

ANALYZING THE IMPACT OF INDIVIDUAL, GROUP, ORGANIZATIONAL, AND TECHNOLOGICAL FACTORS ON KNOWLEDGE SHARING ACTIVITIES AMONGST ACADEMICS IN INDONESIA

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Abstract. Knowledge is the most important strategic resource for knowledge-based organizations such as higher education to achieve sustainable competitive advantage. Facing dynamic and unpredictable competition, organizations not only rely solely on a workforce training system that focuses on selecting workers who have specific knowledge, skills, abilities, or competencies, but also organizations must start thinking about how the knowledge sharing process can be carried out in organization. This study is conducted to investigate factors influencing knowledge sharing activities among academics in Indonesia. These factors include individual factors, group factors, organizational factors, and technological factors. This study involved academics from public and private universities in Indonesia and data collected through surveys. This study involved 141 respondents from 17 study programs which include 31 public and private universities in Indonesia. The results showed that individual factors, organizational factors, and technological factors had a significant influence on knowledge sharing activities among academics in higher education, while group factors did not have a significant effect on knowledge sharing activities between academics in universities in Indonesia.

Keywords: individual, group, organizational, technological, knowledge sharing

Abstrak. Pengetahuan adalah sumber daya strategis yang paling penting bagi organisasi berbasis pengetahuan seperti pendidikan tinggi untuk mencapai keunggulan kompetitif yang berkelanjutan. Menghadapi persaingan yang dinamis dan tidak dapat diprediksi, organisasi tidak hanya mengandalkan sistem pelatihan tenaga kerja yang berfokus pada pemilihan pekerja yang memiliki pengetahuan, keterampilan, kemampuan, atau kompetensi tertentu, tetapi juga organisasi harus mulai memikirkan bagaimana proses berbagi pengetahuan dapat dilakukan dalam organisasi. Penelitian ini dilakukan untuk mengetahui faktor-faktor yang mempengaruhi kegiatan berbagi pengetahuan di kalangan akademisi di Indonesia. Faktor tersebut meliputi faktor individu, faktor kelompok, faktor organisasi, dan faktor teknologi. Studi ini melibatkan akademisi dari perguruan tinggi negeri dan swasta di Indonesia dan data dikumpulkan melalui survei. Penelitian ini melibatkan 141 responden dari 17 program studi dan 31 perguruan tinggi negeri dan swasta di Indonesia. Hasil penelitian menunjukkan bahwa faktor individu, faktor organisasi, dan faktor teknologi berpengaruh signifikan terhadap kegiatan berbagi pengetahuan antar sivitas akademika di perguruan tinggi, sedangkan faktor kelompok tidak berpengaruh signifikan terhadap kegiatan berbagi pengetahuan antar sivitas akademika di perguruan tinggi di Indonesia.

Kata kunci: individu, kelompok, organisasional, teknologikal, berbagi pengetahuan

INTRODUCTION

In higher education, knowledge become the most important resource to achieve sustainable competitive advantage. From the external side, organizations are faced knowledge economy where competition between organizations is no longer based on cost advantages, but rather on the basis of knowledge and service-based product development (Kamal *et al.*, 2007). To achieve its competitiveness, organizations not only rely solely on a labor training system that focuses on workers with knowledge, competency, skills and abilities, but organizations must also start thinking about how sharing of knowledge can be done

The perspective and context use of knowledge sharing concept still raises debate both in academics and practitioners (Nielsen & Cappelen, 2014). Some researchers provide different definitions regarding the concept of knowledge sharing. Ipe (2003) defines information sharing in perspectives between individuals so that knowledge can be understood, absorbed and used by other parties (cited in Anatan, 2018). The concept of knowledge sharing emphasizes more about behavior and practice between sources and recipients of knowledge exchange. Zheng (2017) concluded that four fundamental characteristics of the concept of knowledge sharing are: 1) individual behavior, 2) voluntary, proactive, and caring, 3) controlled by procedures and environmental systems such as ethical standards, legal, and habits, 4) the results are used by two or more parties.

Knowledge sharing in higher education is a very important issue to maintain organizational survival and to achieve competitive advantage, especially in knowledge-based higher education organizations. Sharing knowledge as an organization's main resource aims to utilize knowledge to be something more useful. Effective knowledge sharing activities are very important for organizations to take advantage of the knowledge they have and produce, so that organizations might improve performance by making it easy for employees to access knowledge as well as to increase individual creativity and productivity in the organization.

Previous studies show that individual intentions significantly effect knowledge sharing activities in organizations (Zheng, 2017). In addition, both technology, information and communication, also important to succeed of knowledge sharing activities in organizations. Previous studies believe that technology with the support of integration between individual and organizational factors might increase the activities. Kettinger *et al.* (2015) suggested that individual, organizational, and information and communication factors are antecedents of knowledge sharing which simultaneously might improve performance.

This research needs to conduct due to the importance of knowledge sharing for both individuals and organizations. In addition, knowledge not only can contribute to organizational problems but also to development within a country. However, knowledge which is inherent in the individual's cognitive mind makes it difficult to share. This condition has resulted in the inconclusiveness of research on knowledge sharing so far since there are some of the study results which state that knowledge sharing, especially related to the voluntary dimension, has a significantly negative effect on various strategies within higher education (Oyeyuga *et al.*, 2019). The inconclusiveness of previous research findings shown

that there is still a gap in the research on knowledge sharing amongst academics in higher education.

This research was conducted to examine determinant factors (individual, group, organizational and technological factors (Zheng, 2017; Kettinger et al., 2015, Ling Tan, 2015), that effect knowledge sharing both public and private universities in Indonesia. For individual development, knowledge sharing provides benefits such as: ease and speed in obtaining information, encouraging individual learning and innovation activities, transferring knowledge between individuals, strengthening capabilities, and improving performance. For organizational development, sharing knowledge is useful for achieving growth, survival, and sustainable organizational development; achieve organizational goals and objectives, improve organizational performance, and maintain organizational competitiveness and profitability. The selection of public and private universities as the research setting is based on consideration of increasing competition in higher education, demanding that universities can increase competitiveness so that they can survive and win competition in conditions of highly dynamic and unpredictable competition.

The theoretical contribution of this study is to add knowledge and insight for other researchers in understanding the concepts and research on knowledge sharing activities among academics in higher education and to develop strategic management literature so that it might increase researchers' knowledge through the implementation of related theories. The practical contribution of this study is to provide insight and consideration for practitioners in term of organizational decision-making process, particularly in relation to knowledge-sharing activities. Based on the research background described in the previous section, this research was conducted to answer several research questions as follows:

1. Do individual factors influence knowledge-sharing activities between academics?
2. Do group factors influence knowledge-sharing activities among academics?
3. Do organizational factors influence knowledge sharing activities among academics?
4. Do technological factors influence knowledge-sharing activities among academics?

LITERATURE REVIEW

Knowledge sharing is an information exchange activity that is not neutral, however it ~~but~~ is very influential on the distribution of power, work relations, influence models and exchanges of how individuals identify their obligations. Knowledge sharing activities defined as exchange activities, transfers, knowledge dissemination that might occur between individuals, groups and organizations (Tariq & Farooq, 2019). In this study, knowledge sharing activities define as activities of exchange and disseminate knowledge that might occur between individuals, groups, and organizations. Many writers and researchers on knowledge sharing activities have developed a proposed determinant model of knowledge sharing and testing the model developed (Ling Tan, 2015; Zheng, 2017). The determinant model of knowledge sharing activities was proposed by Ling Tan (2015) and Zheng (2017) which classifies into organizational factors, technological factors, and communication factors, while Zheng (2017) classifies the determinants of information sharing activities into individual, group and organizational levels. Yu-Cheng et al. (2009) examine factors affecting knowledge sharing activities among academics at Multimedia University in

Malaysia. This study is adopting the research model of Yu-Cheng et al. (2009) and the proposed Zheng conceptual framework (2017). The modification of the model is expected to offer a broader perspective in explaining the determinant of knowledge sharing among academics and might become the novelty of this study. The main objective of this study is to examine the influence of individual, group, organizational, and technological factors on knowledge sharing activities among academics in Indonesia.

Research Model. This study was conducted to provide empirical evidence of the factors that influence knowledge-sharing activities among academics which include individual factors, group factors, organizational factors, and technological factors. The research model that indicates the influence of individual factors, group factors, organizational factors, and technological factors as determinants of knowledge-sharing activities among academics is depicted in Figure 1.

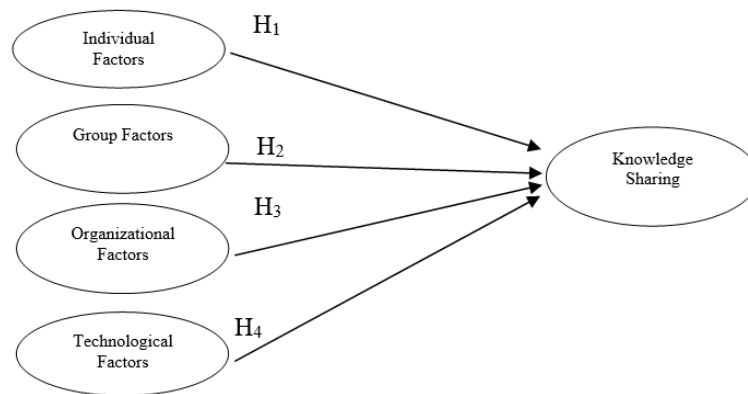


Figure 1. Research Model

Hypothesis Development. This research was conducted examine the effect of individual, group, organizational, and technological factors on knowledge sharing among academics in Indonesia.

Individual Factors. Individual factors can be defined as the facilitators and promoters of knowledge sharing activities within organization that motivate employee to share knowledge (Alhawary et al., 2017). Bulan and Sensuse (2012) suggest that individual factors play an important role in knowledge sharing activities, including: caring, trust, personality, motivation, desire to share, and job satisfaction. Caring is defined as individual awareness where attention is focused on an individual. According to Ismail and Yusof (2010), awareness at an early stage is important to ensure the success of knowledge sharing activities. Trust also plays an important role in knowledge sharing activities, so that organizations must be able to create a work environment that allows individuals to trust each other and work together, so that they are motivated to share knowledge. Individual personality can be differentiated into introvert and extravert. Ismail and Yusof (2010) suggests that individuals with introverted personalities have more problems interacting with

other people than individuals with extravert personalities. The ability to share knowledge is highly dependent on individual communication skills, both written and oral.

Motivation is important, especially when the knowledge shared is tacit in nature which is more difficult to share than explicit knowledge. To be able to achieve successful knowledge sharing activities, individuals must have positive motivation in sharing knowledge (Gagne, 2009). The desire to share knowledge has a positive influence on individual positive attitudes towards other organizational members and readiness to respond to other individuals which in fact will have a positive effect in supporting knowledge transfer activities (Hooff & De Ridder, 2004), as well as high individual job satisfaction with work. they have also have a positive influence on knowledge sharing activities.

Study conducted by Xiao and Jane (2015) found that competence, personal relationships, and individual competence have a significant influence on the desire to share knowledge between individuals in the organization. In other words, individual characteristics will determine the success of knowledge sharing activities in organizations. Another study was conducted by Kamla and Olfman (2017) on the influence of individual factors on knowledge sharing activities. The results of the study show that human resource factors, especially those related to the knowledge possessed by individuals and other parties related to them, have a direct and significant influence on knowledge sharing activities through IOKSS (interorganizational knowledge sharing system). According to researchers, individual factors are one of the factors that have an important role in determining the success of knowledge sharing activities in organizations. Based on this description, in this study the following hypotheses were developed:

Hypothesis 1: Individual factors influence knowledge sharing activities between academics

Group Factors. Khattak *et al.*, (2020) define group factors as a system that can improve the work that must be supported by all the organization members. Areekkuzhiyil (2016) argues that group factors are closely related to aspects of organizational culture, namely a system of assumptions, values, and beliefs that influence how individuals and groups to behave. According to the researcher, these values have a significant influence on the way individuals and groups work and determine their performance. In the context of knowledge sharing among academics, these values are expected to have a significant influence on the success of knowledge sharing activities in organizations. The study found that these factors have a significant influence on the success of knowledge sharing activities including those related to openness to opportunities for change and more innovation. Another finding need to be underlined is that sharing the vision and values within the group is a critical factor in the success of knowledge sharing activities within the organization.

Group factors in this study include shared mentality and diversity of group members (Zheng, 2017). Shared mentality means that group members have a similar and appropriate knowledge structure about what matters related to the group. This similarity in knowledge structure will help individuals to interpret, describe and predict events and also guide organizational members to interact. Previous empirical studies have shown that shared mentality among organizational members might help each individual to coordinate and integrate among members so that it positively effect knowledge sharing activities. Diversity or diversity among group members relates to race, gender, age and so on (Zheng, 2017).

Knowledge sharing activities require interaction among good group members, the existence of diversity within the organization is expected to increase team members motivation to succeed knowledge sharing activities, therefore the hypothesis developed as follows:

Hypothesis 2: Group factors influence knowledge sharing activities among academics

Organizational Factors. Organizational factors which have important role in knowledge sharing activities include organizational policy, organizational structure, organizational culture, management support, reward systems, and leadership. Bulan and Sensuse (2012) define organizational factors as a form of organizational support to support knowledge sharing activities within organization. Organizational policy related to knowledge sharing activities must be implemented at the beginning before knowledge sharing activities are implemented in the organization, so that individuals might follow the existing policies. Organizational culture defined as shared assumptions and underlies the organizational learning process in dealing with the external environment and problem solving related to adaptation to external environment and internal integration that teaches how members of the organization can solve problems in the right way.

Reward system indicates organizational evaluation form of individual behavior in the organization. Rewards could be related to incentives such as bonuses, increases in salaries and wages, and also promotion and security. There is relationship between transformational leadership and effort-reward imbalance and the strongest relationship exists within individualized consideration, The study also confirmed that leadership plays important role to avoid or reduce effort-reward imbalance within organization. While study conducted by Jahani *et al.* (2011) confirmed there is also a relationship between a leader and his group. Leaders are responsible for developing regulations and resources owned by the organization to achieve organizational goals by communicating and sharing experiences and knowledge.

Previous studies have shown that organizational factors such as management support, reward systems, and organizational culture significantly influence information sharing activities in organizations (Xu & Quaddus, 2012). Management support in the academic environment is very important in improving organizational performance, for example in contributing financial support to infrastructure and knowledge sharing activities. Likewise, the reward system has important role in stimulating academics perspectives to attract organizational members with knowledge, expertise, and skills that are important and needed in realizing organizational goals. Kamla and Olfman (2017) suggest that in addition to individual factors, organizational factors also have an important role in supporting knowledge sharing activities in organizations. The results of their study show that organizational factors have a direct and significant influence on the intention to share knowledge through IOKSS. Based on the results of previous studies, the hypotheses were developed as follow:

Hypothesis 3: Organizational factors influence knowledge sharing activities between academics

Technological Factors. Technological factors can be define as the tools or social media used to facilitate the process of knowledge sharing (Bulan & Sensuse, 2012). Technology has important role to facilitate knowledge sharing activities. The role of technology is very important as a tool to ensure the success of information sharing activities. It is importance to align technology and individual needs in organizations to increase information sharing activities. Technological factors include the application of information technology, information technology infrastructure, and information technology usefulness.

Bekele et al. (2011) suggested that technology is important mediator in knowledge sharing activities. This technology usually used to connect individuals to one another, the interaction of data and processes to support daily operational activities, problem solving and also decision making process in organizations. To support organization's information system, technology infrastructure is developed, data processing, data storage, and communication systems and technology are also needed to facilitate the development of new methods and applications, such as online databases, intranets, virtual communities and so on. It also allows organizations to develop existing social networks in dealing with problem related to geographic barrier and creating creative collaboration activities.

Empirical studies are conducted to prove that technology has significantly positive effect on knowledge sharing activities in organizations. Study conducted by Nicolae et al (2012) as cited in Alhawary et al. (2017) found that the use of technology through online programs is indispensable in educational institutions. This educational technology has become the media that has the most role in knowledge sharing activities between academics, for example for academics who are involved in virtual communities of practice (vCoPs). These findings support the findings of previous studies that examined the relationship between educational technology acceptance (ETA) and the vCoP context. Siddique (2012) examined the relationship between information technology, trust, and culture in supporting knowledge sharing activities. The results of the study prove that technology support and infrastructure have significant influence on knowledge sharing activities, so that in this study the following hypotheses were developed:

Hypothesis 4: Technological factors influence knowledge sharing activities among academics

METHOD

Research Sample, This study used a purposive sampling method with the criteria of public and private universities involved in this study were universities with accreditation A and B. Research respondents were lecturers at universities according to the criteria with accreditations A and B in Indonesia.

Data Collection Method. Primary data collection in this study used survey methods, both direct surveys and postal surveys. Primary data collected is cross section data, that is, the research is conducted at a certain time using many respondents.

Operational Definition of Variables. The operational definitions for each variable in this study are summarized in Table 1.

Table 1. Operational Definition of Variables

Variables	Measurements	Question	Scale
Individual Factor	Individual factors include: caring, trust, personality, motivation, desire to share, and job satisfaction (Month & Sensuse, 2012)	7 items	
Group Factor	In this study, group factors include shared mentality and group diversity (Zheng, 2017)	3 items	
Organizational Factor	Organizational factors in this study include policy, structure, culture, management support, reward systems and leadership.	6 items	5 points Likert Scale from strongly disagree (1) to strongly agree (5)
Technological factor	Technological factors include the application, infrastructure, and the usefulness of information technology (Bulan & Sensuse, 2012)	4 items	
Knowledge sharing	In this study, knowledge sharing activities are measured through five item of statements include concern about the importance of knowledge sharing activities, shared the knowledge with colleagues, shared the knowledge to improve performance engagement in academic discussions, and discuss a problem (Yang & Chu, 2005 in Tariq & Farooq, 2019)	5 items	

Source: Author Elaboration

Validity and Reliability Testing. To measure instrument quality and how well a concept can be defined by a measuring instrument, validity testing is carried out in this study. The instrument was said to be good or valid if the instrument was able to measure the data that was properly examined. Validity testing in this study is done by correlating the scores on items with the total item total score. Validity testing uses Product Moment correlation. Reliability testing is also carried out in this study and aims to determine whether the test results are consistent with different conditions for each item in question. Reliability testing measured using Cronbach's Alpha with a Rule of thumb must be greater 0.6 still acceptable.

Hypothesis Testing. To test hypothesis 1, hypothesis 2, hypothesis 3, and hypothesis 4 in this study using multiple regression analysis. Multiple regression analysis was performed to predict the effect of several independent variables (X) on the dependent variable (Y).

RESULTS AND DISCUSSION

Response Rate and Respondent Profile. The process of collecting data from respondents started from the beginning of April 2019 to the end of August 2019. The data collection technique was carried out through a survey method. Survey methods include online surveys, direct surveys and postal surveys. In this study it is assumed that there is no difference in answers between respondents who answered through online surveys, direct surveys, and postal surveys and it is also assumed that there are no differences between respondents who answered before and after the deadline for returning the questionnaire set by the researcher.

The response rate in the data collection process is summarized in Table 1 while the respondent profiles are summarized in Table 3.

Table 2. Samples and Returns

Total questionnaires sent	400
Total questionnaires returned and can be processed	141
Total questionnaires returned and can be processed	141/400 x 100% = 35%

Source: Data Processed

Table 3. Respondent Profiles

No.	Item of Question	Criteria	Total
1	Gender	Male	48
		Female	93
2	Age	21 – 30 years	2
		31 – 40 years	33
		41 - 50 years	63
		51 - 60 years	40
		> 60 years	3
3	Length of work	≤ 10 years	19
		11 – 20 years	64
		21 – 30 years	50
		31 – 40 years	8
		> 40 years	-
4	Preference for information sources of greatest interest	Internet	93
		Leader	12
		Colleagues	24
		Others	12
5	Most preferred information channel preferences:	Face to face	76
		Online conversation	31
		Email	17
		Telephone	10
6	The time you most often share information with colleagues	Others	8
		When a small meeting or discussion	63
		When a large meeting or discussion	4
		During a non-formal meeting	68
		Others	6

Table 3.1 (Lanjutan) Respondent Profiles

No.	Item of Question	Criteria	Total
7	Motivation to share information	Learn from each other	49
		Learn from each other and Help each other	55
		Learn from each other and Help each other Self-satisfaction	15
		Learn from each other Help each other Self-satisfaction	4
		To receive a reward or award	
		Learn from each other	11
		Self-satisfaction	3
		Learn from each other	
		Self-satisfaction	
		Others	1
		8	The biggest obstacle to information sharing
Fear of being considered a "show-off"	22		
Fear of giving wrong information			
Fear of being considered a "show-off"	3		
Fear of giving wrong information			
Lack of confidence in arguing			
Fear of being considered a "show-off"	2		
Lack of confidence in arguing			
Fear of being considered a "show-off"	1		
Don't know what to share			
Fear of giving wrong information	54		
Lack of confidence in arguing			
Lack of confidence in arguing	10		
Fear of giving wrong information	3		
Others	9		

Source: Data Proceed

Based on the respondent profile data, the majority of respondents are women, aged between 41-50 years old, 11-20 years old, with information source preferences coming from the internet, information channel preferences are face-to-face, sharing information in non-meetings formally, the motivation for sharing information is to learn from one another and help one another, and the biggest obstacle is the fear of giving wrong information.

The research involved 141 academic staff from 17 study programs and 31 public and private universities in Indonesia. The thirty-one universities include: Universitas Achmad Yani Banjarmasin, Akademi Terang Bangsa Semarang, Akademi Sekretari dan Manajemen Indonesia Desanta Yogyakarta, Universitas Bengkulu, Indonesia International Institute for Life and Science, ITK Binus Malang, Politeknik Negeri Ambon, Politeknik Negeri Semarang, Politeknik Negeri Ujung Pandang, Universitas Negeri Manado, Universitas Mulawarman, STIE Panca Bakti Palu, Universitas Slamet Riyadi Surakarta, STIE Perbanas Surabaya, STIE YKPN Yogyakarta, Universitas Islam Indonesia, Universitas Surabaya, Universitas Katolik Widya Mandala Surabaya, Universitas Lambung Mangkurat,

Universitas Muhamadiyah Surakarta, Universitas Islam Batik Surakarta, Universitas Djuanda Bogor, Universitas Soegiyapranata Semarang, Universitas Kristen Maranatha, Universitas Katholik Musi Charitas, Universitas Muhamadiyah Surakarta, Universitas Riau Pekanbaru, Universitas Sultan Agung Semarang, Universitas Boyolali, Universitas Halu Uleo, IBA Palembang, Universitas Islam Sultan Agung, Universitas Janabadra, Universitas Muhamadiyah Surakarta, Universitas Negeri Yogyakarta, Universitas Pembangunan Jaya, Universitas Sebelas Maret, and Universitas Wijaya Kusuma Purwokerto.

Respondents participated in this study came from seventeen study programs which included Business Administration, Accounting, Business, Fashion Design, D3 Banking and Finance, Development Economics, Islamic Economics, Management, Masters in Management, Masters in Accounting, KIP, Food Science and Nutrition Study, Islamic Banking, Business Administration, Art Governance, Secretary, Civil Engineering, and Information Engineering.

Validity Testing and Reliability Testing. To test the validity, this study use Pearson Correlation which is indicated by the value of the homogeneity coefficient. The homogeneity coefficient value shows the correlation between individual items and the total score of all variable measuring items. The coefficient value, the higher the coefficient, the more valid the instrument used. If the correlation between the individual items and the total score is not significant then the item is invalid. This study uses Cronbach's Alpha to perform reliability testing. The instrument is considered to have high reliability if the Chronbach's Alpha value is higher than 0.6 (Nunnaly, 1978). Table 4 summarizes the results of testing the validity and reliability of the research instrument. Based on the results of the validity test, it shows that all measurement items are valid. The results of reliability testing showed that Cronbach's Alpha value ranged from 0.515-0.891.

Tabel 4. Chronbach's Alpha and Item Homogeneity for All Variables

Variables	Number of Items	Number of Item excluded	Cronbach's Alpha	Item Homogeneity
Individual Factors	7	0	0.677	0.433-0.742
Organizational Factors	6	0	0.891	0.619-0.865
Team Factors	3	0	0.515	0.602-0.794
Technological Factors	4	0	0.754	0.717-0.838
Knowledge Sharing	5	0	0.773	0.582-0.836

Source: Data Proceed

Statistic Descriptive. Table 5. shows the respondents' answers mean to each item of question which included individual, organizational, group, technology, and knowledge sharing.

Table 5. Descriptive Statistics

	Mean	Std. Deviation
Individual Factors	4.2391	.44738
Organizational Factors	3.6319	.80223
Team Factors	2.7163	.64726
Technological Factors	3.9645	.63918
Knowledge Sharing	3.9234	.60694

Source: Data Processed

Correlation Between Variables. Table 6 shows the correlation between variables in this study which includes individual factors, organizational factors, group factors, technological factors, and knowledge sharing.

Table 6. Correlation Between Variables Correlations

		KS	ID	ORG	KLP	TEK
Pearson Correlation	KS	1.000	.502	.618	.251	.617
	ID	.502	1.000	.350	.057	.470
	ORG	.618	.350	1.000	.251	.467
	KLP	.251	.057	.251	1.000	.199
	TEK	.617	.470	.467	.199	1.000
Sig. (1- tailed)	KS	.	.000	.000	.001	.000
	ID	.000	.	.000	.250	.000
	ORG	.000	.000	.	.001	.000
	KLP	.001	.250	.001	.	.009
	TEK	.000	.000	.000	.009	.
N	KS	141	141	141	141	141
	ID	141	141	141	141	141
	ORG	141	141	141	141	141
	KLP	141	141	141	141	141
	TEK	141	141	141	141	141

Hypotheses Testing. This research model has passed the classical assumption testing which includes normality, heteroscedasticity and multicollinearity as well as the goodness of fit model. Multiple regression models used to test the hypotheses through the estimation parameters (t values) and coefficient of determination (R²). If the coefficient is significant at $p < 0.05$, the independent variable has significant effect on the dependent variable. The higher value of R², the better the model in explaining the variation of the dependent variable.

Hypothesis testing results are shown in Table 7. and all the classical assumptions (except autocorrelation) have been tested. Based on the partial test results of the model, only group factors that do not have significant effect on knowledge sharing activities between academics (significance value .175) so that the third hypothesis in this study is not supported, while individual, organizational, and technological factors have significant effect on knowledge sharing activities between academics (significance value .001).

The results of hypothesis testing on the influence of individual factors, organizational factors, and technological factors are consistent with many previous studies as discussed in the hypothesis development. The hypothesis that examines the influence of individual

factors on knowledge-sharing activities confirms the previous studies findings conducted by Hooff *et al.* (2004), Xiao and Jane (2015), and Kamla and Olfman (2017) who found that individual factors had a significant positive influence in supporting knowledge transfer activities in organizations.

The results of the hypothesis testing on the influence of organizational factors on knowledge sharing activities in this study confirm the findings of previous research conducted by Weib and Sueb (2016), Jahani (2011), Xu and Quaddus (2012), and Kamla and Olfman (2017). These studies found that organizational factors such as leadership style, balance of effort and reward, and management support had a significant positive effect on knowledge sharing activities in organizations.

The results of testing the hypothesis about the influence of technological factors on knowledge sharing activities also confirmed the findings of the previous studies conducted by Nicolae *et al.* (2012) and Siddique (2012). These studies found that technological factors such as technology implementation in online activities or programs and information technology implementation have an important role and positive significant influence in supporting various knowledge activities in organizations.

While the hypothesis that is not supported, the group factor influencing knowledge sharing activities among academics is not consistent with the previous researches. The insignificance of group factors in explaining or influencing knowledge sharing activities among academics is thought due to the increasing workload and demands of lecturers related to Tri Dharma Higher Education activities, demands for self-development and career of lecturers both related to internal and external activities resulting in increasingly minimal the time of interaction between academics in the form of groups which lead to the insignificant influence of group factors on the activity of sharing knowledge between academics.

Table 7. Hypothesis Testing

Model	Standard ized β	Standard Error	t-value	t sign	F value	F sign	R ²
Constant	-	.356	.660	.510			
ID	.215	.089	3.669	.001			
ORG	.369	.050	5.547	.000	43.024	.000	.546
KEL	.081	.056	1.364	.175			
TEK	.328	.066	4.694	.000			

Source: Data Processed

Based on the open-ended questions, information was obtained that there were still many respondents who stated that there was no appreciation received for their knowledge sharing activities both inside and outside their organization (47 respondents). The types of awards based on the answers given by respondents who participated in this study include: appreciation, awards, grant assistance, seminar and publication costs, bonuses, holidays, incentives, attention from superiors, announcements through whatsapp groups, grants, honorarium, rewards, position as team leader, opportunity to be a speaker in business talk, credit points, increase in lecturer credit score, non-financial awards, recognition, competency training, certificates, certificates, remuneration, rewards and thanks.

Channels used to facilitate sharing activities include: business talk, formal and informal discussions, email, whatsapp, meetings, Focus Group Discussions (FGD), Forums (academic, discussions, scientific meetings, presentations, knowledge sharing media, research and seminars), internet, intranet, social media, online journals, conferences, mailing lists, morning tea discussions, training, research and workshops, as well as information systems distributed within the institution.

Motivation of sharing knowledge according to the respondents includes: enriching insights, providing support, sharing information, advancing together, updating information, sharing and deepening knowledge, collaboration, helping others, providing information related to knowledge, developing networks and synergies, gaining and filling lecturer workload, self-satisfaction, creating a blog, obtaining feedback, self-development, learning, teamwork, self-capacity development, mutual support and enriching insights.

CONCLUSION

Based on the results of the data analysis that has been done, several things that can be underlined are as follows: The results of data analysis show that there are three hypotheses supported and one hypothesis rejected. The three supported hypotheses include: individual factors influence knowledge sharing activities between academics, organizational factors influence knowledge sharing activities between academics, and technological factors influence knowledge sharing activities between academics. This is in accordance with the results of previous studies as discussed in hypothesis development. Meanwhile, the unsupported hypothesis is that group factors influence knowledge sharing activities among academics. The insignificance of the group factor in explaining or influencing knowledge sharing activities between academics is thought to be due to the increasing workload and demands of lecturers related to Tri Dharma Perguruan Tinggi activities, demands for self-development and lecturers' careers both related to internal activities inside and outside the organization resulting in less the time of interaction between academics in the form of groups, resulting in group factors not having a significant effect on knowledge sharing activities between academics.

A number of limitations in this study resulted in the results obtained were not optimal. First, the respondents involved in this study were dominated by respondents from the Faculty of Economics and the majority came from private universities so that the research results obtained could not be generalized, given the large population of public and private universities in Indonesia. Second, researchers only use individuals as academic staff and have not involved the perceptions of department or study program leaders in responding to knowing knowledge sharing activities in the organizations they lead, so it is not detected whether department leaders have the same perceptions as individual academics' perceptions of the issues studied in the research. this research.

The main benefit that is expected from this research is that the results of the study provide benefits for consideration for organizations, especially universities, especially in terms of supporting and increasing knowledge sharing activities within their organizational environment. An important note related to policy is that there is a need for rewards in the form of appreciation or rewards for lecturers who have achievements in knowledge sharing

activities, so as to increase academic motivation to be involved in knowledge sharing activities. In addition, there needs to be a special channel or forum on a regular basis that facilitates knowledge-sharing activities between lecturers based on the results of this study which are still minimal.

This research is also expected to contribute to the academic field, especially in relation to the development of conceptual and empirical literature in the field of strategic management in general and knowledge management in particular. In addition, the results of the research are expected to be able to encourage further research to provide greater benefits. For further research, it is necessary to develop a comprehensive research model to explain various important aspects that affect knowledge sharing activities among academics such as organizational culture factors.

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