

Strategy and Building Curriculum Business Administration Program in Polytechnic based on Collaborative Knowledge Creation Concept and Quadruple Helix

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Keywords: curriculum, polytechnic, collaboration, quadruple helix, SSM

Abstract: The implementation of applied-based polytechnic education focuses on teaching practice more than theory. Referring to the strategic plan of higher education in the field of education and student affairs, research is needed that discusses how the principles of collaborative knowledge creation and quadruple helix in mapping curriculum development and business administration competencies in polytechnics. The quadruple helix concept involves four elements, namely: government, academia, industry and professional associations. While collaborative knowledge creation is one of the concepts used in knowledge-based organizations that see organizations as "living things" and continuously. The problems in this study are: (a) how can the concept of CKC and quadruple helix be used in mapping the polytechnic curriculum?, (b) which parties are involved in the preparation of the curriculum in polytechnics? and (c) what competencies are needed by lecturers in implementing the curriculum so that learning becomes quality and professional? The study was conducted at PNJ and POSLRI. The research method uses systems thinking approach (soft system methodology), data collection techniques using: interviews, observations, literature studies and documentation. The results of the research show that the strategy used to create curriculum in polytechnics is carried out using CKC and quadruple helix concepts so that quality and competence both lecturers and students in competent polytechnics.

1 INTRODUCTION

Explaining system and curriculum in polytechnic should be related with industrial needs, such as competence of graduated, student attitude, opening of innovative study programs, and partnership with industry. The problems in this research are: a) How does the pattern of mapping policy compilation of curriculum and competencies of business administration in polytechnics?, b) What strategies are used for the concepts of CKC and quadruple helix?, and c) What competencies are needed by lecturers in implementing the business administration curriculum to becomes quality and professional?.

2 METHODOLOGY

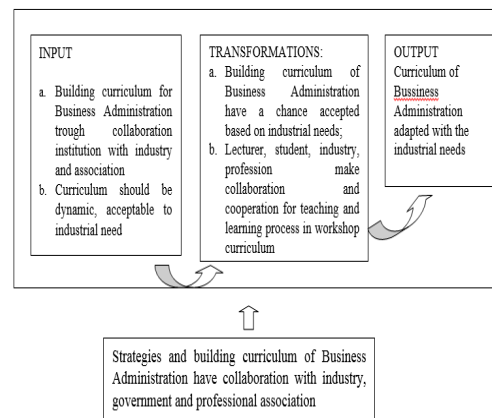
The stages of the research include research design and data collection techniques.

2.1 Research Methodology

This research was conducted at the State Polytechnic of Jakarta (PNJ) and Polytechnic Sriwijaya of Palembang (POLSRI). The research methodology uses qualitative by soft systems methodology (SSM) and descriptive qualitative (Checkland and Poulter, 2006; Kezar, 2005). The SSM references to be seven level of principles, such as: (1) the problem situation is considered, (2) problem situation expressed, (3) definition of relevant purposeful activity systems, (4) conceptual models such as a root definition, (5) comparison of models and real words, (6) changes systematically desirable culturally feasible, and (7) action to improve of the problem (Checkland, 1999; Checkland and Poulter, 2006).

2.2 Techniques of Data Collection

This research using data collection techniques such as: study of documentation, interview and discussion with owner issue in PNJ and POLSRI. The data has been grouped one with another issue and interpreted by using SSM and also CATWOE approach.



3 RESULTS AND DISCUSSION

This research discusses how to build the curriculum in the Business Administration study program in PNJ and Polsri based on Law No.12 of 2012 describing the systems of use for Higher of Education and revitalization in polytechnic (Salisbury, 2008; Lee, 2014). The involvement of the government, associations and institutions in the education process including the pattern of cooperations in building curriculum of Business Administration study programs to answer industrial need and rever based on collaborative knowledge creation and quadruple helix concepts (Du Chatenier et.al.; 2009, Jakubik: 2008, Kezar; 2005). Based on The 21st Century Learning Partnership (P21: 2015) that the curriculum format in the 21st century has characteristics, namely: curriculum is interdisciplinary, emphasizes competence and skills in the learning process, uses innovative learning methods, integrates the use of technology supports inquiry and problem based approaches and has high logical thinking skills, encourages the integration of community resources that are off campus (Philpot et.al, 2010; Mitchell, et.al., 2010; Jakubik, 2008; Haag, 2010). CKC is a key concept of laying innovation (Hermans & Castiaux, 2007; Hong et al, 2007; Nonaka & Takeuchi, 1995; Nonaka, 2007; Popadiuk & Choo, 2006).

The implementation of the CKC concept (Du Chaternier et al.: 2009) has four stages, namely: (1) externalizing and sharing, (2) interpreting and analyzing, (3) negotiating and revising, and (4) combining and creating. Refer to quadruple helix (Galbraith, 2015) in knowledge collaboration there are four elements that affect, namely: academic, government, industry and users. This pictures on Figure 1 (data processed, 2019) describes how to build the curriculum of Business Administration in polytechnic.

Figure 1. Building Curriculum of Business Administration.

Table 1: Root Definition (RD) for Building Curriculum of Business Administration in PNJ and POLSRI (data processed, 2019).

ROOT DEFINITION	PROCESS	SYSTEM
RD	The process of formulating policies related to curriculum and competencies in the field of business administration, the realization of collaboration cooperation and partnership polytechnics with industry, companies, governments, associations and other institutions for realize collaborative knowledge creation (CKC) and Quadruple Helix.	Systems that are owned and operationalized by polytechnics in the context of policy formulation (P) through improved interaction and communication at the externalizing and sharing stages that can overcome the challenges of asymmetry of information within the network node of institutional cooperation (Q) through quadruple helix so as to facilitate the application of all stages of collaborative knowledge creation (CKC) in the process of polytechnic policy formulation in mapping and competency in business administration.

Table 2: CATWOE and 3 E for PNJ and POLSRI.

Customer	Director, Assistant Director 1 for Academic Affairs, Assistant Director 4 for Cooperation and Industry, lecturers, government, professional associations, industry
Actors	Director, Assistant Director 1 for Academic Affairs, Assistant Director 4 for Cooperation and Industry, Head of the study program, Head of the Department
Transformation	Externalizing and Sharing in overcoming the challenges of information asymmetry between education providers
Weltanschauung	Submission of information between arrangements is important to be implemented to produce strategies to strengthen the dynamic capabilities of the organization
Owner	Director, Assistant Director 1 for Academic Affairs, P3M
Environment	Limited time and budget from the government and institutions
Efficacy	Externalizing and sharing to overcome the challenges of information asymmetry in the network of institutional collaboration related to curriculum and business administration competencies
Efficiency	Optimizing available resources, funds and facilities
Effective	Achieving increased network of polytechnic cooperation with institutions, industry, government and, professional associations

Interview conducted with Jalalludin Sayuti (2019) Head Department of Business Administration of the Sriwijaya State Polytechnic (POLSRI) related to curriculum mapping and competency in business administration with a collaborative knowledge creation and quadruple helix approach is that curriculum mapping involves other parties not only academics but also from industry, companies and professional associations. This situation, also happened in Business Administration department at PNJ to make curriculum adapted and implemented should be discussion before through workshop of curriculum every years. In table 3 below describing strategies for building curriculum in PNJ and POLSRI.

Table 3: Strategies for Building Curriculum in Polytechnic (PNJ and POLSRI) (data processed, 2019).

Description	PNJ	POLSRI
Building Curriculum	Preparation of curriculum at the study program level in Business Administration department through activities: pre-workshops involving lecturers, so that during the workshop the curriculum mapping involved stakeholders: professional associations, industry and companies.	Preparation of the curriculum of Business Administration program through activities: Workshop in POLSRI as level institution and involves stakeholders, professional, associations, industry and companies. After finished workshop lecturer and Team make some meeting to have a curriculum can be implemented.
Evaluation of Curriculum	Curriculum evaluations are reviewed annually to prove that the curriculum is still adaptive to changes in the industry today.	The curriculum evaluation of Business Administration program and also other study programs based on Indonesian policy to conducted regularly every 3 years.
Function of Competency Team for Lecturer (KBK)	a. The activities of the KBK (Competency Team for Lecturer) in each study program have involved elements of the lecturer to coordinate related subjects taught in each semester. b. KBK also plays a role in determining which subjects can be taught by	a. Business Administration program has KBK, this is in order to expedite the process of learning and facilitate the fostering of staff career paths b. Through the KBK, the department utilizes them to: regulate development staff and the distribution of duties and obligations of lecturers in carrying out their

	lecturers by looking at the competence of lecturer.	duties to suit their expertise
Validation of Curriculum	Curriculum validation after being proposed by the study program to the director must first be verified by Assistant Directors 1 of Academic and Affairs. Furthermore, the curriculum discuss at the department level and accepted by the director.	Business Administration curriculum validation, after the curriculum is prepared through the process of workshops, discussions and meetings at the department level, the department submits the curriculum draft to the Director, then is brought to the senate meeting to be ratified, then enforced through the Director's.
Lecturer Competence	a. Lecturers are given the opportunity to take part in training according to the material taught and take turns competency assessors training in accordance with the scheme being tested on students. b. Lecturers doing community service collaboration with the students. c. Doing research collaboration with the students.	Staff and or lecturers funded in order to improve the competence of lecturers, the policy of department has created a program of strengthening 4 (four) activity groups: a. Research group. b. Community Service. c. Training groups / competency improvement workshops/Professional certified training. d. Industrial internship.

4 CONCLUSIONS

Strategic workshops for Business Administration programs in PNJ and POLSRI are carried out by mapping the needs of the industry and curriculum becomes dynamic. The involvement of leaders from the institutional level was integrated and the concept of CKC has been implemented well. The concept of quadruple helix has been carried out by PNJ and POLSRI in creating curriculum and conducting curriculum validation.

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