

# **The Effect of Information System, Organizational Structure, Human Resource Development, and Organizational Cultures to Universitas Terbuka's Learning Organization (LO)**

Agus Joko Purwanto ([ajoko@ut.ac.id](mailto:ajoko@ut.ac.id))

Marisa ([icha@ut.ac.id](mailto:icha@ut.ac.id))

Universitas Terbuka

Jl. Cabe Raya, Pondok Cabe, Pamulang, Tangerang Selatan, Banten  
[ajoko@ut.ac.id](mailto:ajoko@ut.ac.id) and [agusjoko.purwanto200@gmail.com](mailto:agusjoko.purwanto200@gmail.com)

## **Abstract**

The purpose of this research is to examine of the direct effect of variables of information system, organizational structure, human resource development, and organizational cultures to Universitas Terbuka's learning organization (LO). This is a mix methods research. Quantitative data were gathered using questionnaire, interview, and observation, while qualitative data were gathered by depth interview and observation. Population in this research is 733 UT's lecturers. Samples for quantitative data were 341 Universitas Terbuka's lecturers in the UT's head office and at UT's regional offices all over Indonesia. Sampling technic was simple random sampling. While qualitative data gathered by depth interview to five informants. Data were analyzed descriptively and hypothesis tested by using regression analysis. Based on hypothesis testing, the results of this research showed that (1) information system was the strongest effect to LO; (2) organizational cultures has an effect to LO; (3) organizational structure has no effect to LO; (4) human relation development has no effect to LO. At UT, implementation of information system which is combined with total quality management is the first step to transform organization to a learning organization.

The implication of this research is if an organization would increase its effectiveness, the organization should increase the effectiveness of its information system and organizational cultures.

Keyword: Learning organization, information system, organizational structure, organizational culture, and human resource development

## Introduction

Strategic Plan of the Universitas Terbuka/UT (Indonesian Open University) stated UT should be an adaptive and flexible organization. Furthermore, UT also needs to transform as a learning organization (LO). Values used as the basis for the building of organizational culture are total quality management (TQM) and good and corporate governance (Universitas Terbuka, 2009). The transformation of values, infrastructure, systems and work procedures, remuneration and human resources are aimed to achieve UT's vision.

Based on the International Council for Distance Education (ICDE) quality review in 2005, UT has been assessed as a learning organization while at the second Review in 2010, the ICDE declared that UT has a world-class system on distance learning. However, these reviews showed that UT needs to make some improvement on several issues such as; (1) there is no collaboration between students and alumni to create new knowledge, (2) lack of communication between students and tutors with regional offices, (3) lack of staff ability in the exploration of information systems, and (4) lack of sharing between tutors and students. Based on the background, the purpose of this study is to explore the factors that support and hinder UT transform into LO.

## Theoretical framework

LO was defined into three different definitions. Senge defines LO **as a place** ... *a place where people are continually discovering how they create their reality. And how they can change it* (Senge, 2006). Garvin defines LO **as the ability** of an organization ... *organization skilled at creating, acquiring, interpreting, transferring, and retaining knowledge, and modifying at purposively its behavior to reflect new knowledge and insights* (Garvin, 2000). Schermerhorn defines LO **as a processes** within the organization ... *the process of knowledge acquisition, information distribution, information interpretation, and organizational retention* (Schermerhorn et al, 2011).

Despite of the differences in its formulation, core subject of LO is knowledge within the organization. There are many variables affect organizational transformation into LO. According to Cumming and Worley (2005), organizational structure, information systems, human resource development, organizational culture and leadership are among variables that affect the LO. While Mullins (2005) states that components that affect organizational structure of the LO ie, organizational culture, and organizational climate. Marquardt (2002) states five subsystem which have strong influence to LO, namely: learning, organization, personnel, knowledge, and technology. George (1997) emphasized the need to create a conducive organizational climate by encouraging,

supporting, and providing rewards to the learning process. Main variables that affect LO are information system, organizational structure, human resource development and organizational culture.

Schermerhorn (2011), Cummings and Worley (2005), and Jones and George (2008) stated that information system (IS) plays a role in the search, distribute, interpret, store, and present information. To facilitate LO, organization needs a flexible and collaborative structure (Limerick and Cunnington, 1993); flat, dynamic, and supports empowerment (Nonaka and Takeuchi, 1995); simple (Peters and Waterman, 2004), freedom to communicate inside an organization (Fulmer and Keys, 1998). Other factors that affect the organization is human resource development (Marquardt and Reynolds, 1994), assessment, reward and training (Cumming and Worley, 2005), and human resource competencies (Mabey, 1994). Another component related to LO is organizational culture (Cummings and Worley, 2005). Lam, et.al (2008), and Konidari and Abernot (2006) found that TQM is a bridge for the organization transformed into LO.

This research is focused on studying the influence of variable information systems, organizational structure, human resource development, and organizational culture to LO.

## **Research Methods**

Mixed methods approach, especially concurrent mixed methods procedures, was used in this research since it can provide better understanding of the research problems. Population of this research is 733 lecturers, while total sample is 341 lecturers from head office and 37 regional centers.. Sample was determined by using simple random sampling. Data were collected using questionnaires, interviews, and observations. The definition and indicators of independent and dependent variables are (1) learning organizations is the organization that provide organizational climate to built organizational effectivity. LO measured by testing organizational norm, knowledge creation, knowledge storing, knowledge dissemination, using knowledge. (2) While information systems difined to acquire and manage information for decision making. Indicators for measure information systems is ability to acquire data and information, ability to categorize data and information, ability to store data and information, ability to process data and information, and ability to distribute data and information. (3)

Organizational structure is the relationship between task and report coordinating and motivating organizational members to work together. Organizational structure measured by clarity of job description, coordination effectiveness communication effectiveness, reporting mechanism, work system and procedures, and authority. (4) Human resource development is the whole management activity aimed to retain and get high quality of human resources. Human resources is measured by recruitment and selection, training and development, performance appraisal, compensation, and career development. (5) Organizational culture is a set of value and norm using to control behavior of organizational members. Organizational culture is measured by value and norm, internalizing of value and norm to new organizational member, and distributing value and norm.

The main data collection instrument was a questionnaire with 129 questions. Instruments' validity and reliability were tested to 40 samples from the study population and 6 experts. Validity test results produce five invalid items. Construct validity was tested using corrected item-total correlation. Table 1 shows validity test result and reliability coefficient for each variable.

Table 1 Resume of Validity Test Result and Reliability Coefficient

No	Variable	Number of Items	Number of Valid Items	Reliability Coefficient
1.	Learning organization	23	21	0.922
2.	Information System	20	20	0.956
3.	Organizational structure	40	37	0.939
4.	Human Resources Development	25	25	0.947
5.	Organizational culture	21	21	0.941
	Total	<b>129</b>	<b>124</b>	

Questionnaires were sent by email to 733 lecturers in 11 units at head office and 37 regional centers. ....printed questionnaires were also sent to the respondents. 245 (71.8%) emailed instruments and 96 (28,2%) printed instruments were fill out and sent back.. Qualitative data were collected through interviews with five informants: team leaders of Instructional Materials Development, Promotion, Research Information Systems Development, and Application Development Services of Bogor regional center, Head of Bogor Regional Center. The five informants choose because they have

experience how to create knowledge at UT. Data were collected at the UT Head Office and Bogor Regional Center. The interview is aiming at providing additional information about factors that influence process of knowledge creation at UT. Data were tested with the linearity test and the test of normality, using SPSS 19<sup>th</sup>. Linearity test performed at significance level of 0.05.

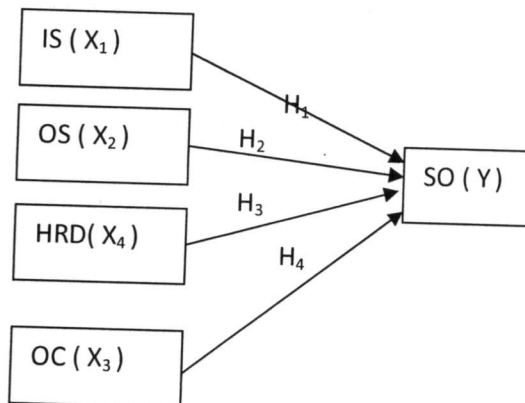
Table 2. Resume Score of Data Linearity Test

No	Tested Variables		R <sup>2</sup>	Significance	H1	Relation
	Indpnd.Variables	Depend. Variables				
1.	Information System	LO	0.763	0.000	Accepted	Linear
2.	Organisasi	LO	0.559	0.000	Accepted	Linear
3.	Budaya Organisasi	LO	0.597	0.000	Accepted	Linear
4.	HRD	LO	0.554	0.000	Accepted	Linear

Table 3. Resume Score of Data Normality Test (Kolmogorov-Smirnov Methods)

No	Tested Variables		Significance	H1	Effect
	Indpnd.Variables	Depend. Variables			
1.	Information System	LO	0.79	Accepted	Normal
2.	Organisational structure	LO	0.911	Accepted	Normal
3.	Organisational culture	LO	0.353	Accepted	Normal
4.	Human Resource Development	LO	0.698	Accepted	Normal

Figure 1 - Inter-Variables Effect Model



The effect of independent variables to dependent variables measured by multiple regression.

## Findings and Discussion

Findings of the study are 1) Information System (IS) has a positive effect on the learning organization (LO); b. Organizational structure (OS) has no positive effect on learning organization (LO); c. Human Resource Development (HRD) has no positive influence on learning organization (LO); d. Organizational Culture (OC) has positive effect on learning organization (LO);

Table 4. Resume of score of Inter-Variables Effect Model

Variable Effect	coefficient	The value of T	Significance (sig<0.05)
<b>IS → LO</b>	0.580	12.673	0.000 (sig)
<b>OS → LO</b>	<u>0.040</u>	1.266	0.207 (not sig)
<b>HRD → LO</b>	<u>0.065</u>	1.425	0.155 (not sig)
<b>OC → LO</b>	0.138	2.438	0.015 (sig)

Hypothesis test results showed that the most influential variables in UT LO is information system (IS). According to informants, they have access to share data and information to everyone that related to their job. They also feel free to share data and information to management using internet or mobile phone. Informants said that they have sufficient authority and less hierarchical position on the team. Meanwhile, the organizational structure (OS) and HRD variable indicated there are no positive and significant effect on LO because UT OS is bureaucratic model. UT needs more flexible OS, so that IS is useful to break hierarchy.

Statistical analysis showed that the Senge (2006), Garvin (2000), and Schermerhorn (2011) concepts of LO have occurred in UT. Hypothesis test results indicate that the variable of organizational structure and human resources development has no effect on UT's LO. However, concept from Limerick and Cunnington (1993); Nonaka Takeuchi (1995); Peters and Waterman (2004); and Fulmer and Keys (1998) which states that there is a direct affect between organizational structure and LO, were not been proven at UT. According to informants, they said they have to communicate to another team members and sometimes to management intensively, and IS provide all system, tools, and methods to acquire, manipulate, store, and distribute data and information. UT's organizational structure do not provide such mechanism.

The result of this study do not support the concepts of Marquardt and Reynolds (1994), Cumming and Worley (2005) and Mabey, (2004) which states that LO affected directly by the HRD variable. There are three reason why variable of HRD do not affected LO at UT; i.e. problem of coordination among team members, less allocation of time provided by team members, and the lack of vision of the team members. Though UT also provide compensation and other motivational factors.

While the opinion Schermerhorn (2011), Cummings and Worley (2005), and Jones and George, (2008) who stated that the information system variables have an influence to LO, were supported by data in this research. The influence of organizational culture on LO as proposed by Marquardt and Reynolds (1994), Robbins and Judge (2011); Cummings and Worley (2005), and Garvin (2000) is also supported by quantitative data in UT. Qualitatively, informants stated that management: having tolerance to fault; support by provide fund, infrastructure and technical assistance; and UT always promote knowledge and experience to employees,

Since 2003, UT has implemented a quality assurance system. The implementation of quality assurance system has established a culture of employees to always do error detection and error correction. The culture support the creation, processing, sharing, and use of knowledge. The findings of Lam Poon Chin, et al. (2008) and Konidari and Abernot (2006), indicated that total quality management is a good bridge to a learning organization. Quality assurance system (TQM) assists UT in arranging systems and procedures which then encourage creation of knowledge. From UT experience in transforming into LO, an organization needs to build effective information systems and strong organizational culture. In addition, the implementation of total quality management will assist the organization in building an effective organizational system and build learning culture. Factors to consider in building a LO are sufficient knowledge and experience of employees, compensation system, care management, fault tolerance, and providing sufficient authority to employees.

This research is focused on factors influencing learning organization namely information system, organizational structure, organizational culture, and human resource development. This research is not aiming at describing and analyzing the process of value and norm testing, knowledge sharing, knowledge storing, and knowledge implementing to create products and services. Follow up study on learning organization especially to explore why and how the learning organization works, can be done in the future.

## **Conclusion**

Descriptive analysis of this study showed that UT is an effective learning organization, has an effective information system and a strong organizational culture. From hypotheses tested, variables that direct influence the LO is an effective information system and a strong organizational culture. While the two variables tested did not have effect to the LO are structure of the organization and human resource development

variables. Additionally, the implementation of TQM helped set up a UT organization's culture so that it becomes easier in UT transformed into LO.



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