A re-examination of the relationship between Quality Management and Human Resource Management: how QM evolved beyond the production domain

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ACKNOWLEDGMENTS

This research paper represents the first stage of a multi-phased project whose main purpose is to analyse the relationship between employee training and quality management (QM) through the impact of the increase in non-regular employment in Japan. The project is sponsored by the Japan Institute for Labour Policy and Training (JILPT) through their (annual) Foreign Researcher Invitation Programme. The paper is the result of almost three months of secondary research at JILPT's office in Tokyo, Japan. That being said, I would like to extend my sincere gratitude to the President (Prof. Y. Higuchi) and everyone else at JILPT for their support and guidance throughout and beyond June-August 2019. Special thanks are extended to the staff from the International Exchange Section at JILPT including Eriko Kubo and Masumi Seto. I would also like to thank Dr. D. Helman from Ton Duc Thang University (Vietnam) and Prof. T. Kurogi from Musashino University (Japan) for their support during the application process of the visiting research programme.

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An organization able to build quality into its people is already halfway toward producing quality products.

Imai (1986)

ABSTRACT

This paper is the first stage of a multi-phased project, and it attempts to provide an overview of the literature discussing the relationship between quality management (QM) and human resource management (HRM). More specifically, I re-examine and synthesise how QM has evolved to consider the importance of HRM as part of the quality manufacturing pursuit. Given these aspirations, I conducted a systematic literature review based on a computer search in two databases – JSTOR and Science Direct. The analysis of forty peer-reviewed articles (including seven books) shows that the evolution of QM has been rather controversial in terms of recognising HRM's importance to quality manufacturing. In particular, a significant shift away from HRM since the start of the Industrial Revolution, and a consequent revitalisation of its (HRM's) salience within the QM context from the 1950s onwards was revealed. Moreover, today, the broad QM literature argues that HRM is probably the single most important factor to successful implementation of modern QM approaches such as TQM. At the same time, although a much greater attention to HR practices might be expected in the QM literature (given the afore-mentioned scientific developments and claims), my synthesis shows that this is not the case.

KEYWORDS

Human Resource Management; Human Resource Development, Manufacturing; Quality Evolution; Quality Management; Soft TQM

1. INTRODUCTION

Not until long ago, businesses around the world believed that quality was a responsibility of only employees of departments that are directly related to production (Deming, 1986; Ebert et al., 1996; Beckford, 2010). In the last fifty years, however, this limited awareness has been significantly challenged as a result of the so-called 'quality revolution'[1]. Specifically, as the QM concept continued to evolve throughout the second half of the twentieth century, production approaches such as total quality control (TQC), (and later on) total quality management (TQM)

[1] Japan's post-war success in quality manufacturing is often been referred to as the quality revolution.

and Lean offered a new paradigm revolving around the notion that quality improvement must be an organisation-wide initiative. This new paradigm widened QM's domain not only on a hierarchical, but also on a functional level (e.g. marketing, sales, research and development) which, in turn led, to studies of QM's relationship to other management practices. Following these research developments, today, the QM literature agrees that QM has evolved from a number of management disciplines including Production Management (PM) and Human Resource Management (HRM) among others (Dahlgaard et al., 1998). Moreover, the evolution of QM as a management concept, and the introduction of TQM per se, shifted academics' focus from the hard science of quality towards more abstract aspects such as human resource development (HRD) and organisational culture (Schonberger, 1994; Calvo-Mora et al, 2013).

As TQM – the pinnacle of the quality movement – was advanced internationally as a "best practice in the 1990s, companies around the world rushed to adopt it (TQM) in line with their pursuit of business excellence (Zhang and Xia, 2013; Aoki et al., 2014). Unfortunately, many organisations (including internationally renowned firms such as Federal Express, Wallace Corporation) faced significant challenges during the implementation process[2] (Rahman, 2004). These developments ushered an unprecedented interest among both QM practitioners and researchers in the attempt to identify the critical success factors (CSFs) for TQM implementation. As the research works in this field advanced, the (T)QM literature introduced the hard-soft CSFs division. The hard CSFs were argued to be production techniques (e.g. statistical process control), whereas the soft CSFs were explained as the intangible and difficult to measure aspects that are essentially HR driven (e.g. top management involvement, employee empowerment) (Wilkinson, 1992; Rahman and Bullock, 2005; Mogdil and Sharma, 2017). Notably, some of these studies made additional contributions to the QM literature by revealing that the soft CSFs, in comparison with the hard ones, are significantly more important to TQM implementation (Pegels, 1994; Samson and Terziovski, 1999; Rahman, 2004; Calvo-Mora et al., 2013).

Essentially, since the early 1990s, the importance of and QM's relationship to human resource management (HRM) in achieving higher product quality began drawing significant scientific attention (Jayaram et al., 1999; Grover et al., 2006; Boon et al., 2007; Daoud Abu-Doleh, 2012, Dubey et al., 2015). Following over two decades of research, today, the broad QM literature agrees that human factor is probably the most essential variable affecting modern QM approaches such as TQM (Badiru, 1990; Ebert et al., 1996; Bamber et al., 2014; Mendes and Jesus, 2016). As Imai (1986) notes, an organisation that is able to instil quality into its people is already halfway toward manufacturing high quality products. Moreover, research into companies undergoing TQM implementation has shown that some of the most considerable changes taking place as a result of

[2] Some authors claim that in the 1990s, the number of TQM failures in comparison with the number of TQM triumphs was in favour of the former (Eskildsen and Dahlgaard, 2000).

the quality improvement initiatives relate to the HR department (Monks et al., 1997; Daoud Abu-Doleh, 2012).

Given these research developments, a much greater attention to HR practices might be expected in the QM literature. Unfortunately, scientific research claims that this is not the case (Monks et al., 1997; Keng Boon et al., 2005; Plsek, 2013; Bamber et al., 2014). Specifically, even though there has been some progress in terms of the inclusion of HRM in QM-related research, the notion that employees need to buy into TQM without coercion continues to persist (Monks et al., 1997; Daoud Abu-Doleh, 2012; Bamber et al., 214). Consequently, this paradigm has limited the number of studies that go beyond the hard side of QM. As Bamber et al. (2014) assert, the bulk of the research on process improvement has not progressed (sufficiently) enough as it continues to pay more attention to the technical instead of the people-related aspects – the soft side - of QM. Ultimately, the relationship between QM and HRM has not been examined comprehensively.

Taking these substantial gaps within the QM literature into consideration, I attempt to re-examine and synthesise the research works that have focused (at least partially) on the relationship between QM and HRM. Specifically, this paper seeks to answer the following research question (RQ): *how has the historic evolution of QM progressed to consider the importance of HRM as part of the quality manufacturing pursuit?* Given these research aspirations, I have conducted a systematic literature review based on a computer search in two databases – JSTOR and Science Direct. The aim of the search was to identify peer-reviewed articles pertaining to the relationship between QM and HRM. Year of publications was not limited. The searching was conducted between June and August 2019, and it represents the initial stage of the systematic literature review. Since this synthesis is part of a larger, multi-phased project whose ultimate goal is to analyse the relationship between employee training and QM through the impact of the increase in non-regular employment in Japan, a second stage of the systematic literature review is scheduled for year 2020. Besides the forty peer-reviewed articles that were deemed relevant, I have also added data from seven books that have covered the topic of QM and/ or HRM. Given these specifics, it is important to note that this paper does not fully account for the research works on the relationship between QM and HRM. At the same time, the initial stage of the systematic literature review does provide a comprehensive coverage of this topic, I argue.

My review of literature shows a rather controversial shift in the evolution of QM with reference to its relation to HRM. Specifically, if prior to the Industrial Revolution human skills were central to product quality, their importance lost ground with the introduction of mass manufacturing. It was only in the late 1940s – almost a century and half after the start of the Industrial Revolution - when QM (as a management concept) began to reconsider the importance of the human factor. Since then, over the next fifty years, QM evolved to the point where, today, HRM is recognised as (probably) the most important factor for the successful implementation of modern QM approaches. At the same time, while a much greater attention to HR practices might

have been expected in the QM literature (given these research developments and claims), my synthesis shows that this is not the case. Specifically, the QM literature continues to pay more attention to the technical instead of the people-related aspects of QM. Moreover, it seems that while HR practices have been often ignored in the QM literature, QM practices have drawn much more attention in HRM-related studies.

This study contributes to the existing QM literature by providing a synthesised perspective of the path through which QM has evolved to consider the importance of HRM within the pursuit of higher product quality. Importantly, the synthesis reveals some of the main reasons behind the ongoing (somewhat) limited focus of scientific research on the soft side of QM which is predominantly human resource driven. Overall, the information provided in this paper is of significant value to researchers, educators, policy makers, and managers as it aids to the better understanding of the relationship between QM and HRM.

The reminder of this paper is organised as follows. First, I present a summary of the (historical) evolution of QM as a management concept. Next, I move on to discuss how QM has evolved to consider the importance of human resources as part of the quality improvement process. In the penultimate section, I offer a brief summary of the findings and address the theoretical and practical implications based on the study. Finally, I focus on the limitations and paths for future research.

2. Evolution of Quality Management

While QM as a concept is relatively new, the quality idea has been around for many centuries (Deming, 1986; Flood, 1993; Fisher and Nair, 2009; Beckford, 2010). As Flood (1993) notes, even back in the days when money was non-existent, people could differentiate between good and bad product quality. For instance, customers would apply different "quality techniques" such as prodding and turning fruits and vegetables in testing them for freshness or fitness for consumption. This quality control method known as inspection continued to be used in one form or another until the second half of the 20th century (as we will see later in this section). Traditionally, however, building quality into a product was the responsibility of skilled craftsmen (Flood, 1993, p.5). Fisher and Nair (2009) note that by the end of the 13th century, thanks to the medieval craftsmen, product quality had already begun to spread as an important aspect of manufacturing. For instance, high quality products were marked with special symbols as a means of quality assurance. Moreover, craftsmen were in charge of the manufacturing standards, wages, and prices among other essential aspects of the preindustrial world – a power which they exercised through professional organisations known as guilds (Fisher and Nair, 2009; Beckford, 2010). The importance of skilled craftsmanship to product quality was so significant that it extended until the end of the 18th century, when manufacturing took a sharp turn.

The increased efficiency of steam engines and the invention of machine tools among other novelties during the late 18th and early 19th century[3] revolutionised manufacturing. This led to the establishment of mass manufacturing which was set in large factories employing armies of people. Unfortunately, along with the great number of positive developments brought by the Industrial Revolution (e.g. technological advancements, an increase in material wealth), there were also aspects of people's lives that were impacted negatively. Specifically, quality craftsmanship slowly disappeared and the desire for an increase in factories' production output led to a stream of poor quality products: quality was no longer built into the product. At the same time, inspection remained the sole guarantor of quality (Flood, 1993, p.6). Unlike in the past – i.e. before the Industrial Revolution – when production volumes were low, the inspection method began revealing a great number of drawbacks during the rise of the mass-manufacturing era.

As the need for more effective operations management became evident, a number of important developments in the world of manufacturing took place during the early 20th century. First, the concept of Scientific Management (also known as Taylorism) was introduced in 1911 in the U.S. by Frederick Taylor (Fisher and Nair, 2009; Beckford, 2010). Taylor's Scientific (approach to) Management was, in fact, one of the (if not the) most significant developments within the management field during the early 20th century. Among the great number of novelties that Scientific Management introduced, inspection against well-defined product specifications and early detection of problems in the product became central to manufacturing. This shift in focus led to the emergence of a separate inspection department and a further decline in the importance of craftsmanship. Second, World War I (WWI) (and later on, WWII) strengthened the need for mass production even more. Importantly, by the end of WWI, it had already become apparent that (product) quality was central to the allies' success. Thus, during the Inter-war Period[4], the most economically advanced nations (e.g. Great Britain) began forming associations and institutes to maintain and nurture quality manufacturing.

The evolution of QM continued with the introduction of statistical methods into the manufacturing discipline between the 1920s and 1930s[5] (Flood, 1993; Fisher and Nair, 2009). This gave rise to a new approach to quality manufacturing – Statistical Quality Control (SQC) - which ushered the Quality Control (QC) Era. SQC gave Taylor's Scientific Management theory a much sounder scientific footing (Flood, 1993) and had a substantial impact on the war-time efforts in both the U.K., and (especially) the U.S. where the approach was developed (Trevor, 1986). At the same time, while SQC is believed to have been the corner stone of the quality revolution in the early 20th century (Trevor, 1986; Beckford, 2010; Koura, 2012), a certain stream in the QM literature argues that another management approach had already made (much more) significant

[3] The period between the late 18th and early 19th century is argued as the start of the Industrial Revolution.
[4] The period between World War I and World War II.
[5] Western Electric's Dr. Walter Shewhart employed statistical techniques to control processes for the first time in order to minimise defective output.

contributions to the QM discipline in Europe by the time. The Bata Management System developed by the Czech industrialist Thomas Bata, although significantly under-presented in the QM literature, had introduced fundamental changes in the management philosophy by the late 1920s (Fisher, 2009). Notwithstanding these claims, the broad QM literature agrees that the actual quality revolution began after the end of WWII, and ironically, it emerged in one of the defeated nations – Japan.

As one of the most severely affected major powers, Japan came out of WWII in a dire state; the country suffered from a severe scarcity of labour, as well as completely devastated industry and infrastructure. According to Koura (2012), more than 80% of the industrial facilities were destroyed, and production was at 10% of the pre-war level. To secure social order and peace, the Americans, who had taken over Japan's post-war reconstruction, had to overcome a substantial challenge as there were no widely circulated newspapers, travelling around the country was difficult, and the telephone and radio broadcast systems were severely damaged (Fisher, 2009). This extremely unfavourable situation and the need to communicate a series of edicts to the Japanese people prompted the quality movement in Japan. Ultimately, improving the quality of the communications equipment in the country became the top priority of the Allied Forces. Thus, under the guidance of the Supreme Commander of the Allied Forces (SCAP), (some of) the most prominent American quality gurus at the time were brought to Japan.

In less than ten years – during the 1950s, Sarasohn, Protzman, Deming, Juran, and Feigenbaum[6] introduced thousands of Japanese managers and engineers to the most prominent QM approaches, systems, and tools at the time, including the Quality Control Activity System, the Plan-Do-Check-Act (PDCA) Cycle (also known as the Deming Cycle), and Total Quality Control (TQC). While some of these novelties (from the perspective of Japanese management) had already found profound application in the U.S., Feigenbaum's TQC concept was a relatively new idea even for the Americans which sought to elevate the level of quality management from the factory to the entire organisation. During this period, QC was advanced as part of business management. Overall, according to Koura (2012), due to the wide spread of statistical quality control (SQC), the 1950s were known as the SQC era in Japan[7].

Feigenbaum's TQC concept became the basis of the Japanese TQC – an era that began in the 1960s (Koura, 2012) and that coincided with the Japanese Economic Miracle – the period during which the Japanese economy enjoyed an annual growth of 10%. During those years, the Japanese took QM to a new level and introduced a number of ground-breaking QM concepts including the Zero Defect and the Quality Control Circles (QC Circles). These concepts became so successful that by the late 1970s, they had already crossed national boundaries and were

[6] Sarasohn, Protzman, Deming, Juran, and Feigenbaum are referred to as some of the most prominent QM gurus of all time.
[7] The SQC Era had already started in the U.S. and the U.K. during WWII.

introduced in the U.S., and later on in China and South Korea (Koura, 2012). The advancement of Japanese QC practices as best practices was further boosted by the country's economic progress - in 1970, Japan became the world's second largest economy after the U.S. During the same period, computer technologies were introduced into the manufacturing industry. Along with these developments, new concepts including "New Seven Management Tools" and "Quality Function Deployment" were pioneered (Pecht and Boulton, 1995).

In the 1980s, a new term for quality control and management was cited for the first time – Total Quality Management (TQM) (Phan et al., 2011; Koura, 2012). This new approach to QM, which was developed by the Japanese on the basis of American QM doctrines such as TQC, introduced leadership commitment (e.g. top management leadership) as central to the pursuit of excellent product quality (Phan et al., 2011). Defined as an organisation-wide approach to quality improvement that involves everyone from the shop floor all the way to top management, TQM quickly became one of the most viable management concepts of the 1990s (Schonberger, 1994; Dahlgaard et al., 1998; Zhang and Xia, 2013). Specifically, given the quality manufacturing success of Japanese enterprises, TQM was advanced internationally as a "best practice". Companies around the world rushed to adopt TQM as part of their pursuit of business excellence. While some attempts did not meet the desired success (e.g. Federal Express, Wallace Corporation), many organizations reported higher employee participation, reduced waste, and increased customer satisfaction (e.g. Xerox, Motorola) among other benefits as part of the TQM implementation (Powell, 1995, Evans and Lindsay, 2001; Fotopoulos and Psomas, 2009; Georgiev and Ohtaki, 2019).

One of the last steps of the evolution of QM that had a profound impact on the global quality movement was the development of national quality awards. While the Japanese had already established their own quality award by the early 1950s – the Deming Prize, it was not until the late 1980s when the rest of the advanced nations began considering similar ideas. Thus, in 1988, the Malcolm Baldrige Quality Award was introduced in the U.S. with the main idea to encourage local companies improve their competitiveness. In response, a similar award was developed in Europe in 1991 – the European Quality Award, which was later on renamed to the EFQM (the European Foundation for Quality Management) Excellence Award. Overall, the various quality awards around the world established universal frameworks for successful (T)QM implementation and their ultimate goal was to encourage more companies to adopt QM principles (Fisher and Nair, 2009).

3. Quality Management and Human Resource Management

A closer examination of the evolution of QM as a management concept reveals an interesting paradigm shift. Specifically, human resources had a much greater impact on product quality before the Industrial Revolution than after it. The literature explains this divergence through the (nature of the) manufacturing style at the time (Flood, 1993; Beckford, 2010) – i.e. almost all items were produced by hand by highly-skilled individuals known as artisans or craftsmen. Importantly, to

guarantee the quality of their products, these highly-skilled artisans and craftsmen provided extensive training and education to younger individuals – apprentices, who were willing to embrace themselves into the world of craftsmanship. Hence, the HR aspect of manufacturing was of significant importance at the time (Flood, 1993; Beckford, 2010).

The advancement in technology achieved between the late 18th and early 19th century, however, made workers become less dependent on personal skills and competencies and more reliant on machines (Flood, 1993; Fisher and Nair, 2009). In essence, mass manufacturing (brought by the Industrial Revolution) removed the importance of people within the (product) quality improvement process to a large degree. This shift in focus – from people to machines – was further aggravated by the introduction of the Scientific Management theory in the early 1900s. Notwithstanding the introduction of the concepts of division of labour (also known as work specialisation), standardised methods of doing a job, as well as monetary incentives for workers among other novelties, Taylor's approach exhibited a number of drawbacks since its early adoption. As Beckford (2010) notes, this approach would later on be recognised as the cause of many quality problems.

Interestingly, the literature shows that the third of Taylor's Four Principles of Scientific Management called for selecting, training, teaching, and developing the worker – a central aspect of modern HRM. Unfortunately, this (third) principle and its HRM-related aspects were largely driven by Taylor's ultimate goal – an increase in production output through defining "the one best way (for a worker) to perform a task". In other words, Taylor was obsessed with the technical side of (quality) manufacturing and he saw workers as merely a part of the bigger machine[8]. Hence, his approach is often referred to as the 'machine' approach today (Beckford, 2010). Ultimately, Taylor's Scientific (approach to) Management shifted the manufacturing focus even further away from the importance of employees. The main drawbacks of Taylor's approach, however, did not surface until the mid-1950s[9] (as we will see in the latter part of this section). Specifically, as manufacturing plants' productivity continued to increase throughout the 19th century, Taylorism found wide acceptance and support among the newly emerged industrialists around the world.

At the start of the 20th century, QM's focus remained largely outside the HRM domain. With the introduction of Statistical Quality Control (SQC) and the start of the SQC Era, most of the manufacturing efforts were focused on introducing statistical analysis as part of the quality improvement pursuit – i.e. plant managers paid little attention to HRD. At the same time, certain authors contend that some interesting developments with reference to QM took place during the first two decades of the last century. Specifically, Thomas Bata, through his Bata Management System, had already introduced several fundamental changes in management philosophy (some of

[8] Taylor's constrained perception of workers' role was largely influenced by his background – he was an engineer by profession, and as such he focused on the mechanical side of management.

[9] Aside from some major drawbacks, many of Taylor's guidelines and techniques focusing on improving production efficiency are still used in organisations today.

which were argued to be HRD-related) at his European factories as part of quality manufacturing (Fisher and Nair, 2009). Unfortunately, the Bata Management System and its contributions to management theory and QM in particular had not made it beyond the walls of Bata's factories; thus, its vision and ideas (especially those related to QM's relationship to HRD) remained obscure to the rest of the world.

During the inter-war and wartime years, SQC saw the development and use of sampling plans for inspection, statistical control charts of manufacturing processes, and other novelties (Fisher and Nair, 2009; Koura, 2012). These new concepts as part of the QC movement continued to focus on the technical side of quality manufacturing. My synthesis, however, shows that while these claims in the QM literature are undeniable, by the second half of the 20th century, certain QM gurus had already started propagating largely unconventional views pertaining to QM. For instance, the memoirs of Sarasohn – one of the best American radio engineers at the time – reveal that his course on quality control in the late 1940s focused on conceptualising the entire management function and all of its related components as a system, thus seeing statistics as merely a tool (Fisher, 2009). "*I did not want these people (Japanese managers and engineers) to be fixated on the mechanics of statistics*" – from Sarasohn's memoirs (Fisher, 2009, p.29). It is, therefore, fair to say that the importance of the human factor within the manufacturing process began to resurface again around the late 1940s, I argue.

In the following decade – the 1950s, thanks to Juran's concept(s), QC was slowly advanced as part of business management (Koura, 2012). The literature, however, fails to address how much the importance of HR within the manufacturing process grew during these years. Nevertheless, given that QC started more often to be linked to the concept of management, the impact of human resources must have been given further attention, I contend. The development of QM as a management concept continued with the introduction of the quality control circles (QC circles) in the early 1960s. In fact, this was one of the most significant steps in broadening the QM concept with relationship to HRM until then. The core idea behind QC circles was to organise volunteer groups of workers who would meet to discuss ways to improve aspects of the manufacturing process(s) that had an impact on product quality, and make presentations to management with their ideas (Trevor, 1986). This was a substantial shift in the field of QM as it called for employee involvement and empowerment – two of the main HRM constructs. Furthermore, QC circles boosted employee motivation as workers began to feel more involved and heard. Most importantly, from focusing on issues only related to the production process, the QC circle concept evolved to include all aspects of the organisation – i.e. the focus on continuous improvement spread to other functional areas (e.g. marketing, sales).

The inception of the TQC concept in the late 1960s was another pivotal step in the evolution of QM (Trevor, 1986; Fisher and Nair, 2009). Interestingly, however, the literature reveals a significant discrepancy in the way the term "total quality" was conceptualised in the West and the

East. Specifically, from an American standpoint (visualising the ideas of Feigenbaum), TQC conceptualised quality control as the overall management of quality at every stage of the production process (Trevor, 1986). The Japanese, on the other hand, through the ideas of Ishikawa, discussed TQC as a company-wide quality approach that involved everyone, from top management to the shop floor workers, in quality control. By the late 1970s – prior to the introduction of TQM, the Japanese had already began propagating the notion that in TQC, the first and foremost concern should be with the quality of people (Imai, 1986). At the same time, given that flexible manufacturing systems (FMS) and computer-integrated manufacturing (CIM) became a major objective for many of the big manufacturing firms during the late '70s and early '80s, a focus on the technical side of QM continued to dominate internationally.

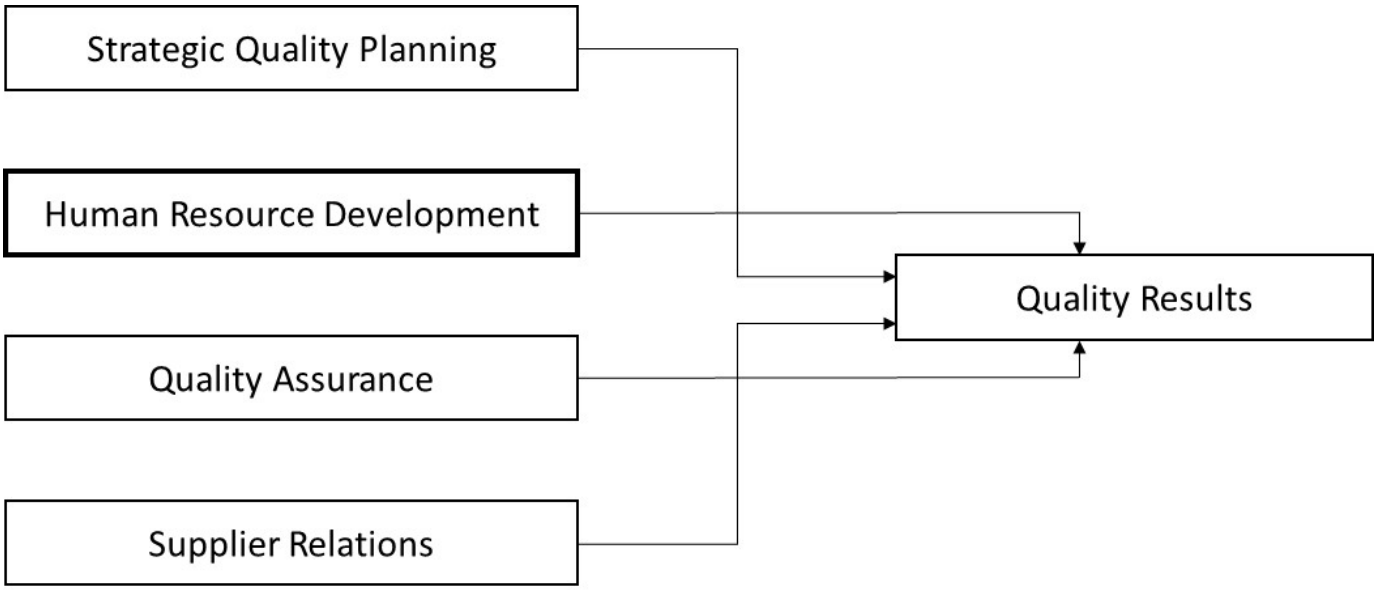
The Japanese conceptualisation of TQC gave rise to TQM – the pinnacle of the QM evolution, which was introduced in the 1980s (Phan et al., 2011; Koura, 2012). While its predecessor - TQC – had already crafted the idea of elevating the level of quality management from the factory to the entire organisation, TQM brought this notion a step further. Specifically, besides the central premise that "quality is everyone's business", TQM introduced (for the first time ever) leadership commitment (e.g. top management leadership) as yet another crucial aspect of the pursuit of excellent product quality (Phan et al., 2011). Essentially, the rhetoric of TQM with its focus on top management involvement and leadership, and empowerment implied that employment practices in companies embracing the TQM approach are not the same with those in organisations predominantly structured on Taylorist principles (Monks et al., 1997). Thus, the importance of the human factor within the manufacturing process began drawing further attention among QM researchers and practitioners. Moreover, due to Japan's unprecedented post-war economic growth, not just TQM, but also (other) Japanese traditional management practices were advanced internationally as "best practices". This was another significant development in the evolution of QM, especially with reference to its relationship to HRM, as I explain below.

From the perspective of HRM, (1) life-time employment, (2) seniority-based promotion and salary, and (3) company-trade unions - described as the three pillars of Japanese HRM today – started gaining popularity overseas during the 1980s and 1990s (Aoki et al., 2014). Importantly, in the pursuit of learning from the Japanese, QM-related research revealed that there exist institutional complimentaries between HRM practices and production systems of Japanese companies, which is why the Japanese became so successful at quality manufacturing (Aoki et al., 2014). As Imai (1986) notes, an organisation that is able to build quality into its people is already halfway toward producing quality products (see Figure 1.) Thus, while TQM's focus was predominantly technical (e.g. QC tools and techniques) until then, it started to shift significantly towards TQM's more abstract side.[10] For instance, total-quality approaches such as TQM started being looked at from the perspective of a driver of unique organisational culture that nurtures

[10] Later on, the technical side and the abstract side were referred to as the hard side and the soft side, respectively.

willingness to share knowledge, egalitarian communication, common sense, consideration, empathy, and kindness (Deming, 1986; Wilkinson, 1992; Beckford, 2010)

Figure 1. Quality Management Model (Source: Rao et al., 1999)



The importance of the non-technical aspects of modern QM approaches was also significantly emphasised within the national quality award frameworks that started developing since the late 1980s. In the case of the Malcolm Baldrige Quality Award, for instance, the human resources domain was given the third most important consideration after *customer focus and satisfaction*, and *quality and operational results* (Juran and Godfrey, 1999). The same is valid for almost all other quality awards including the Deming Prize, the EFQM Excellence Award and the UK Business Excellence Award. Overall, research shows that both national and regional quality awards relate directly to HRM (Hart and Schlesinger, 1991; Juran and Godfrey, 1999; Wickramasinghe, 2012).

By the late 1990s, TQM implementation outside Japan was already facing significant challenges – i.e. many foreign companies including internationally renowned ones such as Xerox had reported TQM-implementation failures (Evans and Lindsay, 2001). Following these developments, research into QM shifted its focus towards defining the things that must go well in order to ensure successful TQM implementation (Wilkinson, 1992; Oakland, 2000; Evans and Lindsay, 2001), or the so-called critical success factors (CSFs) for TQM implementation. This was yet another notable development in the evolution of QM, especially with reference to its relationship to HRM, I argue. Specifically, even though a consensus on what the real factors are has not been reached (Samson and Terziovski, 1999; Conca et al., 2004; Hietschold et al., 2014; Georgiev and Ohtaki, 2019), most QM researchers and practitioners agree(d) that the CSFs for

TQM implementation can be categorised in two main groups – (1) hard factors and (2) soft factors. Overall, the hard factors relate to production techniques (e.g. statistical process control and Pareto analysis), whereas the soft factors are defined as intangible and difficult to measure aspects that must be addressed as long-term issues (e.g. top management involvement and employee empowerment) (Wilkinson, 1992; Rahman and Bullock, 2005; Bou-Llusar et al., 2009; Mogdil and Sharma, 2017). I present a summary of these factors in Table 1.

Table 1. Summary of hard and soft TQM elements

TQM Constructs	
Hard Factors	**Soft Factors**
Advanced manufacturing system(s)	Top management leadership
Benchmarking	Employee involvement
JIT principles	Employee empowerment
Process management	Employee training
Statistical process control techniques	Teamwork and communication
Zero defect mentality	Customer focus
	Supplier relationships

Source(s): Dow et al. (1999); Rahman and Bullock (2005); Gadenne and Sharma (2009); Sisnuhadi (2014); Zeng at al. (2017); Georgiev and Ohtaki (2019)

Consequent research into TQM's critical success factors revealed that the soft CSFs are more critical to successful TQM implementation in comparison with the hard ones (Pegels, 1994; Samson and Terziovski, 1999; Rahman, 2004; Calvo-Mora et al., 2013). Moreover, the recent (post-2000) literature agrees that the soft CSFs are predominantly HR driven – i.e. they emphasise the management of human resources in the organisation (Wilkinson et al., 1991; Oakland, 2000; Rahman and Bullock, 2005; Dubey et al, 2015; Arunchalam and Palanichami, 2017). As Schonberger (1994) notes, companies that are advanced in TQM have undergone substantial changes pertaining to their human resources. For instance, in these organisations, the word "worker" is often abolished; instead, employees are referred to as "associates". Bosses and specialists, on the other hand, are given the title of "facilitators". Overall, empirical analysis of companies that have successful implemented total-quality approaches such as TQM has showed that these approaches exert a great deal of influence onto the HR department (Monks et al., 1997).

Today, the QM literature argues that successful TQM requires substantial changes in HRM – i.e. the HR practices should be seen as necessary, interlocking elements of the total-quality package (Schonberger, 1994; Monks et al., 1997; Daoud Abu-Doleh, 2012). Most importantly, TQM, Lean and the rest of the modern QM approaches are now recognised as socio-technical systems that require a flexible, engaged, and dedicated workforce (Evans and Lindsay, 2001; Shah

and Ward, 2007; Youssef et al., 2014). Regardless of these advancements ppertaining to the evolution of QM as a management concept, the number of studies that have sought to further understand the nature and complexity of the soft side of TQM remains limited (Georgiev and Georgiev, 2019). Moreover, it seems that QM practices have drawn much more attention within the HRM literature than the other way around – HRM practices within the QM literature. In fact, since the 1990s, the HRM literature talks of TQHRM (Total Quality Human Resource Management) - a term that seeks to differentiate between traditional HRM and HRM practices associated with TQM organisations (Bowen at al., 1992; Cardy and Dobbins, 1996; Daoud Abu-Doleh, 2012). Unfortunately, QM researchers (and practitioners) seem to have shown very little interest in this – the TQHRM – concept since its inception. Overall, these (current) limitations in the QM literature represent a significant drawback, which may explain (at least to some degree) the ongoing TQM implementation failures around the world, I argue.

4. Conclusions and Implications

This paper sought to re-examine and synthesise how QM as a management concept has evolved to consider the importance of HRM as part of the quality manufacturing pursuit. To address this perennial research question, I conducted a systematic review of the literature using two of the largest academic libraries on the Internet. Based on forty peer-reviewed articles, as well as seven books, I showed that the evolution of QM has been rather controversial in terms of recognising HRM's importance to quality manufacturing. Specifically, this study revealed a significant shift away from HRM since the start of the Industrial Revolution, and a consequent revitalisation of its (HRM's) importance within the QM context from the 1950s onwards. Given these developments, I showed that over the last half a decade, studies of the relationship between QM and HRM have considerably grown in number. Moreover, today, the bulk of the research works pertinent to the importance of HRM to quality manufacturing argues that HRM is probably the single most important factor for successful implementation of modern QM approaches such as TQM. At the same time, even though a much greater attention to HR practices might be expected in the QM literature (following recent research developments and claims), my synthesis shows that this is not the case. Notably, it seems that while HR practices have been often ignored in the QM literature, QM practices have drawn much more attention in HRM-related studies.

This study aids both QM researchers and practitioners in comprehending the complex evolution of QM as a management concept and its relationship to HRM. Moreover, from an academic standpoint, the paper speaks of the continuous, significant gap in the QM literature pertaining to the soft side of QM, in general and the importance of HRM to quality manufacturing, in particular. On the practical side, I call for the attention of top managers who are considered the main driver of successful (T)QM implementation (Fotopoulos and Psomas, 2009; Calvo-Mora et al., 2013). First, I encourage them to move away from supervisory approaches towards employee

empowerment. Second, I urge top management to ensure the continuous and comprehensive involvement of their HR specialists in the (T)QM implementation process. In a similar vein, (T)QM consultants and specialists should not ignore the soft side of modern QM approaches as part of the implementation process. In fact, the soft side, which is predominantly HR-driven, has to be given higher priority as I showed. Particular attention should also be paid to the employees from the production department, as they are most often focused on the technical side of (T)QM which often affects their consideration of the soft – HR-related – side of quality manufacturing.

5. Limitations and Further Research

This study is not without limitations. Specifically, it is important to take into consideration the fact that this paper uses data from the initial stage of my systematic literature review only. In other words, this study has not addressed the entire QM literature pertaining to the importance of HRM/HRD to quality manufacturing. At the same time, in order to obtain reliable and valid findings, I have also included a number of studies from the HRM literature that have addressed modern QM approaches and their impact on HRM/ HRD.

Regarding possible paths for future research, I argue that a deeper understanding of the HRM practices undertaken by Japanese manufacturing firms is needed to better understand the relationship between QM and HRM. This proposition is primarily based on the fact that previous research has already revealed the existence of institutional complimentaries between HRM practices and production systems of Japanese companies; however, these complimentaries have been understudied. Moreover, given that the contemporary QM literature continues to ignore the importance of HRM, I also urge consequent QM-related research to turn to the HRM literature which, according to this synthesis, seems to have paid much more attention to modern QM approaches such as TQM. Finally, even though not significantly relevant, it would be interesting to have a more profound understanding of the fundamental changes in management philosophy that the Bata Management System have elicited. In particular, a desk researcher analysis of the QM initiatives at Bata's factories may yield interesting insights into the HRD aspect(s) of his management system.

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