company (4.13).
- (4) The ISO 9000 standard has enhanced the image and goodwill of my company (4.33).

Analysis of the interrelationships among various key constructs

Koo (1994) advocates the use of structural equation modelling to test the plausibility of putative causal relationships between one variable and another in non-experimental conditions. It involves the estimation of coefficients of a set of linear structural equations representing cause and effect relationships. However Schumacker and Lomax (1996) suggest that structural equation models can at best only provide evidence of weak causal inference and strong cause-effect inferences can be made only from experimental studies. They mention three necessary conditions

Table I Cronbach alphas computed for attitudinal constructs for three rounds

Reliability analysis over time	Round 1	Round 2	Round 3	Overall
(AQP) Awareness of quality programmes in KDC (items 1 & 2)	0.67	0.75	0.77	0.73
(BENEFIT) Perceived benefits (items 3a to 3f)	0.85	0.85	0.82	0.84
(QSD) Quality success drivers (items 4, 6 to 9)	0.69	0.80	0.78	0.76
(TN) Training needs (items 10a to 10h)	0.90	0.91	0.90	0.90
(PSF) Perceived success factors (items 11a to 11m)	0.94	0.94	0.94	0.94
(PS) Perceived strengths of KDC (items 12a to 12m)	0.92	0.93	0.91	0.92
(GAP) Perceived performance gap of KDC (PSF – PS)	0.94	0.95	0.89	0.93
(OC) Organizational commitment level (item 13 to 21)	0.93	0.92	0.93	0.93

Table II Staff attitude patterns

Description of attitudinal constructs	(Round 1)	(Round 2)	(Round 3)	Overall scores for three rounds
	Start of ISO acquisition process	Midst of ISO acquisition process	End of ISO acquisition process	
AQP – awareness of quality programme	4.13	3.90	4.06	4.03
BENEFIT – perceived benefit of quality programme	3.89	3.80	3.76	3.82
QSD – quality success drivers	3.93*	3.68*	3.83	3.82
TN – training needs	4.17	4.08	4.09	4.12
PSF – perceived success factors	4.34	4.24	4.18	4.26
PS – perceived strengths of the company	3.50	3.46	3.65	3.53
GAP – perceived performance gap of KDC	0.93*	0.84	0.58*	0.79
OC – organizational commitment	3.74	3.76	3.86	3.78

Note: To test whether the attitudinal scores at various rounds are different, a one-way analysis of variance (ANOVA) test was applied with least significant difference (LSD) *post hoc* multiple comparison. Only the following two pairs (marked with an asterisk) are different at the 0.05 significance level:

QSD: round 1's 3.93 is higher than round 2's 3.68

GAP: round 3's 0.58 is lower than round 1's 0.93

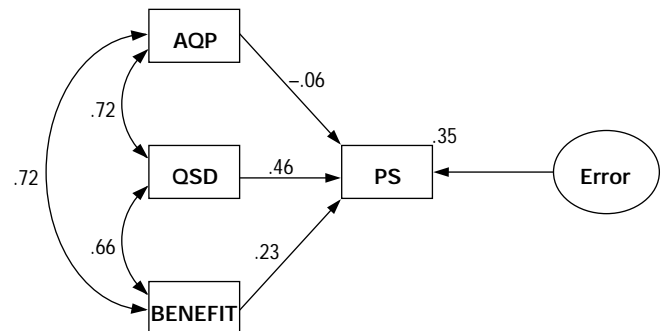
for cause and effect to be inferred between variables X and Y:

- (1) temporal order (X happens before Y);
- (2) X and Y covariate with each other; and
- (3) variation is not due to other causes.

The following recursive model outlines the influences among the four selected constructs in the KDC surveys. A recursive (from the Latin *recurso*, meaning "I return") model is one in which no variable has an effect on itself (Arbuckle, 1997). In the following path diagram (Figure 1), it is hypothesized that awareness of quality programmes (AQP), quality success drivers (QSD) and perceived benefits (BENEFIT) all have an influence on perceived strengths of the company (PS). PS is an endogenous variable with single-headed arrows pointing to it and AQP, QSD and BENEFIT are exogenous variables with no arrows pointing at them.

The squared multiple correlations (SMC) represent the percentage (i.e. 35 per cent) of the variance of the endogenous variable being explained by the exogenous variables. From the standardized regression weights, it is noted that the influence of quality success drivers on the perceived strengths is larger than that from awareness of quality programmes, and benefits. In fact the influence by AQP is almost negligible.

Figure 1 Path diagram



Note: Standardized Regression Weights:

PS <----- QSD	Estimate	0.457
PS <----- AQP		-0.057
PS <----- BENEFIT		0.233

Correlations:

QSD <-----> AQP	Estimate	0.716
QSD <-----> BENEFIT		0.658
AQP <-----> BENEFIT		0.720

Squared Multiple Correlations:

PS	Estimate	0.350
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Conclusion

This longitudinal study on attitudinal change over time is useful to the management of a company. Appropriate and timely actions may be taken to help improve the chance of getting ISO certification. Knowing more precisely what employees think facilitates reaping more benefits from ISO certification. Staff attitude is something that management cannot ignore and simply hope the problem will disappear. If not handled properly, problematic issues may erupt to become more detrimental to the

organization. If staff perception is correct, then it becomes obvious that some actions need to be taken. Even if staff perception is incorrect, the issue has still to be addressed because, from the employees' perspectives, they would be correct in making that particular assumption (i.e. "reality is reality, perception is also reality"). The correct situation or message needs to be conveyed to the staff.

The eight constructs (i.e. AQP, BENEFIT, QSD, TN, PSF, PS, GAP, and OC) were found to be reliable (see Appendix). Many of these constructs were single factors in varimax factor analysis. Most of these were stable across the three survey rounds. Employee attitudes were relatively stable over time except for quality success drivers and the perceived performance gaps. Path analysis suggests that quality success drivers are a key determinant in the perceived strengths of the company.

The gap analysis has been demonstrated to be useful and to have much practical implication. A gap is defined as the difference between the perceived importance (i.e. PSF) and the perceived strengths (i.e. PS). If the perceived importance is high and the perceived strength is high (i.e. little or no gap), then it is fine. Similarly, if the specific item is perceived to be of little importance and the company is not doing too well in that area, it is still fine. Management should be concerned about areas where the gap is large (i.e. the issue is perceived to be important and yet the company is perceived not to be doing too well there). In short, those areas with the larger gaps should have a higher priority.

A staff attitude survey can be an effective tool to help an organization launch its change programmes more successfully. Human resources are by far the most important assets of most organizations. They are also the most volatile to predict. The review of the literature on ISO benefits, drawbacks, barriers, and success factors provides useful reference information to tailor-design a survey questionnaire suitable for a particular organization. The survey should be longitudinal and administered at the key milestones of any major change programme.

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Appendix. Factor analyses of the attitudinal constructs

Only one factor was extracted for AQP, BENEFIT, QSD and OC.

Factor analysis on training needs (TN) by the varimax rotation method

	Factor 1 Personal development	Factor 2 Quality development	
Q10F	0.86070	0.22681	Leadership skills
Q10G	0.81687	0.26860	Team building
Q10H	0.80482	0.12344	Language
Q10E	0.75006	0.29884	Problem solving
Q10C	0.69134	0.46247	Management/supervisory skill
Q10B	0.25444	0.90324	ISO 9000 documentation
Q10A	0.18996	0.89178	ISO awareness
Q10D	0.57613	0.59675	TQM

Factor analysis on perceived success factors (PSF) by the varimax rotation method

	Factor 1 Soft issues	Factor 2 Hard issues	
Q11A	0.83250	0.12200	Management ability
Q11K	0.82819	0.16506	Business reputation
Q11J	0.82101	0.26607	Training of employees
Q11L	0.78909	0.26735	Personnel management
Q11I	0.73813	0.45642	Cost control
Q11H	0.72004	0.42915	Servicing
Q11G	0.65418	0.52707	Sales and marketing
Q11C	0.59435	0.58598	Quality control
Q11B	0.57882	0.57246	Quality system
Q11E	0.12582	0.88724	Product design
Q11F	0.19391	0.87757	Technology
Q11D	0.31495	0.79705	Purchasing
q11M	0.39155	0.67425	Machine/equipment investment

Factor analysis on perceived strengths (PS) by the varimax rotation method

	Factor 1 General issues	Factor 2 Production issues	
Q12A	0.84003	0.09876	Management ability
Q12B	0.83169	0.32069	Quality system
Q12L	0.79513	0.24273	Personnel management
Q12C	0.79116	0.34889	Quality control
Q12J	0.70832	0.26564	Training of employees
Q12K	0.65171	0.36862	Business reputation
Q12E	0.16497	0.84628	Product design
Q12D	0.35070	0.77728	Purchasing
Q12G	0.21773	0.77247	Sales and marketing
Q12F	0.19782	0.71610	Technology
Q12M	0.21504	0.68261	Machine/equipment investment
Q12I	0.35468	0.64649	Cost control
Q12H	0.47007	0.59156	Servicing

(Continued)

Factor analysis on perceived gap (GAP) by the varimax rotation method

	Factor 1	Factor 2	
	General	Production	
	issues	issues	
GAP11	0.82252	0.11670	Business reputation
GAP10	0.78032	0.31444	Training of employees
GAP8	0.75853	0.33022	Servicing
GAP12	0.69729	0.39577	Personnel management
GAP1	0.69717	0.30769	Management ability
GAP13	0.60669	0.31112	Machine/equipment investment
GAP9	0.59869	0.45341	Cost control
GAP5	0.06643	0.88713	Product design
GAP3	0.39561	0.79015	Quality control
GAP4	0.37727	0.75686	Purchasing
GAP2	0.46347	0.71987	Quality system
GAP6	0.40514	0.66145	Technology
GAP7	0.37855	0.66047	Sales and marketing

Both the reliability tests and factor analyses provide evidence that these attitudinal constructs are good estimates in reflecting the feeling of the respondents.
