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VALUE CHAIN IN EDUCATION SECTOR ILLUSTRATED WITH AN EXAMPLE OF VOCATIONAL COMPETENCE CERTIFICATE SYSTEM

Abstract: This article discusses the concept of value chain in the education sector illustrated with an example of VCC (Vocational Competence Certificate) System within which formal and non-formal education institutions are connected with entities operating on the labour market. The first part of this paper introduces not only the concept of the VCC learning outcomes validation system tailored to employers' needs, but also principles underlying this idea. In the second part, the author of this article creates a concept of value chain based on a modified framework established by Hans Jørn Hansen. Further in this part, processes generating added value are analysed.

Keywords: Life-long learning, competence validation, learning outcomes, vocational education.

Introduction

In the process of responding to the skill needs of the labour market, it is of utmost importance to establish reliable principles behind recognizing employees' competences. These rules, which are essential elements of the Lifelong Learning (LLL) concept, if applied, can result in reducing unemployment and improving the economic situation in general.

In 2008, members of the European Parliament and the Council adopted *Recommendation on the Establishment of the European Qualifications Framework for Lifelong Learning* (European Commission, 2009), amended in 2009 with *Recommendation on the Establishment of a European Credit System for Vocational Education and Training* (European Commission, 2009). Production of these documents resulted in validation of learning outcomes being implemented faster in the EU member states. This process also confirms that learning outcomes obtained in one qualification system satisfy requirements set out in another. What can be observed in different EU member states is not only progress in legislative works but

also development of the learning outcomes validation system functioning within the non-formal sector. The Vocational Competence Certificate (VCC) concept discussed in the next chapter is one of the examples showing this progress.

Considering the fact that the VCC System and the principles underlying it are universal for education as a whole, an analysis of this framework in terms of the value chain can result in identifying and defining an added value for all users.

According to Michael Porter (2006, pp. 58-64), a value chain is a set of activities that a business operating in a specific industry performs in order to deliver a valuable product or service for the market. This chain can be used for defining any process aimed at improving usability of a final product, assuming that the links are key to increasing competitive advantage from the value chain. Originally, this definition concerned a product/service that a company offered to a consumer. Due to its universal character, however, it can be used in different systems, e.g. in education.

Structures of the formal and non-formal education systems are highly complex and their analysis would lie outside the scope of this article. Additional advantages can be identified in the entire education system when it is studied even in a part--basing on the example of the VCC system integrating both formal and non-formal education subsystems.

As system users are frequently unaware of cooperation relations they have established with each other, when determining added value of the education system it is of utmost importance to assume that all of them fully cooperate with each other. It does not, however, mean that the scope of cooperation is limited. Each entity functioning within the formal education system has its own autonomy. In Poland, for instance, primary schools and secondary schools are subordinate to different institutions. Universities, however, are autonomous under Higher Education Act. Majority of non-formal education institutions are, on the other hand, business entities which are more willing to cooperate than to compete with each other. Nevertheless, there are different connections between the education sector and the end-user, i.e. the labour market. Although this cooperation is required under regulations governing the formal sector, in fact it does not function formally within the body of law. There are, however, numerous examples of close and active cooperation. In the non-formal sector, on the other hand, these connections are established on a commercial basis, i.e. by maximizing profits for both parties. The VCC concept can be therefore a common denominator for all entities functioning within the education sector.

This article explains additional advantages of the value chain of the education sector, adopting the example of the VCC system whose elements can be used both in the formal and non-formal education.

Vocational Competence Certificate System

VCC is an uniform system for improving and validating professional competences acquired outside the formal education system and is based on observation of competences needed to succeed in the labour market. As there was a need for cooperation between the education sector and the international labour market, in 2007 the idea of VCC was born. One of the fundamental ideas behind developing educational modules was to combine theoretical and practical knowledge, social competences, and IT skills. This combination allows for acquiring competences responding to the skill needs of the twenty-first century economy.

The VCC concept is compliant with EU policy on education framed in Europe 2020 strategy and with *An Agenda for New Skills and Jobs* (European Commission, 2010*)* aimed at modernising labour markets, improving citizens' skills through lifelong learning, increasing professional activity rate, and enhancing supply and demand adequacy. It is emphasised in these documents that skills demonstrated by job candidates need to meet prospective employers' requirements and needs, i.e. employees are expected to be professionally active and their success on the job market will depend on their lifelong learning attitudes. In this case, it is considerably important that lifelong learning can take various forms: **formal, informal, and non-formal.** In the formal system, qualifications are confirmed by institutions operating on the education market which is governed by provisions of law. Consequently, these qualifications are easily and widely recognized. It is, however, difficult to recognize informal and non-formal learning outcomes which are integrally related to the lifelong learning strategy. This problem can be solved by introducing a standardised system for assessing knowledge and skills acquired in informal and non-formal education. The VCC system is therefore a perfect solution – it is a competence validation framework aimed at providing employers with reliable and comprehensive information about skills which their employees/ job candidates demonstrate. The assessment process is based on comparing the displayed skills to the defined competence standard.

The VCC system is highly dynamic and popular: 13 thousand certificates validating learning outcomes for approximately 70 qualifications in eight European countries had been issued until June 2016.

It seems that this complementary approach to standardised processes on which the VCC system is based and which improve its clarity (e.g. development of learning modules, standardised teaching, examination, and certification processes) would exert tremendous influence on development of this framework. Additionally, the system involves not only all types of education institutions (informal education, primary schools, secondary schools, public and non-public universities) but also a considerable number of businesses actively participating in development of competence modules and offering job placements and internships (European Commission 2012).

Currently, as of the end of May 2016, there are 80 educational modules available in the VCC standard (vocational, IT, language, social) offered in approximately 50 Educational Academies in Poland and 12 in Europe as well as in 60 partner Examination Centres where individuals can have their competences validated by VCC certificate, regardless of the way in which they acquired the skills to be recognised. Furthermore, there are over 250 VCC supporting partners, i.e. labour market institutions, local government bodies, industry associations, and businesses offering jobs and organising job training/placements.

It is also worth mentioning that the VCC concept involves the idea of the European Qualifications Framework (EQF) acting as a translation device to make national qualifications more readable across Europe. It concerns learning outcomes and involves all qualifications. The aim of the EQF is that individuals and employers would be able to better understand and compare the qualifications levels of different countries and different education and training systems. It also aims at promoting lifelong learning and employees' and learners' mobility as well as matching their skills to labour market needs. The EQF allows for integrating learning outcomes gained in general, higher, and vocational education systems – the formal, informal, and non-formal ones. The VCC methodology is compliant with EQF. Anyone can have their competences recognised in the VCC certification process, regardless of time, place, and the type of education.

Table below presents the most important principles behind the VCC system.

Table 1. Principles behind the VCC System

No.	Principle	Description
1	Certifying Body (VCC Foundation) is responsible for the VCC system as a whole	VCC certificates are issued only upon successful recognition of competences defined for a specific qualification. Competences are validated in VCC Partner Examination Centres. Only successfully accredited institutions which signed a licence agreement can become VCC PECs. VCC PECs are obliged to provide not only accredited VCC examiners meeting specific requirements but also accredited Examination System Operators.
2.	Result-based education	The concept of development involves acquisition of competences/qualifications which are understood as learning outcomes reflecting knowledge, skills, and social competences precisely identified and described by representatives of the education sector and the labour market.

No.	Principle	Description
3.	Providing human resources for successful validation and certification of knowledge, skills and competences	Monitoring human resources provided by VCC Partners on each stage of teaching and validation – this results from the fact that VCC Trainers, Examiners, and VCC System Operators need to hold appropriate VCC certificates (five--year validity). Moreover, the VCC Foundation owns two IT systems which are provided to partners: CRM system used for serving partners and VCC examination system for examining participants and VCC members of staff.
4.	Implementing internal quality assurance system	Quality of the VCC System is provided by Quality Assurance System consisting of the following: - international solutions (ISO 9001 Standard for customer satisfaction with services provided under established and updated procedures audited by third parties; ISO 29990 Standard aimed to improve quality of learning services. - internal evaluation solutions
5.	VCC partners providing technical infrastructure needed for successful validation	VCC partners are obliged to provide examination infrastructure specified by the VCC Foundation. For each qualification, Examination Partners are provided with detailed descriptions of examination posts and examination methods to be applied.
6.	Certification, validation, and education – three separate processes	Owing to their structure, the education and certification systems remain separate. VCC Education Academies are responsible for the education process. VCC Foundation is the only entity entitled to carry out the certification process – confirmations of specific qualifications are issued after the Examination Partners send examination documents.
7.	Standardising learning outcome statements	Using CRM system for providing standardised validation documents. VCC certificates are issued in English and they are supplemented with a list of learning outcomes.
8.	Agreement between criteria and methods for verifying learning outcomes of a certain qualification.	Each qualification is developed comprehensively in cooperation with industry experts, methodologists, and, in particular, businessmen (training syllabus including learning outcomes, requirements to be fulfilled by examiners and trainers, classroom requirements, coursebooks, examination tests, practical activities, supplement with a list of learning outcomes).

Source: Independent analysis based on: VCC Foundation. Principles being the VCC system, www.vccsystem.eu, access of 20 June 2016.

A standardised strategy for describing skills, knowledge, and 'social competences' required in specific jobs is the most important element of the VCC system which connects the education and labour markets. This standard meets employers' requirements because it has been developed in close cooperation with businessmen specialising in specific industries. In this respect, needs pertaining to organisational processes in companies can be satisfied (Duvekot 2010).

Value added chain in education sector

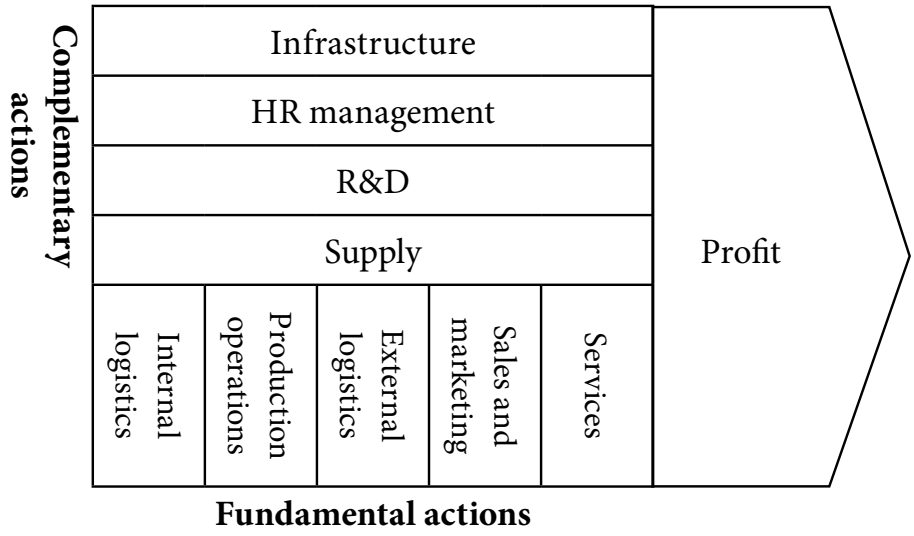
In the concept of value added chain, each system is perceived as a set of tasks and actions carried out by system users. Creating and delivering values meeting customers' needs (with regard to education, the labour market is a customer) is the fundamental idea behind any value added chain. When creating values, it is therefore necessary to prioritize customers' expectations and preferences. In this approach, it is necessary to identify products and processes upon which it is contingent whether a service will meet customer's needs, i.e. if the competence will satisfy business requirements. With regard to the value added chain, it is of tremendous importance for education institutions to identify unique value propositions (appropriate competences) for the labour market (Matwiejczuk 2010).

When describing a value chain for a specific system, its specific characters and external conditions need to be taken into account. Additionally, process classification should reflect individual features of elements constituting the system. It is assumed that it is processes not products which make a system successful (profit – in case of companies). From the perspective of describing the value added chain and its implementation, it is of considerable significance to identify relations among the aforementioned processes and to localize them optimally. Due to optimization, which is understood as looking for the best methods (tools) for carrying out processes taking place among entities, customers can benefit from the relations generating value added. It is particularly important to coordinate independent elements of the education sector. Deriving additional benefits from unique relations between various entities offering different products and services is a considerable advantage of the value chain (Obłój 2007, p. 363).

In the classical approach (pertaining to companies), a value chain is a system of functions generating value added from carrying out fundamental and complementary actions. The first type of activities pertains to physical processing of raw materials and semi-manufactured goods as well as delivery of finished products (logistics, marketing, sales) and post-sale services (Penc-Pietrzak 2010, pp. 213-223) (Pic. 1). Actions concerning information processing, i.e. management activities aimed at effective and successful functioning of a company, fall under the second category. With regard to production processes (classical approach), complementary actions serve protective function and do not result in creating any value added (Rokita 2005, p. 197). By analysing the value added chain of education services,

it may turn out that complementary actions, if organised appropriately, can also result in generating a value added.

Pic. 1. Porter's Value Chain

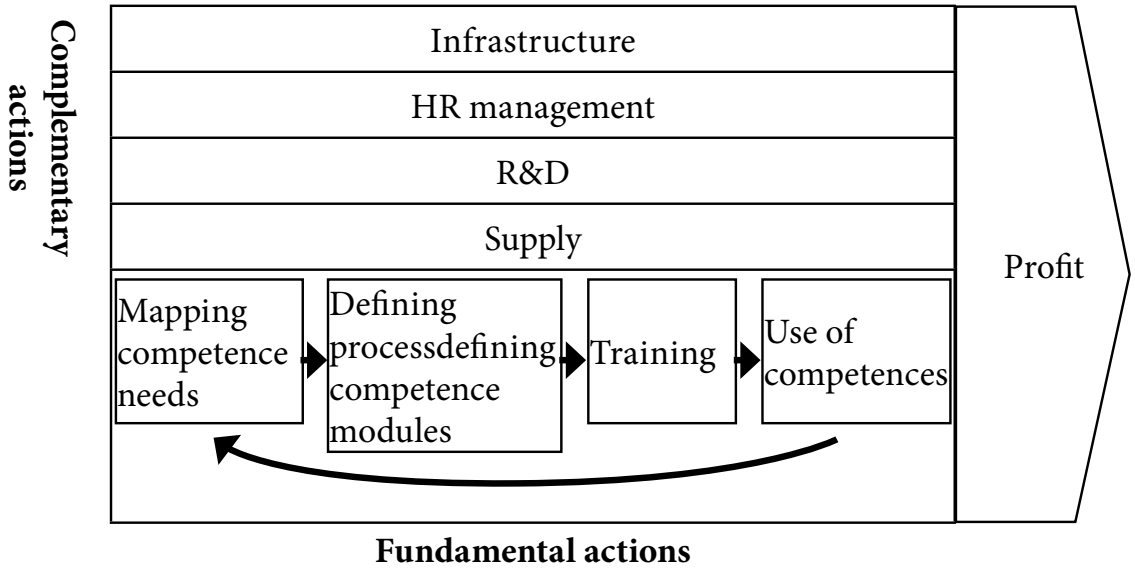


Source: Porter 1985, pp 11-15.

With regard to the education sector, the above presented model needs to be modified, in terms of fundamental actions in particular. Instead of five fundamental actions, Hansen (2007, p. 2) suggests three of them: competence mapping, training delivery, and practical use of competences. Feedback, which generates ongoing adaptation and development processes, is also of great importance. Hansen analysed the value chain from two different angles: from the perspective of a student, i.e. individual user of education services, and from the perspective of the labour market (competences which a business needs). He also emphasised that these two models are separate from each other. It can be therefore assumed that these are micro and macro models. With regard to the idea of the VCC system, the macro model is of greater importance. Firstly, it provides general principles underlying cooperation of the education and training sector and the labour market. Secondly, it allows for analysing relations established among institutions operating on the education market, i.e. formal education institutions (kindergartens, primary schools, secondary schools – K12, universities) and non-formal education institutions (training companies and other organisations providing skills development services) being parts of the VCC system.

The fourth process, i.e. definition of competence modules, is presented in Picture 2. This process results in creating a value chain of the VCC system.

Pic. 2. Value chain of the VCC system – the concept



Source: Independent analysis based on Hansen's value chain.

Analysis of the value chain of the VCC system involves determining relations existing among system participants (as part of fundamental and complementary actions) as well as defining scope of activities aimed at providing additional benefits for all system participants.

Fundamental actions include the following:

1) Recognizing competence needs.

This process initiates the cycle and reflects skill needs of the labour market, i.e. not only of businesses but also of non-market institutions, e.g. public administration bodies. Depending on company's organisational structure, which is frequently contingent on company's size, these needs are precisely defined and arise either from organisational procedures adopted on specific job positions or from certain business processes (with regard to companies) or organisation's objectives (with regard to administration bodies). It can be therefore assumed that value added of this process is proportional to competence needs of an organisation as well as to awareness of processes which take place in it.

2) Creating competence modules.

Actions pertaining to competences are another element of the value chain of the system. After a competence need has been identified, it is necessary to create competence modules which would allow for acquiring a specific skill and use it in practice in an organisation or a company. Apart from the entire area pertaining to development of teaching methodology, selection of tools, and choice of a validation process appropriate for a specific competence, it is of considerable importance to base requirements on standardised learning outcomes. The idea behind VCC is to strongly relate learning outcomes to organisational processes taking place in

companies operating on specific markets. A real value added of a process can be generated only when terms explaining competences meet the same standards.

3) Training.

This process is of outstanding importance in implementing the VCC system. In this case, value added results from cooperation relations established among various entities. Firstly, the process involves establishing cooperation relations among formal education institutions, i.e. K12 education institutions (primary schools and secondary schools, including vocational schools), higher education institutions (including the ones delivering courses for certain professions, e.g. doctors, lawyers, etc.) as well as non-formal education institutions, e.g. training and consulting companies, whose aim is to ensure that students' learning achievements accumulate and to deliver validated learning outcomes to different partners. This must be in compliance with VCC uniform standards of defining learning outcomes. Secondly, the process also involves system-based cooperation of entities operating on the labour and education markets: on the early stages of K12 education, the cooperation involves presenting particular job specifics and disseminating information about the labour market. Furthermore, in higher education institutions, the cooperation not only results in individuals being provided with opportunities to use certain competences in practice by participating in training programmes, placement schemes and vocational training practice. It also allows them to use the competences in business or non-market organisations, e.g. in administration bodies. Moreover, with regard to non-formal education institutions and institutions offering industry-specific courses, the cooperation involves competence development. Thirdly, a system-based cooperation on all levels involves identification of competencies and advising on the choice of the right educational path depending on one's competencies and the skill needs of the labour market.

4) Using the education process on the labour market.

The entire strategy based on the fundamental actions is still open on this stage – only the cycle is completed. This results from another procedure of identifying competence needs to be adopted due to providing feedback to education institutions. Additionally, there are individual experiences which increase the chance of being successful on the labour market. Cooperation with education institutions and implementation of the standardised VCC system allows for validating specific competences. Consequently, it becomes easier for employees to be more active on the labour market (inside a sector, among sectors, and as part of international migration). This fact is certainly a value added.

As in the case of the classical idea of the value chain, complementary actions of the concept being presented in this article include:

1) Supply (supply in raw materials, equipment, and materials) – As part of this action, each entity using the system can satisfy its needs. Nevertheless, the additional value can be generated similarly to cluster or networking associations.

2) HR management – The value added generated in this process pertains directly to implementation of the fundamental service provided as part of the idea being presented. What makes a recruitment process successful is not only the cooperation with the education sector established on all levels, but also the active participation in setting requirements for educational paths. Professional integrity and vocational development involve aligning prospective candidates' competences to organisational processes in a company. This is possible due to the uniform standard of learning outcomes (VCC).

3) Research and development – As part of processes pertaining to technological development involving knowledge, skills, procedures, and technology implementation, it is possible to generate value added (similarly to supply-related processes). The VCC system, however, (the education service profile in particular) requires system users to cooperate with each other. Consequently, a natural field for conducting research and development works is created.

4) Infrastructure of the organisation – As in HR management processes, in this case value added can be generated indirectly by implementing the VCC system in the following areas: organisation management, planning, finances, accounting, management control, legal control, and quality control.

Conclusion

From the perspective of the value added chain, the VCC system being discussed in this article as well as the well-developed network of VCC Education Academia, VCC Examination Partners and VCC Entrepreneurs have considerable development potential at the moment, also due to EU financial aid available in Central and Eastern Europe. As part of the current financial perspective of the EU for the years 2014 – 2020, financial aid can be provided to finance a vast array of actions pertaining to development of skills that the society demonstrates, i.e. learners of primary schools, secondary schools (including vocational and technical secondary schools), higher education institutions, employees as well as the unemployed and the socially excluded ones.

Implementation of a reliable and widely-acknowledged competence validation system will improve socio-economic situation by adjusting the competence supply to skill demand in the labour market. Furthermore, this common and integrated (formal and informal education) competence validation system can provide a basis for introducing more extensive changes pertaining to adjustment of the labour market to implementation of the value added chain of the education sector. The educational path created within this system should be of open nature and should involve transferring and accumulating learning outcomes gained on various levels of formal, informal, and non-formal education. Additionally, education sector and labour market institutions should support and help individuals choose their own educational path (Mirski 2014).

The education system can be connected both horizontally (formal and informal education) and vertically (different levels of the education system) by introducing a uniform standard used for defining and measuring learning outcomes for all competences. This standard is based on real organisational processes taking place in companies and adjusts employees' competences to employers' needs – in accordance with *VCC Result Based Education* (Bednarczyk, Wozniak 2014*)*.

If a value added chain including elements of the VCC concept is introduced in the education sector, it will not only allow employers to assess employees' competences but also allow employees to reliably evaluate their skills. Furthermore, it will result in customers being certain that services they get are provided by highly qualified specialists.

In the context of developing efficient cooperation mechanisms between business and education sector, aligning competences to skill needs of the labour market is of utmost importance in such countries as Poland, Bulgaria, Romania and Croatia. This necessity arises from the economic development gap between these countries and Western Europe.

They are, however, being modernised very quickly and hence experience great civilizational breakthrough – not only due to the global economic boom but also the financial aid provided by the European Union.

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ŁAŃCUCH WARTOŚCI W SEKTORZE EDUKACJI ZILUSTROWANY PRZYKŁADEM SYSTEMU VCC (VOCATIONAL COMPETENCE CERTIFICATE)

Streszczenie: Artykuł przedstawia model łańcucha wartości dodanej w sektorze edukacji na przykładzie systemu VCC (*Vocational Competence Certificate*), która łączy podmioty sektora edukacji formalnej i pozaformalnej z podmiotami rynku pracy. W pierwszej części pracy prezentowana jest sama koncepcja VCC jako system walidacji efektów kształcenia dostosowany do potrzeb pracodawców oraz zasady ją konstytuujące. W drugiej części natomiast dokonuje się próby budowy modelu łańcucha wartości w oparciu o zmodyfikowany model Hans Jørn Hansena, a także dokonuje się analizy procesów w nim zachodzących w aspekcie generowania możliwej wartości dodanej.

Słowa kluczowe: edukacja ustawiczna, walidacja kompetencji, efekt nauczania, edukacja zawodowa.

Bartosz Sobotka – doktor nauk ekonomicznych, absolwent stosunków międzynarodowych na Uniwersytecie Warszawskim oraz prawa na UMCS. Dyrektor ds. Rozwoju w Syntea SA. Zajmuje się tworzeniem modeli biznesowych dla sektora edukacji w krajach CEE oraz integracją rynku pracy z sektorem edukacji na poziomie szkolnictwa zawodowego oraz szkolnictwa wyższego. W latach 2008-2011 pracował w Urzędzie Miasta Lublin, pełniąc funkcję Kierownika Biura Obsługi Inwestorów oraz Pełnomocnika Prezydenta ds. Podstrefy Lublin. Autor publikacji z dziedziny pomocy rozwojowej i jej efektywności, rozwoju lokalnego i zarządzania edukacją. Adres e-mail: bartosz.sobotka@syntea.pl.