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Adaptive Leadership to Potential Industry for Competencies Development: A Case Study

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Abstract

Most polytechnic develop their strategy around core competencies, especially regarding how to coordinate skills required in the industry. Adaptive leadership is needed in the lectures in polytechnic. The lecturer's competencies are credited for the success or failure of polytechnic's strategy development. The three types of leaders are as follows: (1) innovator, (2) implement or and (3) pacifier. Lectures in polytechnic search new ideas and produce the improved units in the potential industry as behavior of adaptive leadership for competencies development.

Keywords: Adaptive Leadership, Lectures in Polytechnic, Competencies Development

Introduction

The polytechnic in developing countries often face complexities in developing strategy for core competencies required in the industry. Kennedy School of Government at Harvard University and Wong (U.S. Army) developed the theoretical foundation for the course that combines the adaptive leadership models (Heifetz, 1994; Leonard & Army War College, 2004; Parks, 2013). The global aviation industry crafted the team based safety and emergency management processes (von Wyl, Zuercher, Amsler, Walter, & Ummenhofer, 2009; Shields & Flin, 2013).

Adaptive leadership involves analyzing complex situations, since many situations cannot be resolved by technical mastery alone, for analyzing complex situations and identifying available resources required expertise, formulating a strategy in real-time, and coordinating multiple stakeholders (Heifetz, Grashow, & Linsky, 2009). For lectures, competencies development is delivered effective by no means is an easy task, the literature suggests that there are three types of delivery format; formal, non-formal and informal (Merriam, Caffarella, & Baumgartner, 2007; Lewis, 2001; Burns, 2008). The formal delivery format refers to attending programs provided by a formal educational institution such as a college or university where a type of certification will be awarded upon completion of the program (such as diplomas or degrees). The non-formal delivery format refers to attending seminars, conferences, workshops and such where a certificate may or may not be awarded, while the informal delivery format may occur at any time or place, such as spontaneous sharing of knowledge with colleagues, reading journals and conducting one's own learning by exploring the internet (Noraini, & Mohammed, 2011).

The lecturer's competencies adapted case studies from current events and challenges in Indonesian polytechnic. This paper surveyed the description of competence development that is held with formal and non-formal delivery format (Noraini & Mohammed, 2011) for lecturers at five polytechnic programs in central Java such as electrical engineering; mechanical engineering; civil engineering; business administration; and accounting. This paper has data survey from spreading questioner to 230 lecturers vocational as a sample. The survey results as shown in Table 1.

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Table 1: Description of Competence Development for Lecturers

Programs	*Formal*	*Non-Formal*		
	Certification College	*Seminar*	*Apprenticeship*	*Workshop*
Electrical Engineering	50	0	10	0
Mechanical Engineering	30	10	20	10
Civil Engineering	30	0	0	0
Business Administration	30	0	0	10
Accounting	10	0	20	0
Total Respondence	150	10	50	20

Based on the data in Table 1, it can be concluded that description of the lecturer's competencies development in Polytechnic were dominant through the formal delivery format. The formal delivery was further studying in the college certification and it conducted once only.

Leadership Approaches in Developing Countries

In the 21st century lecturers are being challenged to operate in an increasingly complex, interdependent, and dynamic global environment. Those involved in global business have to adjust their strategies and management styles to those regions of the world in which they want to operate. One of typical challenges is transfer of technology (Garg, 2018).

In developing countries like India, Peru, Chile, and Argentina, due to their affiliation with Great Britain, leadership styles in India would seem more likely to be participative in approach rather than those in the Middle East or other developing countries as become more economically advanced, participative style may well gain in importance. However, the three types of leaders are as follows: (1) Innovator, (2) Implementer and (3) Pacifier. The traits, abilities, behavior of three types of leaders are discussed as follows:

Table 2: The Traits, Abilities, Behavior of Three Types of Leaders

No	*Types of Leaders*	*Traits, Abilities, and Behavior*
1	Innovator	• Likes to compete and win. • Keeps on trying to succeed. • Assumes responsibility for success and failure. • Takes moderate as opposed to high risk. • Likes to commit unit to a major course of action. • Is actively searching for new ideas to improve unit. • Seeks organizational growth. • Is motivated by the need to achieve to be creative. • Centralizes decision-making is in control. • Wants to stand out from rest of group (dares to behave differently). • Believes the environment can be controlled and manipulated. • Is long-range oriented. • Desires to exercise power, control, influence situation.
2	Implementer	• Is activity assertive. • Is able to get thing done through others. • Has the ability to assume responsibility for decision-making. • Is systematic in analysis and problem-solving. • Is able to integrate decision and analysis. • Is both long-range and short-range oriented (attends to distant needs as well as today's).

No	*Types of Leaders*	*Traits, Abilities, and Behavior*
3	Pacifier	• Has a positive attitude towards authority figures. • Is willing to carry out administrative functions (willing to do paper work) • Is interested in friendly relationship. • Likes to communicate and collaborate with employees (socially oriented). • Likes to improve social atmosphere in the unit. • Makes decisions that keep everyone moderately happy. • Allows employees to make many of unit's decision (delegates decision-making). • Seeks to satisfy influenced individuals. • Believes environment cannot be controlled and manipulated. • Makes short-range decisions (deals only with day to day problems).

Source: Shaifali Garg (2018)

Leadership and Competency Development Management

Leadership development and competency-based management typically involves following key activities (Carbery & Garavan, 2014):

- identification of the core competencies needed for high-level performance in a specific position;
- assessment of the extent to which a particular job incumbent possesses those core competencies;
- creation of specific developmental opportunities to match the requirements of the competency.

Formal learning and development interventions have the potential to enhance the development of organizational competencies. Specific aspects of competency that are increasingly valued by organizations include:

- Planning of work.
- Organizing.
- Reconfiguring resources, dealing with crises, taking risks.
- Problem-solving and decision-making skills.

The possession of organizational competencies helps the organization to achieve competitive advantage. There is some evidence that manager recruitment and retention is a knock-on effect of the provision of formal learning and development opportunities, and managers are highly attracted to organizations that can offer formal development opportunities.

Adaptive Leadership

Torben Juul Andersen and Bo Bernhard Nielsen (2009) limited their study to analyses of business entities operating in manufacturing industries and does not consider services. It is possible that strategy formation and adaptive behavior may be affected by the level of environmental change. However, leave it to future research to incorporate such variables and to tease out potential industry-specific variations.

The Virtual Organization

Competence development for polytechnic technical lecturers can be achieved through the informal delivery format such as exploring the internet (Burns, 2000; Merriam et al., 2007). The virtual organization and advances in technology have also been affecting higher education (Mehralizadeh & Safaeemoghaddam, 2010).

Methodology

Adaptive Leadership for Competencies Development

Based on argument by Torben Juul Andersen and Bo Bernhard Nielsen (2009), Ronan Carbery and Thomas N. Garavan (2014) and Shaifali Garg (2018), the adaptive leadership concluded that competency-based management in the potential industry can be reached by adaptive leadership. Typically involves as the following activities:

Table 3: Management of Adaptive Leadership for Competencies Development

No.	*Development Management*	*Strategy and Leadership Practices*	*Competencies Development*
1	Planning of work	Actively searching for new ideas to improve unit	Searching for new ideas to improve unit in industry
2	Organizing	Communicate and collaborate with employees	Corporating to potential industry
3	Action for reconfiguring resources, dealing with crises, taking risks	• Motivated by the need to achieve to be creative. • Commit unit to a major course of action.	Achieve to be creative and commit of action for unit improvement in industry
4	Control for problem-solving and decision-making skills	• Centralizes decision-making is in control. • Systematic in analysis and problem-solving • Integrate decision and analysis	Systematic in analysis and problem-solving in control for unit improvement

Source: Based on argument by Torben Juul Andersen and Bo Bernhard Nielsen (2009), Ronan Carbery and Thomas N. Garavan (2014) and Shaifali Garg (2018).

Research Methods

The information and knowledge partnership can develop the technology and scientific curriculums of higher education. TriAngular model was one of the information and knowledge partnership. TriAngular model has an impact on the social and economic development, the public sector and the scientific technological solutions (Vutsova & Ignatova, 2013).

The applied research implemented in TriAngular model for partnership between higher education and industry to produce the research according to government regulations. The applied research implementation is shown in Fig. 1.

The applied research implementation in TriAngular model for technology transfer can be described as follows:

a. The interaction between the higher education (public sector) and industries (private sector), exchange of experience and strategic decisions by the public sector, also ensuring links between public sector and industries (private sector) environments.

b. Cross-company projects with the support of the government and the potential of research teams and laboratories.

c. Higher education's research projects financed by the government and under a mandatory condition for use in industrial (private sector).

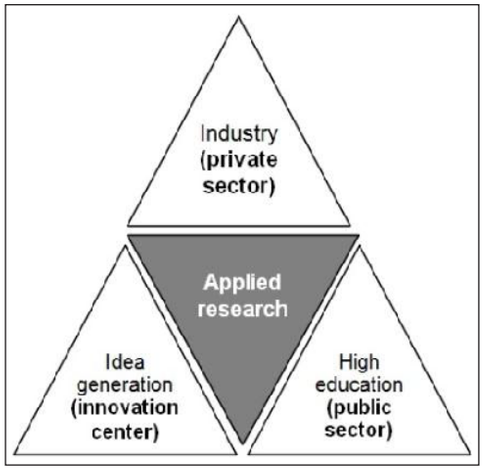

Fig. 1: Applied Research Implementation in Triangular Model

Adaptive Leadership for Lecturer's Competencies Development

1. Base on issue of ICT, the polytechnic should build the virtual organization.
2. The central research at polytechnic makes a cooperating partnership with the industry. The adaptive leadership for lectures's competencies has behavior such as searching for new ideas to improve unit in the industry need the research management between polytechnic and industry with flow diagram as shown on Fig. 1.

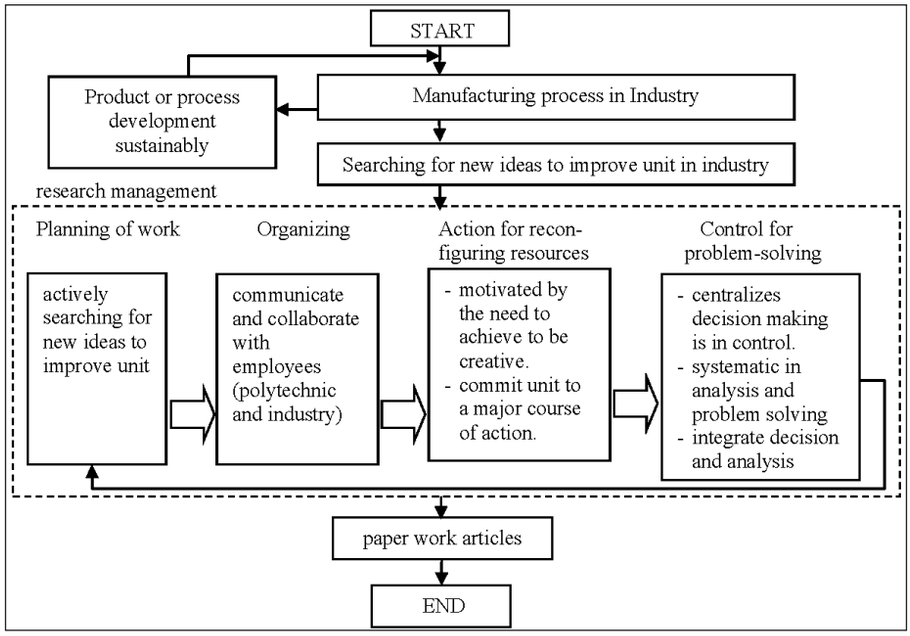

Fig. 2: Flow Diagram of the Adaptive Leadership for Lecture's Competencies

Flow diagram (Fig. 2) of the adaptive leadership for lecture's competencies explanation of the adaptive leadership for lecturer's competencies in the research management as follows:

- Lectures in polytechnic send the identities to administrator via email. Person of industry registered the unit projects to administrator via email. Administrator includes data: (a) academics, and (b) industrial projects. Administrator sends username and password to lectures and person of the industry as the reply to each email.
- Lectures send the proposals of new ideas to improve units (planning of work function).
- Person of industry receive the proposal and select the approved proposals (organizing function).
- Lectures in polytechnic have responsible for doing and reporting the approved proposal (action for reconfiguring resources function).
- Person in industry has responsible for monitoring and receiving the improved units (control for problem-solving function).
- Lectures in polytechnic have the paper work articles from the improved units in industry with adaptive leadership for competencies development.

Model Validation

Population and Samples

The population are lectures of polytechnic, industrial, and goverment. They can be taken randomly because the population are homogeneous (Sugiyono, 2009) and the number of samples is not major problem. Base on guidance of the successful research for determining size of sample (Roscoe, 1975), a simple experimental is presented in small sample size between 10 and 20 samples and it's taken randomly, they are:

- 4 persons of industrial practitioners as expert systems.
- 4 people of goverment staff as expert material.
- 4 people of lectures of polytechnic as users.

Correlation, Scale Reliability and Validity Analysis

The values of the reliability testing were compared with the reliability at r table, according to a number of the expert were n = 12 and number of questions were DB = 10 ~ 13. Number of reliability was obtained at r table by using the correlation coefficient of interpretation value, number of reliability was r = 0,4 ~ 0,6 or it was called "Medium" category interpretation (Arikunto, 2010). The values of

the indicator variables scale reliability have obtained from testing results by using SPSS 16.0 and values of the indicator variables scale reliability have compared with 0.5 probability level at r table. The questions given in 10 indicator variables are comprehensive. The questions are:

1. Do industrial always give some new ideas to improve units to lecturer?
2. Do new ideas to improve units have an understanding as the competencies development?
3. Do lecturer's the proposals of new ideas to improve units in industry have understanding as the planning function of work?
4. Does person of industry choose the approved proposals have understanding as the organizing function?
5. Do lectures of polytechnic have responsible for doing and reporting the approved proposal as the action function for reconfiguring resources?
6. Does person of industry has responsible for monitoring and receiving the improved units as the control function for problem-solving?
7. Do lecturers carry out applied research with industry can be used in teaching materials?
8. Do lecturers produce new ideas to improve units have understanding as an adaptive leadership?
9. Do the applied contents in the web-based can be accessed as the information media easily?
10. Can lecturers have the paper work articles from the improved units in industry with adaptive leadership for competencies development?

The data survey are processed with the correlation, scale reliability, and validity analysis by using SPSS 16.0 and it's shown on Fig. 3:

Correlations

		Indicator_1	Indicator_2	Indicator_3	Indicator_4	Indicator_5	Indicator_6	Indicator_7	Indicator_8	Indicator_9	Indicator_10	Indicator_Total
Indicator_1	Pearson Correlation	1	.291	-.418	-.154	.000	-.154	-.100	.000	.291	-.319	.103
	Sig. (2-tailed)		.359	.176	.633	1.000	.633	.757	1.000	.359	.312	.749
	N	12	12	12	12	12	12	12	12	12	12	12
Indicator_2	Pearson Correlation	.291	1	.378	-.076	.000	-.076	.540	.000	1.000**	.548	.592*
	Sig. (2-tailed)	.359		.226	.815	1.000	.815	.070	1.000	.000	.065	.042
	N	12	12	12	12	12	12	12	12	12	12	12
Indicator_3	Pearson Correlation	-.418	.378	1	.657*	.000	.657*	.427	.000	.378	.414	.582*
	Sig. (2-tailed)	.176	.226		.020	1.000	.020	.167	1.000	.226	.181	.047
	N	12	12	12	12	12	12	12	12	12	12	12
Indicator_4	Pearson Correlation	-.154	-.076	.657*	1	.414	1.000**	.427	.414	-.076	.000	.642*
	Sig. (2-tailed)	.633	.815	.020		.181	.000	.167	.181	.815	1.000	.025
	N	12	12	12	12	12	12	12	12	12	12	12
Indicator_5	Pearson Correlation	.000	.000	.000	.414	1	.414	.538	1.000**	.000	.500	.649*
	Sig. (2-tailed)	1.000	1.000	1.000	.181		.181	.071	.000	1.000	.098	.022
	N	12	12	12	12	12	12	12	12	12	12	12
Indicator_6	Pearson Correlation	-.154	-.076	.657*	1.000**	.414	1	.427	.414	-.076	.000	.642*
	Sig. (2-tailed)	.633	.815	.020	.000	.181		.167	.181	.815	1.000	.025
	N	12	12	12	12	12	12	12	12	12	12	12
Indicator_7	Pearson Correlation	-.100	.540	.427	.427	.538	.427	1	.538	.540	.538	.843**
	Sig. (2-tailed)	.757	.070	.167	.167	.071	.167		.071	.070	.071	.001
	N	12	12	12	12	12	12	12	12	12	12	12
Indicator_8	Pearson Correlation	.000	.000	.000	.414	1.000**	.414	.538	1	.000	.500	.649*
	Sig. (2-tailed)	1.000	1.000	1.000	.181	.000	.181	.071		1.000	.098	.022
	N	12	12	12	12	12	12	12	12	12	12	12
Indicator_9	Pearson Correlation	.291	1.000**	.378	-.076	.000	-.076	.540	.000	1	.548	.592*
	Sig. (2-tailed)	.359	.000	.226	.815	1.000	.815	.070	1.000		.065	.042
	N	12	12	12	12	12	12	12	12	12	12	12
Indicator_10	Pearson Correlation	-.319	.548	.414	.000	.500	.000	.538	.500	.548	1	.577*
	Sig. (2-tailed)	.312	.065	.181	1.000	.098	1.000	.071	.098	.065		.050
	N	12	12	12	12	12	12	12	12	12	12	12
Indicator_Total	Pearson Correlation	.103	.592*	.582*	.642*	.649*	.642*	.843**	.649*	.592*	.577*	1
	Sig. (2-tailed)	.749	.042	.047	.025	.022	.025	.001	.022	.042	.050	
	N	12	12	12	12	12	12	12	12	12	12	12

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Fig. 3: Validity Values of the Indicator Variables

Based on the data in Figure 3, values of the indicator variables validity are obtained from testing results by using SPSS 16.0 and then values of the indicator variables validity are compared with 5% of critical R person criteria by using SPSS 16.0 and the significant data survey in table 6 as follows:

Significant value is more than 0,050 on Indicator-1 so this instrument is invalid, while other values are smaller than 0,050 on other Indicators (see Table 1). Further testing results showed that all indicators are significant and valid for research instruments except the first indicator.

Values of the indicator variables validity are obtained from testing results values with 5% value of critical R person criteria by using SPSS 16 (see Table 1). Further testing results showed that all indicators is significant and valid for research instruments except the first indicator.

Table 1: Tested Data of Indicator Variables Validity

Indicator	*Significant*	*Critical R Person (5%)*	*Information*
1	0,749	> 0,050	Invalid Indicator
2	0,042	< 0,050	Valid Indicator
3	0,047	< 0,050	Valid Indicator
4	0,025	< 0,050	Valid Indicator
5	0,022	< 0,050	Valid Indicator
6	0,025	< 0,050	Valid Indicator
7	0,001	< 0,050	Valid Indicator
8	0,022	< 0,050	Valid Indicator
9	0,042	< 0,050	Valid Indicator
10	0,050	< 0,050	Valid Indicator

According to the guidance for determining size of sample (Roscoe, 1975), a simple experimental research for successful research is a small sample size between 10 and 20 samples. Interpretation correlation coefficient can be used for r = 0.4 ~ 0.6, it's called "Medium" category interpretation (Arikunto, 2010).

The values of reliability testing on Fig. 4 are compared with the value of reliability at r table according to a number of the expert as n = 12 and number of questions as DB = 10, and number of reliability is obtained at r Table as r = 0,5.

Data survey in Fig. 2 have analyzed on variable questioner analysis by using SPSS 16.0 and the analysis results as follows:

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Indicator_1	76.92	34.629	-.010	.757
Indicator_2	76.33	32.424	.547	.723
Indicator_3	76.42	31.720	.520	.719
Indicator_4	76.42	31.356	.586	.714
Indicator_5	76.50	31.909	.604	.718
Indicator_6	76.42	31.356	.586	.714
Indicator_7	76.42	27.720	.797	.677
Indicator_8	76.50	31.909	.604	.718
Indicator_9	76.33	32.424	.547	.723
Indicator_10	76.50	32.273	.525	.722
Indicator_Total	40.25	8.750	1.000	.766

Fig. 4: Correlation Statistics of the Indicator Variables

Reliability Statistics of the Indicator Variables is Shown on Fig. 5.

Case Processing Summary

		N	%
Cases	Valid	12	100.0
	Excluded[a]	0	.0
	Total	12	100.0

a. Listwise deletion based on all variables in the prc

Reliability Statistics

Cronbach's Alpha	N of Items
.740	11

Fig. 5: Reliability Statistics of the Indicator Variables

Based on the data in Fig. 4, values of the indicator variables scale reliability have obtained from testing results values by using SPSS 16 and then they have compared with 0,5 of reliability according to the guidance at r table.

Correlation value is smaller than 0,5 on Indicator-1 so this instrument has no relationship, while other values are more than 0,5 on other Indicators (Fig. 4). Further testing results showed that all indicators have positive and significant relationship with other instruments but except the first indicator.

Discussion

Validation and Correlation for Model

Based on data from the correlation, scale reliability and validity analysis (see Table 1 and Fig. 4). All indicators analysis showed that significant and valid for research instruments except the first indicator.

Further analysis showed that Memorandum of Understanding (MoU) in research will be needed for polytechnic cooperation with industry, so lecturers always get some new ideas to improve units from industry.

Comparison to an Existing Model

This paper proposes a new model of developing lecturer's research competence between industry and higher education context. The model can be done by using the research management to manage ideas and applied research proposal. In same study, the researcher's competency maped in order to personal effectiveness (Lasambouwa, Sutjiredjekib, & Nuryatic, 2015). The comparison between the model to develop lecturer's research competence and the map of researcher's competency are shown in Tabel 2.

Tabel 2: Comparison New Model to an Existing Model

No.	*Map of researcher's competency (*)*	*Adaptive leadership for competencies development*
1.	Select a research topic	1. Planning of work, (a) determining unit projects in industry, (b) searching for new ideas to improve unit in industry.
2.	Conduct literature review	
3.	Proposal writing	
4.	Define appropriate research methodology	2. Organizing, (a) industry receive the proposal, (b) industry select the approved proposals, (c) industry give fund.
5.	Manage research funding	

(*) source : (Lasambouwa, Sutjiredjekib, & Nuryatic, 2015).

No.	*Map of researcher's competency (*)*	*Adaptive leadership for competencies development*
6.	Research implementation	1. Actuating, lectures of polytechnic have responsible for doing and reporting the approved proposal
7.	Research report writing	2. Controlling, industry has responsible for monitoring and receiving the improved units
8.	Academic publication	3. Lectures of polytechnic have the paper work articles from the improved units in industry.
9.	Adhering to research ethics	

(*) source : (Lasambouwa, Sutjiredjekib, & Nuryatic, 2015).

Comparison analysis showed that adaptive leadership for competencies development has several advantages, they are:

- New model devided in 5 steps so more simple.
- New model give the improved units and industry give fund for research certainly.

Comparison analysis showed that new model of developing lecturer's research competence has several weakness, they are:

- New model must be supported by the link and match concept in industry.
- New model needs for identifying new ideas to improve units in industry.

Conclusions

This paper manages the identifying new ideas to improve units in industry as adaptive leadership for competencies development. This paper explores the types of leadership and the competency development management.

This study is validated through a case analysis using: (1) correlation, scale reliability and validity analysis, (2) comparison to an existing model.

Based on data survey from spreading questioner to 12 persons from polytechnic, industrial, and goverment, the data are significant and valid that lectures in polytechnic need to develop competencies by identifying new ideas to improve units in industry as adaptive leadership. The vocational college need a memorandum of understanding with industry.

The model of adaptive leadership in competencies development management can produce the improved units in the industry as competencies development. Lectures in polytechnic can generate the paper work articles from identifying new ideas to improve units in industry.

The model of adaptive leadership for competencies development must be supported by Memorandum of Understanding (MoU) in research partnership between the polytechnic and Industrial.

The next study considers the leadership-based implementation for competencies development in other types from adaptive leadership.

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