Development of Web-Enabled Online Learning Effectiveness Model Based on Online Video Tutorial

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Abstract. *Information technology has a major impact on knowledge-sharing activities. The combination of knowledge-sharing tools such as Web 2.0 and multimedia embodied in the use of tutorial videos on web-enabled online learning is the solution. The solution is expected to improve individual performance in solving troubleshooting problems. The model was developed which explained the relationship between knowledge sharing and individual performance in troubleshooting problems and identified the factors that influence it. The research data is obtained by distributing questionnaires online to Telkomsel service users who have experienced problems troubleshooting products or services. The conceptual model was tested based on 205 samples obtained online. From the test results, it can be seen that web-enabled online learning is effective because tacit knowledge sharing that occurs directly increases individual performance while the effect of explicit knowledge sharing is mediated by tacit knowledge sharing. The factors that drive knowledge-sharing activities can influence individual performance, namely trust, IT usage, and usability.*

Keywords: *tacit knowledge sharing; explicit knowledge sharing; troubleshooting performance; online video tutorial.*

I. INTRODUCTION

The right tools are needed to knowledge sharing can drive individual performance. Therefore, the selection of knowledge-sharing tools becomes an important issue in the company and concern in research knowledge management. The search for conditions, incentives, and mechanisms of appropriate knowledge sharing has become a major issue for knowledge management research in companies (Allen, 2008). The company's knowledge sharing activities can be done traditionally and modernly. Traditionally, tacit knowledge sharing tools is by mentoring, rotating jobs, training employees, and face-to-face meetings (Alavi & Leidner, 1999). Traditionally, knowledge management activities

have been performed through various means, such as face-to-face interaction, mentoring, or other staff development (Haghirian, 2010). (Van Der Meij & Van Der Meij, 2014)

Traditional knowledge sharing is no longer cost-effective and unable to keep up with increasingly global and virtual business developments (Alavi & Leidner, 1999; Hara & Hew, 2007). Riege (2005) argues that knowledge sharing between individuals has a barrier at the individual level. Knowledge sharing barriers can be categorized into three levels: individual, organizational, and technology. As individual knowledge sharing barriers are generated mainly by lack of time resources for existing employees, language problems, lack of trust, lack of social networks. During organizational knowledge-sharing barriers, lack of proper space in which to share knowledge and lack of an exiguity of network connections can become an issue. Furthermore, as technology knowledge sharing barriers are generated mainly by lack of the necessary competence or willingness to employ technology (Patalas-Maliszewska, 2014). Barrier knowledge sharing can be reduced by the advantages of information technology that cannot be overcome by other knowledge-sharing tools. Information and communication technology reduces barriers by facilitating access to power-based information that is relevant at the

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individual level, as a process of developing knowledge sharing, and helping to allocate relevant elements in knowledge sharing (Hendriks, 1999). Contemporary ICT-enabled platforms are great motivators for knowledge-sharing when compared to the traditional methods; ICT can enhance knowledge-sharing by lowering temporal and spatial barriers between knowledge workers and improving access to information about knowledge (Ngozi I. Anasi, J. Akpan, & Adedokun, 2014).

Information technology such as Web 2.0 combined with multimedia is one of the solutions to selecting tools in the information and technology era. Researchers have suggested various information technology tools to facilitate tacit knowledge sharing from communication tools to collaborative systems, such as multimedia sharing tools, video conferencing, online communities, and Web 2.0 such as blogs, wikis, and social networking sites (Panahi, Watson, & Partridge, 2013). Multimedia sharing tools are the answer to more precise answers in the issue of tacit knowledge sharing through information technology. Multimedia sharing tools compared to other tools are useful in the internalization process by demonstrating technically the know-how and conveying real experiences that might not be explained through verbal or other formal document methods (Chatti, Klamma, Jarke, & Naeve, 2007). Multimedia sharing tools such as social network sites (SNS) use evolved into knowledge sharing and learning at both individual and organizational levels (Eid & Al-Jabri, 2016). One of SNS namely YouTube can facilitate tacit knowledge sharing better than other knowledge-sharing tools. YouTube allows users to participate and contribute by uploading videos while discussing their content by utilizing the interactive features on the website; YouTube videos can be uploaded at any time by anyone; the quality and content of YouTube videos are very varied (Abhari & Soraya, 2010).

Previous research has been able to explain well the factors that influence traditional knowledge sharing activities as a step that must be considered by companies (Kim & Lee, 2006). The development of information technology such

as Web 2.0 has provided a change in the factors that influence knowledge sharing activities with information technology users as part of its knowledge management system (Tan & Md. Noor, 2013). Changes in these factors need to be considered by companies to be able to carry out effective knowledge-sharing activities online through a combination of Web 2.0 and multimedia tools. The effectiveness of traditional knowledge sharing has been successfully modeled by taking into account the important factors that influence it (Dhanaraj, Lyles, Steensma, & Tihanyi, 2004; Zaqout & Abbas, 2012). However, there is no consensus on the effectiveness of knowledge sharing that can explain knowledge sharing activities online through a combination of Web 2.0 tools and multimedia so that further studies are needed. (Lopez-Nicolas & Soto-Acosta, 2010; Panahi et al., 2013).

The telecommunications industry is one industry that is sensitive to the development of information technology. Telkomsel is one of the cellular operator companies in Indonesia realizes the importance of the role of information technology through Web 2.0 in knowledge sharing activities. Telkomsel uses it by uploading video tutorials on product, service, and technology guidance to one of Web 2.0, YouTube. The tutorial video is a screencast or demonstration that is recorded where on-screen recording is combined with narration (Van Der Meij & Van Der Meij, 2014). The tutorial video uploaded by Telkomsel includes the most popular videos in the Telkomsel YouTube account playlist. The video titled "Layanan Informasi Konsumen" which contains troubleshooting tips on internet data services has a view of 181,965. However, the high number of views in the video tutorial has not been able to describe the effectiveness of Telkomsel's knowledge-sharing activities for its customers. Therefore, we need a mechanism that can know the effectiveness of knowledge sharing activities carried out by Telkomsel by measuring customer performance improvements.

Motivated by the need to understand the effectiveness of knowledge sharing on online media. This study builds a model of knowledge

sharing effectiveness based on a model developed by (Zaqout & Abbas, 2012). This model was then developed by considering various factors that influence knowledge-sharing activities through online media. An understanding of knowledge-sharing activities using online video tutorials is expected to produce a mechanism for measuring the effectiveness of knowledge-sharing in online media. Therefore, the purpose of this study is to obtain a model that explains the relationship between tacit knowledge sharing and explicit knowledge sharing in web-enabled online learning and their impact on troubleshooting performance. Moreover, identify the factors that influence tacit knowledge sharing and explicit knowledge sharing in web-enabled online learning.

This research contributes to the understanding of knowledge sharing, specifically regarding knowledge sharing based on video tutorials on web-enabled online learning. The results of this study prove that tacit knowledge sharing significantly affects troubleshooting performance. The effect of explicit knowledge sharing on troubleshooting performance is known to be fully mediated by tacit knowledge sharing. Also, this study shows that trust, information technology usage, and usability factors are important factors of knowledge sharing in web-enabled online learning. Overall, the model can describe the effectiveness of knowledge sharing through web-enabled online learning based on video tutorials.

Model Development

The previous research model (Dhanaraj et al., 2004; Zaqout & Abbas, 2012) has explained the interaction of tacit relationships and explicit knowledge sharing and its factors have a positive impact on individual performance. An important factor that influences knowledge sharing in both models is trust. In the model of Dhanaraj et al. (2004) there is a shared system that is closely related to coordination procedures and managerial control of a company. This variable is not a concern in this study because the unit of analysis of this study is consumers. The factors that influence tacit and explicit knowledge

sharing have been well explained, namely IT usage by Kim & Lee (2006). There are differences in factors considered to influence knowledge sharing with Kim & Lee (2006). The variable centralization and performance-based are variables that explain the hierarchy of the organizational structure of a company. This variable is not a concern in this study because the unit of analysis of this study is not part of the structure of an organization.

Based on the development of information technology such as Web 2.0, this study considers what factors influence knowledge sharing activities, namely usability (Tan & Md. Noor, 2013) and social media experience (Lee & Ma, 2012). Changes in these factors need to be considered by companies to be able to carry out effective knowledge-sharing activities online through a combination of Web 2.0 and multimedia tools. Based on the model of Tan & Md. Noor (2013) some variables are not included in the study. The group of KM enabler's organizational variables, namely organizational rewards and cultural organization is not the topic of this research analysis unit is not part of the Telkomsel organization. In the KM communication enabler's variable group face to face interactive communication was also not part of this study because the context of this study was fully carried out in the online environment.

Trust

The definition of trust variables according to Panteli & Sockalingam (2005) is defined as a positive state, self-confidence even though subjective expectations about a person's behavior or something in condition require risk to those who believe it. Fang & Chiu (2010) add that trust is a set of certain beliefs that are mainly related to the generosity of competence, and integrity of others. Based on these definitions, trust refers to the degree to which someone believes subjectively in the integrity and competence of online learning (Fang & Chiu, 2010; Panteli & Sockalingam, 2005).

Trust appears as an important factor in forming relationships between individuals that encourage knowledge sharing (Jer Yuen & Majid,

2007). Interpersonal trust is identified as a necessary prerequisite for knowledge sharing (Wickramasinghe & Widyaratne, 2012). Chiu, Hsu, & Wang (2006) also stated that the quality of knowledge sharing will increase with the existence of a mutual trust. It was concluded that in the absence of trust, formal knowledge-sharing practices are insufficient to encourage individuals to share knowledge with others. In this regard, it was found that trust is more important than technical support in facilitating knowledge sharing (Wickramasinghe & Widyaratne, 2012). This is in line with the research conducted by Dhanaraj et al. (2004), Tan & Md. Noor (2013), Zaqout & Abbas (2012) empirically test the direct effect of trust on knowledge sharing. Concerning Web 2.0, Lin, Hung, & Chen (2009) also found a positive relationship between mutual trust and the behavior of professional knowledge sharing in the virtual community.

Trust has a very important role in willingness to do knowledge sharing. The willingness to share knowledge is higher when individuals trust and identify with one another (Wickramasinghe & Widyaratne, 2012). If trusts are formed in groups, there is willingness of individuals to share resources (such as intellectual, emotional, and physical assets). The most important component explaining the degree of sharing of knowledge in groups is mutual trust. Trust involves mutual care and concern between workers as well as co-worker reliability and competence. When team members trust each other's' capabilities and competencies they share information more freely, they coordinate knowledge among team members more effectively, and the information shared is higher in quality (Wickramasinghe & Widyaratne, 2012). This raises an indication that there is a positive relationship between trusts with professional desires in sharing and using tacit knowledge (Holste & Fields, 2010). Based on the explanation above, the hypothesis in this study is:

H1. Trust has a positive impact on tacit knowledge sharing.

H2. Trust has a positive impact on explicit knowledge sharing.

Social Media Experience

According to Lee & Ma (2012) social media experience is the extent to which users are used to sharing knowledge on various social media platforms. In this study, social media experience refers to the extent to which users are accustomed to using social media (Lee & Ma, 2012). Previous research has tried to model these relationships and show that the habit of using social media significantly and positively influences knowledge sharing (Lee & Ma, 2012). The basic concept of the experience of using social media is proposed by (LaRose & Eastin, 2004) who try to understand the presence of new media by considering the satisfaction of using the internet.

Users can take advantage of media including online media only because it is based on past experience (Hanson & Haridakis, 2008). As with previous studies which stated that experience can improve individual knowledge in carrying out knowledge sharing activities (Hsu, Ju, Yen, & Chang, 2007). This shows that by being accustomed to using a website, users have more capability in carrying out activities to obtain or share knowledge (Chen, Lin, Yen, & Linn, 2011). In addition, previous experience helped build a relationship of trust between individuals and the habit of using online media, thus encouraging sharing activities (Hsu et al., 2007). Based on the explanation above, the hypothesis in this study is:

H3. Social media experience has a positive impact on tacit knowledge sharing.

H4. Social media experience has a positive impact on explicit knowledge sharing.

IT usage

The concept of IT usage according to Sun & Teng (2012) is the extent to which a user uses information technology to carry out tasks and activities. Based on these definitions, IT usage in this study refers to the extent to which a customer utilizes information technology to carry out tasks and activities (Sun & Teng, 2012). Facilitated by IT, the right knowledge can equally be communicated via formal systems like knowledge repositories or informal interactive systems like instant messengers, blogs, wikis, etc. (Ou, Davison, & Wong, 2016). The use of

information technology allows users to be able to find information quickly, access and obtain information (Huysman & Wulf, 2006). In addition, using information technology allows users to communicate informally (Alavi & Leidner, 2001). As new media and communication technology have the ability to change the flow of information, the social interaction between and among individuals, social actors, organizations and governments has been influenced, with consequent changes to the way in which power is constructed, maintained and challenged (Ou et al., 2016). Information obtained and communication that occurs allows users to share and integrate ideas into knowledge (Paghaleh, Shafiezadeh, & Mohsen, 2011). The amount of literature on IT usage that has been published states that IT usage will have an impact on knowledge sharing activities, as stated by Kim & Lee (2006), Tan & Md. Noor (2013), Zaqout & Abbas (2012). Based on the explanation above, the hypothesis in this study is:

H5. IT Usage has a positive impact on tacit knowledge sharing.
H6. IT Usage has a positive impact on explicit knowledge sharing.

Usability

Tan & Md. Noor (2013) revealed that usability is the quality of the knowledge provided by KM systems relating to knowledge accuracy, relevance, exchange, reliability, and accessibility that are highly valued by individuals. Alexander (2013) added that usability is an interconnection of the components of ease of learning, ease of use, ease of remembering, absence of catastrophic errors, and subjective satisfaction. In this study usability is the user's perception of the extent to which the quality of knowledge provided by online learning is measured by its ease of learning, use, recall, and low error (Alexander (2013) and Tan & Md. Noor, 2013).

Online video tutorials are a manifestation of knowledge management (KM) that relies on information technology as an important supporting factor. KM system is an IT-based system to support and improve the process of obtaining, storing or searching, and applying

knowledge (Kulkarni, Ravindran, & Freeze, 2006). Therefore according to Alexander (2013) tutorial videos must be usable so that they are useful. Usable video tutorials will have high usability. High usability also enables individuals to be able to use knowledge and conduct knowledge sharing activities better (H. F. Lin, 2011).

There have been many studies that state the existence of a relationship affecting between usability and knowledge sharing activities (DeLone & McLean, 2003; H. F. Lin, 2011; Nelson, Todd, & Wixom, 2005). For research related to usability in the learning process, several studies that are in line with the research are conducted by Hall (2001); Alavi & Tiwana (2002); Tan & Md. Noor (2013). Tan & Md. Noor (2013) stated that to improve knowledge sharing in educational institutions, KM systems must provide appropriate functions with good quality. Based on the explanation above, the hypothesis in this study is:

H7. Usability has a positive impact on tacit knowledge sharing.
H8. Usability has a positive impact on explicit knowledge sharing.

Explicit Knowledge Sharing

Explicit knowledge or codified knowledge is defined as knowledge transmitted formally or with systematic language (Nonaka, 1994 in Polanyi, 1958). Nonaka & Takeuchi (1995) as quoted by Zaqout & Abbas (2012) add that explicit knowledge is knowledge that is available in various forms, such as files, databases, and library collections. Explicit knowledge can be effortlessly captured, codified and written in the form of technical or academic data and presented in such forms as journals, manuals, documents and patents (Chumg, Cooke, Fry, & Hung, 2014). Based on these definitions, the definition of explicit knowledge sharing in this study is the extent to which the narrative in online video tutorials is able to share knowledge about troubleshooting technical procedures in a formal and systematic form.

Previous research by conducting empirical tests shows that there is a significant positive relationship between tacit and explicit knowledge

sharing (Dhanaraj et al., 2004; Zaqout & Abbas, 2012). In this study explicit knowledge obtained from tutorial videos on online learning is expected to bring expertise and understanding of troubleshooting. This is possible because according to Nonaka & Takeuchi (1995) as quoted by Zaqout & Abbas (2012) tacit knowledge is knowledge that is built from explicit knowledge.

Based on previous research empirical tests, it can also be seen that explicit knowledge sharing has a positive influence on individual performance (Dhanaraj et al., 2004; Zaqout & Abbas, 2012). The tangible nature of making explicit knowledge makes it easier to share, especially since the digital era (Lahti & Beyerlein, 2000). Ipe (2003) added that explicit knowledge has advantages because it is easily shared among individuals. The activity of explicit knowledge sharing that is easy to do will increase the size of the troubleshooting performance of internet data service users. The concept of performance itself according to Igbaria & Tan (1997) is the performance perceived by individuals on the quality or decision making. This is because an increase in understanding and development of capabilities encourages the creation of knowledge and ideas that serve as the basis of decision making when facing problems (Dhanaraj et al., 2004; Reychav & Weisberg, 2009; Zaqout & Abbas, 2012). Based on the explanation above, the hypothesis in this study is:

H9. Explicit knowledge sharing has a positive impact on tacit knowledge sharing.

H10. Explicit knowledge sharing has a positive impact on performance.

Tacit Knowledge Sharing

Tacit knowledge sharing according to Wagner & Sternberg (1986) as quoted by (Leonard & Insch, 2005) is a practical "know-how" which is generally not expressed or stated openly and which must be obtained in the absence of instruction. C. P. Lin (2007) also added that tacit knowledge sharing is part of sharing activities within an organization. Tacit knowledge, such as ideals, skills, values and mental models, is usually difficult for employees to express and share with others (Chumg et al., 2014). Based on these definitions tacit knowledge sharing refers to the extent to which demonstrations in online video tutorials are able to share troubleshooting knowledge in the form of ideas, suggestions, and expertise (Leonard & Insch, 2005; C. P. Lin, 2007). Previous research has also empirically examined the relationship of tacit knowledge sharing to individual performance (Dhanaraj et al., 2004; Zaqout & Abbas, 2012). The results showed that tacit knowledge sharing significantly had a positive effect on individual performance.

Tacit knowledge is knowledge that has two dimensions, namely cognitive and technical. Cognitive dimensions include beliefs, ideas, paradigms, values, intuition, and mental models. This technical dimension is more about "know-how", the work and informal capabilities. (Leonard & Insch, 2005). The nature of tacit knowledge as very personal knowledge and being in the human brain makes it difficult to be shared with both language and IT (Hislop, 2002). But according to Alavi & Leidner, (2001), IT can help the process of forming and sharing of tacit knowledge by providing an area where someone is free to express ideas, perspectives and personal arguments. As with explicit knowledge sharing, tacit knowledge sharing activities that are increasingly possible to do are also expected to improve individual performance. Increased performance other than due to increased understanding and capacity building also encourages the creation of knowledge and ideas for decision making (Dhanaraj et al., 2004; Reychav & Weisberg, 2009; Zaqout & Abbas, 2012), according to Anh, Baughn, Hang, & Neupert (2006) tacit knowledge sharing also determines performance in understanding knowledge as a whole. Based on the explanation above, the hypothesis in this study is:

H11. Tacit knowledge sharing has a positive impact on performance.

II. RESEARCH METHOD

Research Site

Empirical test of the conceptual model of this research was carried out using the survey

method. The survey method is done by distributing questionnaires to research respondents. Respondents of this study were Telkomsel data service users who had or were willing to watch a video tutorial entitled "Layanan Informasi Pelanggan". This criterion is determined so that respondents are able to understand well about Telkomsel's troubleshooting activities so that the respondents 'interpretation of each question in the questionnaire can be the same as the researchers' intentions. Telkomsel customers who are respondents are active users of internet data services.

Survey Instrument

The research questionnaire was compiled based on adaptations from previous studies. Adaptation to the research questionnaire was conducted so that it was in accordance with the research context, namely knowledge sharing on web-enabled online learning based on video tutorials. The research questionnaire was tested in a preliminary survey to obtain improvements in the research instruments. The scale used in this research questionnaire uses a rating scale (ranging from 1 = "strongly disagree" and 100 = "strongly agree"). The value is given by dragging the pointer assigning the online questionnaire.

Tabel 1. Operationalization of variables

Variable	Indikator	Code	Reference
Trust (A)	I fully believe in the information provided through online learning.	A1	Panteli and Sockalingam (2005); Fang and Chiu (2010)
	I believe that if you experience problems, online learning will help me.	A2	
	If I face problems, I believe online learning will provide solutions to my problems.	A3	
	I believe that online learning will always increase my knowledge.	A4	
Social Media Experience (B)	I intensively used the online learning application to increase my knowledge.	B1	Lee and Ma (2012)
	I interact and communicate with other people who experience problems with internet data services online.	B2	
	Online learning provides online discussion facilities so that I can exchange experiences.	B3	
	I actively participated in discussion activities regarding the problem of internet data services online.	B4	
IT Usage (C)	I use information technology on every routine and recurring activity.	C1	Sun and Teng (2012)
	I use information technology when communicating with others.	C2	
	I use information technology when searching for information.	C3	
Usability (E)	I know the theme of knowledge delivered through online learning.	D1	Alexander (2013); Tan and Noor (2013)
	I need a short time to understand the knowledge delivered through online learning.	D2	
	I got the appropriate instructions in a short time.	D3	
Tacit Knowledge Sharing (F)	By using online video tutorials, demonstrations that are displayed can provide knowledge about troubleshooting.	E1	Insch and Leonard (2005); Lin (2006)
	By using online video tutorials, demonstrations that are displayed can provide troubleshooting expertise.	E2	
	By using online video tutorials, the demonstrations that are displayed can provide ideas and suggestions regarding troubleshooting.	E3	
Explicit Knowledge Sharing (G)	Through the use of online video tutorials I can obtain procedural guidelines or technical guides on troubleshooting procedures.	F1	Nonaka (1994); Zaqout and Abbas (2012)
	Through the use of online video tutorials I can get a written summary of the troubleshooting procedure.	F2	
	Through the use of online video tutorials I can read a written summary of troubleshooting technical procedures.	F3	
Performance (F)	By utilizing online learning facilities, I solve the problem of internet data services quickly.	G1	Igbaria and Tan, (1997); Wasko and Teigland (2009)
	By utilizing online learning facilities, I solve the problem of internet data services effectively.	G2	
	By utilizing online learning facilities, I solved the entire internet data service problem.	G3	

The research model consisted of eight variables with five independent variables and three dependent variables. Previous research was used as the basis for developing operational measurement tools in this study. Trust statement items are adapted from Panteli & Sockalingam (2005) and Fang & Chiu (2010). Items of social media experience statements were adapted from items from Lee & Ma (2012). Items that measure IT usage are adapted from Sun & Teng, (2012). Usability statement items were adapted from Alexander (2013) and Tan & Md. Noor (2013). The item tacit knowledge sharing statement was adapted from research items Leonard & Insch (2005) and C. P. Lin, (2007). Items that measure explicit knowledge sharing are adapted from the research of Nonaka (1994) and Zaqout & Abbas (2012). Performance items adapted from Igbaria & Tan (1997) and Teigland & Wasko (2009). Operationalization of variables can be seen in Table 1.

Data Collection

Data collection activities carried out for approximately 2 months. The questionnaire was distributed through social media such as Twitter and Facebook, forums on the mobile chat application, and to facilitate the filling out of the questionnaire, the link was also sent via email. The data obtained were 270 pieces, after checking the completeness requirements based on the screening question the total amount of data that could be processed was 205.

III. RESULT AND DISCUSSION

SEM approach, a technique suitable for confirmatory factor analysis. SEM analysis aims to explain the interdependent relationship of several manifest and latent variables simultaneously. This study uses LISREL 8.7 to validate the conceptual model. Data analysis was carried out based on guidelines from Hair, J., Black, W. C., Babin, B. J., & Anderson (2010).

Measurement Model

The first test is done to find out whether the data is fit with the model. The test was carried out using SPSS 20 and LISREL 8.7. The results of

Tabel 2. Items Loadings, Cronbach, Composite Reliability, and Average Variance Extracted (AVE)

Construct	Indicator	Items Loading	Cronbach α	CR CR ≥ 0,7	AVE AVE ≥ 0,5
Trust (A)	A1	0,68	0,86	0,85	0,59
	A2	0,79			
	A3	0,83			
	A4	0,77			
Social Media Experience (B)	B1	0,75	0,83	0,84	0,56
	B2	0,75			
	B3	0,74			
	B4	0,75			
IT Usage (C)	C1	0,76	0,87	0,87	0,69
	C2	0,90			
	C3	0,83			
Usability (E)	D1	0,77	0,85	0,87	0,70
	D2	0,83			
	D3	0,90			
Tacit Knowledge Sharing (F)	E1	0,75	0,82	0,81	0,58
	E2	0,72			
	E3	0,82			
Explicit Knowledge Sharing (G)	F1	0,81	0,88	0,89	0,72
	F2	0,85			
	F3	0,89			
Performance (H)	G1	0,94	0,95	0,94	0,84
	G2	0,94			
	G3	0,86			

confirmatory factor analysis (CFA) in the measurement model indicate that the model is quite fit with the data. The measurement model shows GFI = 0.83, AGFI = 0.77, RMSEA = 0.080.

Reliability testing is done by looking at CR and Cronbach's, the measuring instrument is said to be reliable if the CR and Cronbach's values are more than 0.7. Table 1 shows that the CR and Cronbach's α values in each construct are above the required value. After that, convergent validity testing of the model was carried out. Convergent validity is obtained if all the coefficients of the loading factor exceed the required limit of 0.5 and the AVE value is also above 0.5. The overall loading factor varies from 0.68 to 0.94 and the AVE also meets the criteria. Testing discriminant validity models is done by observing the correlation coefficient matrix. Discriminant validity is also obtained because the value of the root AVE is greater than the correlation coefficient. The item loading factor from the measurement model can be seen in Table 2.

Structural Model

After obtaining a robust measurement model, it is followed by testing the structural model of the study. Figure 1 shows the results of the conceptual model test. The model shows that trust, IT usage, and usability together explain 85% of the variance of tacit knowledge sharing and explicit 72% knowledge sharing variance

explained by trust and usability. Tacit and explicit knowledge sharing explain 73% of the variance of performance. The hypothesis is accepted if the t-value is greater than the t-table at the 0.05 significance level of 1.64. Trust has a positive influence on tacit (β = 0.15, t ≥ 1.64) and explicit knowledge sharing (β = 0.49, t ≥ 1.64). Usability also has a positive influence on tacit (β = 0.13, t ≥ 1.64) and explicit knowledge sharing (β = 0.45, t ≥ 1.64). While IT usage only has a positive influence on tacit knowledge sharing (β = 0.21, t ≥ 1.64). It also shows that the hypotheses H3, H4, H6, and H10 are not accepted. For further information, see Figure 1.

Discussion of Results

In this study it was found that trust has a significant positive influence on tacit and explicit knowledge sharing in online learning activities using tutorial videos on troubleshooting issues. Similar to trust, usability has a positive influence on both tacit and explicit knowledge sharing regarding the problem of troubleshooting a product and service. After further analysis of the effects of trust and usability on tacit knowledge sharing, it can be seen that the indirect influence of trust and usability on tacit knowledge sharing through explicit knowledge sharing is greater than the direct effect. This can be interpreted that trust and usability can further increase the activity of tacit knowledge sharing if the user first
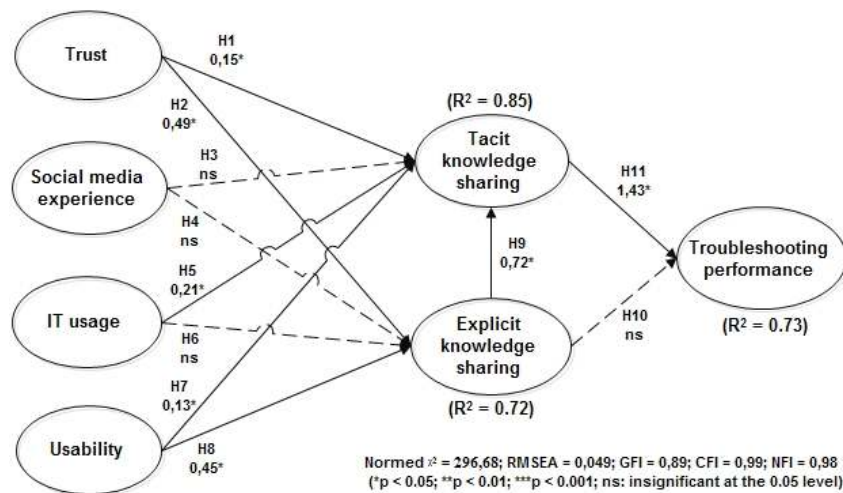

Figure 1. Conceptual model test result

performs activities to obtain and share explicit knowledge. Users who have obtained and shared explicit knowledge such as watching video tutorials will increase tacit knowledge sharing because they have more suitable beliefs and knowledge to get troubleshooting solutions.

In the context of online learning regarding finding solutions to troubleshooting problems, IT usage has a positive influence on tacit knowledge sharing but does not have an influence on explicit knowledge sharing. Although previous research shows that there is a positive influence of IT usage on explicit knowledge sharing but there is no effect on tacit knowledge sharing. This shows that the use of information technology to obtain and various ideas, suggestions, and knowledge by communicating with other users of products and services becomes important to increase the activity of tacit knowledge sharing.

Tacit knowledge sharing has a positive influence on the performance of troubleshooting a product and service. The significant influence of tacit knowledge sharing on troubleshooting performance differs from explicit knowledge sharing which does not have a positive effect. These results indicate that the activity of obtaining and sharing ideas, suggestions, and knowledge regarding the problems of product and service troubleshooting will improve performance from troubleshooting itself. Further analysis found that explicit knowledge sharing has an indirect influence on troubleshooting performance, which means that tacit knowledge sharing mediates a positive effect of explicit knowledge sharing on troubleshooting performance. This result means that the more activity explicit knowledge sharing that occurs will build tacit knowledge in the form of ideas and suggestions, ideas and suggestions that are built and shared will improve troubleshooting performance.

Theoretical Implication

This research ensures that trust has a significant positive effect on tacit and explicit knowledge sharing. The trust of a user of a product and service that online learning can help him obtain solutions to problems troubleshooting

will increase the activities of various technical ideas, suggestions, and guidelines that occur. The knowledge is obtained from demonstrations as well as reading and hearing narrative summaries on the video tutorial. Previous research has shown that trust is an important factor in knowledge sharing (Dhanaraj et al., 2004; Zaqout & Abbas, 2012). This is because, in the online learning process the interaction between users is in a positive condition.

The results of this study have shown that social media experience does not have a significant influence on tacit and explicit knowledge sharing in web-enabled online learning. Social media experience is the perception of respondents regarding their habits of using social media. Therefore, in this study, the habit of using social media applications such as Twitter, Facebook, and especially YouTube which is part of the research topic is expected to be able to encourage the sharing of ideas and suggestions. However, social media experience does not significantly affect tacit and explicit knowledge sharing. Descriptive analysis shows that there are online learning users who are familiar with social media and only novice users. In this study users who are familiar and novice users feel that they obtain and share ideas, suggestions, and expertise with the same intensity. This result alone provides a positive, namely there is no need for users to be familiar with social media, namely YouTube as an online learning platform, but unfamiliar users are able to obtain and share ideas and suggestions.

This study also shows that in the context of online learning, IT usage has a positive influence on tacit knowledge sharing but does not have an influence on explicit knowledge sharing. The use of information technology to obtain and various ideas, suggestions, and knowledge by communicating with other users of products and services is important to increase the activity of tacit knowledge sharing. This was confirmed by Smith (2001) and Lopez-Nicolas & Soto-Acosta (2010). Communication carried out is also not constrained by language problems because all individuals are users of the Telkomsel internet data service, which is one of the

telecommunications providers in Indonesia. Even so this is contrary to the research of Zaqout & Abbas (2012) that IT usage has an influence on explicit knowledge sharing. Individuals in the study of Zaqout & Abbas (2012) are students who aim to create academic publications or research journals. Students tend to use the web as an information source to access documents in the form of scientific journals rather than making it a platform for dialogue and discussion. However, the respondents of this study tended to avoid activities of obtaining and sharing information that needed more costs such as sharing technical procedure guidelines in utilizing information technology. This can be seen from the low expenditure of internet data service packages of respondents per month which only ranges from approximately one hundred thousand rupiah.

The results of this study also show that usability has a positive influence on both tacit and explicit knowledge sharing. This relationship is consistent with the research of Phang (2009) and Tan & Md. Noor (2013). A user who feels the good quality of knowledge through online learning using video tutorials will encourage him to do activities with various explicit ideas, suggestions, and technical guidelines. This is because high usability increases the usability, accessibility, and capability of online learning which enables easy tacit knowledge sharing activities through increasing the suitability of knowledge provided with the knowledge needed by users of online learning using tutorial videos. In addition, by following the video tutorial instructions make the user able to process and share information through visual, verbal, and audio rather than just communicating verbally.

This study also explains the concept of the relationship between tacit and explicit knowledge sharing with performance troubleshooting. Tacit knowledge sharing has a positive influence on the performance of troubleshooting a product and service. On the contrary explicit knowledge sharing only has indirect influence through tacit knowledge sharing. This relationship is consistent with research by Reychav & Weisberg (2009) and Zaqout & Abbas (2012). Troubleshooting problems require expertise and know-how to be

able to take the right action. This shows that in this study online learning users use all available resources, including translating explicit knowledge from online video tutorials to tacit knowledge. Tacit knowledge is used to solve the problem of troubleshooting internet data services. More and more get and share ideas, suggestions, and knowledge about troubleshooting will improve the performance of users of online learning in the success of solving problems faced.

Managerial Implication

This research contributes to the knowledge sharing literature by explaining how a customer care management manager in a company can improve the performance of troubleshooting products and services through knowledge sharing activities. Customer care management managers must play an active role in selecting knowledge sharing tools to ensure knowledge sharing can run effectively by utilizing usable and trustworthy tutorial videos. This can at least be a point to consider if the customer care management manager wants to improve the performance of troubleshooting the products and services of its customers.

The first thing a customer care management manager can do is to encourage tacit knowledge sharing activities by providing effective knowledge sharing tools. Care management customer managers can take advantage of online manual books. The most effective online manual book for consumers is an online manual book with video tutorials. The online manual book must be trustworthy, have good quality knowledge, and can be used to communicate with other consumers. The second thing that customer care management managers can do is to encourage activities of explicit knowledge sharing by increasing the trust and quality of knowledge from the video tutorial. The quality of knowledge from content in the form of video tutorials has several types that can be considered and adjusted to consumer preferences.

IV. CONCLUSION

Knowledge sharing is a major factor in improving troubleshooting performance. This study explains the relationship between the interaction between tacit and explicit knowledge sharing that occurs in online learning has an impact on troubleshooting performance. This study proposes a model that is able to show the effectiveness of online learning using tutorial videos on troubleshooting problems. This study concludes that tacit knowledge sharing has a positive and significant direct effect on troubleshooting performance but explicit knowledge sharing does not have a significant direct effect on troubleshooting performance. The effect of explicit knowledge sharing is only an indirect influence on troubleshooting performance and this effect is fully mediated by tacit knowledge sharing. The relationship interaction explained 74% of the variance.

This study confirms that trust has a positive impact on tacit and explicit knowledge sharing. The more users believe in the integrity of online learning, the higher the knowledge sharing activities that occur. Usability is also a significant and positive factor affecting direct tacit and explicit knowledge sharing. Users who feel the quality of knowledge from online learning will increase their knowledge sharing activities. While IT usage is only significant and positively influences tacit knowledge sharing. This study also concluded that in the problem of troubleshooting, tacit knowledge sharing carried out significantly was built and driven by explicit knowledge sharing.

In this study, it was found that the factors of tacit and explicit knowledge sharing were not significant social media experience. In developing further models, it is necessary to test the relationship of these variables. In addition, in this study, it was not discussed the possibility of factors from tacit and explicit knowledge sharing that must be explained by other factors first. Therefore, the development of a more complex advanced research model by looking at these factors needs to be done so that it can better explain tacit and explicit knowledge sharing. The

methodology in this study is only limited to empirical testing using questionnaires and statistical tests. The development of further research also needs to try using experimental methods to better see the impact of online video tutorials. The language barrier in statement items was also a concern in this study. Further research also needs to pay attention to language so that it is easier to understand by all respondents who filled out the questionnaire.

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