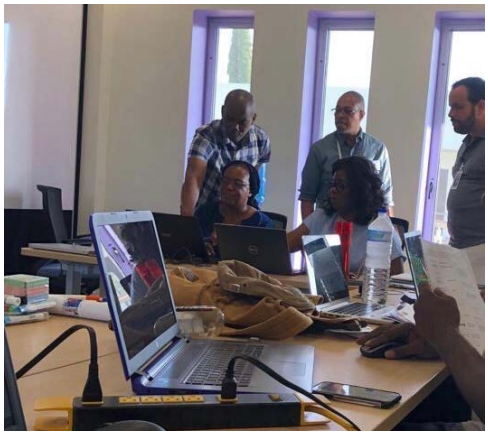
Competency #2

Generate innovative initiatives for development of environmental sustainability.

Since environmental factors, for example, biological, chemicals or biotic that affects living life forms. Temperature, sunlight, water-based solutions, solids in water, and so on affect how we live. Biotic factors, for example, nourishment creatures, predators and parasites all impact nature somehow. Our responsibility is to ensure that our environment is healthy. We can address a few issues in the earth by using biodegradable materials, bioenergy, and other natural well-being measures, that will go a far way in eliminating destructive issues in the environment.

Evidence 1



Evidence 2

Universidad de Montemorelos

PhD in Business Administration

Total Quality Management

Response Paper to:

"A critical review of the signal to noise methodology used in the Taguchi Method"

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The provision of quality goods and services for customers' satisfaction contributes to the viability and profitable operation of a business. The concept of quality management is entrenched in the formulation of a company's mission statement, vision, and strategies that are implemented to help achieve its goal. Quality management is part of management strategy for success, and is important for the monitoring of internal processes in an organization, to ensure that there is consistency in the provision of quality goods and services that will satisfy customers.

The trilogy concept of quality planning, quality improvement and quality control are the brainwork of Joseph M. Duran, one of the Quality Guru, as was discussed in our Quality Control class. Total Quality Management which involves continuous improvement strategies to implement and maintain quality also include quality improvement. In this article under discussion, Trejos, Varela & Diaz (2012) stated that Taguchi contributed to the method of quality improvement, which is one of the components of quality management.

This essay is a response to the article by Trejos et al. (2012) which cited criticisms from various statistician experts who are critical of the contribution made by Taguchi in the area of quality engineering. This paper will define Taguchi's contribution in the context of quality management. A brief summary of the criticism as highlighted in the article will be discussed. We will analyze the Taguchi's method from the perspective of Trejos et al. (2012), and other writers who are critical of his method, followed by its application to our professional work, present our own perspective and conclusion.

Quality improvement is part of Total Quality Management (TQM) and is defined as "the detention and elimination of common cause" (Mitra, 2016). This means detecting and eliminating any deterrent that will impact the provision of quality goods and services: this

involves continuous upgrading (Kaizen). According to Mitra (2016), Taguchi introduced the concept of quality improvement through his statistically designed experiments.

The article by Trejos et al. (2012), "A critical review of the signal to noise methodology used in the Taguchi" is highlighting the drawbacks and disadvantages of design experiment with special reference to noise signal ratio of the Taguchi's method. Trejos et al. (2012) suggested that even though Taguchi's contribution is relevant, critics discovered many defects in the design experiment system which makes it more complicated and inefficient. Trejos et al. (2012) made references to other statisticians such as Box (1985) and Kackar (1984) to support their claims that the drawbacks of Taguchi method outweighed its benefits.

Trejos et al. (2012) alluded to the reason why Taguchi's method came under fierce criticism by other statistical writers. According to Trejos et al. (2012), Taguchi's contributed to the body of knowledge of quality engineering with his work on statistical process control, which are sometimes called robust designs, to improve the nature of merchandise production, connected to engineering and biotechnology. This method is designed to compare agricultural output under different treatment conditions.

According to Trejos et al. (2012), one area of Taguchi's method that generated extreme criticism was the numerous amounts of tests that had to be performed for certain areas in internal control. This was considered to be time consuming. Time management is an important element of quality control. As discussed by Bowen, Cattel, Hall, Edward & Pearl (2012), findings from a research on the relationship between time management and quality management showed that high levels of satisfaction were noted in time management when projects were completed within the timeframe promised to clients, and met management expectations.

Trejos et al. (2012) asserted that Taguchi separated factors from the process or product into controllable factors and noise factors. Controllable factors are variables that can be fixed at designed levels, while noise factors are those that influenced the process that cannot be controlled, because they are very expensive or difficult. Among the controllable factors were:

- Cost relating to manufactured quality of items outside of specification is one of the controllable factors (Shewart & Deming, 1986). They argued that quality engineering should start with an understanding of quality cost. Wheeler & Chambers (1992) suggested that to go outside of specification is to deny losses that can occur by working outside of specification. The other controllable factors were:
- The excessive number of experimental conditions
- The interactions between controllable factors were not considered
- The use of inefficient signal ratios
- The excessive zeal in the optimization process
- Number of erroneous analyses

Noise factors were those processes or designed parameters that were difficult to control. (Wheeler & Chambers, 1992). These common types of noise factors included:

- Humidity or temperature
- Degree of difficulty
- Customer usage
- Part-to-part variation
- Degradation that occurs through usage and environmental exposure
- Cost

This critical review on quality management is applicable to our own professional lives and current research projects. Trejos et al, (2012) discussed factors which are considered to be controllable or uncontrollable. In our professional work, there are also factors which are within our control and others we have no control over. In our study in strategic management, we learnt that there are also variables which are controllable and uncontrollable. The application of the tool of Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis can be utilized to help minimize some of the uncontrollable variables.

According to Dana (2012), SWOT analysis is a tool that can be used to improve quality management. An organization has control over internal factors by assessing its strength and weaknesses. External factors, which are deemed uncontrollable, can pose threats or provide opportunities. Thus, an organization should be aware of these external factors and be prepared to react to them, as they can have a tremendous impact on its operations (Dana, 2012).

Reviewing this article and learning the concept of Quality management has deepened our understanding that management has a tremendous responsibility to formulate strategies that will motivate the entire workforce. This is important in key operations where employees' engagement and competency in operations, along with managerial strategic planning will help to facilitate continuous improvement in all processes.

This exercise has helped us to become more knowledgeable of the importance of incorporating the established principles of the research process. This article has heightened our awareness, as researchers, to ensure that our investigations meet the established standards to minimize variations, thus resulting in invaluable contributions to scholarly work.

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