

Transforming Sustainability: The Role of Transformational Leadership and Knowledge in Disruptive Innovation

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ABSTRACT

In Indonesia, educators have made notable strides in advancing their teaching methodologies. The research conducted was a quantitative study with a total of 118 university lecturers in East Java using a purposive sampling technique by distributing questionnaires using a Likert scale. SMART-PLS 3 is used as an analysis tool with PLS-SEM. This study found that transformational leadership has a positive and significant effect on disruptive innovation ($T= 3.564$, $\beta= 0.285$, $P= 0.000$). Transformational leadership has a positive and significant effect on knowledge acquisition ability ($T= 13.110$, $\beta= 0.645$, $P= 0.000$). Transformational leadership has a positive and significant effect on the ability to share knowledge ($T= 11.940$, $\beta= 0.617$, $P= 0.000$). The ability to acquire knowledge has a positive and significant effect on disruptive innovation ($T= 2.481$, $\beta= 0.274$, $P= 0.011$). The ability to share knowledge has a positive and significant effect on disruptive innovation ($T= 2.994$, $\beta= 0.273$, $P= 0.003$). Knowledge acquisition ability mediates the relationship between transformational leadership and disruptive innovation ($T= 2.396$, $\beta= 0.177$, $P=0.177$). Knowledge-sharing ability mediates the relationship between transformational leadership and disruptive innovation ($T=3.052$, $\beta=0.169$, $P=0.002$). These findings contribute to the theory of transformational leadership regarding the most effective leadership style in influencing the improvement of knowledge sharing ability, knowledge acquisition ability and disruptive innovation. Researchers found a lack of research linking transformational leadership and radical innovation. This is what encourages research to be carried out in the hope of novelty and the development of research on leadership theory.

1. Introduction

The inventive behavior of Indonesian lecturers is a key aspect in creating excellent human resources and competing in the current globalization period. The ability to generate new ideas and develop creative solutions in education can be termed lecturer innovation behavior. Lecturers with strong technological abilities are more interested in developing new ideas and increasing the quality of their instruction. A positive work atmosphere might inspire instructors to come up with fresh ideas. Training and development of technology skills, incentives and rewards, creating a suitable work atmosphere, giving appropriate resources, and greater self-development chances are examples of efforts that may be taken to boost innovation. (Yulianti, 2016). This can contribute to improving education quality in Indonesia and producing more innovative and educated human resources.

In Indonesia, instructors' ability to innovate differs widely. Numerous lecturers in Indonesia have succeeded in implementing innovations in their teaching, while others are still struggling. Limited resources are one of the variables that can influence lecturers' ability to innovate in Indonesia. Many higher education institutions in Indonesia continue to struggle with a lack of resources, including funding, buildings, and technology. This limitation can make it difficult for instructors to develop revolutionary inventions. Rigid curriculum: The curriculum in many Indonesian universities is still quite rigid, limiting lecturers' capacity to use new teaching approaches. Lack of motivation and support: Some academics are inhibited from producing innovations because their universities do not motivate or encourage them. (Yulianti, 2016).

Universities are competing to be the best at the moment. (Nurjanah, 2015). As a result, carrying out planned innovations will result in high-quality output, which will impact organizational competitiveness. Disruptive innovation is critical to sustaining a competitive advantage. Nabi et al. (2022) conducted a study on disruptive innovation, specifically examining the impact of transformational leadership on disruptive innovation. According to Le (2020), there is no association between transformational leadership and disruptive innovation. According to the study's findings, there is a lack of understanding of the role of transformational leadership in encouraging open-mindedness and motivating to increase innovative behavior, so the relationship between transformational leadership and disruptive innovation is considered underdeveloped. Another characteristic contributing to disruptive innovation is the ability to exchange and gain knowledge. The ability to communicate knowledge is a process of assimilating knowledge from one person to another, with the individual creating the knowledge (Ranto, 2015). Research (Le & Lei, 2019; Cetintas & Ozupek, 2012) shows that knowledge increases innovation. The ability to share knowledge increases competitiveness by creating opportunities for resource optimization, which encourages disruptive innovation.

In contrast to the earlier study, Li (2012) confirmed that information sharing had no substantial effect on disruptive innovation. Furthermore, acquiring knowledge can increase innovation; previous studies cited by (Xie et al., 2018) indicate that in dealing with an intense environment, knowledge is required to constantly obtain new information and knowledge to increase disruptive innovation due to the acquisition of new knowledge. Transformational leadership is one of the variables that can boost professor innovation. In previous studies, Kresnandito (2012) stated that transformational leadership encouraged innovative actions. Then, Birasnav et al. (2011) discovered that transformational leadership impacts the process of knowledge sharing and acquisition through innovation. This is reinforced by the findings of Le and Lei (2018), who discovered that transformative leadership promotes knowledge growth and acquisition. Purwanto et al., (2021) discovered that transformative leadership had no substantial effect on the ability to share information. Various outcomes of transformational leadership in promoting disruptive innovation, such as the absence of negative and significant linkages.

Furthermore, the findings that have been considered are still inconsistent, implying that various other criteria are required in the association between transformational leadership and disruptive innovation. As a result, this study aims to investigate the relationship of transformational leadership to disruptive innovation through mediation on the ability

to share information and acquire knowledge in the hope of generating novelty and developing leadership theory. In addition to phenomena, GAP research discovered from the results of previous researchers such as Nabi et al., (2022) found that the transformational leadership variable had a significant effect on disruptive innovation. In contrast, Linnan Gui, Hui Lei, (2022) found that the transformational leadership variable had no significant effect on disruptive innovation.

The contribution of this research is to broaden the specifications of disruptive innovation behavior that exists among Indonesian lecturers in carrying out their Tri Dharma activities, which include education and teaching, research and development, and community service through the support and implementation of transformational leadership and a culture of knowledge transfer among fellow lecturers. This study focuses on behavioral imbalances in teachers' innovation abilities at Indonesian universities.

2. Literature Review

2.1 Transformational Leadership Theory

The theory of transformational leadership is used in this research. Transformational leadership is the impact of a leader's attitude influencing his subordinates in team learning and awakening his subordinates to the importance of the value of his work (Parlindungan et al., 2021). The theory of transformational leadership popularized by Kenneth Leithwood and Doris Jantzi in the early 1990s explained that transformational leadership is inseparable from changes involving changes in the educational environment. Kaur Bagga et al., (2022) revealed that transformational leadership has been widely explored and discussed. The theory of transformational leadership in the field of education is quickly adapted to the ideal model of leadership needed in the world of education. The transformational leadership style inspires those who are led to achieve the vision and mission (Berkovich, 2016).

Previous researchers Longshore and Bass, (1987) put forward a model of transformational leadership encouraging innovative behavior. Transformational leadership theory is the most powerful leadership theory, so it attracts the attention of scholars and practitioners (Le & Lei, 2017). Transformational leadership theory emphasizes that a leader positively influences Disruptive innovation; it can also stimulate open-mindedness while simultaneously motivating innovative behavior (Newman et al., 2015).

2.2 Disruptive innovation

Disruptive innovation means newness to the market (Chaoji & Martinsuo, 2019). Disruptive innovation is a new product with different features, performance, and price attributes compared to existing

products and technologies (Slater & Mohr, 2006). Further, Diaz-Moriana et al., (2020) said that Disruptive innovation is a key aspect of the success of family firms on a global scale (Chirico et al., 2022). This is supported by the statement by Hu et al., (2022) that without Disruptive innovation, family companies can be in danger (Chirico et al., 2022). There are several indicators used to measure disruptive innovation, such as Implementing new technology, Using technology effectively, Update the development of ICT (Information and communication technologies), Making revolutionary changes (Hervas-Oliver et al., 2022), New demands from existing ones, Creating new things, Using new things from existing ones, Creating new ways in new markets (Akin Kocak, Alan Carsrud, 2017), Creation of new products, Creation of new services, Development of new distribution channels (Thneibat, 2021).

2.3 Transformational Leadership

According to Daft (2014), leadership is a person's ability to influence the achievement of organizational goals. There are several indicators used to measure transformational leadership, such as, Values talk, Celebrating accomplishments, Speaking enthusiastically, Creating a sense of priority and purpose, Stimulating to rethink the way of doing things, Asking questions that encourage thought, Teaching and training, Helping subordinates develop their strengths, Active listener (McCarley et al., (2016), My supervisor pays attention to employees' emotions, My supervisor develops quality social relationships at work, My supervisor can inspire employees, My supervisor is responsible for achieving positive changes in the company, My supervisor shows the importance of being responsible at work (Lin et al., 2020), Transformational leadership in higher education, characterized by idealized influence, inspirational motivation, individualized consideration, and intellectual stimulation, positively impacts academic quality and satisfaction at UII Yogyakarta. (Bass et al., 2003; Ismaya, 2017).

Previous research conducted by Nabi et al., (2022) has shown a positive and significant relationship between transformational leadership and Disruptive innovation through knowledge management abilities and argues that the contribution of transformational leadership has a positive effect on Disruptive innovation. Based on this elaboration, the hypotheses proposed in this study are:

H1: High Transformational Leadership will increase Disruptive innovation

H2: High Transformational Leadership will increase Knowledge Acquisition Capability.

H3: High Transformational Leadership will increase Knowledge Sharing Capability

2.4 Knowledge Acquisition Capability

Knowledge acquisition is the extraction of knowledge management obtained from various sources (Yahya, 2021). There are several indicators used to measure knowledge acquisition abilities, such as: Obtaining knowledge from the assessment, Acquire knowledge from various sources, Obtaining knowledge from friends or partners, Gain knowledge from seniors, Gain knowledge from the discussion (Hidayad & Fauziati, 2018), A person can play a role in the creation of knowledge, One can use technology, Able to manage knowledge acquired in the organization (Thanki, S., & Thakar, 2018). Xie et al., (2018) stated that knowledge acquisition capability positively influences Disruptive innovation. This study mentions how those seeking knowledge will and can increase the Disruptive innovations within them. Acquisition of knowledge gained becomes the basis for developing and renewing Disruptive innovations, which will affect the creation of an innovative environment. Based on this elaboration, the second hypothesis proposed in this study is:

H4: Knowledge Acquisition Capability is Positively Related to Disruptive Innovation

H6: Knowledge acquisition capabilities mediate the transformational leadership relationship Against Disruptive innovation

2.5 Knowledge Sharing Capability

Knowledge sharing capability is a process of exchanging knowledge and creating new knowledge (Nguyen et al., 2021). There are several indicators used to measure knowledge sharing abilities, such as: Sharing knowledge with colleagues, Intend to share knowledge as best as possible, Trying to share knowledge, Sharing knowledge more often, Share knowledge with colleagues more effectively (Tseng, 2017), Share processes and reflections with colleagues, Share process and revisions with colleagues, Share the process or results of self-assessment with colleagues, Sharing learning content, Sharing the results of feedback from colleagues with other colleagues, Share results from senior feedback with colleagues, Share feelings and thoughts with colleagues, Sharing and discussing with friends (Chang et al., 2018), Knowledge sharing in university research and innovation teams is a systematic process involving individual, team, and team-based knowledge exchange, leading to the creation of new knowledge (Wang et al., 2010). Moreover, Ritala et al., (2015) found knowledge sharing affects increasing Disruptive innovation. Knowledge acquisition capability can enhance the development of new knowledge, which can eventually foster Disruptive innovation (Ritala et al., 2018). Based on this elaboration, the second hypothesis proposed in this study is:

H5: High Knowledge Sharing Capability will increase Disruptive innovation.

H7: Knowledge Sharing Capability mediates transformational leadership relationships Against Disruptive innovation.

3. Method

This study aims to determine the effect of transformational leadership on disruptive innovation with the mediating role of knowledge acquisition and knowledge sharing capabilities. The sample used in this study was a lecturer by profession. The data collection technique used a purposive sampling technique. The number of samples was 181 respondents, and in this study, the samples studied had to meet the requirements such as a lecturer by profession, a minimum education level of S-1, a lecturer in the East Java region, and at least one year of teaching experience. The data collection method uses an online questionnaire of 19 questions to be answered +/- 20 minutes. The online questionnaire format is designed so that the confidentiality of the respondents is maintained. The data analysis method uses the PLS-SEM (Partial Least Square-Structural Equation Modeling) analysis technique using SmartPLS 3.0 software. Smart-PLS helps researchers to confirm theories and can explain whether there is a relationship between latent variables. The number of samples used in the analysis is relatively small, and the data used does not have to be normally distributed because SmartPLS uses a random bootstrapping or multiplication method. The limitations of this research are the limited variables on transformational leadership, knowledge acquisition ability, and knowledge sharing ability, while many other variables affect disruptive innovation. Second, the object of this research is limited to one province only.

4. Result

This research aims to study the variables that can increase disruptive innovation by considering the mediation of knowledge sharing capabilities and knowledge acquisition capabilities. This research shows that the behavior of transformational leaders inspires their subordinates to create innovation, from this behavior encourages knowledge acquisition and knowledge sharing so as to create innovation. We developed and evaluated the measurement models internal reliability, convergent validity. To validate construct and determine the construct's reliability, we used Cronbach's α , rho A and composite reliability. In this study using the PLS-SEM (Partial Least Square-Structure Equation Modeling) approach using Smart-PLS 3.0 software. PLS does not require the assumption of normal data distribution and does not require a minimum number of samples to be used. Then, PLS can be used to build relationships or for testing propositions. This study uses the bootstrapping method (random multiplication) so that the normality assumption is not a problem. There are two PLS tests

to validate the proposed conceptual model by evaluating the external model to measure the validity and reliability of latent constructs by looking at discriminant validity, convergent validity, Cronbach's alpha and composite reliability. Evaluating the inner (structural) model by looking at the R-square value and testing the hypothesis.

Table 6. Profile of Respondents

Element	Frequency	(%)
Ages		
a.22 to 27 years	23	12,7%
b.28 to 33 years	34	18,8%
c.34 to 39 years	42	23,2%
d. \geq 40 years	82	45,3%
Genders		
a. Fale	87	48,1%
b. Male	94	51,9%
Last education		
a.S1	34	18,8%
b.S2	113	62%
c.S3	34	18,8%
Teaching Time		
a.1 s/d 5 years	70	38,7%
b.6 s/d 10 years	45	24,9%
c.11 s/d 15 years	27	14,9%
d. \geq 15 years	39	21,5%

Note: Number of responses (n=181)

Based on Table 6, we obtained respondent data which became our research criteria. The data includes: (1). The age of the respondents obtained by respondents aged between 22-27 years was 12.7%, aged 28-33 years was 18.8%, aged 34-39 years was 23.2% and aged more than 40 years was 45.3%. (2) Gender, it was found that the number of female respondents was 51.9% more than the number of male respondents, as much as 48.1%. (3). Finally, the educational background of the undergraduate respondents was 18.8%, the educational background for the master's degree was 62%, and the educational background for the doctorate was 18.8%. (4). Length of teaching, from the grouping results, it can be seen that the largest group of respondents with a teaching duration of 1 to 5 years is 70 people or 38.7%.

Table 7. Discriminant Validity

	KAC	KSC	RI	TL
KAC	0,773			
KSC	0,803	0,822		
RI	0,678	0,670	0,799	
TL	0,645	0,617	0,631	0,759

The discriminant validity test was carried out to differentiate between one latent variable and another latent variable. If the AVE value of the influence variable construct (value on the diagonal) is more than the correlation of other constructs (value under the diagonal) (Ghozali, 2014). In table 7. Convergent validity test with the condition that the loading factor is > 0.5 with the AVE value for each construct > 0.5

(Ghozali, 2014). Based on Table 7, it is found that the estimation results of the PLS model have a loading factor > 0.5 , so it meets the requirements of convergent validity. Then, looking at the AVE value, each construct meets the requirements, namely > 0.5 . These results indicate that they have met the requirements of discriminant validity.

TABLE 8. Construct Reliability

Constructs/Measures	Items	CA	rho_A	CR	AVE
Transformational Leadership	TL1	0,758	0,764	0,845	0,577
	TL2				
	TL3				
	TL4				
Knowledge Acquisition Capability	KAC1	0,831	0,841	0,881	0,598
	KAC2				
	KAC3				
	KAC4				
	KAC5				
Knowledge Sharing Capability	KSC1	0,880	0,886	0,912	0,675
	KSC2				
	KSC3				
	KSC4				
	KSC5				
Disruptive innovation	RI1	0,859	0,866	0,898	0,639
	RI2				
	RI3				
	RI4				
	RI5				

The reliability value of the construct can be seen from the Cronbach and composite reliability values of each construct with the condition that the Cronbach alpha value is > 0.70 , the Composite Reliability value is > 0.60 , and the Average Variance Extracted (AVE) value is > 0.50 , if these three values are fulfilled, it is declared reliable. Based on Table 8 above, it is known that Cronbach alpha (CA) and rho_A for the Leadership variable have a Cronbach alpha value of

0.758 more than 0.70, Knowledge Acquisition Ability has a Cronbach alpha value of 0.831 more than 0.70, Knowledge Sharing Ability has a Cronbach alpha value of 0.880 more than 0.70 and Disruptive Innovation has a Cronbach alpha value of 0.859 greater than 0.70. These results indicate that all variables meet the Cronbach alpha value requirements.

The Composite Reliability value of the transformational leadership variable has a value of 0.845, more than 0.60; knowledge Acquisition Ability has a value of 0.881, more than 0.60; knowledge Sharing Ability has a value of 0.912, more than 0.60 and Disruptive Innovation has a value of 0.898 greater than 0.60. Furthermore, the Average Variance

Extracted (AVE) for the variable transformational leadership, knowledge acquisition ability, knowledge sharing ability and disruptive innovation has a construction value of > 0.50. These results indicate that all variables have a reliable construct, so it can be concluded that all variables have a high level of reliability and discriminant validity.

Table 9. R Square Value

	R Square	R Square Adjusted
KAC	0,416	0,412
KSC	0,380	0,377
RI	0,549	0,541

Based on Table 9, the R square value of the knowledge acquisition ability variable is 0.416, which means that the knowledge acquisition ability variable can be explained by the transformational leadership variable by 41.2% while the remaining 58.8% is explained by other variables outside this study. The R square value for the ability to share knowledge is 0.380, which means that the variable ability to share knowledge can be explained by the transformational

leadership variable by 37.7% while the remaining 62.3% is explained by other variables outside this study. The R square value of the Disruptive innovation variable is 0.549, which means that the Disruptive innovation variable can be explained by the transformational leadership variable by 54.1% while the remaining 45.9% is explained by other variables outside this study.

Table 10. Hypothesis Test

<i>Hipotesis</i>	<i>Path Coefficient</i>	<i>T statistics(O/STDEV)</i>	<i>P values</i>
<i>H1</i>	0,285	3,564	0,000**
<i>H2</i>	0,645	13,110	0,000**
<i>H3</i>	0,617	11,940	0,000**
<i>H4</i>	0,274	2,481	0,009**
<i>H5</i>	0,273	2,994	0,002**

Note: ** means a significance level of 95%

To test the hypothesis in this study, a bootstrapping technique was used with 500 subsamples to see how significant the path coefficient was with a T-statistic > 1.96 and P-Values <0.05. In Table 9, the results of the first hypothesis show that transformational leadership has a positive and significant relationship with disruptive innovation with a t-statistic value of 3.564 greater than 1.96, a path coefficient value of 0.285 and a p-value of 0.000 less than 0.05. This positive relationship indicates that transformational leadership is very influential in increasing disruptive innovation. These results support H2 with a t-statistic value of 13,110 greater than 1.96, a path coefficient of 0.645 and a p-value of 0.000 less than 0.05 and H3 with a t-statistic value of 11,940 greater than 1.96, a path coefficient of 0.617

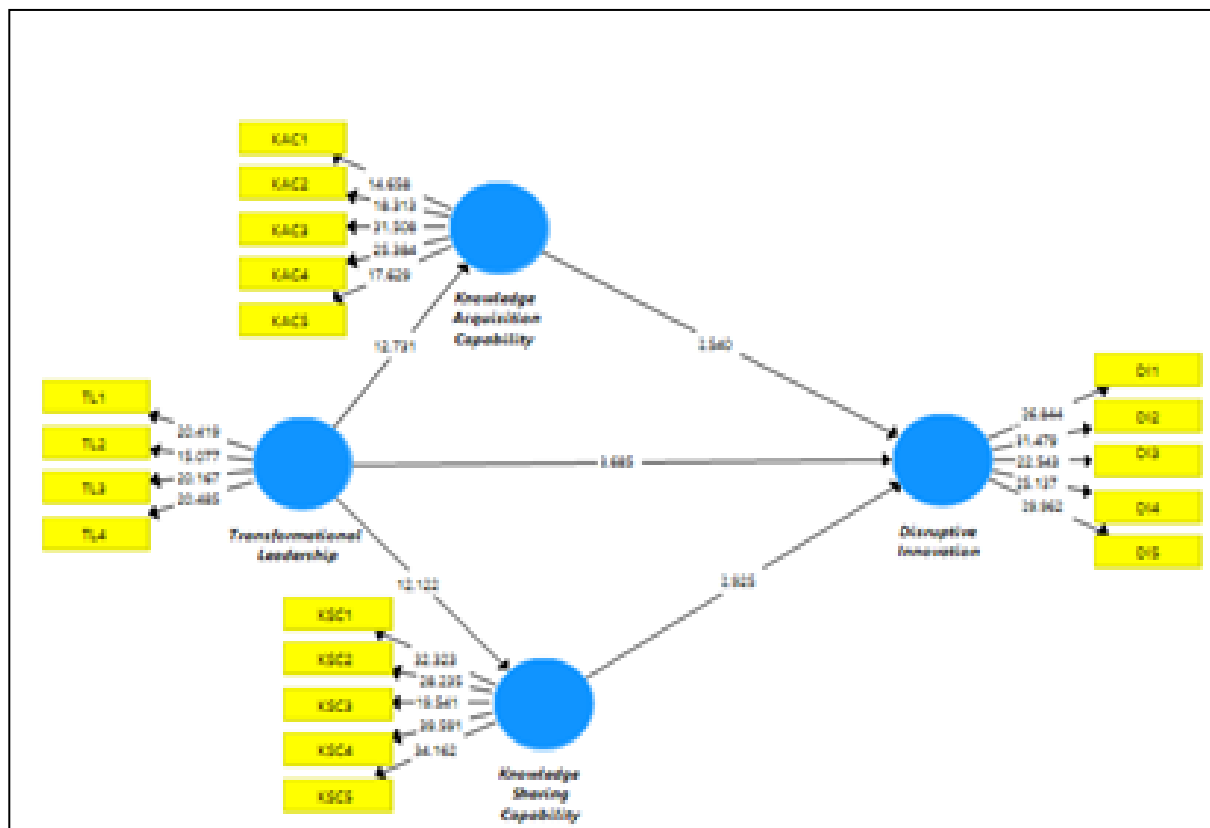
and a p-value of 0.000 less than 0.05; these two findings show that transformational leadership has a positive and significant relationship on the ability to share knowledge and the ability to acquire knowledge of knowledge. Furthermore, these results support H4 with a t-statistic value of 2,481 greater than 1.96, a path coefficient value of 0.274, and a p-value of 0.011 less than 0.05, meaning that knowledge acquisition capability has a significant positive effect on increasing Disruptive Innovation. These results support H5 with a t-statistic value of 2,994 greater than 1.96, a path coefficient value of 0.273 and a p-value of 0.003 less than 0.05, meaning that the ability to share knowledge positively increases disruptive innovation.

Table 11. Indirect Effect Parameter Estimation

Indirect effects	Path Coefficient	T statistic	P values
TL→KAC→RI	0,177	2,396	0,017**
TL→KSC→RI	0,169	3,052	0,002**

The H6 and H7 mediation used the bootstrap technique with a sample size of 5000, for the confidence interval used by the researcher was 95%. The H6 result with a t-statistic value of 2,396 is greater than 1.96, the path coefficient value is 0.177, and the p-value is 0.017, less than 0.05. Knowledge acquisition ability mediates the relationship between transformational leadership and disruptive innovation, meaning that transformational leadership influences the increase in disruptive innovation through the role of knowledge acquisition capability. Transformational leadership stimulates knowledge acquisition which ultimately results in increased disruptive innovation.

The results support the mediation of H7 results with a t-statistic value of 3.052 greater than 1.96, a path coefficient value of 0.169, and a p-value of 0.002 less than 0.05. These findings confirm the ability to share knowledge to mediate between transformational leadership and disruptive innovation. Therefore, the ability to share knowledge significantly affects transformational leadership and disruptive innovation, with the ability to share knowledge directly affecting the increase in disruptive innovation and indirectly between transformational leadership and disruptive innovation.

**Figure 2.** Structural Model That Describes the Value of Direct and Indirect Effects

The bootstrap technique is used in this study to measure the direct effect of transformational leadership variables, knowledge acquisition capabilities and knowledge sharing capabilities on disruptive innovation. Then, the indirect effect of mediating knowledge sharing capabilities between

transformational leadership and disruptive innovation, knowledge acquisition capabilities between transformational leadership and disruptive innovation. Figure 2 shows the research model, which includes indirect and direct effects of all variables along with indicators.

5. Discussion

A nurturing innovation ecosystem, based on culture, networks, resources, and evangelism, can help asset management firms thrive by fostering disruptive ideas and fostering creativity among employees. (Grossman & McDonald, 2008). However, the specific mechanisms and strategies through which organizational learning can facilitate disruptive innovation were not fully understood. Researchers were interested in examining how organizations can foster a culture that encourages continuous learning, experimentation, and risk-taking to stay ahead in disruptive markets (Bligh et al., 2018). Sustainable development and environmentally responsible practices were increasing attention in innovation. Researchers were exploring how knowledge acquisition processes could be tailored to support disruptive innovations that are economically viable, environmentally and socially sustainable (Dan & Chieh, 2008).

Transformational leadership behaviors foster exploratory innovation, while transactional behaviors enhance existing knowledge, with environmental dynamism playing a key role in their effectiveness. (Christensen et al., 2018). Researchers could conduct longitudinal studies and case analyses to explore how leaders with transformational characteristics impact the disruptive innovation process within organizations. Disruptive innovation typically involves multiple phases, from idea generation to implementation (Pisano, 2015). Examining how transformational leadership styles must adapt or vary throughout these different phases could provide valuable insights into their effectiveness in promoting and sustaining disruptive innovation.

One of the primary challenges is developing reliable and valid measures to accurately assess an organization's knowledge sharing capability (Kiseli et al., 2016). Researchers could work on creating comprehensive and standardized measurement tools to capture the effectiveness of knowledge sharing processes within organizations and their impact on disruptive innovation outcomes. While it is theorized that knowledge sharing capability can positively influence disruptive innovation, the direction of causality remains uncertain (Majchrzak et al., 2013). Further research is needed to establish whether an organization's knowledge sharing capability leads to disruptive innovation or whether successful disruptive innovation initiatives foster a culture of knowledge sharing within the organization. Disruptive innovation often involves collaboration between organizations, forming knowledge sharing networks and alliances. Research could examine the dynamics of knowledge sharing within such networks and how they contribute to successful disruptive innovation outcomes.

5.1 Transformational Leadership Influences on Increasing Disruptive Innovation

The research results found that transformational leadership has a positive and significant effect on disruptive innovation. This is because transformational leadership behavior has a big role in motivating lecturers to create innovation (Choi et al., 2016). In addition, high transformational leadership tends to support the creation of new methods and concepts (Hoai et al., 2022). Highly transformational leadership is motivating and enhances the development of ideas. It encourages critical thinking, which can lead to radical ideas that may effectively address future challenges. This approach accelerates the achievement of an organization's vision and mission by fostering innovative solutions. Additionally, highly transformational leadership often provides learning opportunities that support creative thinking and innovation (Prasad & Junni, 2016).

5.2 Transformational leadership influences the increase in knowledge acquisition capability.

The study's results found that transformational leadership has a positive and significant effect on the ability to acquire knowledge. This is because transformational leadership motivates lecturers to acquire knowledge. That is, if transformational leaders encourage lecturers to acquire knowledge and use it effectively, it can accelerate the achievement of the organization's vision and mission (Yue et al., 2019). High transformational leadership has a role in influencing lecturers to obtain new knowledge from fellow lecturers, organizations, more skilled people and sources of knowledge. Transformational leadership encourages employees to think critically by providing inspiration and motivating followers, especially through communicating high expectations and stimulating people's intelligence, knowledge, and learning abilities (J. Chang et al., 2015). Transformational leadership influences the development of knowledge by stimulating intelligence in the lecturer's knowledge acquisition process. So, it can be concluded that transformational leadership influences acquisition ability because lecturers have more knowledge than other people and make a person explore more knowledge. Transformational leadership encourages lecturers to be more selective in acquiring new knowledge from knowledge sources. This knowledge acquisition process helps lecturers adjust the development of new knowledge that allows it to be applied in the learning process. Then, high transformational leadership helps lecturers work to acquire new knowledge, and this collaboration triggers the formation of new knowledge—high transformational leadership in addition to having a role in encouraging lecturers. In conclusion, transformational leadership influences increasing the acquisition ability of lecturers.

5.3 Transformational leadership affects increasing the ability to share knowledge.

The results found that transformational leadership had a positive and significant effect on knowledge sharing capability. This is because the head of the study program, as a lecturer leader, has an important role in encouraging and stimulating lecturers to share their knowledge with students. This knowledge-sharing activity causes students to learn something they did not know about something because they get new knowledge. This is in line with research Kim and Yun, (2015) found leaders in terms of increasing knowledge in line with their subordinates who can share the knowledge gained (Park & Lee, 2014). Mai, and Phan, (2022) explain that leadership roles influence knowledge sharing. Transformational leadership supports the achievement of the vision, gives trust, and provides encouragement to encourage subordinates to share the knowledge received. This is because the transformational leadership of the lecturers provides full support to the lecturers to share their knowledge so that they can compete in a competitive environment.

Leadership encourages employees to develop their abilities; this can also be done by sharing knowledge with colleagues. Likewise, research conducted by Al-husseini and Elbeltagi, (2018) states that transformational leadership encourages, provides vision, trusts, provides support, and also influences the various knowledge possessed. Providing support, encouragement and a vision of transformational leadership promotes knowledge sharing in the organization. It can be concluded that transformational leadership greatly influences the knowledge sharing behavior of lecturers by introducing various knowledge within the organization.

5.4 Effect of knowledge acquisition capability on increasing Disruptive innovation

The study results show that knowledge acquisition capability has a positive and significant effect on disruptive innovation. New knowledge is obtained through the absorption of knowledge possessed by other people, absorbing knowledge from various sources of knowledge, which trigger an increase in disruptive innovation. This is in line with research (Xie et al., 2018). The process of acquiring knowledge from lecturers is very important for the progress of higher education (Thanki, S., & Thakar, 2018). These results show that knowledge acquisition by lecturers can create disruptive innovations. This is due to the absorption of new knowledge obtained by changing the previous paradigm in the lecturer (Clark, & Creswell, 2015). New knowledge through acquiring knowledge broadens the lecturer's horizons and stimulates analytical thinking, thereby triggering disruptive innovation.

Broad insights are obtained from the absorption of new knowledge from other people or new sources of knowledge. The absorption of new knowledge cannot be separated from the role of technology. This is supported by research by Burnett, (2016) which found that technology has a role in increasing knowledge acquisition. Combining the new knowledge acquired into a knowledge base can produce a novelty from knowledge absorption activities (Forés & Camisón, 2016). Knowledge gained from fellow lecturers supports the formation of new knowledge for the novelty of learning methods and student teaching materials. Learning methods that are different from before are a breakthrough in the learning process, making it easier for students to absorb knowledge. The knowledge obtained varies from fellow lecturers and organizations with varying knowledge levels. The combination of knowledge gained raises values in the innovation process. The innovation process can be a high level of novelty if, in the process, there is new knowledge as a result of combining knowledge through knowledge acquisition which allows for the creation of disruptive innovations. It can be concluded the ability of lecturers in knowledge acquisition affects the level of disruptive innovation produced.

5.5 The Effect of Knowledge sharing capability on increasing Disruptive innovation

The research results found that knowledge sharing capability has a significant positive effect on disruptive innovation. This is because a lecturer who shares his knowledge with fellow lecturers will help them complete their work with the new knowledge they gain. Knowledge-sharing activities can increase disruptive innovation. This is in line with research (West & Bogers, 2014). These results show that sharing knowledge with partners increases disruptive innovation. Knowledge-sharing activities raise radical ideas to encourage disruptive innovation in lecturers. In line with Isnari, (2021) stated that to increase disruptive innovation in a person, the ability to share their knowledge is needed. Acquiring new knowledge creates a set of values in a competitive environment and contributes positively to disruptive innovation. New knowledge gained from sharing knowledge carried out by lecturers forms a new mentality of students so that students learn how to solve problems in new ways. In addition, sharing knowledge by utilizing existing technology allows students to get new knowledge and can change students' radical mindsets to create innovations. The impact of knowledge sharing activities encourages the emergence of disruptive innovations because of shared knowledge, and vice versa. Disruptive innovations arise due to knowledge behavior, one of which is sharing knowledge, according to the findings of this study.

The ability to share knowledge becomes the lecturer's knowledge base, forming the basis and development of ideas in producing high-level novelties or disruptive innovations. Sharing knowledge with co-workers, obtained from personal experience in knowledge transfer activities with the result of broadening horizons and developing knowledge that can be used as learning content material to create novelty in learning processes and methods. Utilizing existing technology is very helpful for lecturers in sharing their knowledge with students and within the organization. Then, the knowledge becomes material for discussion with fellow lecturers or people who are more expert with the aim that the knowledge possessed is in accordance with the development of existing knowledge. The knowledge that is in accordance with updates on the development of knowledge becomes a novelty that triggers the formation of innovations that have never existed before. It can be concluded that various knowledge can increase the disruptive innovation in lecturers.

5.6 Knowledge acquisition capabilities mediate between transformational leadership and Disruptive innovation.

The research results found that knowledge acquisition abilities mediate the relationship between transformational leadership and disruptive innovation. This is due to transformational leadership motivating and intellectually stimulating so that more and more knowledge is absorbed and can encourage an increase in disruptive innovation. This is in line with research conducted by (Nabi et al., 2022). These results show that transformational leadership encourages knowledge acquisition, as a result of which the knowledge obtained is greater and can increase disruptive innovation. Leaders with a transformational leadership style have a major influence on increasing Disruptive innovation in lecturers by encouraging the absorption of knowledge from experts so they can create innovative ideas related to learning. The creation of innovative ideas regarding learning can be applied when teaching students so that students gain new knowledge with more innovative learning concepts obtained from lecturers so that students are interested and understand the material more quickly.

Transformational leadership significantly fosters Disruptive innovation through acquiring knowledge and supporting change by encouraging a positive and collaborative environment (Le & Lei, 2019). Knowledge acquisition triggers creative ideas that can increase disruptive innovation with the support of transformational leadership (Xie et al., 2018). The creation of creative and innovative ideas regarding learning can be applied when teaching students so that students gain new knowledge with more innovative learning concepts obtained from lecturers so that students are interested and understand the material more quickly.

Transformational leadership encourages lecturers to acquire new knowledge that can be used as teaching materials in learning with different learning methods, resulting in disruptive innovation due to the acquisition of new knowledge that is applied to different methods. Transformational leadership inspires lecturers so that the knowledge gained from the organizations they participate in is managed properly to create useful breakthroughs. Transformational leadership invites to work together in acquiring knowledge from seniors and people who are more skilled to use the new knowledge gained to become an idea of the problems that occur. The characteristics of transformational leadership become a driving force in absorbing knowledge because the criteria for transformational leadership that lecturers idealize become a trigger for knowledge acquisition so that new knowledge obtained becomes creative and innovative solutions to problems and challenges faced. It can be concluded, knowledge acquisition mediates between transformational leadership and Disruptive innovation.

5.7 Knowledge sharing capabilities mediate between transformational leadership and disruptive innovation.

The research results found that knowledge acquisition abilities mediate the relationship between transformational leadership and disruptive innovation. This is because transformational leadership motivates and stimulates intellectually so that more and more knowledge is gained. The new knowledge gained creates innovative new learning methods and concepts. High transformational leaders have a major influence in increasing disruptive innovation for lecturers by encouraging the absorption of knowledge from experts so that they can create innovative ideas related to learning. The creation of innovative ideas regarding learning can be applied when teaching students so that students gain new knowledge with more innovative learning concepts obtained from lecturers so that students are interested and understand the material more quickly. High transformational leadership encourages disruptive innovation by acquiring knowledge that supports change by encouraging a positive and collaborative environment (Lei et al., 2020).

In line with Le & Lei, (2019) found that transformational leadership supports knowledge-sharing behavior by creating a set of values, thereby increasing disruptive innovation. Transformational leadership develops intellectual capital, thereby encouraging knowledge sharing and promoting disruptive innovation. Leaders with a transformational leadership style have an impact on increasing disruptive innovation in lecturers by encouraging sharing of their knowledge with fellow lecturers and students; from this knowledge-sharing activity, lecturers and students gain new knowledge that has never been learned or obtained from other people.

The new knowledge gained becomes the basis for creating an innovation to raise radical ideas in both lecturers and students. Transformational leadership is required to continue to be inspiring because lecturers will be influenced to share knowledge with colleagues regarding innovative and creative learning content as a result of this process of sharing knowledge which leads to the creation of different learning methods so as to give rise to disruptive innovations. Then, the knowledge gained is applied to new learning methods so that new knowledge received by students can be well absorbed from the novelty of learning methods. Transformational leadership cooperates with lecturers in transferring knowledge to create breakthroughs. Sharing this knowledge encourages the creation of innovations related to knowledge so that the knowledge shared with students and colleagues can become new ideas that did not exist before because of the influence of the characteristics possessed by transformational leadership. Then, transformational leadership has a major influence in encouraging knowledge-sharing activities by leveraging existing technology for the benefit of student learning so that lecturers sharing their knowledge are required to make more efforts to create innovative ideas so that the shared knowledge can become a useful knowledge base in developing student knowledge. It can be concluded knowledge sharing mediates between the variables of transformational leadership and disruptive innovation.

6. Conclusions

By utilizing the mediation of information acquisition and knowledge sharing abilities, this study investigates lecturers' perceptions of transformational leadership in order to increase their capacity to implement radical innovation in the execution of tri-drama activities in universities. The relationship between transformational leadership and disruptive innovation has not been thoroughly investigated; to fill this study gap, the researcher suggests that knowledge sharing and knowledge acquisition skills play a mediating function. According to the study, disruptive innovation is significantly and favorably impacted by transformational leadership, information-sharing capability, and knowledge acquisition competence. These results provide evidence in favor of the leadership hypothesis that transformational leadership influences the growth of innovation in education, particularly for universities.

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Appendix

Table 5. QUESTIONNAIRE

No	Variable Name	Dimensions	Source
1.	Disruptive innovation	<ol style="list-style-type: none"> 1. I can convey ideas and ideas that have not existed before to colleagues 2. I can solve problems with creative and innovative solutions 3. I can create a learning process with a different method than before 4. I can create new ideas with other people 5. I can create the latest breakthroughs related to knowledge. 	Hervas-Oliver et al., (2022); Thneibat, (2021)
2.	Transformational leadership	<ol style="list-style-type: none"> 1. My leader has the characteristics of an idealized leader under him 2. My leader can encourage his subordinates to develop their abilities. 3. My leader can inspire his subordinates. 4. My leader can cooperate with his subordinates. 	(McCarley et al., 2016); Lin et al., (2020); Bass et al., (2003); Qalati et al., (2022)
1.	Knowledge Acquisition capability	<ol style="list-style-type: none"> 1. I can acquire knowledge from a variety of sources 2. I get knowledge from friends or partners 3. I can create useful knowledge for others 4. I can manage knowledge gained from within the organization that I follow 5. Saya memperoleh pengetahuan yang berguna dari senior atau orang yang lebih ahli 	Hidayad & Fauziati, (2018); Thanki, S., & Thakar, (2018)
2.	Knowledge sharing capability	<ol style="list-style-type: none"> 1. I can share knowledge with colleagues and students 2. I can share knowledge about learning content with colleagues and students 3. I can share personal experiences related to knowledge with colleagues and students 4. I can discuss knowledge with colleagues and students 5. I can share knowledge by utilizing existing technology 	Tseng, (2017); Chang et al., (2018); Haider et al., (2022)