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# The effect of HRM on the relationship between quality management techniques and performance

**Keywords:** Quality techniques, HRM-approaches, Performance

**Topics:** Total Quality Management, Kaizen and Six Sigma, Empirical Research in Operations Management

**Word count:** 977

## **Purpose:**

Over the course of the 1980s and 1990s, several studies showed that integrating Quality Management (QM) initiatives with Human Resource Management (HRM) would ensure higher performance gains than implementation of QM in isolation (e.g. Snape et al., 1995). However, recent studies raise questions regarding the links among QM, HRM and performance. Birdi et al. (2008), for instance, found no significant effects between QM and productivity, whereas HRM practices associated with empowerment and extensive training revealed significant positive effects on performance that were enhanced by adoption of teamwork.

One explanation for the contradictory findings is that earlier studies may have been inspired by what is referred to as a control perspective to HRM, which emphasizes cost reduction, performance standards, and results, while the more recent studies (Bou and Beltrán, 2005; Hassan, 2010; Yang, 2006) tend to adopt a commitment approach to HRM (Walton, 1985; Arthur, 1994), which aims to impact performance through involvement, empowerment and participation. In this study, these two different approaches to HRM influence are investigated to ascertain their effect on the relationships between quality techniques and performance.

## **Design/methodology/approach:**

Two hypotheses are investigated, namely:

H1 – *The relationship between QM techniques and performance is mediated by HRM practices (see Figure 1).*

H2 – *Commitment-oriented HRM will enhance the relationship between use of QM techniques and performance to a higher degree than control-oriented HRM.*



Figure 1 – Mediation model of the relationship among quality techniques, HRM approaches and performance

Four groups of quality techniques are distinguished, namely Goal Setting (techniques that emphasize product and process design based on best practices and customer needs and requirements, e.g. QFD, benchmarking), Continuous Improvement (techniques that are people-oriented and help the employees to use their knowledge to support continuous improvement effectively e.g. brainstorming, kaizen event), Measurement (techniques for measuring quality and providing information about the effectiveness of activities to reach quality goals, e.g. quality performance measurement, quality information), and Failure Prevention and Control (techniques aimed at preventing quality variation and problems in the production process and, if problems occur, identifying their causes and eliminate them, e.g. SQC, FMEA). Thus, with four quality technique groups and two HRM approaches (i.e. commitment and control), eight models are tested.

Data were collected electronically by a questionnaire. All items were measured using 5-point Likert scales. A total of 1761 manufacturing companies in Brazil and Denmark were mailed in 2012/2013, and the response rate was 14.2% (250 companies). The models were tested using structural equation modeling.

### **Findings:**

All models tested showed that if control-oriented HRM mediates the relationship between quality techniques and performance, the effect on performance is higher than if this relationship is mediated by commitment-oriented HRM. Thus, the empirical results support Hypothesis 1. Hypothesis 2, however, is rejected.

Specifically, the highest increase in performance was found when the Measurement (MS) techniques were used with control-oriented HRM, while the next highest increase occurred when Failure Prevention and Control (FPC) technique were used with this HRM approach. The fact that both groups are more related to control than the Goal Setting (GS) and Continuous Improvement (CI) groups may explain these findings.

However, if we consider the CI and GS groups, we notice a similar pattern, namely that control-oriented HRM has a stronger mediating effect than commitment-oriented HRM. For the CI group this finding is very interesting. Since this group of quality techniques is associated with employee involvement and commitment, it was expected that the mediation of commitment-oriented HRM would be more effective to increase performance than the mediation of control-oriented HRM. Further analyses are needed to develop adequate explanations for this finding. Finally, one would also expect the GS group, which includes techniques such as quality function deployment and benchmarking, to be better supported by commitment-oriented HRM practices. Again, further analyses are needed to explain the finding that control-oriented HRM has a stronger mediating effect for this quality techniques group.

### **Relevance/contribution:**

This study provides counterevidence to the prevailing assumption that commitment-oriented HRM is generally more appropriate and that this approach will necessarily have the strongest positive influence on performance. Rather, the paper demonstrates that control-oriented HRM enhance the positive effects of quality techniques on performance, irrespective of the core characteristics of these techniques.

The major practical implication of this study is that organizations should develop systems able to accommodate practices of two HRM-approaches (i.e. commitment and control). Additionally, managers must determine which HRM practices are critical in

their context and focus on them before implementing quality initiatives, so that they may gain better benefits from these initiatives.

## References

- Arthur, J. (1994), "Effects of Human Resource Systems on Manufacturing Performance and Turnover". *Academy of Management Journal*, Vol. 37, No. 4, 1994, pp. 670-687.
- Birdi, K., Clegg, C., Patterson, M., Robinson, A., Stride, C., Wall, T. & Wood, S. (2008), "The impact of human resource and operational management practices on company productivity: a longitudinal study", *Personnel Psychology*, Vol. 61, pp. 467-501.
- Bou J. C., Beltrán, I. (2005), "Total Quality Management, High-commitment Human Resource Strategy and Firm Performance: An Empirical Study". *Total Quality Management*, Vol. 16, No. 1, pp. 71-86.
- Hassan, A. (2010), "Linking quality assurance to human resource management: a study of SME's in Malaysia. *International Journal of Quality & Reliability Management*, Vol. 27, No. 6, pp. 641-657.
- Snape, E., Wilkinson, A., Marchington, M. & Redman, T. (1995), "Managing human resources for TQM: possibilities and pitfalls", *Employee Relations*, Vol. 17, No. 3, pp.42-51.
- Walton, R.E. (1985), "From control to commitment in the workplace", in Handel, J. (2003), "*The sociology of organizations: classic, contemporary, and critical readings*", Thousand Oaks: Sage Publications.
- Yang, C-C. (2006), "The impact of human resource management practices on the implementation of total quality management", *The TQM Magazine*, Vol. 18, No. 6, pp. 162-173.