



# Academic Supply Chain Management in Bangladesh Higher Education

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## Abstract

The purpose of this paper is to discuss the concept of supply chain management in higher education sector specially in private sector in Bangladesh, to incorporate innovative management ideas to link up all elements of a supply chain process (Schools, colleges, Parents, universities, employers), enhance student size, how to enhance quality and produce capable graduates to contribute in right industry and to explore the challenges faced by this industry. The paper is conducted based on literature review and case study from few higher education institutes and colleges of Bangladesh. The data as collected from institutional and national documents as well as from individual and panel interviews. Content analysis is used here as a qualitative research tool. The study identified that the higher educational institutes outsource few non-core activities and a portion of core activities, rearrangement of existing supply chain is needed, focus on supply chain quality education based on education and industry collaboration which can provide internship facility to produce high quality graduates, focus on the student performance through the learning process. This research, which used a case study approach to examine the supply chain management process in education system, affects the research generalization. This research qualitatively reviewed the supply chain management process in few higher secondary schools, colleges and universities based on a single city, Dhaka in Bangladesh. This research can assist the education institutes to overcome the shortcomings in their process and fill up the gaps between each element of education supply chain management process in Bangladesh. Also a well-developed education system can help in development of societies. By improvement in all elements of supply chain management process as well as coordination among them, easily a gain is possible in higher education system. This research can provide an innovative way to manage the whole supply chain management process that can enhance the performance of higher education system.

**Key words:** Supply chain management, integration, Higher Education, Bangladesh.

## 1.0 Introduction

Supply chain management ideas can't only be applied to manufacturing industry. They can also be developed and applied in the service industry by emphasizing on the service based supply chain. This paper will explore the application of academic supply chain management in Bangladeshi higher education. Schools and higher education institutions help nurture knowledge societies and economies through the "production" of people with the knowledge, competences and skills that enable societal development. Mentzer et al. (2001) argued that SCM as a management philosophy has the following characteristics as a systems approach to managing the flow of goods inventory from the supplier to the ultimate customer, a strategic orientation to unify intra firm and inter firm operational and strategic capabilities and maintain customer satisfaction. He suggested various activities necessary to successfully implement a SCM philosophy as Integrated Behavior, mutually Sharing Information, mutually Sharing Risks and Rewards, cooperation, the Same Goal and the Same Focus on Serving Customer, integration of Processes, partners to Build and Maintain Long-Term Relationships.



Supply chain members have to collaborate, sharing information for improving customer's satisfaction. Information system has an impact in performance of SCM, so, this article is dealing with studying the relationship between information system and supply chain management (SCM) optimization. In addition, this article attempts to clearly describe the relation between the supply chain management and information system and the impact of forecast accuracy on overall control performance of the supply chain (Stevens, 1989; Stewart, 1997; Spekman et al., 1998).

In order to get competitive advantage, every firm need to concentrate on internal process development, improve resource quality, enhance skills and knowledge and overall capability of employees along with maintaining coordination with other external elements of supply chain. (Lummus and Vokurka, 1999)

To manage a good supply chain management process in education system, it needs the participation parent, friendship quality as main sources of influencing school education, industry internship as factors influencing high quality graduates or professional development as well as ethics and morality and knowledge and skills. Knowledge and skills consists of language proficiency, thinking skills, and knowledge. The products from the educational supply chain consist of job seeker as an employee and an entrepreneur that create and offer job to other. (Loon, L.K et al, 2018). The evaluation of supply chain performance is very important. Innovative supply chain performance measurement method is applied based on fuzzy set theory (Chan & Qi, 2003).

Gopalakrishnan, G. (2015) mentioned the application of academic supply chain management at an educational institution namely, RMIT University Vietnam. In that paper he did a thorough analysis of the internal and external environment of supply chain for that institute. Finally, based on the analysis, the Supply Chain Operations Reference (SCOR) model developed by the Supply-Chain Council was used to build a robust supply chain relationship for RMIT Vietnam.

Now a day many researchers concentrate on merging between quality management (QM) and SCM to gain a quality and developed supply chain performance. Key quality management variables that are identified are customer focus, quality practices, supplier relations, leadership, HR practices, business results, and safety. (Flynn and Flynn, 2005; Kannan and Tan, 2005; Robinson and Malhotra, 2005; Foster, 2008; Kaynak and Hartley, 2008; Kuei et al., 2011)

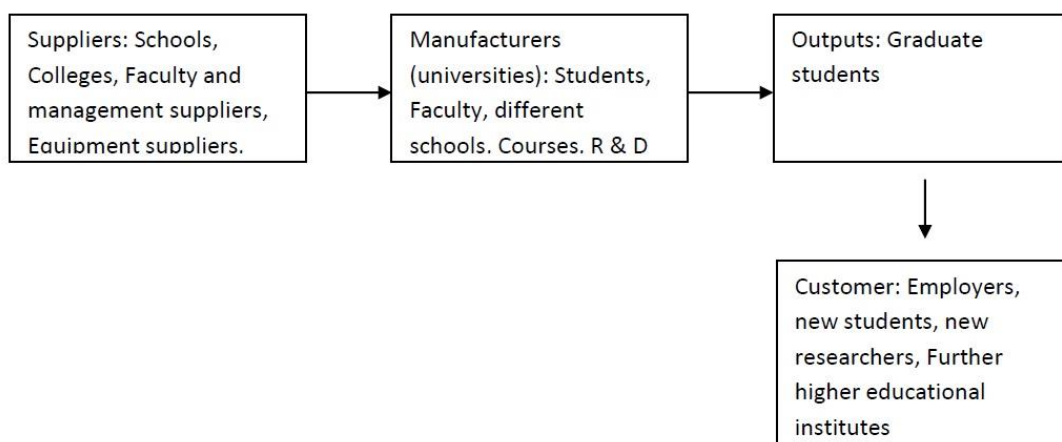
Most of these developments have occurred in the manufacturing sector, and to a lesser extent in wholesaling and retailing (Tan, 2001), as the downstream part of the manufacturing supply chain. However, little evidence exists of their use in the service sector, and indeed education, where we would argue that many of these developments are equally applicable and beneficial.

Mason, M. (2008), in his paper showed various field of philosophical study of education. He focused on some critical challenges for complexity theory from educational philosophy; complexity theory and educational continuity and change; the importance of complexity theory; the risks of simplifying complexity to; the degree of coherence between Dewey's



philosophical orientation and that of complexity theory; how educational research informed by complexity theory might ask different questions with different analytical perspectives- for example; and how curriculum, teaching, the epistemology of schooling, and the 'education of consciousness'—understood as an emergent phenomenon—might be different when viewed from the perspective of complexity theory.

A successful supply chain management depends on the coordination of all elements of supply chain. This paper identifies the suppliers (schools and colleges), Manufacturers (Universities), Outputs (Graduate students) and customers (employers, new students, researchers etc.). Here each elements and integration between the upstream suppliers and downstream customers are equally important to complete a successful and viable supply chain. In higher education sector in Bangladesh the supply chain can be depicted as following:



**Figure 1:** Academic Supply Chain for Universities in Bangladesh

This paper analyzes the different elements of supply chain by doing literature review, a Bangladesh case study and interviews with higher managements of few colleges and schools. Especially focusing on the link between secondary and higher education. My goal was to find out problems and challenges faced by the education supply chain and bridge up the gap by implementing several techniques by higher education providers to improve quality as well as maintaining relationship with both the upstream and downstream elements.

To illustrate this, a Bangladesh case study was used. Also focused on literature review and used empirical data collected from few universities and colleges.

## 2.0 Literature Review

Several authors have discussed earlier about the impact of supply management on different firms. But most of those were about profit organizations (manufacturing) – how to reduce waste, maintain continuous improvement to meet customers demand and gain more profit. There are very few which discussed the same for nonprofit organizations.

Hay (1990) characterizes that profit organization tends to make money while nonprofit organization tends to place the money to balance the expenditure of the organization. That may



cause the management of profit organization to achieve the goal may be different from non-profit organization. However, there is very little research on it.

Few authors also argued about the complexity theory for the philosophy of education and the challenges faced. The authors discussed about the importance that complexity theory places on interpretive perspectives that are Trans phenomenal, Trans disciplinary and Trans discursive. Also the risks of simplifying complexity, the degree of coherence between Dewey's philosophical orientation and that of complexity theory, how educational research can be done with different analytical perspectives as connectionist, holistic, non-linear, rather than input-output 'black-box' causal modeling, for example; and how curriculum, teaching, the epistemology of schooling, and the 'education of consciousness'.

Wilkoszewski and Sundby (2014) explore the concept of complexity and its implications for modern education governance. The chapter introduces the guiding themes accountability, capacity building and strategic thinking and sets out a set of principles for governance developed in the project's work with countries. The paper was based on the Governing Complex Education Systems (GCES) project and explores innovative governance strategies for the central level in education systems. It identifies core features of multi-level governance and introduces a simple analytical categorization of modes of governance. Some empirical cases on Norway, Germany, and the European Union are analyzed to understand the design of their system. This analysis reveal multi-staged policy processes, transparency and publicity, and soft sanctions. The system of open method coordination though has some pitfalls, might be applied for national approaches to soft governance in education.

An interesting line of enquiry is to apply supply chain management in higher education system. A study by Lau A. (2007) identified three supply chains of university as commodity, special requested and outsourcing supply chains. Also the existing supply chain can be developed further by restructuring to improve the efficiency and effectiveness of higher education.

Effective supply chain practice and information sharing enhances the current supply chain management environment. The study (Zhou and Benton 2007) explore the fact of the integration of information sharing and supply chain practice in supply chain management.

After doing the investigation on 125 North American manufacturing firms they come up to a conclusion as following

- (1) effective information sharing significantly enhances effective supply chain practice
- (2) Supply chain dynamism has significant positive influence on effective information sharing as well as effective supply chain practice. But more on information sharing.
- (3) Effective supply chain practice becomes more important when the level of information sharing increases.

So it was evident that both effective information sharing and effective supply chain practice are equally necessary in achieving good supply chain performance.

Tan, K.C. (2001 & 2002) in his article clearly mentioned the elements or stages of this new management philosophy. This article also discusses various supply chain management strategies and the conditions conducive to supply chain management. Many service sectors



recently focus on supply chain management process and the proper application of supply chain management practices impact supply chain performance positively.

The results of Flynn and Flynn (2005) indicate that quality plays an important role for improving supply chain management performance. Based on the theoretical and descriptive literature the authors identify four factors as these are related to the pursuit of supply chain and quality goals simultaneously, development of cumulative capabilities, the relationship between quality management practices and supply chain performance and the relationship between a specific set of quality management practices known as co-maker ship and supply chain performance measures. The study was conducted based on 164 plants of materials and equipment in USA, Germany, Italy, Japan and England. The study strongly supports the relationship between quality management and supply chain management. Managers can practically follow this relationship to gain competitive advantage in market. Kaynak and Hartley (2008) also mentioned that more research is needed to integrate quality processes with various members across the supply chain to enhance efficiency of supply chain. Kannan and Tan's (2005) study also unearth the fact that the most effective supply chain performance lies upon quality and an understanding of supply chain dynamics. Kuei et al.'s (2001) study tests middle managers' perceptions on the relation between supply chain quality management practices and organizational performance. It is observed that high quality- tendency systems tend to perform better than low quality- tendency systems and tend to save cost. High quality tendency organizations can be differentiated from medium quality- tendency organizations in the ground of few factors as productivity, sales growth, and earnings growth. Medium quality firms seem to be differentiated from low quality firms on indicators like employee satisfaction, productivity, and sales growth. So it can be concluded that organization's performance could be enhanced through improved supply chain quality management. Lin et al.'s (2005) data showed that QM practices could be used to improve the management of supply chain networks.

Service (education included) is an operation that transforms inputs into outputs, like any other manufacturing. (Slack et al., 2012). Services represent around 70 per cent of employment in advanced economies, and the government sector, including education, totals more than manufacturing and agriculture combined (The Economist, 2014). So it's the high time to focus on quality assurance on service sectors' supply chain especially on education sector. An important point made by Robinson and Malhotra (2005) is the concept of supply chain quality management in education. The obstacles that can be faced are information sharing, trust, integration and leadership. The authors come to this conclusion by collecting information from national and international documents as well as from some empirical work on some higher education institutes and secondary schools.

### **3.0 Problem statement**

Now a day the manufacturing industry as well as service industry is equally competitive. The competitiveness is raising gradually both in domestic and global market. Even the academic sector in Bangladesh is facing the same situation. At present in Bangladesh there are 144 public and private universities approved by university of Grant Commission (UGC) on 2018, among them 45 is public and 103 are private (<http://en.wikipedia.org/wiki/university>)



\_grant\_comission\_Bangladesh). Though the number of university is increasing but almost all the institutions are struggling in terms of student size, quality, performance, education process and link up among all outsourcing elements especially the privately owned universities. It's also a matter of question that the schools and colleges are not struggling in terms of student size whereas the situation for private universities are vice versa. However, to achieve a sustainable position for the higher education institutes in Bangladesh is still very challenging.

#### 4.0 The Bangladesh Case

To maintain the successful supply chain process in higher education sector it's very important to deal and buildup a strong, sustainable network with the suppliers as well as the customers. Since it's evident that the higher educational institutes completely depend on the colleges for their inputs. Both the size and quality of input depend on the process of the colleges.

Bangladesh Education sector is supervised and governed by Bangladesh's Ministry of Education. The primary level education and the government funded schools are supervised by ministry of primary and mass education. The primary and secondary level education in all public schools are free. According to Article 17 of the Bangladesh Constitution provides that all children receive free and compulsory education. {"The Constitution of the People's Republic of Bangladesh: Article 17 (Free and compulsory education)"}. As per policy the main education system is categorized into three levels as Primary, secondary and tertiary level of education. The medium of public schools is Bangla whereas almost all private schools' medium of instruction is English.

Cadet Colleges are important in the education system of Bangladesh. These institutions follow strict rules and regulations and disciplined lifestyle besides education. All the cadet colleges provide accommodation facility for students and it's compulsory to stay there. Faujdarhat Cadet College is the first cadet college in Bangladesh, established in 1958 in the district of Chittagong. At present there are 12 cadet colleges in Bangladesh, including 3 cadet colleges for girls.

Tertiary education in Bangladesh takes place at 45 public universities, 103 private universities and 3 international universities. Students can choose different universities according to their educational background and future plan as agricultural Universities, Science and Technology universities, Engineering & Technology, Maritime Universities, Textile universities and University of General Education. The universities are governed by University Grants Commission, each of the colleges are under National University and the medical colleges are affiliated with a public university. ("*University Grants Commission – Banglapedia*". *en.banglapedia.org*. Retrieved 16 September 2016, <https://rdcu.be/bFJXM>). But IN Bangladesh the ratio of universities and number of students are very poor. So the number of institutes should be increased to accommodate the students who passed higher secondary education.

#### 5.0 Data and method

This study makes use of data collected from different websites related to higher educational institutes, Bangladesh's Ministry of Education and University Grants Commission. Also a



case study is included here based on Bangladesh higher education. Some interview and informal communications were held with college level managements. The chosen institutes were based on Dhaka city. The analysis was accomplished in two steps. First of all, data collected from secondary sources as policy documents for higher education institutes and analyzed. Second the analysis was based on a case that was done by interviews and informal communications with various groups of respondent as higher management, faculties, employees from admission and promotion department, management from quality assurance department, students and parents. The same analysis protocol was maintained for both colleges and universities.

## **6.0 Findings**

In this section the outcomes from interviews with college level management are summarized. Also the secondary documents were analyzed and derived outcome through content analysis. Through this analysis the relationship among the elements of educational supply chain in Bangladesh were revealed as well as the supply chain process, quality, outsourcing activities, challenges and problems were found.

### **6.1 Supply chain process**

“University education is likely to be adversely affected by its poor base line i.e. intake. Quality of education at primary and secondary level is not satisfactory in most cases. Thus the outputs they provide as inputs of universities are found to have adversely affected quality of graduates in line with ‘low level trap’ (UGC: 2005).

There are four grades of university teachers such as Professor, Associate Professor, Assistant Professor and Lecturer. There is set rule of recruitment for which UGC has provided a guideline. But many private universities have modified the guideline for their short term benefit. Also the compensation package offered by the universities are not befitting compared to the other industries.

The teaching quality is a vital issue to upgrade the internal supply chain management process. Many of the institutions have shortcomings of infrastructure, IT support, logistic support etc. As a result, the teachers can't apply diversified techniques for delivering lessons. As a whole the quality depends on input (the student source, student characteristics), the internal process (Student academic and nonacademic training, lecture, extracurricular and co-curricular activities, evaluation technique, faculty quality, IT facility, library, infrastructure) and finally collaboration with the customers (the employers, potential new students etc). Library and laboratory are most essential supports for quality education.

The growth of the student enrolments in the private universities suggests that some of these universities have an overall good prospect. But some have declining trend regarding student enrollment and faculty retention.

### **6.2 Outsourcing activities**

Outsourcing supply chain is administered by long-term co-operation with the outsourced suppliers. It ensures the quality and reliability of the outsourcing services. Many of private



universities depend on the subcontractors for various non-core activities like, security, canteen facility, hostel, book store, transportation facility. Even Universities also depend on outsourcing agent for some core activities as hiring part time faculties. Outsourcing provide low cost and flexible service. But in-house activities are more reliable, sustainable, enhance the sense of belongingness to all stakeholders.

### **6.3 Institutional policy on quality**

The secondary schools have lacking in adopting proper mechanism to make the students ready for higher education and as a result the universities face difficulties to assure their academic success. Also the both sectors have mismatch in curricular and co-curricular contents that lead to very poor quality performance in first few semester of higher education. The college heads mentioned that bridging the gap between two educational sector in terms of curricular and co-curricular activities are primary concern. Some of college heads also focused on extracurricular activities sometimes out of their own campus to get exposed to the outer world. But many of the colleges have various constraint to implement any new policy. Moreover, it was also pointed that college level students need to be exposed to extra support classes for preparing themselves for higher education. As one of them mentioned that the universities should arrange some quiz competitions, case competitions, business Olympiad, some workshops on CV writing, communication skills etc. for college level students to make them accustomed to think out of the box. Thus the input quality can be improved.

Also the universities should collaborate with their customers especially to the employers to broaden the scope for internship as well as job facility. The higher institution managements should know the requirement of the customers and rearrange their internal supply chain process accordingly. This can create new opportunities for the graduates and expand their horizon in job market.

### **7.0 Conclusion**

This is a primary study on higher educational supply chain management in Bangladesh. The main focus of this study was to find out the supply chain process in higher education sector of private universities, suggest measures to ensure quality and find out the challenges of this industry. Private universities are growing fast. However, except for a handful of universities, most of these private institutions are small in size and offer rather low quality education in a narrow range of subjects. Many of them have no proper campus and are located in rented facilities and run by part-time teachers. In short, they need to find out some innovative ways for process development, collaboration among all elements of educational supply chain, focus on quantity as well as quality.

The individual university management must focus on integrating all supply chain elements and supply chain internal process to get more competitive graduates for right industries. The colleges should concentrate on their students' curricular, co-curricular and extracurricular activities. The relevant authorities must rearrange and develop their strategic plan that would match the requirement of the universities, as universities are the potential customers of their product. In this competitive market there is no alternative than having a highly coordinated





supply chain management process. Thus the higher educational institute will be able to provide high quality graduates for right industry.

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