

# Academic excellence and total quality supply chain management in higher education

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**Submission date:** 17-Jul-2020 01:00PM (UTC+0800)

**Submission ID:** 1358516278

**File name:** and\_Total\_Quality\_Supply\_Chain\_Management\_in\_High\_Education.pdf (3.78M)

**Word count:** 2523

**Character count:** 14705

## Academic excellence and total quality supply chain management in higher education

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**ABSTRACT:** The purpose of this study was to analyze the concept of supply chain quality management to support the achievement of academic excellence in a higher education study program. Empirical studies were carried out to identify good practice in the management of study programs in terms of the concepts of supply chain quality management. Currently, most universities have a quality management department, but the quality culture that raises academic performance in the organization does not yet exist. The method in this study involved empirical review of multiple case studies among those study programs at the forefront of performance achievement in higher education, specifically, those study programs which have already been awarded the highest grade by the Indonesian National Accreditation institution. The results of this study are expected to provide a model of total supply chain quality management for a study program to achieve academic excellence and enhanced performance.

**Keywords:** Total Quality Management, Supply Chain Management, Total Quality Supply Chain Management

### 1 INTRODUCTION

This research will explore how to develop supply chain quality management in order to create academic excellence. A new, well-integrated framework should be developed to facilitate the implementation of Supply Chain Management (SCM) and Total Quality Management (TQM). The traditional approach to TQM emphasizes specification-based performance, while SCM tends to focus on time-based performance (Vanichchinchai & Igel, 2009). The interesting thing in conceptualizing the education system as a supply chain is that a supply chain will generally involve several entities that are directly related to each other, both upstream and downstream (Mentzer et al., 2001). Educational services have the same process in terms of operating functions, for instance, transforming inputs into outputs (Slack et al., 2012). Services account for 70% of the workforce in advanced economies, including the government sector and education. Overall, this will exceed manufacturing and agribusiness industries (Economist, 2014).

Considering these circumstances, it is time that Supply Chain Quality Management (SCQM) theory and practice were further developed. It is understood that education produces well-educated human resources, but has this sector been implemented in the most effective way, given that the management of educational systems is becoming

so complex (Mason, 2008; Snyder, 2013)? Rashid and Aslam (2012) state that, currently, most universities have a quality management department, but the quality culture that raises academic performance in the organization does not yet exist.

The results of this study will form a basic foundation for the development of studies in the area of strategic management, operations management and SCQM, both theoretical and practical. The practical benefit of this research will be in providing a new practical concept for the management of study programs designed to achieve academic excellence through the application of the Total Quality Supply Chain Management (TQSCM) concept.

#### 1.1 Conceptual background

The definition of supply chain management has evolved as part of modern business management concepts and SCM can enhance an organization's capacity to achieve its strategic objectives. This means that supply chain concepts are very useful in support of the management practices of an organization. SCM activities can be described as having three components: supply chain configuration; supply chain relationship, and supply chain coordination (see Figure 1).

Supply chain configuration consists of strategic decisions and concerns the construction of all participant organizations in the chain, also referred to



Figure 1. Supply Chain (SC) management conceptual model (Source: Storey, Emberson, Godsell, & Harrison, 2006).

as supply chain architecture. Supply chain relationship concerns the relationships between organizations in the supply chain. In terms of level, decisions associated with supply chain relationships can be strategic or operational. Supply chain coordination deals with coordination between organizations in the supply chain. Decisions about supply chain coordination are operational in nature. The conceptual model (Figure 1) also illustrates the interrelationship with managerial decision-making within the organization, which includes strategic, tactical and operational decisions.

### 1.2 Total quality supply chain management

The development of university audit efforts to attain academic excellence is concerned with quality assurance activities. TQM is a management philosophy intended to drive cost reduction, creation of high-quality goods and services, customer satisfaction, employee empowerment and measurement. SCM strategy focuses on developing strategic alliances according to core competencies. In a new economic era, companies operate manufacturing or services by integrating corporate partnership activities along the value chain. The fundamental challenge in applying TQM all the way to the base of the value chain in supply chain networks is the development of programs and techniques that encourage diverse cultures among human resources to make continuous improvements in all areas that reflect the ambitions of the organization.

Total Quality Supply Chain Management (TQSCM) is a combination of SCM and TQM activities: SCM is a paradigm aimed at adjusting the system to the supply chain so as to create harmony in all processes, while quality improvement is pursued to achieve given levels of achievement or better. These SCM and TQM activities need to be integrated, as they are closely related; better quality cannot be achieved without supply chain

integration, and continuous quality improvement efforts also result in integration among supply chain partners. Therefore, we need a framework to manage quality throughout the supply chain. Previous research has been undertaken by Robinson and Malhotra (2005), and Foster and Ogden (2008), while a study of TQM and SCM practices was conducted by Sila et al. (2006). The purpose of this study is to identify TQM and SCM practices that are often used in organizations. We also compare and illustrate the relationship between TQM and SCM, using a review of literature from published papers that adopt different types of organization.

## 2 METHODOLOGY

This research uses qualitative exploratory research, and a multi-case study approach. The research design has several levels of analysis to improve the accuracy and richness of the resulting theory (Cheng, 1997) Eisenhardt, 1989), and focuses on the management of study programs that have implemented TQM. The research was conducted on undergraduate study programs in Indonesia that have been rated "A" by the National Accreditation Board of Higher Education. Data were collected through face-to-face and telephone interviews, and emails to track the strategies used through the media and materials owned by existing study programs and external databases. Researchers also conducted pilot interviews with university quality control leaders, in relation to faculty and study programs. The data obtained were processed and analyzed to formulate a Total Quality Supply Chain Management (TQSCM) model.

## 3 ANALYSIS AND RESULTS

In critical terms, top-management commitment in SCM is referred to by different levels and terms, such as changing corporate culture, management support, participative management, and cooperation, but the underlying concept is the same in the case of both TQM and SCM. Moreover, TQM and SCM can only succeed in achieving improved performance in an organization with the continuous support of senior management and their efforts towards never-ending improvement in customer services and customer satisfaction. TQM and SCM both play an important role in improving the competitiveness of an organization (Sila et al., 2006). The development of global competition today makes the situation even more complex and difficult. Existing challenges include a focus on the supply chain to determine timely and targeted

shipments for product delivery (Chin et al., 2004; Robinson & Malhotra, 2005).

Although TQM and SCM are important for organizational performance, they are seldom studied simultaneously (Casadesus & Castro, 2005; Robinson & Malhotra, 2005). Some researchers (Vanichchinchai & Igel, 2009, 2011) have also stated that, although SCM and TQM are important management systems for achieving competitive advantage, the success rate of implementations in organizations is not the same. SCM is the coordination and integration of all supply chain activities to make a process run smoothly, this is demonstrated through improved supply chain performance. The synergy between quality management and SCM leads to improved supply chain performance (Robinson & Malhotra, 2005; Foster & Ogden, 2008; Kuei et al., 2001).

Initially, the development of synergy between quality management and SCM occurred in the manufacturing sector, and the wholesale and retail industries. Utilization of such integration is still low in service industries. The education sector is similar to other service operations; it involves the process of changing inputs into outputs (Slack et al., 2012). Habib and Jungthirapanich (2009) conducted research on supply chain education in universities. Through exploratory research, a new dimension for education management is provided, revealing the importance of the supply chain in contributing to the success of university operations. Contributions include human resources and research contributions to end customers, that is, communities. Effective education depends on the knowledge, experience and ethics of its personnel. (Sarrico & Rosa, 2016) conducted a study to introduce a supply chain quality management (SCQM) concept into education. This study found that education is an SCM system. SCQM in education presents a challenge, with respect to trust for information sharing, integration and leadership. Nevertheless, this study also found some good practices in a more systematic SCQM implementation. Based on the analysis of several study programs, we conclude that SCM serves to balance all parties involved in meeting the demands of consumers, ranging from those upstream to those downstream. The Supply Chain Operations Reference (SCOR) model, developed by the Supply Chain Council (TX, USA), can be implemented in the operational academic process to obtain high-quality graduates and research.

In Indonesia, study programs that obtain an "A" grade from the National Accreditation Board of Higher Education have generally run quality assurance. Based on observations of some of the "A"-rated management majors, all have performed quality assurance, yet no study program has taken advantage of the SCM concept in its design strategy

Table 1. TQM and SCM critical practices.

Critical practice	
SCOR model (SCM practice)	
Plan	The coordination plan of units related to the study programs
Source	Identification of the source qualification to support the academic operation of the study programs (incoming student, facilities, lecturer, etc.)
Make	Operational academic process of study program
Deliver	Relevance of graduate
Return	Organizing feedback from stakeholders
PDCA cycle (TQM practice)	
Plan	How the quality assurance (QA) activity is planned and practiced
Do	How the QA is organized
Check	QA activities processed
Act	Assessment process of teaching learning and research activities
	Continuity in assessment processes
	Consistency and reliability of the QA programs
	Converting/transforming feedback into program improvements

to achieve its performance. Based on interviews, observations and references relating to the higher education value chain, SCM critical practices based on the SCOR model and TQM critical practices based on the Plan-Do-Check-Act (PDCA) cycle are applicable to study programs.

The result of semi-structured interviews with heads of study programs, lecturers, administrative staff and quality assurance managers resulted in a TQSCM design. The integration of both TQM and SCM in study program, call TQSCM design indicate that implementation of SCM and quality management practice integration will improve the achievements of study program's performance.

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