Integration of talent management and knowledge management for enhancing innovation performance

Tri Wikaningrum\textsuperscript{a*}, Lisa Kartikasari\textsuperscript{b}

\textsuperscript{a}Faculty Economy, Universitas Islam Sultan Agung, Semarang, Indonesia; wika@unissula.ac.id\textsuperscript{*}
\textsuperscript{b}Faculty Economy, Universitas Islam Sultan Agung, Semarang, Indonesia; lisakartika@unissula.ac.id

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A B S T R A K


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Human capital becomes a source of competitive advantage in emergency times like pandemics where firms must survive. The knowledge possessed by these talents is an important capital to produce innovation performance for supporting the organization in responding to changes agilely. Therefore, individual knowledge is not enough, but knowledge that is valuable and can be acquired
as organizational knowledge. The process of becoming organizational knowledge requires interaction between knowledge workers so that it is not only knowledge sharing but also the transfer and creation of new knowledge. The quality of knowledge itself is not only determined by how much knowledge an individual has, but also by the uniqueness and speed of access to it. Therefore, it is necessary to support communication and information technology to accelerate and facilitate the transfer of tacit and explicit knowledge as well as the transfer of knowledge levels. The purpose of this article is to examine the relationship between talent management, knowledge creation, social capital, ICT support, and innovation performance. The research was conducted at a private Islamic university in Semarang city. The sampling method used purposive sampling. The sample criteria include having a functional position of at least Lector and a minimum educational level of master’s with a total sample of 107 respondents. Data analysis used SEM with SmartPLS. The results showed that all hypotheses were proven, except the relationship between ICT support and knowledge creation.

INTRODUCTION

In the era of knowledge economy, organizations no longer rely on tangible assets. Intangible assets such as knowledge, especially those relevant to the demands of the external environment of the organization, are increasingly being recognized as a source of competitive advantage (Barney & Clark, 2007). Knowledge is the individual’s property, acquired, created, and attached to the individual owner. The more valuable knowledge employees possess, the greater the potential to support the achievement of organizational goals. However, this potential tends to be an individual who is more beneficial for self-development and supports individual performance (Bhatt, 2000). Its significant impact on the organization depends on the extent to which the knowledge is valuable, rare, not easily replaceable, and relevant to the organization's strategic needs.

The variety of knowledge that human resources possess can be both beneficial and detrimental to the firm. Collaboration through teamwork techniques will boost the team’s efficacy in tackling the problem's complexity. If there is no interaction between employees, the knowledge only exists at the individual level. In addition to having an impact on the scarce organizational knowledge, this also prevents organizations from producing the knowledge they need to address difficulties in their sector (Tu, 2020). The company needs to manage the practice of knowledge sharing, transfer, system entry, documentation, and application in an organized and long-lasting way. Moreover, companies that are categorized as knowledge organizations definitely rely on knowledge workers’ ownership.

Talking about knowledgeable employees who are talents or talented individuals is closely related to affective domains such as emotional intelligence and ownership of tacit knowledge. Especially related to the knowledge that is owned by
employees, it would be valuable for their organization if knowledge can be developed and acquired as organizational knowledge that relevant to present and future organizational needs. Therefore, Vaiman & Vance (2008) stated that it is important to combine talent management and knowledge management to maintain intellectual resources in the organization. Smart talent management is the label given to it. However, most studies about intellectual capital discuss talent management and knowledge management separately (Abu-Shanab & Subaih, 2019; Cabrilo & Dahms, 2018; Crane & Hartwell, 2019; Jordão & Novas, 2017; Stevens, 2010). In order to attain the innovative performance of the knowledgeable employee, the author blends both of them.

University is categorized as a knowledge organization and education service provider (Dee & Leisyte, 2017). University’s challenge is very dynamic, forcing management to agile in adapting and effectively responding. The three pillars of higher education fulfillment are now sharpened with the achievement of key performance indicators set by the Ministry of Education and Culture including, external environmental challenges such as economic, social, global competition, and technological factors (https://lldikti6.kemdikbud.go.id). Especially during this epidemic era, it is necessary to have novel methods and non-routines. Despite being in a difficult or uncommon position, the college must continue to function efficiently using a new strategy. Therefore, the exploration approach becomes more strategic than exploitation. Exploration of new knowledge supported by existing knowledge will lead to knowledge creation needed by higher education and answer the current challenges.

Knowledge management application with an exploration approach is more effective by using a personalization strategy. This increases the urgency of implementing practices and policies that are directed to increasing the utilization of the company's strategic resources. As a repository of knowledge, human resources are the strategic assets of universities. They are a source of organizational knowledge. Referring to the opinion of Fernhaber & Patel (2012); Müller-Seitz (2012) that the source of individual knowledge came from internal and external organizations. The interactions result from other organizational members internally and with external stakeholders become an important source of new knowledge for the knowledge creation process. This can be interpreted that the interaction between individuals is an important capital for knowledge creation. Not only "merely" the new knowledge creation from existing knowledge, but also new knowledge for individual recipients from the results of their interactions with other employees who are more knowledgeable (senders).

The originality and speed of access to knowledge are also factors that affect knowledge quality, in addition to how much knowledge a person possesses. When everyone has equal access to information and knowledge, the speed at which information and knowledge are acquired and subsequently applied becomes increasingly crucial. Information and communication technology (ICT) can help this
process to run more quickly and effectively.

Based on the previous description, several conclusions can be drawn. First, how knowledge at the individual level can be transferred to the group and organizational levels. Second, how social capital and ICT can facilitate or accelerate the process of creating organizational knowledge. Third, empirical testing is needed to link Talent Management with Knowledge Management. The answers to several research problems are expected to contribute to the development of knowledge management best practices that are integrated between knowledge management and management of potential employees (talents) based on social capital and technology in a knowledge organization.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The relationship between the knowledge perspective and the focus of the discussion of knowledge management appears in some research results. Among them are Alavi & Leidner (2001) who stated that knowledge management includes the process of creating, storing, transferring, and applying knowledge. Other researchers only classify them into two processes, namely knowledge creation and knowledge transfer (Kumar & Ganesh, 2009; Ofek & Sarvary, 2001). Moreover, Cabrera & Cabrera (2005) classified knowledge creation and transfer as knowledge flows. Among the knowledge management processes, knowledge creation is an essential strategic weapon (Lee & Choi, 2003). To raise organizational performance, a company must improve its ability to use knowledge to produce new knowledge. The main sources for companies to generate and strengthen sustainable competitive advantages are knowledge and the capacity to produce and apply it.

For the purpose of producing new knowledge, it is crucial that organizational members have mutual access, combine information and knowledge to produce new knowledge, and appreciate the process (Wikaningrum, 2021). Smith et al. (2005) stated that there are three resources that have an impact on the knowledge creation capability. The three resources are individual knowledge stocks, relational relationships that facilitate the flow of knowledge among employees, and organizational processes. Given that knowledge can come from links between pieces of information, this argument is understandable. Therefore, social capital that supports the exchange and sharing of information will effectively support knowledge creation. Likewise, information and communication technology (ICT) are a supporting resource in the knowledge transfer process.

Talent Management and Knowledge Creation

Several research results show a relation between talent management and the knowledge creation (Chadee & Raman, 2012; Daraei et al., 2014; Gateau & Simon, 2016; Whelan & Carcary, 2011). Likewise, Sparrow & Makram (2015) stated that
talent capital can achieve indirect benefits for organizations through knowledge creation. Due to management's emphasis on hiring the best and most qualified personnel and on their knowledge, production practices, the relationship between the two can be advantageous to the company. For example, organizations attract top talent to assist in meeting key challenges, including minimizing knowledge gaps among employees from different organizational units. In addition, research results by Scaringella & Malaeb (2014) have shown that the combination of talent attraction and knowledge creation can help organizations face major challenges related to individual knowledge levels. Therefore, the first hypothesis can be proposed as follows:

H1: Talent management has a positive effect on knowledge creation.

Knowledge Creation and Innovation Performance

Innovation is more than just creativity because innovation is related to the implementation of ideas. For example, an idea about a new product or service, a new production process, a new implementation method, a new organizational structure, or a new program. The innovation process is also highly dependent on the knowledge (Gloet & Terziiovski, 2004). The individual's ability to implement all of them is influenced by how much tacit and explicit knowledge has been owned and developed by the individual concerned. Therefore, knowledge management is often identified as an important antecedent for the innovation (Mardani et al., 2018). Likewise, Nonaka in his study of knowledge creation considers knowledge as the main condition for innovation and competitiveness (Nonaka, 1994). Borghini (2005); Darroch (2005) also provide empirical evidence to support the view that companies with knowledge creation capabilities will become more innovative. Therefore, the second hypothesis can be proposed as follows:

H2: Knowledge creation has a positive effect on innovation performance.

Social Capital and Knowledge Creation

The main of social capital is social interaction. Social interaction is conducive to the exchange of information and personal experiences. The research result by Bouty (2000) shows that increasing access to intellectual capital as a result of social capital in a group will affect the dynamics of knowledge creation. Social capital includes structural, cognitive, and relational dimensions (Nahapiet & Ghoshal, 1998). The relational dimension is tied to the nature of relationship, whereas the structural dimension is related to the connections between individuals. Cognitive capital is about capabilities and resources that facilitate communication and understanding among group members. These three dimensions have an important role in knowledge creation practices. Mutual trust and norms of reciprocity among interacting parties will make them feel obligated to share, transfer, and create organizational knowledge. Therefore,
the third hypothesis can be proposed as follows:

**H3:** Social capital has a positive effect on knowledge creation.

### ICT Support and Knowledge Creation

Knowledge creation is concerned with new ideas. As defined by Mitchell & Boyle (2010), knowledge creation is the development, implementation, and exploitation of new ideas. This requires interaction and collaboration among parties. Interaction both with internal and external parties of the organization (consumers, community, competitors, partners, government) will facilitate and become a source of organizational knowledge creation. As stated by Liu & Meyer (2020) that knowledge creation is a social process attached to interpersonal relationships both inside and outside the organization. In the interaction process, knowledge acquisition and conversion occur, both tacit and explicit knowledge. The conversion of tacit-tacit, tacit-explicit, explicit-tacit, and explicit-explicit knowledge will lead to the new knowledge creation. Several empirical evidences show that knowledge creation can be facilitated by ICT-based practices (Chib, 2010; Desouza & Awazu, 2006; Khan et al., 2015; Singh et al., 2018; Tripathi et al., 2021). Similarly, study by Srivastava & Shainesh (2015) stated that technological resources facilitate the recording and processing of information and communication between internal and external parties. Therefore, the fourth hypothesis can be proposed as follows:

**H4:** ICT support has a positive effect on knowledge creation.

![Research Model](image)

### RESEARCH METHOD

#### Population and Sample

The research populations were all permanent lecturers at private Islamic universities in Semarang city, namely Sultan Agung Islamic University, Wahid
Hasyim University, and Muhammadiyah University Semarang. The determination of the research subjects was based on data that until 2020 Islamic universities were not included in the world class university ranking list QS WUR’s version (https://www.timeshighereducation.com). Islamic universities with fluctuating ratings are only included in the webometric version of the WCU rankings (http://www.webometrics.info). The assessment parameters are *Tri Dharma* performance. One of them is innovation performance in the form of intellectual property rights. However, the three universities used in this research already have sufficient IT infrastructure to support learning during a pandemic. The context of this research is knowledge management during a pandemic, with ICT support as one of the research variables. Determination of the number of samples was according to Hair *et al.* (2019), using the Maximum Likelihood Estimation (MLE) technique. According to MLE, a good number of samples was between 100-200. The sampling method used purposive sampling, with the minimum functional position criteria of assistant professor and minimum education master’s degree. Based on the number of returned questionnaires and the completeness of the contents, the number of samples in this research was 107 respondents.

**Research Stages, Data Collection, and Analysis Methods**

The research stage began with compiling an empirical model, searching for primary data, processing data, and testing the model. Primary data was collected through a survey using a questionnaire. Data analysis used Structural Equation Modeling (SEM) with SmartPLS software. The achievement indicator was the empirical model that was tested with a fit, and there was a significant influence between the variables in the empirical model tested.

**Operational Variable Definition**

Talent management is the practice of managing potential or talented employees through training policies, HR planning, learning, and career development. It was measured using 15 indicators, which were developed based on AlKerdawy (2016); Chami-Malaeb & Garavan (2013).

Social capital is the individual capacity in building communication and relationship with internal and external stakeholders. This variable was measured by 6 questions that were developed by Steinfield *et al.* (2010) for a research setting at a university.

ICT support is company support in the form of technology to support communication, access to information, and collaborative work, measured by six items based on Lopez-Nicolas & Soto-Acosta (2010).

Knowledge creation is the process of encouraging employees to learn from mistakes, find solutions, and develop new knowledge based on existing knowledge. This variable was measured using an instrument designed based on research by Lee &
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Choi (2003), which consists of the dimensions of socialization, externalization, combination, and internalization. Each of the four dimensions used four indicators.

Innovation performance is the quality, quantity, and speed of an organization offering a product or service that has a competitive advantage in its industry. The innovation performance was measured using 12 items from Lahiri (2010); Lee & Choi (2003); Liao et al. (2010).

ANALYSIS AND DISCUSSION

Below are several tables showing the results of convergent validity, discriminant validity, and hypothesis testing results. Based on the results of hypothesis testing, the interpretation related to the context of this research is discussed.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Convergent Validity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Indicators</td>
</tr>
<tr>
<td>Talent Management</td>
<td>tm1</td>
</tr>
<tr>
<td></td>
<td>tm2</td>
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<tr>
<td></td>
<td>tm3</td>
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<td>tm4</td>
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<td>tm5</td>
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<tr>
<td></td>
<td>tm6</td>
</tr>
<tr>
<td></td>
<td>tm7</td>
</tr>
<tr>
<td>Social Capital</td>
<td>sc1</td>
</tr>
<tr>
<td></td>
<td>sc2</td>
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<td></td>
<td>sc3</td>
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<tr>
<td></td>
<td>sc4</td>
</tr>
<tr>
<td></td>
<td>sc5</td>
</tr>
<tr>
<td>ICT Support</td>
<td>ict1</td>
</tr>
<tr>
<td></td>
<td>ict2</td>
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<tr>
<td></td>
<td>ict3</td>
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<tr>
<td></td>
<td>ict4</td>
</tr>
<tr>
<td></td>
<td>ict5</td>
</tr>
<tr>
<td>Knowledge Creation</td>
<td>kc1</td>
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<tr>
<td></td>
<td>kc2</td>
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<tr>
<td></td>
<td>kc3</td>
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<tr>
<td></td>
<td>kc4</td>
</tr>
<tr>
<td></td>
<td>kc5</td>
</tr>
<tr>
<td>Innovation Performance</td>
<td>ip1</td>
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<td></td>
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<td></td>
<td>ip6</td>
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<td></td>
<td>ip7</td>
</tr>
</tbody>
</table>

Source: SmartPLS Output (2021)
The convergent validity test results show that all t statistics values are greater than 1.96 ($\alpha=5\%$). This means that all indicators on each variable are valid.

Table 2

<table>
<thead>
<tr>
<th>Discriminant Validity</th>
<th>Composite Reliability</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TM</td>
<td>0.923</td>
<td>0.636</td>
</tr>
<tr>
<td>SC</td>
<td>0.910</td>
<td>0.670</td>
</tr>
<tr>
<td>ICTS</td>
<td>0.933</td>
<td>0.735</td>
</tr>
<tr>
<td>KC</td>
<td>0.925</td>
<td>0.711</td>
</tr>
<tr>
<td>IP</td>
<td>0.960</td>
<td>0.776</td>
</tr>
</tbody>
</table>

Source: SmartPLS Output (2021)

Table 2 shows that all composite reliability values are more than 0.70. Similarly, the AVE value is greater than 0.50. This shows that the five constructs, namely talent management, social capital, ICT support, knowledge creation, and innovation performance are valid.

Table 3

<table>
<thead>
<tr>
<th>Result for Inner Weight</th>
<th>Original Sample</th>
<th>Standard Deviation</th>
<th>T Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>TM $\rightarrow$ KC</td>
<td>0.365</td>
<td>0.122</td>
<td>2.975</td>
</tr>
<tr>
<td>SC $\rightarrow$ KC</td>
<td>0.431</td>
<td>0.180</td>
<td>2.411</td>
</tr>
<tr>
<td>ICTS $\rightarrow$ KC</td>
<td>0.071</td>
<td>0.143</td>
<td>0.497</td>
</tr>
<tr>
<td>KC $\rightarrow$ IP</td>
<td>0.586</td>
<td>0.094</td>
<td>6.267</td>
</tr>
</tbody>
</table>

Source: SmartPLS Output (2021)

Figure 2

Structural Model
Hypothesis 1 stated that talent management has a positive effect on knowledge talent management creation. Based on Table 3, the estimated value for testing the effect of the two variables shows the original sample value of 0.365 with t statistics of 2.975 (> 1.96). Statistically, there is sufficient evidence to accept this hypothesis. This can be interpreted that talent management is proven to have a significant positive effect on knowledge creation.

The knowledge literature showed at least three categories of organizational resources that have an impact on knowledge creation capabilities. One of them is the supply of employee knowledge. This is where management plays an important role in identifying talented individuals with both tacit and explicit knowledge ownership that is unique, specific, and valuable to the organization. For individuals who are classified as high potential, management implements management programs to optimize the potential of existing knowledge and develop the ability to respond to the dynamics of future organizational changes. The results of this study are consistent with the statement from Brewer & Brewer (2010) that talent development as a firm-specific human capital will support superior learning activities. Superior learning is required in the knowledge creation process, which involves collaborative interactions between individuals to exchange tacit and explicit knowledge (Nonaka et al., 2001). Identification of training needs, online training platforms, and career development in the form of further studies and certifications encourage individuals to always look for alternative solutions or the best ways of working and collaborate to gain new knowledge.

Knowledge creation can be an idea exploration and new concept by combining existing knowledge. This is very relevant to the setting of this research where universities, during the pandemic, are required to think creatively and produce innovative performance in order to survive and carry out their mandate optimally. Given the strategic nature of education, which carries out the mandate to educate the nation's life. Thus, it should not stop or lower its service quality standards under any circumstances. Forms of talent management at the respondent's universities include financing for competency certification and further study scholarships, international short courses, as well as training programs on Islamic leadership and foreign languages in a structured and continued.

Hypothesis 2 stated that knowledge creation has a positive effect on innovation performance. Based on Table 3, the parameter estimation for testing the effect of these variables show the original sample value of 0.586 with t statistics of 6.267 (> 1.96). Therefore, there is sufficient statistical evidence to accept this hypothesis. It can be concluded that knowledge creation has a significant positive effect on organizational innovation performance.

Knowledge creation is similar to knowledge exploration, where individuals and teams produce new ideas and concepts, by combining existing knowledge
Knowledge creation is closely related to the product and service innovation (Subramaniam & Youndt, 2005). To create this innovation and innovative work, an employee’s individual knowledge creation ability has an important role. Knowledge creation capability is defined as the extent to which individuals have access to each other and other stakeholders, are able to combine information and knowledge into new knowledge and feel the value of the knowledge exchange process. Innovation products produced by respondent universities include patents, modification of laboratory equipment, online learning platforms, virtual home care for the community, Intellectual Property Rights (HaKI) in collaboration with SMEs (Small and Medium Enterprises), integrated academic information systems, learning media innovations, and international publications with current research issues. The lecturer’s ability to identify best practices in the implementation of routine and non-routine work and the ability to collaborate has proven to support the speed of universities in producing innovative works that are better than their competitors. These findings align with the results of research by Mardani et al. (2018), which proves that knowledge creation significantly impacts innovation speed, quantity, and quality.

Hypothesis 3 stated that social capital has a positive effect on knowledge creation. Based on Table 3, the parameter estimation for testing the influence of social capital on knowledge creation shows the original sample value of 0.431 with a t statistic value of 2.411 (> 1.96). Statistically, there is sufficient evidence to accept hypothesis 3. It can be concluded that social capital has a significant positive effect on knowledge creation.

The process of converting knowledge from tacit knowledge to explicit knowledge and vice versa, involves four phases, namely socialization, externalization, combination, and internalization (Bandera et al., 2017). Socialization is the conversion of tacit knowledge to new tacit knowledge. Externalization converts tacit knowledge to explicit knowledge. The combination is the phase of creating new explicit knowledge from existing explicit knowledge. Meanwhile, internalization is the process of converting explicit knowledge into tacit knowledge. The process of knowledge creation is not only a conversion of knowledge types, but also has implications for the movement of knowledge from the individual level to the organizational level. Therefore, social interaction among individuals in organizations plays an important role in supporting the knowledge creation process (Tu, 2020). Knowledge creation should focus on the exchange and sharing of information. The commonly adopted approaches by the respondent universities are brainstorming and workshops, and team-based work. Knowledge creation relies on internal communication of information and focuses on the flow of information disseminated through communities of practices within the university.

Hypothesis 4 stated that ICT support has a positive effect on knowledge creation. Based on Table 3, the estimated value for testing the effect of the two variables shows the original sample value of 0.071 with t statistics of 0.497 (<1.96).
Statistically, there is not enough evidence to accept this hypothesis. This means that ICT support is not proven to have a significant positive effect on knowledge creation.

Several empirical evidences showed that ICT-based practices can facilitate knowledge creation, especially in the Combination phase where there is a process of creating new explicit knowledge from existing explicit knowledge. At this stage, the knowledge that has been understood and applied by employees is organized into a more formal format, for example in the form of written rules, standard operating procedures, and updating information systems on the university internal website. Lecturers who are the subjects of this research are required to adapt quickly, be flexible, and remain the best performers with changes in job design during online learning and work from home in this pandemic era. Conditions that demand the speed of thinking, learning, and acting as well as the demands for quickly mastering new knowledge and skills will be more effectively supported by a personalization approach. Real forms that occur at the respondent universities include interprofessional collaboration, joint research, and CoP (Communities of Practice) in the form of WhatsApp Groups to make the flow of information and knowledge among teaching team members more effective. Although using technology, this approach emphasizes collaborative work between individuals and teamwork. As Dávideková & Hvorecký (2017) emphasized that technology is less effective at transferring contextual information and emotions. The tacit knowledge transfer stage is more effective through direct interaction than virtually using technology. This could explain why information and communication technology support did not have a significant impact on knowledge creation in this research setting.

**CONCLUSION, LIMITATIONS, AND SUGGESTIONS**

There are several conclusions from the results of this study. First, if the university wants to improve innovation performance, it is not the knowledge that matters, but the university's ability to apply knowledge effectively to create new knowledge. Therefore, knowledge and the ability to develop and utilize it is the main resource for universities to build and enhance a sustainable competitive advantage. Second, the source of information comes from the information connection. Therefore, knowledge creation should not only focus on the exchange and sharing of information, both internal and external information communication of the university. Knowledge management also requires potential human resources who have the ability to exchange and access information internally and externally. This is a challenge for universities to integrate knowledge management with talent, based on social interaction, competence, and technology support. Social interaction will facilitate the practice of sharing knowledge, and competence will improve the quality of knowledge conversion and knowledge creation. Meanwhile, technology is expected to increase the efficiency and effectiveness of the knowledge creation process so that it will support the creation of
innovation. Third, to support the quality of social interaction, which was proven to be significant in this research, higher education should maintain a low power distance for lecturer to feel more comfortable in their social interactions. Therefore, knowledge is more easily spread to all members of the organization. The lecturers will also have more freedom to perform creative tasks. On the other hand, higher education with high power distance has strong control mechanisms in regulating activities between individuals. Therefore, it will obstruct creative activities such as knowledge creation.

This research has been appropriate in using the knowledge organization research setting. However, the ICT applied to the three research subjects is still dominant in using e-learning. The information systems to support lecturer knowledge management (technology-based knowledge management) have not been implemented optimally. Future research needs to pay attention to this limitation, by ensuring that the research setting is an organization that has implemented knowledge management based on both personalization and technology.

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