

EDUCATIONAL VALUE CHAINS AS SPRING BOARD FOR SUSTAINABLE ECONOMIC DEVELOPMENT

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ABSTRACT

Today, the universities as higher education institutes are faced with a changing environment. Increasing international competition besides changing management paradigms in higher education, make universities encounter with new challenges. So knowing factors which improve management methods and create competitive advantage is very important. This study review researches on value chain in higher education and related fields. Some of these researches applied the basic Porters value chain model in explaining part of the activities. But some of them believe that the Porters model is designed specifically for business enterprises not social services organizations, and higher education as a service sector needs a specific value chain model which can explain process and components of value adding in this sector. This study recommends that the institutions of higher learning should try to implement these models in their own way and analyse the gaps in the value chain in order to improve on it. It is also recommended that researcher can use various methods to explore the value chain components. They can apply qualitative research methodologies which less used in recent researches. As well they can take advantages of quantitative research methods to describe this concept experimentally and fundamentally. This work comprises of introduction, history and development of value chain, conceptual issue, brief literature review, service value chain in higher education and conclusion and recommendation.

Keywords: Education, Value Chain, Economic Development

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Introduction

The concept of value is described as simple interaction between benefits that a customer or in higher education case (students / university / government etc.) seeks in a transaction and the cost of obtaining those benefits. Mostly for all businesses today value is created by so called 'brand value' which highly depends on the market's verification of the long-term prospect and cash flow of the business. This means that business has constant need to grasp the market and be on its 'pulse' that

is pivotal to successful value creation. In the sense of higher education, value is not created through pricing, sales or price-to-earnings ratios which basically generates economic value. Universities are much more complicated than value creation by accurately managing financial instruments without a real understanding of its mission and principles (Thornton 2004). This narrow notion by its simplicity and technicality ignores the fundamental source of value creation in the university, particularly those who produce, manage and store knowledge (whole academia, administrative staff etc.).

Nevertheless, the key question regarding value creation matter in terms of higher education still remains. Value is the benefit obtained from an institution's assets by its stakeholders. Academic and administrative staff, students and other related sides receives value through experiencing the institution's programmes, services and knowledge assets. The opportunity for enabling these recourses is the majority of academic and administrative processes and the media through which they are experienced. This is based on the idea of universities ability to import business oriented organizational structures in higher education industry management were 'values' could be more easily expressible in monetary terms. Therefore, higher education industry feel pressed into a corner to maintain activities that drive up value and all processes within it. Consequently, the transformation of institutions from higher learning into competitive enterprises started (Lee 2008). Therefore to create competitive advantage in terms of transnational higher education, universities need to think about the idea of what are the main components in value creation process for university and what kind of strategy mapping process can be used in order to enhance value creation process. One of the most effective ways was to look deeper into the concepts of 'Service Value Chain'.

History of Value Chain since 1985

Value chain is a connected series of organizations, resources and knowledge streams involved in the creation and delivery of value to end customers and its objective is to position organizations in the supply chain to achieve the highest levels of customer satisfaction and value while effectively exploiting the competencies of all organizations in the supply chain (<http://www.ventureline.com/accounting...>). Although Porter, who called them a "Value System" (Hamacher, 2011) seems to have publicized value chain strategies, he was not the first to have used the concept (Hansen, 2008). Agreeing with Sturgeon (2000) as well as adding to Porter (1985), van der Merwe and Cronje (2004) say value chain is a systematic approach to examining the development of competitive advantage. Porter focuses on the added value that each activity contributes with. His model consisting of four support activities which are, infrastructure, human resource management, technology development and procurement form the basis for many later models. Porter also focuses on the

contribution to the competitive advantage of the company that each part might make.

Stabell and Fjeldstad's (1998) three models which also have as their base Porter's four support activities, are based on the value creating logic and they recommend the value shop as the appropriate model when it comes to education as it can prove inspirational. Their belief is based on the fact that education is a continuous circular process. Others agree that: When you have recognised the need for competence development, you plan and choose the way to get that knowledge, you learn and you test or practise your new knowledge and competences. Then you recognise the need for new knowledge and the process starts again (Hansen, 2008). Another step in the evolution of a value chain may be increased specialization among the partners (Sturgeon, 2000). The example given by Sturgeon (2000) is that perhaps in the beginning the processor picked the tomatoes up directly from the growers, but as the chain developed a new partner emerged to focus on aggregating tomatoes and delivering them to the processor so that the processor could focus on what they do best is an illustration that even if the value chain starts small, there is a possibility that it can grow. Value chain involves marketing which is the buying side of the market while the selling side of the market is the supply side. Too many development efforts focus on generating supply without clear and informed connection to the buying side of the market hence it is important to consider marketing strategies seriously.

According to Hansen (2008) and Sturgeon, (2000), supply chains become value chains when participants form alliances with one another to produce products and services that embody particular values and the organization which can deliver this service, needs to be highly market oriented, act as a consultant and by virtue of networking and alliances, be able to deliver exactly the problem solving processes and educational services that are needed within all parts of the value chain of competence development at the right time and place.

Conceptual Issues

Value chain

The concept of value chain is based on the premise that every company is a collection of activities that are performed to design, produce, market, deliver and support its product. Anandarajan, Anandarajan and Wen (1998) say that the relevant value activities are defined as the physically and technologically distinct activities that a firm performs to achieve its objectives. According to Machail (2011), Hitt *et al* (2007) believe that the value chain shows how a product moves from a raw material state to an output that will be delivered to the final customer. Thus, the essential idea of the value chain is to create additional value without incurring significant costs while doing so and to capture the value that has been created. The value chain is a

concept from business management that was first described and popularized by Michael Porter in his 1985 best-seller, *Competitive Advantage: Creating and Sustaining Superior Performance*.

Porter defined the value chain as a representation of a firm's value adding activities, based on its pricing strategy and cost structure. Other scholars have also defined value chain like; Kaplinsky (2000) defines the value chain as the full range of activities which are required to bring a product or service from conception, through the intermediary phases of production, delivery to final consumers, and final disposal after use. While, Stonehouse and Snowden (2007) defined value chain as Porter's technique for understanding an organization's ability to add value through its activities, and their internal and external linkages, and allows managers to identify where value is currently added in the system and where there is potential to create further value in the future by reconfiguration and improved coordination of activities. According to John Del Vecchio, a value chain is "a string of companies working together to satisfy market demands." The definition of the value chain, according to Lynch, The value chain identifies where the value is added in an organisation and links the process with the main functional parts of the organisation.

According to Porter (1985), the primary activities are:

- **Inbound Logistics:** involve relationships with suppliers and include all the activities required to receive, store, and disseminate inputs.
- **Operations:** are all the activities required to transform inputs into outputs (products and services).
- **Outbound Logistics:** include all the activities required to collect, store, and distribute the output.
- **Marketing and Sales:** activities inform buyers about products and services, induce buyers to purchase them, and facilitate their purchase.
- **Service:** includes all the activities required to keep the product or service working effectively for the buyer after it is sold and delivered.

Primary Activities

Porter's Value Chain

Secondary activities are:

- **Procurement:** is the acquisition of inputs, or resources, for the firm.
- **Human Resource Management:** consists of all activities involved in recruiting, hiring, training, developing, compensating and (if necessary) dismissing or laying off personnel.
- **Technological Development:** pertains to the equipment, hardware, software, procedures and technical knowledge brought to bear in the firm's transformation of inputs into outputs.

- **Infrastructure:** serves the company's needs and ties its various parts together, it consists of functions or departments such as accounting, legal, finance, planning, public affairs, government relations, quality assurance and general management.

Porter's original value chain model (1985) is set in the context of a traditional manufacturing firm and sees the primary activities being inbound logistics, operations, outbound logistics, marketing and sales, and service with secondary or support activities relating to the infrastructure of the firm, human resource management, technology development and procurement. Porter uses his model to explore competitive advantage through differentiation and cost drivers. The original manufacturing model for the value chain as proposed by Porter has little meaning for many service organizations who cannot relate to the terms of the primary activities, inbound logistics, operations, outbound logistics, marketing and sales, and service. This seemed to be implicitly recognised by Porter in his presentation of value chain comprising the main steps in an operational flow for the delivery of service. However he did not explore the support activities of a firm's infrastructure, technology, human resource management and procurement within this amended structure.

Service Value Chain

The use of the value chain paradigm in a service context was suggested by Porter who gives as an example the various stages in passenger air travel. In his service example he abandons the manufacturing model with the primary and support activity divide and concentrates on the steps in service delivery. He concentrates in this re-formulated model on the cost drivers. In his service example he concentrates on the reconfiguring of the value chain to gain cost advantage. Service Value Chain is a bidirectional, cross-functional approach that can enhance cost efficiency, maximize capital utilization, increase profitability and even improve brand image is a powerful way to accomplish greater value from their after sale service for various companies. However, after-sale service that really add value that enhance customer satisfaction, contribute significantly to companies' revenue and profit goals, and promote rigorous cost efficiency are rare. More common are operations with traditional characteristics: labour intensive, reactive, costly and minimally strategic. Given this reality, a significant opportunity exists for companies to use Service Value Chain. Perhaps the most important characteristic of a Service Value Chain is its clear integration with all functions that influence a company's ability to provide service to its customers. The most relevant of these functions are Sales & Contract Management, Customer Service & Support, and Engineering.

Literature Review

Value chain recent studies

Many researchers have worked in the area of service value chain. Some of the studies are as follows:

Lauridsen (2011) supports an interactive session focuses on participating in shifting the paradigm toward learner-centred curriculum delivery. By considering the opportunity to adopt service-as-a-service to leverage predictable expenses for sophisticated solutions that are maintained by a service provider, higher education institutions are now forming consortiums and alliances. This work offers a series of framework to identify factors which leverage activities along a "chain" of delivering an educational service to self-directed learners. In their research, Sison, Pablo, and the E-College Team (2000) examined the processes of an educational institution using Porter's value chain as a framework. They next described a system designed to support this education value chain. They mentioned that the value chain of a modern university can be viewed as a network of activities centred on the functions of teaching, research, and community service, which in turn, involve educational design, educational delivery, assessment, research and development, and outreach activities. Each of these processes add value to the total educational package provided to students, and supporting these processes are the activities of recruitment, admission, enrolment, academic service, and alumni support. Their paper examines the value chain of a higher educational institution such as a university, and describes how an integrated system, such as the E-College, was designed to mirror and support the value chain processes by either automating them or providing tools for their management. While the activities that add most value to the educational package are those that involve educational design and delivery, their analysis covers the educational "supply chain" as a whole and therefore includes relationships with feeder schools, from which students come, and employers, to which graduates go.

By opening up student and educational package information to these entities, it is possible to improve overall system performance in ways formerly unimaginable. The output of this activity may benefit society directly or may feed back into educational (re)design. The E-College is an integrated system designed by the College of Computer Studies of De La Salle University to support the education value chain. The support may come in the form of automation of value chain activities, or provision of tools that facilitate, if not make possible, the planning, organizing, and monitoring of activities in the value chain. The system therefore has to serve a diverse pool of users: students, faculty, administrators, guidance counsellors, student organizations, alumni, companies, the office of career services, and feeder schools. Educational value chain introduced by van der Merwe and Cronje, (2004) as a "graphical tool" that developers may use in re-engineering efforts to identify possible bottlenecks that are likely to occur, as well as providing a route to follow when determining the value added

elements by technology. They apply a high-level process model, which is defined as the structure depicting all the primary processes and their relations to accomplish the high-level objectives of the modelling exercise. They noted the processes included in an educational value chain should only include the high-level essential processes necessary to reach a predetermined outcome. With the focus on the outcomes, they used the following steps to determine the value chain.

- a. Define the outcome or scope on which the value chain will focus.
- b. Identify a requirements elicitation methodology that focuses on the identification of the high-level processes within the application domain.
- c. Identify the high-level processes within the application domain.
- d. Use the high-level process model developed to derive the sequence of processes needed, to achieve a predefined outcome.

On the other hand, some studies have shared the same ideas about the value chain model and its application in the higher education sector. Value management, value co-creation system, value chain for higher education sector, communicational interaction model, and co-delivery of value, they stated that now we have to perceive service as a product with different characteristics from the physical product. For this peculiar difference, the value chains of these two categories of products (tangible and intangible) ought to be different though having some commonalities. They claimed that the Porters value chain is very applicable to the manufacturing sector but, it cannot be used directly in the service sector. They considered the value as a bundle of benefits; customers have to incur some costs to obtain. These costs can be in the form of money, efforts, time, opportunity cost, etc. Therefore, for the customer to be satisfied or dissatisfied depends on the net value between the total customer value and total customer cost. This net value is called Customer delivered value.

Therefore, there is a need for the value to be created both by the service provider and service user. So 'co-creation' needs to be seen as a joint responsibility of everyone involved in the service delivery system, including the customer. The service system will therefore consist of value co-creation and value co-delivery system. Given the discussion about the relative inadequacy of the Porter Value Chain in the service sector, they took the Higher Education sector as a representation of the services. So it is clear that some of the components of Porter's chain (e.g. inbound and outbound logistics) cannot be directly applied to the service industry. Therefore, the value chain model for the Higher Education sector has been developed. The new model has also five primary attributes and four supporting attributes (figure 2) (Gabriel, 2005; Gabriel, 2006; Makkar, Gabriel, & Tripathi, 2008). Figure 2. The Modified Value Chain for Higher Education Sector (Makkar, *et al.*, 2008)

Service Value Chain Models in Higher Education

In changing world, which increasingly is adding to uncertainty, all higher education institutions should provide favourable responses to social needs. Experience has proven that universities can provide best services to the community if they have concerns of continuous improvement in the quality of their services. Academic quality improvement in higher education has recently been considered in many universities over the world (Yarmohammadian,2004; Yarmohammadian, Mozaffary, &Saghaeiannejad Esfahani, 2011). One of the models which can be adopted to improve the quality of higher education institutions is value chain model. According to Michael Porter study in 1985, the idea of value chain is based on the process approach for organizations studies. The idea of seeing a manufacturing organization as a system, made up of subsystems each with inputs, transformation processes and outputs. These involve the acquisition and consumption of resources - money, labour, materials, equipment, buildings, land, administration and management. These activities can be classified generally as either primary or support activities (Gabriel, 2006). In other words, Porter's value chain consists of five primary activities and four supporting activities. The primary activities are inbound logistics, operations, outbound logistics, marketing and sales, and service. The support activities consist of infrastructure, human resource management, technology development, and procurement. But the point is the service industry has some differences from manufacturing industry. For example, the service industry does not have the real operation of inbound or outbound logistics. So we need to have a different version of the value chain which can well describe the service industry specially the higher education sector (Gabriel, 2005; Gabriel, 2006).

Many service value models in higher education have been given by the various researchers. Some of the important models in higher education are as follows:

Sison and Pablo (2000)

Their model suggests that although there is a seemingly infinite set of tasks that are performed in any modern-day university, these myriad tasks can be analysed using the notion of a value chain. The value chain of a research university can be viewed as a network of activities centred around teaching, research, and community service, and on an individualized educational package of learning opportunities and tools that enables students'acquisition of target knowledge and skills, and formation of target attitudes and values. These activities may be clustered into three major groups, namely, pre-education (student recruitment), education (with its elements discussed later), and post-education (graduate placement and alumni support).

The education activity may be said to consist of the different activities in an educator's professional life: educational design, educational delivery, research, professional development, and community service.

Van der Merwe and Cronje (2004)

They introduced the educational value chain as a graphical tool that developers may use in re-engineering efforts to identify possible bottlenecks that are likely to occur, as well as providing a route to follow when determining the value added elements by technology. Further, support processes include those identified by Porter with student systems being the —driving force behind technological innovations such as e-learning|| and technology —which adds value to the educational value chain even if it is not seen as a primary activity within the chain||. The authors determined that the value-chain approach for higher education can help detect where bottlenecks occur.

Makkar, Gabriel & Tripathi (2008)

Calling their framework Value Co-creation Model for Services these researchers illustrate necessary components within the higher education service industry with need to co-create value. Their perspective is that when value is co-created it implies that both service providers and users are involved. This justified in a context of considering the role of higher education, the socio-economic development of the country largely depends on the performance of our higher educational institutions. The value chain analysis starts with investor's injection of capital, the service product designers who are often faculty or program creators, all service provider staff and facilities, the infrastructure and supporting utilities, the target market of customers, citizens or people and those companies, communities or agencies that they belong to.

Pathak and Pathak (2010)

Pathak and Pathak (2010) proposed reconfigured value chain in higher education in view of the paradigm shifts. They captures the increasing significance of support services, the emerging trend of teaching and learning (in large part independent of the physical presence, i.e. reducing level of contact), technology as an enabler as well as a creator of cost advantage and enhanced efficiency; and the formalisation of marketing and sales services. The activities identified have a structure and are capable of being outsourced. The value added at each stage has a specific measurement and the interaction/linkages between activities can be established with some degree of clarity. Higher education institutions could identify the value drivers as well depending on the business model (i.e. for profit, self-funded or externally funded as well as bricks, bricks and clicks or clicks only models of business). The margins for each institution will depend on the configuration of the chain as well as the identified value drivers. Critical internal linkages and the paradigm shift are obvious as a lot of linkages are taking place between support services and primary services. Marketing and sales and inbound logistics, procurement and inbound logistics, and technology and operations are some of the many such linkages evolving in the reconfigured value chain.

Khaled Abed Hutaibat's Model (2011)

They identify three areas: perception of academic actuality as the context, and research and teaching as activities. Perception of academic actuality comprises the fierceness of the academic world, referring to issues such as the tightness of financial funds, the constant tension between research and teaching (as part of the overall education context), and the difficulties of staff acquisition and retention in subjects where the outside' job-market is very competitive. The activities of research and teaching are the main operational activities and strongly related to major strategic foci. Teaching stands for the actual class time but also the care outside the class room, for instance the time a lecturer spends with a student discussing their questions, concerns or specific issues.

Here five models of service value chain in higher education have been discussed. All the five models on one hand are similar on the basis of value chain; on the other hand each model is different from other models and unique in itself. The model given by Makkar, Gabriel & Tripathi (2008) is a very simplistic model which talks about the various components in the higher education service to co-create value. Sison and Pablo (2000) have viewed value chain of a research university as a network of activities which can be clubbed under three major groups pre-education, education and post-education. This model is very different from service value chain given by Porter. While all the other models are the modifications and extensions of the Porter's value chain model. Van der Merwe and Cronje (2004) have given a graphical tool which can help in identifying the bottlenecks. Pathak and Pathak (2010) proposed reconfigured value chain in higher education in view of the paradigm shifts. Their value chain model explains all the components in a detailed manner. In the same manner, Khaled Abed Hutaibat's (2011) model classifies support and primary activities in detail. Both the models given by Pathak and Pathak (2010) and Khaled Abed Hutaibat's (2011), extensively explain the value chain in the higher education and can be applied universally to the higher education.

Primary and Support Activities Forming the Value Chains for Education

White (2004) and www.edbarrows.com agree that primary activities are involved with a product's physical creation its sale and distribution to buyers and its service after the sale. These activities are termed 'primary' because they are the most important ones as they add value to the product or those involved in either producing or selling the product. For us in education, primary activities are the direct, value creating activities of education. It implies that bringing the students into the institution, teaching them, marketing and deploying as well as in servicing them are considered primary activities. Citing Porter (1985), Elloumi (2009) believes that the activities of business can be grouped under two headings. The first group is primary activities which of course are those that are directly involved with physical creation and delivery of the product. The value chain typically consists of one or a few primary

value (product or process which takes place in the schools including the syllabus, school facilities, classrooms, teacher, time and duration as well as curriculum planning, development of audio visual aids (AVA, information and communication technology (ICT), recruitment of teachers/lecturers, hiring of teachers/lecturers, sourcing of textbooks and course development, module writing and module development. Support activities which feed both into primary activities and into each other could include organizational infrastructure, which is concerned with a wide range of support systems and functions, such as finance, planning, quality control and general senior management; human resource management, dealing with those activities concerned with recruiting, developing, motivating and rewarding the workforce of the organization; technology development, dealing with those activities concerned with managing information processing and the development and protection of "knowledge" in the organization; procurement, which deals with how resources are acquired for the organization e.g. sourcing and negotiating with suppliers (Elloumi, 2009).

So, what are considered the primary activities in the industry of education? According to Porter (1985), and with slight modifications, the primary activities are:

1. Inbound Logistics/Methodologies - involve relationships with suppliers and include all the activities required to receive, store and disseminate inputs
2. Operations – are all the activities required to transform inputs into outputs (products and services)
3. Outbound Logistics – include all the activities required to collect, store and distribute the output
4. Marketing and Sales – activities inform buyers about products and services, induce buyers to purchase them and facilitate their purchase
5. Service – includes all the activities required to keep the product or service working effectively.

Educational institutions by tradition have their focus on the primary activity related to the individual learning process taking place at the campus. For instance, in university and other tertiary institutions, the content that the student will learn is determined there through the generation of syllabi and regulations. Since education is a learning activity, they have to be related to the individual learning process taking place in the educational institution. In the school system, primary activities could include school facilities such as the pitches, courts, recreation centres, the teacher, time and duration of the learning period. This is an interesting, but simplistic concept of value chain which has stayed very long in the confines of traditional education, but which has not successfully done much for modern education.

Conclusion and Recommendation

The higher education is facing lots of challenges due to the dynamic environment which is making the survival of these institutions difficult in the competitive world. To provide quality education there is a need to focus on the service value chain of the higher education. The needs should be identified and the bottlenecks should be removed from the value chain to provide quality service. As we have seen there is a tendency for applying the concept of the value chain to explain and expand many areas such as higher education sector. Many researchers believe that the service industry specifically the higher education institutions should develop their own value chain. Since various scholars have given different models of value chain for the educational services, which are relevant in one way or the other. It is therefore recommended that the institutions of higher learning should try to implement these models in their own way and analyse the gaps in the value chain in order to improve on it.

It is also recommended that researcher can use various methods to explore the value chain components. They can apply qualitative research methodologies which less used in recent researches. As well they can take advantages of quantitative research methods to describe this concept experimentally and fundamentally. Although there might be still controversy in appropriate methodology for identifying value chain as creation, supply, delivery components.

References

- Emiliani, ML (2006), 'Improving management education', *Quality Assurance in Education*, Vol. 14, No. 4, pp. 363-384.
- Feller, A, Shunk, D and Callarman, T (2006), 'Value Chains Versus Supply Chains' *BPTrends*, pp. 1-7.
- Gabriel, E (2006), 'Value Chain for Services A new dimension of —Porter's Value Chain||', *IMS International Journal*, pp.1-30.
http://www.americanprogress.org/issues/2012/03/higher_ed_business_models.html
- Hutaibat, KA (2011), 'Value Chain for Strategic Management Accounting in Higher Education', *International Journal of Business and Management*, Vol. 6, No. 11, pp. 206-218.
- Kumar, S and Dash MK (2011), 'Management Education in India: Trends, Issues and Implications' *Research Journal of International Studies - Issue 18*
- Lauridsen, B (2011), 'Shifting the Paradigm: Value-Chain Analysis Applied to Online Learning', *TCC Proceedings*, pp. 100-112.

- Makkar, U., Gabriel, E., & Tripathi, S. K. (2008). Value Chain for Higher Education Sector Case Studies of India and Tanzania. *Journal of Services Research*, 8183-200. EBSCOhost.
- Merwe, A and Cronje, J (2004), 'The Educational Value Chain as Modelling Tool in Reengineering Efforts', *The Educational Value Chain as Modelling Tool in Reengineering Efforts*, pp.1-7.
- Nooteboom, B (2006), 'Service value chains and effects of scale', pp.1-24 [Vr5TIAg&usg=AFQjCNEDwuxjsSeP_5XuGWDBCjvS5_MMGA](#).
- Pathak, V and Pathak, K (2010), 'Reconfiguring the Higher Education value Chain', *Management in Education*, 24(4), pp. 166–171.
- Sison, R and Pablo, ZC (2000), 'Value Chain Framework and Support System for Higher Education', *Proceedings of the Philippine Computing Science Congress*, pp.1-6.
- Thublier, F, Hanby, T and Shi, Y (2010), 'Value Chain = Supply Chain + Demand Chain: New Approaches to Creating and Capturing Sustainable Value', pp. 1-29.
- Van der Merwe, A. & Cronje, J. (2004, June). The educational value chain as a modelling tool in re-engineering efforts. *Proceedings of the 2004 international Symposium on information and Communication Technologies*, ACM International Conference Proceeding Series, 90(1) 122-127.
- Yale, MB (2005), 'The Service Value Chain', *FieldSvc.Com*, pp.1-11