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Knowledge sharing behavior as mediating role on openness to experience and innovative work behavior

Haidar Zuhdi[1*], Arum Etikariena[2]
Department of Psychology, Universitas Indonesia, Depok, Indonesia[1,2]
haidar.zuhdi@ui.ac.id[1*] , arum.etikariena@ui.ac.id[2]

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Abstract
Purpose: This study aimed to examine the mediating effect of knowledge sharing behavior on the relationship between openness to experience and innovative work behavior on students at the University of Indonesia.
Research methodology: Quantitative approach with a cross-sectional study was employed for the research. The study population consisted of 306 students in Universitas Indonesia. Data were elicited through a questionnaire with convenience sampling technique while the analysis was carried out using PROCESS by Hayes.
Results: The results of this study revealed that knowledge sharing behavior has a partially mediating role in the relationship between openness to experience and innovative work behavior.
Limitations: The challenge was the unevenness sample from each faculty, most of the students selected for the study through a random method were from the Faculty of Psychology. This could affect the generalizability of the findings.
Contribution: The results of this study can be used as a reference for training innovation programs that will be given to Universitas Indonesia students for the purpose of making them better prepared to innovate.
Keywords: *College Students, Innovative Work Behavior, Knowledge Sharing Behavior, Openness to Experience*
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1. Introduction

Many companies in Indonesia are facing problems with the VUCA era (volatility, uncertainty, complexity, and ambiguity) (Setiawan, 2017). Companies and organizations are affected by this uncertainty situation and they must survive in order to continue their businesses as they should (Alijoyo, 2019). One option to consider in dealing with the VUCA era is to train employees to get used to innovating in every assignment (Widiarini). The World Economic Forum recently announced that innovative behavior is one of the ten critical skills required in the workplace by 2025 (Whiting, 2020). However, developing the habit of innovation in employees is a challenging task that cannot be accomplished in a short period of time (Zhong & Liu, 2014) Individuals must become accustomed to dealing with ambiguous situations, solving problems with new solutions, and learning a variety of knowledge to stimulate various ideas in everyday life (Adair, 2007) Other options, such as conducting employee innovation training, require a significant amount of time and cost from the organization (Jehanzeb & Bashir, 2013) One solution to this challenge is to prepare students so that they are better prepared to innovate in the workplace later.

Seeing innovations in the scope of university, it seems that there are many activities that encourage students to be active. However, the activities that exist in the scope of universities such as organizations,

communities, and UKM (Unit Kegiatan Mahasiswa) do not encourage students' innovative behavior more specifically, so that the output produced after participating in these activities will vary depending on the goals of each individual. However, there are several events that are quite prestigious among students including Student Creativity Program or Program Kreativitas Mahasiswa (PKM) and National Student Science Week or Pekan Ilmiah Mahasiswa Nasional (PIMNAS). The two events are a form of effort made by the Ministry of Research, Technology, and Higher Education and the Ministry of Education and Culture in order to improve the development of science and guide students to become individuals who understand and obey the rules, be creative, innovative, and objectively cooperative in building intellectual diversity (Kemendikbud, 2020). However, the implementation of PKM in each university is inconsistent; some universities urge their students to join PKM, while others do not.

In the university scope, the track record of Universitas Indonesia in various student creativity events at the national level is not too impressive, considering that it is the best university in Indonesia (Zubaidah, 2022). In 2020, Universitas Indonesia was only ranked 9th in the PKM event. Even in the last ten years, Universitas Indonesia has never been in the top three in the PIMNAS event. Universitas Indonesia's achievements in these two events are still far behind Universitas Gajah Mada which won the PIMNAS event in a row in 2018, 2019, and 2020 (Satria, 2020). This should be a special concern for Universitas Indonesia, especially since the implementation of PKM in each faculty is still inconsistent. Universitas Indonesia must do something to be more competitive in the future and train the students to get used to innovation. In this study, the researchers only used a sample of Universitas Indonesia students because there would be further steps from the results of this study. Later, the results would be used to develop innovative training programs for UI students to encourage them to be better prepared to innovate in the future workplace.

One of the variables that are often used in research to display innovation behavior in the workplace is innovative work behavior. Innovative work behavior can be defined as the process of generating, introducing, and implementing new ideas that are carried out on intention by an individual or group in order to benefit individuals, groups, organizations, or the larger community (Janssen, 2000) Currently, the available literature mostly discusses innovative work behavior in the workplace (Javed, Khan, Arjoon, Mashkoor, & Haque, 2020) Although the forms of innovation displayed by employees and students differ, the researchers argued that preparing students for innovative work behavior early on will significantly help them as future employees in adapting to and meeting the demands of the company. In Indonesia, there are still few studies on students as subjects in innovative work behavior, such as Etikariena (2020), which investigated the relationship between proactive personality and innovative work behavior.

According to the meta-analysis study by (Hammond, Neff, Farr, Schwall, & Zhao, 2011), several factors can influence innovation, including personality, motivation, self-efficacy, work characteristics, leadership style, and context. In this study, the researchers were interested in investigating personality to predict innovative work behavior. The personality that the researchers used as a predictor was openness to experience. Openness to experience is one component of the five-factor model of personality proposed by (McCrae & Costa Jr, 1997). Openness to experience can be defined as an individual's tendency to actively seek new experiences, have originality, have high imagination, be open to the values of others, and be able to appreciate art well (McCrae & Costa Jr, 1997) Individuals who score high on this component are seen as curious, original, non-traditional, and creative. Meanwhile, individuals who get low scores are seen as conventional, unartistic, and unanalytical (Piedmont, 1998) In their study, (Zuraik, Kelly, & Dyck, 2020) stated that individuals who are more open to experience would tend to innovate more frequently because they acquire a lot of variations of previously obtained experiences and ideas. Individuals that are open to new experiences are more courageous, open-minded, and ready to explore new things, thus not frightened to try to innovate (Guo, Su, & Zhang, 2017) Several studies have found that people who are open to new experiences are more likely to be involved in innovative work behavior (Javed et al., 2020) (Kundu & Roy, 2016) (Madrid, Patterson, Birdi, Leiva, & Kausel, 2014).

A recent study by (Javed et al., 2020) investigated the relationship between openness to experience and innovative work behavior. Other variables, according to the study, can have an important role in the relationship between the two variables. According to the findings of this study, Javed et al. (2020) advised that future research should focus on alternative mechanisms, such as mediation or moderation, in the relationship between openness to experience and innovative work behavior. This is supported by the study of (Hammond et al., 2011) which indicates that personality is not the only predictor of innovative work behavior; the researchers claimed that there are other variables that can promote innovative work behavior. Based on these findings, the researchers concluded that personality traits cannot be directly related to innovative work behavior and that a mediator role between the two variables is required.

In this study, the researchers used knowledge-sharing behavior variable as a mediator. Knowledge-sharing behavior is expected to mediate the relationship between openness to experience and innovative work behavior. The researchers selected knowledge-sharing behavior as a mediator based on (Kanter, 1988) study, which explains that the characteristics of the emergence of innovation are knowledge-intensive. In this case, intensely supplied resources in the form of knowledge will stimulate individual innovative behavior. As a result, the presence of knowledge sharing activity is expected to be a predictor of innovative work behavior.

There are a number of studies that use knowledge-sharing behavior as a mediator (Akram, Lei, Haider, & Hussain, 2020) (Kim & Park, 2017) (Nisar ul Haq & Haque, 2018) used students as research subjects, so the form of knowledge-sharing behavior used was quite different. For example, one of the knowledge-sharing behavior activities commonly done by students was making conversations and discussions, which in turn provoked thoughts among students. However, there is still a lack of research involving knowledge-sharing behavior in students (Charband & Navimipour, 2018) (Lin, Hsieh, & Lian, 2018) (Nisar ul Haq & Haque, 2018)

As with earlier studies that used the mediating role, it is important to note that the predictor (openness to experience) must have a significant positive relationship with knowledge-sharing behavior in order to function as a mediator. (Lotfi, Muktar, Ologbo, & Chiemeke, 2016) found that personality traits are important in predicting knowledge-sharing behavior. According to the findings of their study conducted on university academic staff, openness to experience is the most influential component in predicting knowledge-sharing behavior if compared to the other four components (agreeableness, conscientiousness, extraversion, and neuroticism). Furthermore, previous research has found that openness to experience is positively related to knowledge-sharing behavior (Agyemang, Dzandu, & Boateng, 2016) (Anwar, 2017) According to (Lin et al., 2018) this relationship occurs because people who are open to new experiences have active imagination, mental flexibility, curiosity, and acceptance of new ideas. (Cabrera, Collins, & Salgado, 2006) also said that the nature of openness indicates a person's originality and curiosity to seek information from others. As a result, the authors argued that individuals who are open to new experiences may have a tendency to share their own knowledge because this is one way for them to satisfy their curiosity.

Furthermore, when examining this mediation model, it is important to consider the relationship between the mediator (knowledge-sharing behavior) and the criterion variable (innovative work behavior). The researchers selected knowledge-sharing behavior as a mediator because (Radaelli, Lettieri, Mura, & Spiller, 2014) explained that knowledge shared and exchanged between individuals can stimulate their thinking processes, which in turn will generate more new and creative ideas, so that individuals who share knowledge more frequently tend to engage in innovative work behavior, especially in generating, promoting, and implementing innovation. Recent findings from (Deichmann, Moser, & van den Ende, 2021) also imply that if people share knowledge with each other and talk about an idea for a longer period of time and in depth, the outcome of the conversation will benefit the idea being discussed and, as a result, increase the opportunities for innovation. Research has found that knowledge-sharing behavior has a positive impact on innovative workplace behavior (Munir & Beh, 2019) (Nguyen, Nguyen, & Do, 2019).

In a previous study, (Javed et al., 2020) only examined openness and innovative work behavior without using a mediating or moderating role. (Javed et al., 2020) suggested for further research to explore the mediating or moderating role in these two relationships to see how other variables play a role in influencing innovative work behavior. (Hammond et al., 2011) also explains that innovative behavior is not only predicted by personality, the researcher says that there are other variables that can influence innovative work behavior. The two statements are the research gap of this research. Therefore, the researcher wants to explore further the role of other variables by using the mediating role in influencing innovative work behavior. Based on the rationale and some research findings, it is expected that knowledge-sharing behavior will have a significant positive correlation to innovative work behavior in this study and will be able to mediate the relationship between the two variables.

2. Literature review and hypothesis development

Innovative work behavior

Scott and Bruce (1994) defined innovative work behavior as a process that involves developing ideas that are executed by individuals as answers to problems, forming coalitions to promote ideas, and applying ideas into models that are presented for the needs of innovation in their environment. Janssen (2000) used Scott and Bruce (1994)'s statement to define innovative work behavior, which is an process of generating, introducing, and implementing new ideas that are carried out on intention by an individual or group in order to benefit individuals, groups, organizations, or the larger community (Janssen, 2000). Innovative work behavior is a complex behavior that has three stages. Janssen (2000) labeled each stage after the stages proposed by Scott and Bruce (1994). The first stage is idea generation, which is the process of developing ideas. The second stage is idea promotion, in which individuals must seek support for their innovations. The third stage is idea realization, in which individuals create prototypes for usage by coworkers or others.

There are several aspects that are expected to influence the emergence of innovative work behavior. According to Nijenhuis (2015), there are two internal and external factors that can influence innovation. Furthermore, Anderson, De Dreu, and Nijstad (2004) and Hammond et al. (2011) presented these factors promoting innovation in the literature study. Internal factors include personality (proactive personality, extraversion, and openness to experience), motivation (intrinsic and extrinsic), and cognitive ability (problem-solving style). External factors include the climate for innovation, leadership (transformational leadership), and resources (knowledge-sharing behavior).

Openness to experience

Openness to experience can be defined as an individual's tendency to actively seek new experiences, have originality, have high imagination, be open to the values of others, and be able to appreciate art well (McCrae & Costa Jr, 1997). Individuals who score high on this component are seen as curious, original, non-traditional, and creative. Meanwhile, individuals who get low scores are seen as conventional, unartistic, and unanalytical (Piedmont, 1998).

According to McCrae, Costa, and Martin (2005) openness to experience has six components: openness to action, openness to fantasy, openness to ideas, openness to value, openness to aesthetics, and openness to feelings. First, openness to action emphasizes that individuals will tend to try new things that they have never done before, such as visiting new places, tasting new foods, and so on. Second, openness to fantasy emphasizes that individuals have a tendency to be open to fantasy and prefer to imagine a variety of things. Third, openness to ideas emphasizes that individuals are open to all ideas, ready for unconventional ideas, and enthusiastic about knowledge. Fourth, openness to value emphasizes that individuals have a tendency to re-examine their social, political, and religious beliefs. Fifth, openness to aesthetics emphasizes that individuals are interested in aesthetics and can enjoy diverse types of expressions of art. Finally, openness to feelings emphasizes that individuals are open to, understand, and can evaluate their feelings.

In some studies, individuals with high scores of openness to experience have a positive impact on these individuals. Studies suggest that individuals with high scores of openness to experience tend to have

good cognitive flexibility (Chen, Chen, & Kinshuk, 2009), creativity (Tan, Lau, Kung, & Kailsan, 2019) innovative work behavior (Javed et al., 2020), and knowledge-sharing behavior (Anwar, 2017).

Knowledge-sharing behavior

Knowledge-sharing behavior is defined as the process of exchanging knowledge between individuals and groups (Davenport & Prusak, 1998). Research that discusses knowledge-sharing behavior mostly involves respondents from various professions such as university academic staff (Lotfi et al., 2016), hotel employees (Swanson, Kim, Lee, Yang, & Lee, 2020), telecommunication company employees (Akram et al., 2020), and many more. On the other hand, research that discusses the scope of a university is still limited, for example, Raihana and Salim (2020) examined the knowledge-sharing behavior among new students majoring in library science. The mechanism of knowledge-sharing behavior in the two contexts is clearly different because the tasks performed by workers and students are fundamentally different. In general, workers' knowledge-sharing behavior is the form of sharing information and knowledge with other workers, from work experience to procedures for carrying out tasks (Etikariena, 2019). Meanwhile, in the university context, knowledge-sharing behavior is most commonly seen in educational, teaching, research, and community service activities (Raihana & Salim, 2020). According to Elizabeth (2014) students must be able to seek knowledge on their own, either from other people or through literature studies from books, because relying on lessons from teachers is insufficient to fulfill their needs.

***H1*:** Knowledge-sharing behavior can mediate the relationship between openness to experience and innovative work behavior

3. Research methodology

This is a non-experimental, quantitative study, in which the data obtained were statistically processed to draw conclusions and interpretations and considered as a cross-sectional study. Respondents must meet the criteria, one of which is holding the status as Universitas Indonesia students. The researchers chose Universitas Indonesia students as the sample because the results of this study would be used as a reference for further programs regarding student innovation. The next criterion is that only students in the second semester and higher were eligible. This is because first-semester students are still in the process of adapting; they have not participated in many innovative activities. The time of this research was carried out starting from January to February 2021 by determining the topic and literacy study, then in March 2021 the researcher collected data for one month. In the final stage, the researcher analyzes the data, explains the findings from the data and draws conclusions from this research in April until June 2021. Based on a G*Power calculation with an effect size of 0.1 and a significance value of 0.05, the total number of predictors was two variables. The minimum number of research participants was confirmed to be 132 samples. Data was gathered online and samples were obtained using convenience sampling and snowball sampling techniques.

The measurement of innovative work behavior is based on the Janssen (2000)'s measuring instrument with a reliable value ($\propto$=0.88). Innovative work behavior is measured using a Likert scale with a response of 1 (Never Do) to 6 (Always Do). Openness to experience was measured using (Khusnah, 2020) measuring instrument with a reliable value ($\propto$=0.81). Openness to experience was measured using a Likert scale with a response of 1 (Strongly Disagree) to 4 (Strongly Agree). Knowledge Sharing Behavior was measured using Chen et al. (2009) measuring instrument with a reliable value ($\propto$=0.88). Knowledge Sharing Behavior was measured using a Likert scale with responses from 1 (Strongly Disagree) to 7 (Strongly Agree). In the three measuring instruments above, the respondent's score is obtained from the total score of the respondent.

Prior to data collection, the researchers conducted a pilot study to check the measuring instrument's reliability in the student population. Moreover, the researchers registered this study with the Research Ethics Committee of the Faculty of Psychology, Universitas Indonesia with the number 007/FPsi.Komite Etik/PDP.04.00/2021. During the implementation stage, the researcher collected the data for one month, from March 3, 2021, to April 3, 2021. Due to the Covid-19 pandemic, the researcher collected the data online and developed research surveys using Google Forms. The link to the

questionnaire was distributed through connections made by the researchers while they were students. The questionnaire was also completed with informed consent, and the researchers will keep the data received confidential. Filling out the questionnaire was also voluntary; respondents could stop at any time during the session. Finally, the researchers prepared a reward of IDR 500,000 in the form of GoPay or Ovo for 25 randomly selected respondents. The researchers then used statistical software SPSS version 25 to process the data. Furthermore, the researchers applied Hayes's mediation analysis, PROCESS.

4. Results and discussions

Results

306 students were involved in this study. Respondents were dominated by those aged 21 years (29.7%). Most of the respondents were female, amounting to 224 people (73.2%), compared to men (25.2%). Next, based on the semester, most respondents in this study were in semester eight (35.9%) than in other semesters. Furthermore, the majority of respondents in this study were from the Faculty of Psychology (20.9%), followed by the Faculty of Public Health (9.5%) and the Faculty of Cultural Sciences (9.5%) (9.5%). Next, when viewed by field, the majority of respondents came from the Social and Humanities field (56.5%), followed by the Health field (26.5%) and the Science and Technology field (17%).

Table 1. Mediation Analysis PROCESS by Hayes

Predictor		***Outcome***						
		M (Knowledge Sharing Behavior)				**Y (Innovative Work Behavior)**		
		Coef.	**SE**	***P***		**Coef.**	**SE**	***p***
X (Openness to Experience)	*A*	0.35	0.04	0.00	c	1.16	1.11	0.00
					c'	0.83	0.12	0.00
M (Knowledge Sharing Behavior)		-	-	-	b	0.91	0.13	0.00
Constant	*iM*	3.74	2.19	0.08	iy	-26.32	5.13	0.00
		$R^2 = 0.16$				$R^2 = 0.35$		
		$F(1,304) = 57.29; p < 0.01$				$F(2,303) = 80.42, p < 0.01$		

	Coef.	*t*	*P*
Total Effect (c)	1.16	9.94	0.00
Direct Effect (c')	0.83	7.05	0.00
Indirect Effect (ab)	0.32		

PROCESS mediation analysis by Hayes was conducted to examine the mediating effect of knowledge-sharing behavior on the relationship between openness to experience and innovative work behavior.

Based on Table 1, R2 on knowledge-sharing behavior is 0.16, which means 16% of the variance of knowledge-sharing behavior can be explained by openness to experience. Meanwhile, R2 on innovative work behavior is 0.35, which means that 35% of the variance of innovative work behavior can be explained by openness to experience and knowledge-sharing behavior. According to Gravetter and Forzano (2011) effect size of 0.09 to 0.25 indicates a medium effect and > 0.25 indicates a large effect.

Still based on Table 1, the results of the mediation analysis show that there is a significant indirect effect between openness to experience and innovative work behavior through knowledge-sharing behavior (ab = 0.32, $p < 0.01$, CI [0.2026-0.4530]). These findings support the research hypothesis, which states that knowledge-sharing behavior mediates the relationship between openness to experience and innovative work behavior. However, the results of the mediation analysis also show that there is a direct effect between openness to experience and innovative work behavior without going through knowledge-sharing behavior (c'= 0.83, $p < 0.01$, CI [0.6027-1.0692]). It means that knowledge-sharing behavior has a partial mediating effect on the relationship between openness to experience and innovative work

behavior. Based on these facts, it can be concluded that the higher people score on openness to experience, the higher frequency of knowledge-sharing behavior those people demonstrate, thus the greater probability those individuals will participate in innovative work behavior. However, in these findings, openness to experience can be directly related to innovative work behavior without having to go through knowledge-sharing behavior first.

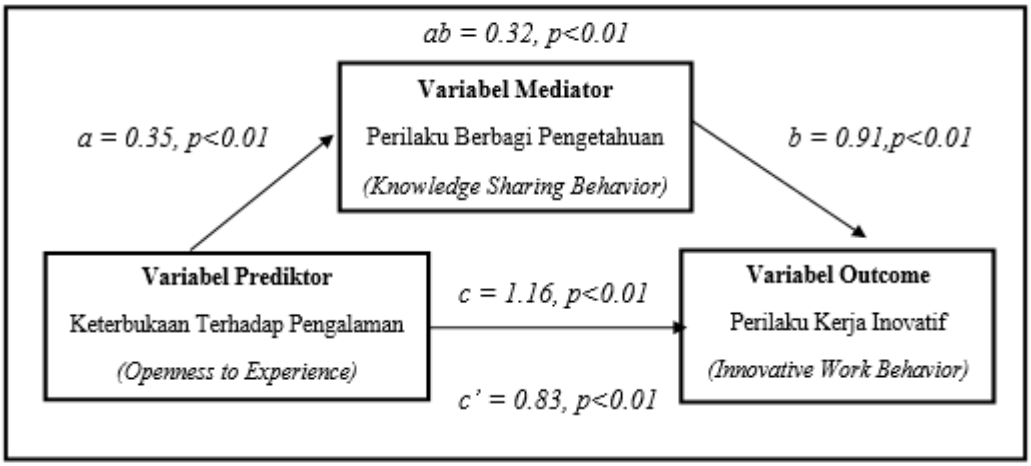

Figure 1. Mediation Analysis Result

Discussion

Based on the results of the mediation analysis, it was found that knowledge-sharing behavior has a partially mediating role in the relationship between openness to experience and innovative work behavior. Thus, the relationship between openness to experience and innovative work behavior will remain significantly positive even without using the mediating role of knowledge-sharing behavior. Although only partially mediating, the role of the mediator here is expected to add variety to other development programs when planning further programs or interventions for universities in developing student innovation.

Furthermore, the results of partial mediation in this study also indicate that there are still variants that do not through knowledge-sharing behavior influence innovative work behavior. Judging by the items from each aspect of openness to experience, there are several items that tend not to pass knowledge-sharing behavior, for example, item number three "I like to give opinions" or item number four "I like to discuss certain topics". These items when viewed in meaning tend to be similar to the behavior that appears in knowledge-sharing behavior, so this is one of the factors indicating that openness to experience does not need to go through knowledge-sharing behavior in influencing innovative work behavior because there are several items in openness to experience scale that include behavior in knowledge-sharing behavior variable. In addition, it is also possible that there are other mediator variables that play a more important role, such as innovative self-efficacy. Researchers argue that in displaying innovative work behavior, individuals must also have confidence that they can do this. Therefore, future research may be able to look at the dynamics of the innovative self-efficacy variable in mediating the relationship between openness to experience and innovative work behavior.

Meanwhile, based on these results, it can be concluded that students who tend to be open to new experiences will have more opportunities to innovate. Zuraik et al. (2020) explained that in the end, individuals who are more open to new experiences will tend to innovate more often because they get a lot more variety of experiences and ideas. Guo et al. (2017) also added that individuals with high openness to experience will be more courageous, open-minded, and like to explore new things so they are not afraid to try to innovate.

Other findings in this study also show that openness to experience has a significant positive relationship to knowledge-sharing behavior. This result is in line with several studies using a sample of workers, such as Lotfi et al. (2016) and students, such as Lin et al. (2018). Based on some of the results of these studies, it can be concluded that students who are open to new experiences tend to share their knowledge more often with their friends. Lin et al. (2018) explained that students who are open to experience have the flexibility of mind, curiosity, and acceptance of new ideas, so they can easily share knowledge. In the scope of higher education, the process of knowledge sharing behavior occurs because during learning, not every student is able to absorb or master the knowledge provided in the classroom as a whole. The presence of discussions outside the classroom by sharing knowledge among peers is expected to sharpen the individual abilities of students and increase the effectiveness of education as a whole Therefore, the writers concluded that people who are open to experience may have a tendency to share their own knowledge, because knowledge-sharing behavior is one way for them to satisfy their curiosity.

Next, the researchers also found that knowledge-sharing behavior has a significant positive relationship with innovative work behavior. This result is in line with several previous studies such as Akram et al. (2020) and Radaelli et al. (2014). Based on these studies, it can be concluded (Kim & Park, 2017) that individuals who frequently engage in knowledge-sharing behavior will tend to have great opportunities to innovate. Radaelli et al. (2014) explained that knowledge-sharing behavior plays an important role in each stage of innovative work behavior. First, at the idea generation stage, an idea is created because the individual has managed and recombined the knowledge that has been previously acquired. Next, at the idea promotion stage, individuals not only convey knowledge and information about the proposed innovation but also have to elaborate and translate the knowledge to make it understandable and suitable for the individual who will be invited to join. Finally, at the idea realization stage, individuals must coordinate and re-integrate knowledge from various other individuals who are in the same team, so that innovation can be carried out more maturely and can go according to plan. In short, individuals must manage, elaborate, recombine, and convey the knowledge they have acquired.

5. Conclusion

Based on the findings, the main hypothesis of this study, that knowledge-sharing behavior can mediate the relationship between openness to experience and innovative work behavior in Universitas Indonesia students, can be accepted.

Limitations and study forward

Despite the important findings, this study has several limitations. To begin, researchers in this study only used one of the top five personality components to predict knowledge sharing and innovative work behavior. The addition of four additional components, such as extraversion, neuroticism, conscientiousness, and agreeableness, can undoubtedly complete the explanation of the relationship between the five personalities, knowledge sharing behavior, and innovative work behavior. As a result, readers will have a better understanding of what factors have the most influence on knowledge sharing behavior and innovative work behavior. The second limitation of this study is the unequal proportion of participants from each faculty. The total number of participants that the researchers collected was 306, but there were several faculties that only contributed a few participants, namely the Faculty of Medicine and the Faculty of Dentistry as many as 7 and 8 people, respectively. This is inversely proportional to the Faculty of Psychology which contributed a total of 64 participants. The problem of this uneven proportion, of course, can affect the generalization of the research subject itself. Third, related to the generalization of the population, it is also important to make students from other universities as research subjects. This study only involved students from Universitas Indonesia, so the results of this study cannot be generalized to students outside Universitas Indonesia. It is very important to include other universities in future research so that the variation in the data obtained is more even and can be generalized to a wider population. Fourth, this study only used one method of data collection, namely a questionnaire. The variety of data obtained in this study is not as rich as the data obtained by other methods, for example, interviews. Fifth, due to distance and time limitations because of the Covid-19 pandemic, the researchers only used online questionnaires so they did not have full control over how

the test administration was carried out by participants. In this case, the researchers also received input from the participants after filling out the questionnaire that there were too many items, causing fatigue when filling out the questionnaire.

Based on the limitations, the researchers propose several methodological suggestions that can be taken into consideration for further research. First, use quota sampling techniques to equalize the proportions of each faculty so that the research results can be generalized with more confidence. Second, expand the student population by including students from other universities so that the study can be generalized more broadly. Third, it is possible for other universities to replicate this study in their student population. Finally, use a variety of methods in data collection such as interviews or focus group discussions in order to obtain richer, more detailed, and more informative data.

Based on the findings of the study, which show that knowledge-sharing behavior can mediate the relationship between openness to experience and innovative work behavior, the researcher would like to advise students to study science informally, rather than formally, through lectures taught by lecturers. Students are expected to try new activities to broaden their experience and ability to gain broader knowledge through sharing of knowledge. As a result, students who are active in participating in new activities will have a positive impact on their ability to develop innovative work behavior from an early point. The second suggestion is aimed at various stakeholders on campus, such as career centers and organizational/extracurricular management. The first thing that should be emphasized to prepare students for innovative work behavior is to encourage them to participate in extracurricular activities such as organizations, internships, communities, or entrepreneurship. The organization's or UKM's executives should create attractive programs and provide beneficial benefits to students so that they are interested in joining the organization. Furthermore, in order to develop students' innovation skills, it would be ideal for every organization to have organizational values in the form of being innovative. This value is expected to be the foundation for and embedded in all activities carried out by the organization.

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