The Influence of Intellectual Capital on the Performance of Employees

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Abstract

In a modern competitive environment nowadays, there is a tendency that the driver of the values’ creation lies in the intellectual capital that is owned by a company, instead of physical and financial capital. The role of intellectual capital greatly affects the performance of the employee and in the long term will affect the performance of the organization. But even though intellectual capital can increase organization’s competitiveness, but unfortunately in many organizations human resources is rarely a major concern. Many of organization’s leaders were not aware that the organization’s benefit was actually derived from intellectual capital. This study tries to obtain information about the role of intellectual capital on employees’ performance at Universitas Terbuka, Indonesia. By using 3 independent latent variables (exogenous), e.g. human capital, structural capital, and customer Capital; and 1 latent variable or dependent (endogenous) of employee performance, the study reveals that human capital does not affect the performance of employees significantly, while customer capital and structural capital significantly influence employee performance.

Key Words: human capital, structural capital, customer capital, employee performance

JEL Classification: M59, O45, M2
1. Introduction

Along with the development of the business environment, science also experiencing growth. The development of management science, in particular, has led to a difference in offering solutions for business organizations to achieve success through the achievement of competitive advantage. One manifestation of the development of science is the emergence of the concept of intellectual capital.

Sometimes, intellectual capital is identified as the hidden value of organization. There are two reasons for this, first, intellectual or knowledge asset is invisible physically and also not visible in the financial statements (Edvinsson, 1997). Moreover, the role of intellectual capital significantly affect the performance of the employee and in the long term will affect the performance of the organization. Intellectual capital can be used by organizations to create the performance, and as an evaluation tool for creating employee who survives to the future needs by the organization. Although intellectual capital can increase the competitiveness of the organization, unfortunately in many organizations human resources is rarely a primary concern. Many of organization’s leaders were not aware that the organization’s benefit was actually derived from intellectual capital.

Furthermore, companies in developed and developing countries applying the concept of knowledge management and the management of intellectual capital which is new to them (Anatan, 2010). In the 1990s, the attention to the practice of management of intangible assets has increased dramatically (Harrison and Sullivan, 2000). One method used in the assessment and measurement of intangible assets are intellectual capital that has been the focus of attention that includes excellent management, information technology, sociology, and accounting (Petty and Guthrie, 2000; Sullivan and Sullivan, 2000).

Open University (UT) is a university that offers distance education system in Indonesia, where the learning activities does not take place in a classroom but using distance learning system by utilizing a variety of media to reach students easily. As an institution of higher education who pioneered long-distance higher education in the country on a large scale, naturally UT become a center of excellence in the implementation of development theory and practice of distance learning (Supaman & Zuhairi 2004).

2. Literature Review

Goh (2005) defines intellectual capital as an intangible asset that includes technology, customer information, brand name, reputation, an organizational culture which is invaluable for the company's competitive advantage. Intellectual capital is applied experience, organizational technology, customer relationships, and skills to create competitive advantages.

Harrison and Sullivan (2000) suggest that the vigorous efforts of the company to
maximize the value of the company's intellectual capital affect the company's success. The diversity of the companies makes them have a different intellectual capital value. For example company's innovation, customer loyalty, cost reduction and productivity improvement.

Boekstein (2006) states that the three elements consist of knowledge related to the employee (referred to human capital), knowledge relating to customers (called the customer or relational capital), and knowledge-related companies (called a structural or organizational capital) will form an intellectual capital. "Human capital" can be categorized as an attribute "personal" (including intelligence and skill or expertise). Researchers often examine the personal, emotional stability, openness, experience, and understanding. Carson (2004), mention a few studies on human resources related to individual factors in organizational behavior.

"Structural capital” refers to the processes and procedures that exist to improve the effectiveness of the organization. Structural intellectual capital is formed by input from employees but "owned" by the company. “Customer capital” also called relational capital; external capital and enterprise networks relate to one another. According to Mangkunagara (2001), "performance is the result of the quality and quantity of work accomplished by an employee in carrying out their duties by the responsibilities given to him". Intellectual capital is crucial for the company because it can determine the extent of progress and capabilities of the employees, it can also be used as a material consideration to develop in the future.

3. Methodology

Research data includes primary and secondary data. Primary data obtained from the object of analysis by using a list of questions (questionnaire). The survey includes Human Capital, Structural Capital and Customer Capital and employee performance. We collected the secondary data from a review of literature and literature support. Scale studies that used by using a Likert scale (1 to 5).

The population research was all employees of the Universitas Terbuka (Open University) in Jakarta, Indonesia. The sample size as the primary method for estimating statistics generates sampling error. The size of the sample for SEM by the PLS method is 30-100. The number of samples drawn in this study was 150 samples.

Methods of data collection in this study are a survey method using a questionnaire. This technique is used to collect primary data to examine the facts, perceptions, attitudes, and behavior of respondents to the intellectual capital in influencing the performance of employees in Universitas Terbuka (UT). The analysis of the research was using structural model Equation Model (SEM) with PLS. SEM is used because this study analyzed the direct relationship between these variables and indirect relationships between variables.
3.1 SEM method using two kinds of components:

3.1.1 Latent Variables

Latent variables are the variable key that became the concern of the research. Latent variables cannot observe directly. There are two kinds of latent variables, i.e. exogenous and endogenous variables. Exogenous variable is a variable that cannot be influenced by other variables (or so-called independent variables in the regression model) while the endogenous variable is a variable that can be influenced by other variables.

3.1.2 The Observed Variable or Indicators

Indicators are variable that can be observed or measured empirically. Mathematical notation for the unobserved variable which is a measure of the exogenous variables (ξ) is X, whereas the effect of an endogenous latent variable is Y. In this study, the indicators are as a reflection and formative of latent variables. The indicators used to describe reflection and formative relationship with the latent variables can be seen in Table 1 and Figure 1.

Table 1: Variables and Indicators of Human Capital, Structural Capital, Customer Capital and Performance

<table>
<thead>
<tr>
<th>Variable</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exogenous variable</td>
<td></td>
</tr>
<tr>
<td>Human Capital</td>
<td>X1.1 = Education</td>
</tr>
<tr>
<td></td>
<td>X1.2 = innovative spirit, pro-active and reactive</td>
</tr>
<tr>
<td></td>
<td>X1.3 = competence</td>
</tr>
<tr>
<td>Structural Capital</td>
<td>X2.1 = company’s culture</td>
</tr>
<tr>
<td></td>
<td>X2.2 = infrastructure</td>
</tr>
<tr>
<td></td>
<td>X2.3 = system information</td>
</tr>
<tr>
<td>Customer Capital</td>
<td>X3.1 = brand</td>
</tr>
<tr>
<td></td>
<td>X3.2 = consumer</td>
</tr>
<tr>
<td></td>
<td>X3.3 = consumer’s loyalty</td>
</tr>
<tr>
<td>Endogenous variable</td>
<td></td>
</tr>
<tr>
<td>Employee Performance</td>
<td>Y1 = quality</td>
</tr>
<tr>
<td></td>
<td>Y2 = quantity</td>
</tr>
<tr>
<td></td>
<td>Y3 = responsibility</td>
</tr>
<tr>
<td></td>
<td>Y4 = attitude</td>
</tr>
</tbody>
</table>

Figure 1: Implementation of Framework on Structural Equation Model

Human capital can be categorized as "attributes" (including the intelligence and skill or expertise)
4. Results and Discussion

The concept of intellectual capital (IC) has no exact definition. Some expert interprets it different because the concept of IC is very extensive and often divided into several categories. Intellectual capital was first published by Itami. Itami (1987) in Goh (2005) defines intellectual capital as intangible assets include technology, customer information, brand name, reputation, organizational culture that are invaluable to the company’s competitive advantage. Harrison et al. (2000) suggest that the corporation's efforts to maximize the value of intellectual capital routine affect the company’s success.

The dimension of intellectual capital consists of knowledge related to the employee (referred to as human capital), knowledge relating to customers (so-called relational capital), and knowledge-related companies (organizational capital). These dimensions of intellectual capital will form an intellectual capital, intelligence and expertise. Furthermore, researchers often use emotional stability, openness, experience and understanding as research material. Munchinsky (in Carson, 2004), mention a few studies on human capital associated with the personal factor in organizational behavior.

Structural capital contributes to the human capital using a process and knowledge transfer through training or coaching. But all can go smoothly if the human factor or employees willing to learn new things. Customer capital also referred as the relational capital. This customer capital is created by the consistency of understanding the needs of consumers and producers.

Performance is a result of the quality and quantity of work achieved by employees in carrying out their duties in accordance with the responsibilities assigned to them (Mangkunagara, 2001). Effective performance appraisal focuses on the work relating to the mission and goals of the organization that will be able to support the implementation of business strategies. This is achieved if employees understand about the dimensions in his position that are evaluated and assessed. Each company is required to have a performance management as a central part of their competitive advantage.

Previous research conducted in Indonesia by Alawy in 2010, which listed the concept of intellectual capital of the dimensions of competence, commitment, and job control. Moreover, employee performance was viewed from the dimension of the quality of work, quantity of work, responsibility, and attitude. The results of the quantitative analysis showed a level of the relationship between intellectual capital with the performance of employees is 0.667. While the research conducted by Martina et al. (2008), views human capital from two dimensions, namely individual capability and organizational climate.

Many factors affect the performance of individual workers such as ability, motivation, support received, the existence of the work they do, the rewards or incentives, their
relationship with the organization and many other factors. The performance of organization or company is more dependent on the performance of the individual. According to Mangkunagara (2001), "performance is the result of the quality and quantity of work achieved by an employee in carrying out their duties by the responsibilities assigned to him". Intellectual capital is crucial for the company because it can determine the extent of progress and capabilities of its employees and also can be used as consideration to develop the company in the future.

The validity of the test results on the whole question is greater than r table at the 95% confidence interval i.e. 0.355 (r table at n = 30 and \( \alpha = 0.05 \)). These results indicate that all questions are significant so it can be declared valid. Test of significance in this study conducted at the 0.05 significance level, meaning that the instrument can be said to be valid if the alpha value is greater than the critical r product moment or higher than 0.60. From the reliability test, the Cronbach's Alpha value of 0.963 was obtained. It means that the instrument used in this study is very reliable.

The method of analysis used in this study is to determine the influence of the role of Intellectual Capital on employee performance. In this study, the role of Intellectual Capital is divided into 3 independent latent variables (exogenous) which is human capital, structural capital, and customer Capital. While the latent variable or dependent (endogenous) is employee performance. Data processed by using Partial Least Squares (PLS). The following figure shows the characteristics of UT’s respondents in percentage.

**Figure 2: Percentage of Characteristics**

![Pie charts showing the percentage of characteristics](source: Result of calculation using SPSS 17)
The results of the analysis of the research model can be seen in the following figure.

**Figure 3: Model influence the role of Intellectual Capital on Employee Performance**

The results of the analysis of the research model can be seen in the following figure.

**Figure 3: Model influence the role of Intellectual Capital on Employee Performance**

Source: Result of SEM PLS

In this study the relationship between the latent variable and its indicator is reflective. According to Chin (1998) in Ghozaly (2008) if the coefficient or factor loading of each indicator in the model (Figure 2) is less than 0.7, the indicator should be dropped. But at the beginning of the study, the measurement values of loading factor of 0.5 - 0.6 is still considered sufficient. In this study, an indicator that has a loading factor that is lower than 0.5 will be dropped.

**Table 2: The Deleted Indicators**

<table>
<thead>
<tr>
<th>Latent Variable</th>
<th>The deleted indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Capital</td>
<td>X1.2, X1.5, X1.6, X1.9, X1.10, X1.11, X1.12, X1.14, X1.19, X1.20</td>
</tr>
<tr>
<td>Structural Capital</td>
<td>X2.1, X2.5, X2.17, X2.15, X2.16, X2.3, X2.5</td>
</tr>
<tr>
<td>Customer Capital</td>
<td>X3.1, X3.2, X3.3, X3.4, X3.5, X3.6</td>
</tr>
<tr>
<td>Employees’ performance</td>
<td>none</td>
</tr>
</tbody>
</table>

After reanalyzing, the dropped indicators will not reappear in the subsequent model image.

**Figure 4: The model after dropped**
Based on the hypothesis test, results are as follows:

1. There was no significant effect of the role of intellectual capital in the form of human capital on employee performance.
2. The application of intellectual capital in the shape of structural capital has a positive effect on employee performance.
3. The Application of intellectual capital in the form of customer capital has a positive impact on employee performance.

The first hypothesis is supported by previous empirical studies, that research on human capital and employee performance showed no correlation. Human capital is a combination of knowledge, skills, innovation and ability to carry out their duties, so as to create a value to achieve the goal. Measurement of human capital is not intended to determine the intrinsic value of human resources, but the impact of human behavior on organizational processes. Study by Endri (2012) showed that when human capital was researched in 366 companies in the UK, it does not have much effect on employee performance. Human resources more related to employee’s turnover.

The employee’s performance appraisal is not only measured with one method of, but also influenced by many factors. The questionnaire used is based on research by Bontis, but since there are cultural differences and perceptions then this may affect the respondents’ answers to the questions. However, in general, employees have to understand the importance of self-improvement or personal development to acquire intellectual capital.

Furthermore, structural capital includes company’s routine activities and structures that support employee efforts to produce optimal intellectual performance and overall business performance, for example: the company’s operating systems, manufacturing processes and culture of organization. In general, the UT system and procedures are very supportive of employees to excel in carrying out its activities. Various facilities and infrastructure that support the activities such as computer and access of information are open to all UT’s employees. The organization also supports the development of employee’s new ideas therefore the intellectual capital could support the improvement of performance.

Similarly with customer capital, it can also be said that employees at UT have assurance toward stakeholders, in this case UT’s student and the surrounding environment. This reflected in the positive feedback from UT’s student and a good reputation from consumer’s point of view.

Simultaneous performance of employees will move towards improving organizational performance. Employee performances seen in this study include the quality of work, quantity of work, responsibility and attitude of the employees at work. Intellectual capital within the employees is generally able to support the completion of work at UT. For example, the completion of student responses or complaints can be quickly resolved by administrative staff.
at the student service center. The quality of the exam and course materials written by UT’s Lecturer is varied and innovative. Online tutorials for students equipped with OER (Open Educational Resources).

Employee’s responsibility regarding the distribution of exam throughout Indonesia is tremendous. Employees will feel proud if given the responsibility which is greater than their current job. As part of a group / team work, employees will be willing to be more active at work and excel. The given tasks can be completed on time and according to procedure. Most employees understand what to do and have knowledge about each other’s work.

5. Conclusions and Recommendations

Employees of UT are quite understand with the meaning of intellectual capital and how employees should behave in accordance with the elements in it. Human capital, structural capital, and customer capital have a significant effect in the development of the employee. Structural capital needs to be designed to maximize the organization’s intellectual capital. Human capital does not only belong to the organization, but also to the individual employee. So if the individual was going to leave the organization, there is no intelligence or creativity. But with a variety of training programs, employees can improve personal ability to support their performance. This study has limitations because no coverage of extensive research, so it cannot be generalized to all educational institutions. In the future this research could be conducted in the regional offices of UT /UPBJJ-UT (Unit of Distance Education Learning Program) throughout Indonesia. The authors suggest that in the future the university is able to provide more motivation to employees, either lecturers or administrative staff to work better. Further research with larger samples is recommended to be done because of the university’s operations that covering all territory of Indonesia with diverse cultures.

References


