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BEYOND TQM: LEVERAGING QUALITY MANAGEMENT PRACTICES FOR ENHANCED PERFORMANCE AND SUSTAINABILITY IN SURABAYA UNIVERSITIES

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A R T I C L E I N F O

Keywords: *Total Quality Management, Soft Quality Management, Hard Quality Management, Organizational Performance, Organizational Sustainability.*

Kata Kunci: *Manajemen Kualitas Total, Manajemen Kualitas Lunak, Manajemen Kualitas Keras, Kinerja Organisasi, Keberlanjutan Organisasi.*

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Abstract. *This study investigates the impact of quality management (QM) practices on organizational performance and innovation in higher education institutions (HEIs), which face increasing challenges from global competition, technological changes, and funding pressures. While QM practices have been extensively studied in manufacturing and service sectors, their application in HEIs remains underexplored, particularly in terms of distinguishing between soft (human-centered) and hard (technical) practices. This research addresses that gap by adopting a multidimensional perspective to examine how both soft and hard QM practices influence organizational performance and sustainability. The findings show that balancing soft QM elements, such as top management support, student focus, supplier management, people management, strategic planning, with hard QM processes, like process management, information and analysis, continuous improvement, and program design are critical to improving performance and fostering sustainability in HEIs.*

Abstrak. Studi ini menyelidiki dampak praktik manajemen mutu (QM) terhadap kinerja dan inovasi organisasi di lembaga pendidikan tinggi (HEI), yang menghadapi tantangan yang semakin meningkat dari persaingan global, perubahan teknologi, dan tekanan pendanaan. Sementara praktik QM telah dipelajari secara ekstensif di sektor manufaktur dan jasa, penerapannya di HEI masih kurang dieksplorasi, khususnya dalam hal membedakan antara praktik lunak (berpusat pada manusia) dan keras (teknis). Penelitian ini mengatasi kesenjangan tersebut dengan mengadopsi perspektif multidimensi untuk memeriksa bagaimana praktik QM lunak dan keras memengaruhi kinerja dan keberlanjutan organisasi. Temuan menunjukkan bahwa menyeimbangkan elemen QM lunak, seperti dukungan manajemen puncak, fokus siswa, manajemen pemasok, manajemen orang, perencanaan strategis, dengan proses QM keras, seperti manajemen proses, informasi dan analisis, perbaikan berkelanjutan, dan desain program sangat penting untuk meningkatkan kinerja dan mendorong keberlanjutan di HEI.

INTRODUCTION

Higher education institutions (HEIs) face a variety of challenges arising from global competition, rapid changes in educational technology, and pressure increases in cost control and funding (Laurett & Mendes, 2019). These organizations must meet stakeholder expectations while increasing efficiency (Dumond & Johnson, 2013) encouraging them to adopt some strategies (TQM, knowledge management, and innovation) already successfully used in other fields (Chen et al., 2014), such as practice implementation effective quality management (Iqbal et al., 2019). Innovation is also important for universities because it can help in revising programs, improving capabilities in solving institutional problems, and increasing applied research (Al-Husseini & Elbeltagi, 2016)

`The relationship between quality management (QM) practices, organizational performance, and innovation has been studied in manufacturing companies (Feng et al., 2006; Sahoo, 2019; Zeng et al., 2015) however, only a few studies have focused on this relationship in service (Mehta et al., 2014; Tena et al., 2018)), and even more few have discussed it in higher education (HE) (Dick & Tari, 2016)

In general, previous literature considers QM as a single factor (Prajogo & Sohal, 2003; Sadikoglu & Zehir, 2010) have obtained mixed results about the relationship between QM and innovation (Hoang et al., 2006; Martínez-Costa & Martínez-Lorente, 2008); on the other hand, several recent studies in manufacturing companies (Kim et al., 2012; Zeng et al., 2015, 2017) and high-tech companies (Hung et al., 2010; Tena et al., 2018) have adopted a multidimensional approach to QM, distinguish between soft and hard practices. Several authors highlight the need to expand the multidimensional approach to other sectors for more understanding of the effects (Zeng et al., 2015; Ershadi et al., 2019).

Many researchers emphasize the importance of studying QM as a multidimensional practice. They argue that successful implementation depends on a balanced mix of soft and hard QM factors as both dimensions are necessary for successful QM implementation (Gadenne & Sharma, 2009; Zeng et al., 2017). Based on the above discussion, this study adopts a multidimensional view of quality to understand the impact of soft and hard QM on innovation and organizational performance in HEIs and to investigate whether they should pursue QM and innovation simultaneously.

This research offers several valuable contributions. First, this research helps understand the dichotomous view of QM and its impact on types of innovation and organizational performance. Then, we propose an integrated framework of quality and innovation practices to predict organizational performance from QM practices. Finally, a focus on HEIs will help HEI management choose the right QM practices to implement according to their goals.

This paper is structured as follows. In the next section, we provide a literature review of QM practices and their relationship to organizational performance and innovation; in Section 3 we develop the research model and associated hypotheses. We then explain the research methodology, followed by data analysis. The final section discusses the main findings and implications stemming

from this study as well as limitations and suggestions for future research.

LITERATURE REVIEW

Quality Management Practice

Several studies found that QM as a managerial approach that, if used correctly, can pursue sustainable performance improvements (Ebrahimi and Sadeghi, 2013; Nair, 2006).

QM principles theory have been implied in the industrial sector for over years; however, its implication in service companies and, especially, in Higher Education has recently drawn as a new concept set in a new reality that is starting to recognize HEIs as profitable organizations (Antunes et al., 2018)

The quality management scale designed for HEIs was hugely derived from constructs initially developed to analyze these subjects in the manufacturing and various service sectors. (Liao et al., 2010), because some scholars state that the types of activities carried out in the manufacturing is similar to that carried out in the education sector, so TQM can also be applied to HEIs (Owlia and Aspinwall, 1997).

Additionaly, some researchers mention that to successfully imply QM in HEIs, the first step that must be taken is to adopt a relevant TQM framework that meets its aim and objectives (Venkatraman, 2007; Burli et al., 2012). This framework ought to be built upon a collection of fundamental principles and methodologies that show as a foundation for connecting and amalgamating important performance criteria within a quality structure (Venkatraman, 2007). As a result, some empirical studies have explored the quality practices that shape the QM construct in HEIs, resulting in a variety of different QM dimensions due to the varies approaches, models and viewpoints adopted by these studies (Psomas and Antony, 2017).

Therefore, to determine common practices in QM, we extensively reviewed studies that have been conducted exclusively in QM.

Soft and Hard Quality Practices

Scholars have found that two main categories for TQM practices: soft practices or (infrastructure) and hard practices or (core) QM (Flynn et al., 1995; Ho et al., 2001; Rahman and Bullock, 2005; Zeng et al. , 2015, 2017). Soft practices stress on the behavioral characteristics of QM that deal with people, the social side, and the cultural side of the organization; meanwhile hard practice, in contrast, focuses on technical aspects utilizing scientific methods and statistical tools. This classification is enhanced by sociotechnical systems theory (STS) by Manz and Stewart (1997) which sees organizations as consisting of two interacting subsystems: social and technical. STS supports the identification of soft QM practices as those that influence social subsystems, and hard QM practices as those that influence technical ones, and supports the idea that optimizing them together is more beneficial than focusing solely on one or the other.

Based on previous literature that classifies and differentiates between soft and hard QM practices, we have divided QM practices into soft and hard practices. According to some scholars (e.g., Calvo-mora et al., 2005; Psomas and Antony, 2017), key processes in HE are usually

identified as administration and service, teaching and research processes. So, we differentiate process management into some categories that reflect the different processes in the HE field. In line with the above, the current study utilized perceptual measures to assess organizational performance. Soft QM practices are indicated by top management support, student focus, supplier management, people management, strategic planning. Whereas Hard QM practices can be measured by process management, information and analysis, continuous improvement, and program design.

Organizational Performance

The effectiveness of implementing Quality Management (QM) practices can lead to increased organizational performance. According to Uluskan et al. (2017), organizational performance generally refers to the results of organizational operations or the achievement of organizational goals. Organizational performance can be measured from various perspectives such as organizational performance results (Claver et al., 2003), financial and non-financial performance (Pinho, 2008), innovation performance (Hung et al., 2010; Prajogo and Sohal, 2003) and performance quality (Prajogo and Sohal, 2004; Zu, 2009). As highlighted in these studies, there are no standard measures of organizational performance, and researchers use measures appropriate to their business environment. Therefore, and by reviewing the literature related exclusively to Higher Education (HEI), we found that the majority of studies on HEIs measure organizational performance from an outcomes perspective (Badri et al., 2006; Burli et al., 2012; Calvo- mora et al., 2005; Psomas and Antony, 2017). Organizational performance can be indicated by student results, people results, institute results, and society results (Sciarelli et al., 2020)

Organizational Sustainability

Sustainability, in a broad sense, integrates economic, environmental, and social Responsibilities (Yazici, 2020). The importance of including high-quality sustainability programs and courses in university education is supported by a series of surveys highlighting the relevance of sustainability for business. In 2002, Ernst & Young conducted a survey of 114 companies from the Global 1,000 Companies list, and found that 94 percent of respondents agreed that business continuity strategies could produce financial benefits, but only 11 percent were implementing such strategies in actual operations (Ernst and Young, 2002). A survey conducted by KPMG in 2008 found that the majority of companies agreed that understanding how to make their businesses more sustainable was a challenge (KPMG, 2008). Around 80 percent of respondents said that the greatest difficulty lies in identifying and prioritizing problems, developing strategies and policies, and measuring sustainability performance. They found that most CEOs agreed that "sustainability is more important than ever for the future success of their businesses (Accenture and UNGC, 2010, p. 16)". In summary, it is clear that companies face sustainability challenges and most managers agree that sustainability can offer new business opportunities, but these are not easy to identify and implement. Sustainability is a currently became a recent topic in business and management education (Starik et al., 2010). Organizational sustainability can be measured by indicators like

personal fulfilment, problem mastery, and reward and recognition (Prugsamatz, 2010)

Initial studies (Flynn et al., 1995; Kaynak, 2003; Rahman and Bullock, 2005; Zeng et al., 2015) have modeled the QM-performance relationship with a soft QM-hard QM-performance sequence, and found that soft QM facilitates implementation QM is hard. They argue that a good soft QM system can help develop teamwork and autonomy, thereby increasing the chances of success in applying QM techniques and tools.

In the field of higher education (HE), several studies found a positive relationship between QM practices and organizational performance (Badri et al., 2006; Calvo-mora et al., 2005; Psomas and Antony, 2017; Sayeda et al., 2010). For example, Sayeda et al. (2010) found that TQM dimensions significantly influence all HEI performance measures and have a significant influence on institutional effectiveness. Psomas and Antony (2017) also found that TQM is significantly related to performance outcomes, indicating that HEIs can build strong TQM models that can help them achieve business excellence, apply for competitive quality awards, and obtain significant benefits. Thus, the following hypothesis is put forward:

H1. Soft TQM have a positive impact on organizational performance

H2. Hard TQM have a positive impact on organizational performance

Although many corporate leaders (CEOs) are fully aware of the neccessity of sustainable practices for long-term success (Accenture & UNGC, 2010), their implementation often encounters obstacles. The 2008 KPMG survey revealed this, with the majority of companies admitting difficulties in realizing more sustainable operations (KPMG, 2008). Approximately 80% of respondents cited identifying and prioritizing sustainability issues, developing effective strategies and policies, and counting performance as the biggest challenges (Accenture and UNGC, 2010, p. 16). This highlights a essential relationship; strong organizational performance is a vital factor for the successful implementation of sustainability practices. Companies that are still struggling with core operational efficiencies may find it difficult to effectively integrate and manage sustainability efforts. For instance, Woolworths implements comprehensive governance, measurement and tracking systems to ensure progress towards sustainability targets (Dos Santos et al., 2013) This system is integrated into their business monitoring process, making it possible to map progress against targets set per semester and annually until 2015 (Sustainability Report, GBJ, 2011, p. 6).

H3. Organizational Performace have a positive impact on organizational sustainability

Total Quality Management (TQM) offers a whole approach to reach organizational sustainability by infusing core quality principles with soft and hard practices. Quality management frameworks, enable universities to adapt their systems to meet the evolving needs of students, faculty, and other stakeholders.(Medne & Lapina, 2020) . In universities, quality management and sustainability elements implemented in the organisation's strategy strengthen relationships with stakeholders, maintain sustainable project results and improve organisational culture (Frolova and Lapina, 2015) By integrating these elements, universities can enhace their sustainability through soft and hard TQM.

H4 Soft TQM practice has a positive impact on organizational sustainability
H5 Hard TQM practice has a positive impact on organizational sustainability

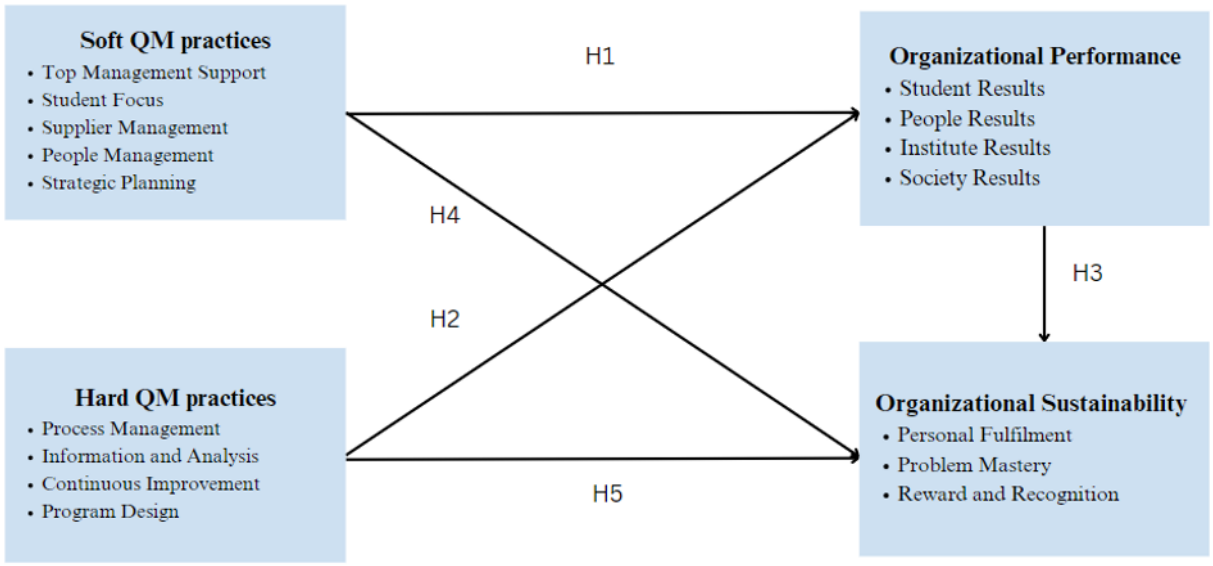


Figure 1 Research Model

RESEARCH METHOD

The data were collected using a questionnaire using scales previously adopted in the relevant literature. All variables were measured using 5 point Likert Scale. Quality management practices were measured using 41 items previously developed for the HE (Bayraktar et al., 2008; Calvo-mora et al., 2005; Psomas and Antony, 2017; Sadeh and Garkaz, 2015), and we divided the QM practices into two higher-order constructs – soft QM and hard QM .

Organizational performance was measured using 14 items for four basic first-order constructs (student results, people results, institute results and society results) according to previous literature in HE (Calvo-mora et al., 2005; Psomas and Antony, 2017). Organizational sustainability was measured using 3 items (Personal fulfillment, problem mastery, and reward and recognition)

We are using the Likert scale to measure this study. Likert scale is used to measure attitudes, opinions, and perceptions of a person about the HEI where the answer to each instrument item has gradation (1) strongly disagree, (2) disagree, (3) neutral, (4) agree, (5) strongly agree.

Data collection by researchers was carried out by sending questionnaires to each faculty or staff involved in quality management activities in universities in Surabaya via e-mail and paper questions to as many as 63 top management and faculty staff . The total number of respondents who responded was 50 (79,3%). The data show promising results in representing the condition of universities in Surabaya.

According to Hair, et al. (2005), before multivariate data analysis, we must testify assumptions about sample size, variable scale, multicollinearity, multivariate normal distribution,

and outliers. Because the sample used is more than 100, it is recommended to use Partial Least Square (PLS) analysis (Ferdinand, 2012). According to Garson (2007) and Byrne (2001), we can use the Likert scale and the Maximum Likelihood method in PLS.

RESULT AND DISCUSSION

Industries that participated in this study universities in Surabaya. Finally, the response rate of 79,3 percent of the organization agreed TQM is highly related to organizational performance and organizational sustainability.

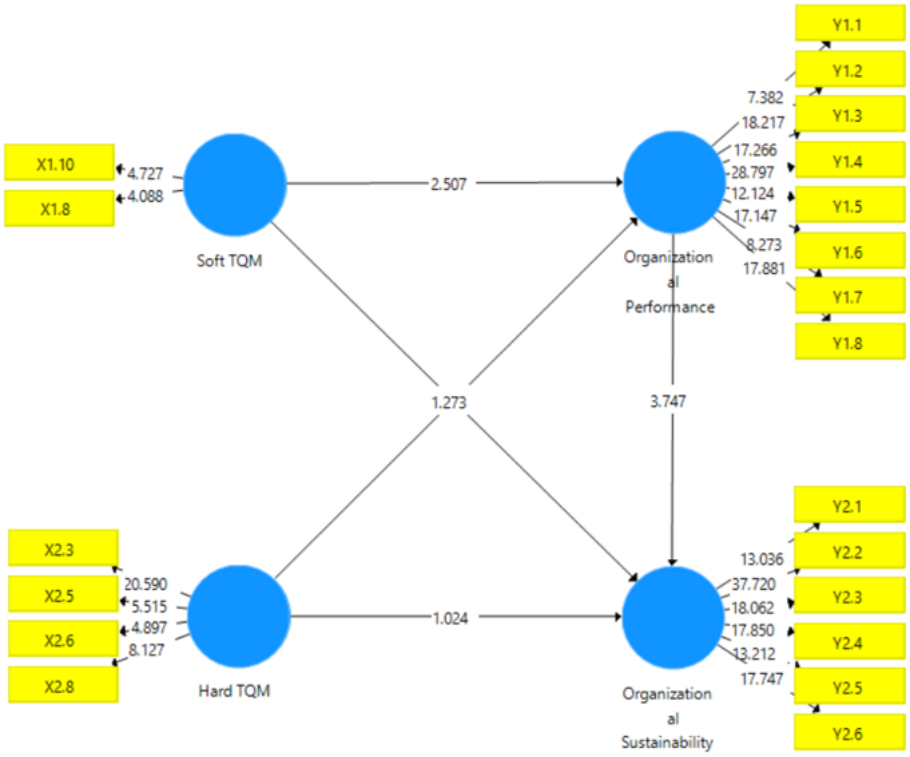
The measured (observed) values for the questions, obtained from the respondents, constitute the observed variables of the model, which are used as the indicators of the respective latent constructs or factors. Table II describes the result of the criteria using Partial Least Square by involving the Composite variable on the indicator, the Validity test, and Reliability using the Product moment and Cronbach alpha. Whereas then, the latent variables are tested for validity and reliability through CFA for each latent variable. Based on Table 1. All indicators on variables have a value greater than 0.5, which means the indicator is valid in measuring latent variables

Table 1. Confirmatory Factor Analysis

Variable	Variable Under Study	Cronbach's Alpha	AVE	Composite Reliability	R Square
Soft TQM (X1)	Top Management Commitment (TMC)	0.518	0.674	0.806	
	Student Focus				
	Supplier Management				
	People Management				
	Strategic Planning				
Hard TQM (X2)	Process Management	0.797	0.615	0.864	
	Information and Analysis				
	Continuous Improvement				
	Program design				
Organizational Performance (Y1)	Student Result	0.937	0.696	0.948	0.354
	People Result				
	Institute Result				
	Society Result				
Organizational Sustainability (Y2)	Personal Fulfilment	0.935	0.757	0.949	0.723
	Problem Mastery				
	Reward and Recognition				

Table. 2 Hypothesis testing

Research Hypothesis	Description	Path Coefficient	T statistics	Information
H1	Soft TQM → Organizational Performance	0.286	2.507	Accepted
H2	Hard TQM → Organizational Performance	0.461	3.512	Accepted
H3	Organizational Perfomance → Organizational Sustainability	0.693	3.747	Accepted
H4	Soft TQM→ Organizational Sustainability	0.112	1.273	Not Accepted
H5	Hard TQM→ Organizational Sustainability	0.178	1.024	Not Accepted



Hypothesis Testing

The results of the inner path coefficient and the full significance values are shown

in Table 3. Based on Table 3, the interpretation of each coefficient with a sample of 185 respondents (t table: 2.009) paths then: (H1) There is a significant relationship between soft TQM and organizational performance seen from the path coefficient of 0.286 with a t-statistic value of 2.507 (H2) Hard TQM significantly affects to organizational performance. It can be seen from the path coefficient of 0.461 with a t-statistic value of 3.512. (H3) Organizational performance has a significant effect toward organizational sustainability. It can be seen from the path coefficient of 0.693 with a t-statistic value of 3.747. (H4) There is not a significant relationship between soft TQM and organizational sustainability with a t-statistic value of 1.273and a path coefficient of 0.112. (H5) Hard TQM doesn't have a significant relationship with organizational sustainability with a value of path coefficient 0.178 and t-statistic 1.024.

The hypothesis testing table shows the results of hypothesis testing on the relationships between variables: organizational performance, soft total quality management (TQM), hard TQM, and organizational sustainaility.

Here's a breakdown of the table's findings:

H1 and H2: There is a positive and statistically significant relationship between soft TQM and organizational performance ($T = 2.507$, p-value < 0.05) and between hard TQM and organizational performance ($T = 3.512$, p-value < 0.05). This is proven that both soft TQM and hard TQM are associated with increased organizational performance.

H3: There is a positive and statistically significant relationship between organizational performance and organizational sustainability ($T = 3.747$, p-value < 0.05). This proves companies with high performance are also likely to be sustainable.

H4 and H5: There is no statistically significant relationship between soft TQM and organizational sustainability ($T = 1.273$, p-value > 0.05) and hard TQM and organizational sustainability ($T = 1.024$, p-value > 0.05). This means that the data does not support a conclusion that soft or hard TQM directly leads to greater sustainability.

Broadly speaking, sampling universities in Surabaya in this research can be concluded that they have a greaat vision to achieve quality. Firthermore, if we consider the expectatooon of the most universities to incorporate the TQM concept into their perfromance and sustainability, we are not talking about the future of hopeful quality management. But onward at this point we are focusing on the universities'concrete steps in optimizing the elements that enhance organizational performance and organizational sustainability.

Nevertheless it is important to highlight that the capacity of quality management initiatives carried out by individual organization to meet the expectations of organizational performance and sustainability. Hence, once quality standards are firmly established within the organization, it becomes imperative for the company to shift its focus toward ensuring quality for the university itself.

The result of the first hypothesis is there is a significant relationship between soft TQM and Organizational Performance. As it is enhanced by sociotechnical systems theory (STS) by Manz and Stewart (1997) Soft TQM practices improve organizational performance by fostering a positive humanistic environment. Through implementing employee development programs and

open communication channels, TQM Soft increases employee engagement, leading to higher productivity and better problem-solving. TQM Soft also encourages understanding customer needs through student feedback mechanisms, allowing universities to improve services and build stronger relationships with stakeholders, ultimately leading to long-term success. Additionally, TQM Soft encourages collaboration and knowledge sharing between departments, enabling innovation and effective solutions. Lastly, by nurturing a culture of quality and shared responsibility, TQM Soft increases employee retention and creates a more dedicated workforce, thereby improving overall organizational performance. Some studies have also proven that soft QM practices have a direct impact to organizational performance (Rahman and Bullock, 2005),

The second hypothesis is proven that there is a significant relationship between Had TQM and organizational performance. As proven in other studies (Fotopoulos and Psomas, 2009; Kaynak, 2003) found that implementing effective QM Hard practices, such as the timely collection and dissemination of critical quality data and information throughout the organization, directly improves the organization's ability to consistently provide products and services of satisfactory quality to its customers.

The next hypothesis is also proven that there is a significant relationship between Organizational Performance to Organizational sustainability. As written by Accenture and UNGC (2010), it is highlighted that CEOs are identifying and prioritizing sustainability issues by developing effective strategies in their performance. This highlights an essential relationship that a strong organizational performance is a vital factor for the successful sustainability practices.

Besides those three hypotheses that came proven, our fourth hypothesis proved that there is no significant relationship between Soft QM and Organizational Sustainability. Researchers assume there must be another bullet factor as to why soft TQM doesn't have a significant relationship to organizational sustainability. As mentioned by Rocha-Lona et al. (2015), universities are not just contributing to sustainable development through societal investment. But being sustainable means embedding responsibility within organization’s core value (Isaksson, 2014)

Same thing happen to our last hypotesis, the measurement proved that there is not significant relationship between Hard QM and Organizational Sustainability. Hard TQM excels at process optimization however it may overlook sustainability considerations.The United Nations World Commission on Environment and Development report (United Nations, 1987) provide a holistic definition of sustainable development, it does not matter the necessary actions an organisation should do to become sustainable. The success of sustainability criteria depends on higher management support and the ability of personnel to understand the need for change (Tuominen, 2011a, 2011b). For the success of implementing changes, it is neccesarry to develop a work culture that supports the principles and practices behind the changes (Snyder et al., 2017).

CONCLUSION

The conclusions of this study confirm that TQM Soft and TQM Hard practices significantly contribute to improving organizational performance at universities. Additionally,

strong organizational performance is emerging as a key factor for successful sustainability implementation. Interestingly, this research did not find a direct relationship between Soft TQM and Hard TQM and sustainability. This highlights the importance for universities to consider additional factors beyond TQM practices when pursuing sustainability goals.

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