



RESEARCH ARTICLE

The Role of Transformational Leadership Style on Innovative Work Behavior in Generation Z in the VUCA (Volatility, Uncertainty, Complexity, Ambiguity) Era with the Mediation of Employee Creativity and Moderation of Knowledge Sharing

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ARTICLE INFO	ABSTRACT
Received: Nov 19, 2024 Accepted: Jan 21, 2025	Our research explored the impact of the variable TL, EC, and KS on IWB, focusing on Gen Z within Indonesia's multi-industry landscape. We surveyed 220 Gen Z employees across diverse sectors, including infrastructure, finance, and technology. This quantitative analysis utilizes the SmartPLS 4.0 software to analyze the primary data and derive the Structural Equation Model (SEM). The findings indicated that four out of five proposed hypotheses were confirmed. The analysis results indicated that TL positively affected both EC and IWB, while EC significantly influenced IWB and acted as a partial mediator between TL and IWB. The findings of this study indicate that knowledge sharing (KS) does not moderate the effect of TL on IWB. The findings of this study will provide practical implications for organizations concerning the innovative behavior they expect from their Generation Z workers. One of the significant suggestions is that organizations should change their leadership style from one that needs the expression of creativity to one that has practices based on following the procedures laid out by management.
Keywords Transformational leadership (TL) Employee Creativity (EC) Innovative Work Behavior (IWB) Knowledge Sharing (KS)	
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INTRODUCTION

The rapid development in the VUCA era has caused the level of competition to be tighter. The business world must face and overcome many challenges, especially encouraging innovative work behavior (IWB) to its employees in line with the evolution of technology that has transformed the way of working and interacting in the business environment. According to (apjii.or.id, 2024), there is an increase in internet usage by 1.4% as of February 2024 compared to 2023, which reaches 221.5 million people. 79.5% of Indonesians now have access to the internet. Moreover, estimates suggest that this percentage will rise to 93.2% by 2030, which will significantly aid in the growth of online business services. One of the effective strategies for increasing employee creativity (EC) is through transformational leadership (TL) (Gabriel, 2021; Sabir, 2024), where leaders are expected to act "as war generals," leading change by transforming competition into a driving force for innovation and

competitiveness. This strategy can be achieved by enhancing communication skills, adapting to changes, fostering creativity and innovation, managing human resources effectively, and facilitating intergenerational interactions. In this context, transformational leadership is critical to ensure the high and innovative performance of Generation Z because they are the future talents for the advancement and change of the company. This is supported by Population Census data in Indonesia by the Central Statistics Agency (BPS) from (Rainer, 2023) which shows that the number of Gen Z in 2020 is around 74.93 million people, equivalent to 27.94% of the total population in Indonesia, in the young to early adolescence while in the world, it controls 32% of the total global population with 41% controlling the world of work. Generation Z was born in the internet era from 1995 to 2010 and has grown up with digital technology; they have different characteristics and needs than previous generations and prefer to use technology to communicate, learn, and play, and have different preferences in terms of entertainment and information (Benítez-Márquez et al., 2022; Abdullah, 2024).

In order to foster employee creativity (EC) and innovative work behavior (IWB), organizations must facilitate the integration of diverse knowledge and engagement. Innovative work behavior is different from creativity because innovative work behavior is sustainable from the idea to the promotion and implementation process. In contrast, creativity is only limited to the emergence of ideas (Fatmawaty et al., 2023). Creativity is an early stage of innovation and is essential in leading to innovative work behaviors and organizational innovation (K. N. Nguyen & Nguyen, 2024). A wide range of knowledge is crucial in connecting employee creativity with employee performance (Yamin, 2020; Farooq et al., 2010). According to (Muzafary et al., 2021), knowledge sharing (KS) can mediate to increase employee creativity. The relationship between transformational leadership and employee creativity is also subject to moderation by knowledge sharing (Asad et al., 2021; Fatmawaty et al., 2023; Jam et al., 2017).

Transformational Leadership (TL) is widely recognized as a critical force of innovation (Saif et al., 2024). Despite the previous research examining the influence of TL and IWB, there are still conflicting research results. Research by (Karimi et al., 2023; Saif et al., 2024) shows a direct and positive correlation between TL and IWB, a finding that is supported by other research indicating that TL has a positive impact on IWB (Afsar & Urumrani, 2020; Lin, 2023). However, several other studies have shown that TL has no direct and significant relationship with IWB (Febita & Desiana, 2022; Udin & Shaikh, 2022). The research is carried out in various industries, such as higher education institutions, government organizations, hospitality, and information and communication technology.

Based on a literature review of 31 journal articles published by Scopus in 2017-2023 conducted by (Sueb Sueb & Sopiah Sopiah, 2023) several factors were found to mediate TL and IWB, including organizational support for innovative behavior, innovation approach, and goal-oriented culture, meaningful work, digital literacy, quality of teamwork, psychological empowerment, and motivation in general. This study will use Employee Creativity (EC) as a mediation variable between TL and IWB. This aligns with research (Tri et al., 2019) which shows a strong relationship between the EC and IWB. This is also supported by research (Volery & Tarabashkina, 2021), which found that EC has a positive association with IWB, as well as research (K. N. Nguyen & Nguyen, 2024) which shows that creativity has a positive impact on IWB. These studies were carried out, among others, in the banking industry and private companies. After conducting a literature review, research has yet to be found that examines EC as a mediating variable between TL and IWB.

Previous research has examined Knowledge Sharing (KS) as a mediating variable between TL and IWB with varying results. The research by (Agata & Suhana, 2024; Rafique et al., 2022) indicates that KS partially mediates the relationship between TL and IWB. Other research findings show that KS also mediates the relationship between TL and IWB (Abdi, 2023; Zufriygen & Citampool, 2023; Nugraha, 2023). However, research (Saif et al., 2024) shows that KS is not proven to be a mediating

variable between TL and IWB. TL positively influences IWB and various Knowledge, but KS has no direct effect on IWB (Mayastinasari & Suseno, 2023). This condition also shows that no research has been found that uses KS as a moderator variable between TL and IWB. A review of the literature reveals that the relationship between Transformational Leadership (TL) and Innovative Work Behavior (IWB) is still the subject of debate, as is the role of Knowledge Sharing in this relationship. In addition, research has yet to be found where KS is the moderator variable between TL and IWB, so further research is needed. The research topic has also yet to be found specifically in the Gen Z group.

The study explores relationships of Transformational Leadership (TL), Employee Creativity (EC), Knowledge Sharing (KS), and Innovative Work Behavior (IWB) amidst Generation Z in the VUCA world. This study investigates the interrelationship between TL and IWB in a dynamic work environment. The research also checks whether EC serves as a mediator between TL and IWB, which points out the mediating role of creativity in innovation. Additionally, this study examines how a greater degree of knowledge sharing moderates the relationship between TL and IWB in organizations. The findings contribute to the literature on the impact of leadership, creativity, and knowledge sharing contribute to innovation.

2 LITERATURE REVIEW

(Homans, 1958) introduced the Social Exchange Theory (SET), which applies to this theory. According to (Ahmad et al., 2023), SET is one of the fundamental criteria for comprehending conduct in the workplace. This theory highlights the advantages of leader-subordinate interactions as well as the significance of creating a work atmosphere that is fair, trustworthy, and respectful. The Social Exchange Theory (SET) provides a strong foundation for understanding and improving interactions between superiors and subordinates in the workplace.

2.1 Transformational Leadership (TL)

TL is known as one of the visionary leadership styles. Burns originated this transformational leadership theory in 1978, and Bass and Avolio later expanded and developed it in 1985. TL is the expertise of a leader in shaping the atmosphere, motivation, pattern, and quality of work of his subordinates so that the company's targets are achieved (Fatmawaty et al., 2023). According to (Son et al., 2020) This TL style describes leaders who have the ability to inspire, and motivate each individual to achieve extraordinary achievements and achieve the peak of success, encourage employees to exceed expectations and open themselves to reach the peak of success, encourage employees to exceed expectations and make themselves to achieve the highest potential, convince employees to put aside self-interest for the progress of the common organization, Acting as a strong company guide, caring to continue to encourage the development of new capabilities among employees, and always looking for new opportunities for the company to grow in the future. Transformational leadership is about a leader's skill in encouraging creativity, inspiring their team, and empowering individuals to improve their abilities and achieve exceptional success (Wulandari et al., 2023).

In addition, this leadership style incorporates elements of charismatic influence, individual consideration, inspirational motivation, and intellectual stimulation (Asad et al., 2021; Avolio & Bass, 1995). The combination of idealized influence and inspirational motivation in transformational leadership can enhance subordinates' motivation and trust, which in turn can positively influence employee creativity and quality innovation. While TL, through intellectual stimulation, motivates subordinates to think critically and create innovative solutions, individual consideration helps leaders understand and fulfill the unique needs of each employee, cultivating trust and motivation. Transformational leaders are leaders who inspire and motivate employee members to participate in

creating innovative work behaviors by encouraging contribution, innovation, and a conducive environment (Saif et al., 2024).

According to (Shafi et al., 2020), the TL style can encourage employees to contribute, achieve personal and organizational goals, think critically, and handle employees' problems by listening and providing support. Transformational leaders can inspire vision, lead their followers, challenge the status quo, foster innovation, effectively collaborate with their teams, and foster an atmosphere of teamwork and recognition, accept the improvement process, and lead the collective identity and team spirit as outstanding results of the organization (Shrestha, 2020). TL leaders have proven to be role models, reliable, realistic, and effective in achieving goals (Alwahhabi et al., 2023). The four dimensions of transformational leadership (idealized influence, inspirational motivation, intellectual stimulation, and individual consideration) are captured in a second-order reflective model, where each dimension reflects the essence of TL (Shafi et al., 2020). TL possesses a charismatic personality that drives employee creativity by motivating, exploring, sharing diverse knowledge, and introducing new ideas to manage team members' tasks (Żywiołek et al., 2022).

2.2 Employee Creativity (EC)

Employee creativity is the creativity of individuals to come up with ideas, procedures, and products (Asad et al., 2021). In addition, Employee creativity (EC) is the formation of original ideas to optimize performance and productivity that can emerge from individuals who can think outside the box, work experience, and expertise (Shafi et al., 2020). Employee creativity is also acknowledged as the generation of unique and innovative ideas within organizations, particularly in areas such as products, services, practices, or techniques (Pitafi & Xie, 2024). Organizations recognize that employee creativity is a crucial factor in gaining a competitive advantage, as it enhances overall performance and fosters the exploration of new products, processes, or methods (Akgunduz et al., 2018). In today's fast-paced business world, organizations rely greatly on the creativity of their employees. The level of creativity within a team is vital for an organization's survival and success, as it drives growth, enhances performance, and encourages the development of new ideas, processes, systems, and knowledge (Żywiołek et al., 2022).

2.3 Innovative Work Behavior (IWB)

IWB is defined as the action of individuals in introducing innovations in a working system that encourages the creation of new products or processes that are useful (J. de Jong & Den Hartog, 2010). The IWB Process is iterative in that employee behavior targets the exploration of opportunities, idea generation, idea promotion, idea realization, and continuous implementation of these ideas, processes, products, or procedures in a role, group, or organization, where these ideas are new and intended to bring relevant advantages (Lambriex-Schmitz et al., 2020). Today, organizations rely more than ever on creativity and innovation to thrive. Innovative work behavior is all about having the attitude to bring in new ideas, suggest improvements, and put fresh approaches, products, and processes into action at work (Perdana et al., 2023).

2.4 Knowledge Sharing (KS)

The act of sharing knowledge represents a fundamental process within the practice of knowledge management (KM). According to (Kordab et al., 2020), knowledge sharing is defined as the transfer and exchange of competencies (knowledge, abilities, and skills) between individuals, groups, or organizations. While (Xu & Suntrayuth, 2022) believe that knowledge sharing plays a key role in promoting knowledge exchange and communication within the organization, enabling members to learn from each other and inspiring innovative work behaviors. (De Clercq & Pereira, 2020) explain that knowledge sharing behavior includes the exchange of suggestions, ideas, opinions, and information. KSB involves transforming knowledge from one individual to others, as well as sharing it among employees within the organization (Javaid & Abdullah, 2020). Knowledge sharing behavior

refers to a collective activity where employees share knowledge, skills, and expertise across departments and organizational boundaries (Rohman et al., 2020). According to (Van Den Hooff & Ridder, 2004), knowledge sharing is a process that enables knowledge from individuals and teams to be passed on to the organization, aiding in the creation of new products, services, and processes. In their conceptualization, (Van Den Hooff & Ridder, 2004) define knowledge sharing as having two key dimensions: knowledge collecting and knowledge donating.

The term of Knowledge Donation (KD) refers to an effort to share information through intellectual resources owned by a person to others, while knowledge collecting occurs when a person unites information from various resources of public thought (Kusumanto & Salamah, 2023). Knowledge Sharing act when a group member accepts (Knowledge Collecting) or provide Knowledge (Knowledge Donating) resources, experience, or something useful (skills, expertise) to or from other members or across employees in various departments or organizations (Rohman et al., 2020; Mustika et al., 2022). As stated by Van Den Hooff & Ridder (2004), KS is a process and behavior that consists of contributing Knowledge (Knowledge Donating) and gathering Knowledge (Knowledge Collecting) among employees to develop their respective knowledge capital. As posited by De Clercq and Pereira (2020), the transfer of knowledge is a two-way process whereby individuals contribute their intellectual capital to disseminate knowledge, and simultaneously receive knowledge from others. Both processes entail activities but exhibit distinctive characteristics, shaped by a multitude of factors, including technological advancements and the motivation of the individual in question.

2.5 Hypothesis Development

2.5.1 Transformational Leadership's influence on Employee Creativity

Creativity is generated in a supportive environment, where transformational leaders help guide their members to enhance employees' potential, especially in terms of creativity (Asad et al., 2021). TL can increase employee creativity through increased Knowledge and individual support (Fatmawaty et al., 2023). With a charismatic personality, TL influences employee creativity by motivating them, promoting knowledge sharing, and encouraging innovative approaches to managing team tasks (Żywiołek et al., 2022). TL positively affects employee creativity, TL increases employee creativity through increasing individual motivation and abilities (T. P. L. Nguyen et al., 2020). According to (Gabriel, 2021) transformational leaders with communication skills and charisma can contribute to the development of creativity. In addition, the ability of leaders to motivate team members will encourage creativity, foster a creative work environment, reduce interpersonal risks, and achieve innovative performance. When implemented, employees become more creative and courageous in innovating so that the company can maintain competitive quality and succeed in rapidly growing organizational areas (Zhao, 2024). The hypothesis derived from the literature review is as follows:

H1 TL has a positive effect on EC gen Z

2.5.2 Transformational Leadership's influence on Innovative Work Behavior

Several studies have shown a direct and positive relationship between TL and IWB (Karimi et al., 2023; Saif et al., 2024). Research conducted by (Lin, 2023) found that TL has a positive impact on IWB. Transformative leaders who value new ideas and individuality will drive employees within IWB (Saif et al., 2024). The positive relationship between TL and IWB is because the increase in TL fosters a culture of innovation, employees can come up with new ideas and provide space for employees to innovate and explore creativity so that innovative work behaviors are formed in the work environment (Anom & Gustomo, 2023). TL can promote innovative performance behaviors that involve the creation of new ideas, technologies, methods, trials, and techniques in business processes (Alwahhabi et al., 2023). The hypothesis derived from the literature review is as follows:

H2 TL has a positive effect on IWB gen Z

2.5.3 Employee Creativity's influence on Innovative Work Behavior

Employee Creativity (EC) is the formation of original ideas to optimize performance and productivity that can emerge from individuals who can think outside the box, work experience, and expertise (Shafi et al., 2020). The higher the level of creativity of an individual, the greater his ability to generate new ideas and will be an asset that can increase the growth of an organization (Salsabila & Mansyur, 2024). Employee creativity is important in helping companies adapt to changes and challenges, increase work productivity and effectiveness, and encourage innovation in line with market needs (Salsabila & Mansyur, 2024). From previous research, the relationship between EC and IWB is positively proven through various studies (K. N. Nguyen & Nguyen, 2024; Volery & Tarabashkina, 2021). This shows that EC is an important triggering factor in encouraging IWB in the company. The hypothesis resulting from the results of the literature review is as follows:

H3 EC has a positive effect on IWB gen Z

2.5.4. The Role of Employee Creativity as a Mediator

Existing literature suggests that EC may mediate TL's influence on IWB, highlighting EC's potential role in this relationship. Transformational leaders influence EC by providing support, motivation, and encouragement for employees to think creatively and explore new ideas (Fatmawaty et al., 2023). Creativity driven by TL is expected to lead to higher innovative behavior within the organization (K. N. Nguyen & Nguyen, 2024). Thus, studies suggest that EC mediates TL's influence on IWB by enabling employees to transform the inspiration and motivation they receive from transformational leaders into concrete, innovative actions in the workplace. In this context, employee creativity becomes the element that bridges inspirational Leadership and the innovative behavior expected to emerge within the organization (Gabriel, 2021; Zhao, 2024). The hypothesis derived from the literature review is as follows:

H4 EC mediates the relationship between TL and IWB gen Z

2.5.5 Knowledge Sharing Moderation Role

According to (Son et al., 2020), knowledge gathering (Knowledge Collecting) and knowledge contribution (Knowledge Donating) mediate the correlation between transformational leadership and two specific aspects of organizational performance. In other studies, (Phong & Saeheng, 2021) also found how KS activities affect the relationship between TL and innovation ability. Various Knowledge can improve innovative work behaviors with encouragement from leaders (Muhammed et al., 2020). KS has a positive moderation role in the relationship between transformational leadership and company performance (Shahzad et al., 2022). The hypothesis derived from the literature review is as follows:

H5 KS moderates the relationship between TL and IWB gen Z

2.6 Research Model

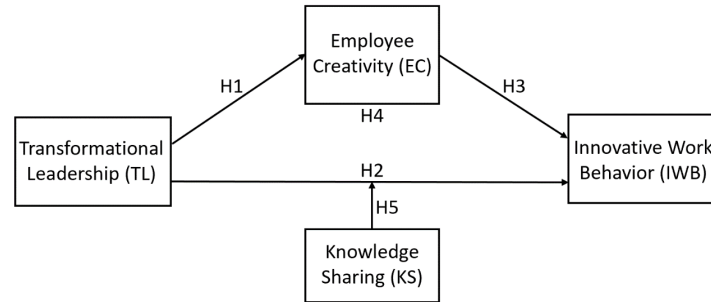


Fig. 1: Research Model

3. METHODOLOGY

3.1. Research Design

This research uses a Survey Research, to collect data on the role of transformational leadership style on the innovative work behavior of Gen Z in the VUCA era. Surveys are more effective because they can research large groups and be administered (Sekaran & Bougie, 2016) and generate actual population responses, providing realistic representations and population characteristics cost-effectively (Morris & Thompson, 2024). Data was collected quantitatively from the participants using a structured questionnaire that is easy to analyze and identify patterns and correlations of leadership styles (Ali Khan et al., 2023).

We measure the interference rate to assess how well the original data retain their objectivity and accuracy in this study. Use The questionnaire provides participant responses without any influence or pressure from the researcher and ensures that the results are unbiased and genuine perceptions and experiences of participants (Sekaran & Bougie, 2016). The study also used non-contrived (not constructive) to reflect the actual conditions, the natural environment in which Gen Z employees work so that this approach can have an impact according to natural conditions and can be generalized or implemented in real life (Ali Khan et al., 2023; Sekaran & Bougie, 2016). The unit of analysis in this study uses individual Gen Z Employees to understand the influence of TL on the IWB of each Gen Z employee and to find out the interaction in the mediation of creativity with the moderation of knowledge sharing of Gen Z employees in the VUCA era. According to (Sekaran & Bougie, 2016) Individuals are used when interested in each employee to increase the motivation of each employee, and data is collected as a source of individual data. The selection of research design using cross-sectional to collect data on the current state of employee creativity influenced by transformational leadership styles in VUCA environments. The approach with data collection at one specific point in time provides a comprehensive correlation between the variables (Ali Khan et al., 2023; Sekaran & Bougie, 2016) and is faster and more affordable than longitudinal studies (Kviz, 2020) and with these observational studies do not change exposure status, measure outcomes and exposure in the population simultaneously, and can study the relationship (Setia, 2016). By cross-sectional, we will be able to identify the direct effects and correlations between variables and understand the dynamic nature of creativity in the ever-changing environment of the VUCA era.

3.2. Population and Sampling Method

The target population is Gen Z, individuals born between 1995 and 2010 and who have spent at least three months in work at a structured organizational level. Formal organizations are organizations that have a systematic organizational structure, specific division of work, and goals/missions that are determined (Irawan, 2018). The aim of the study is to explore the role of transformational leadership, which includes four dimensions, namely: influence, idealized, inspirational motivation, individual

consideration, and intellectual stimulation (Avolio & Bass, 1995) on innovative work behavior, with employee creativity acting as a mediator and knowledge sharing as a moderator. In this study, sampling frame accuracy is unavailable because compiling a list of Gen Z employees across active, structured organizations is complex. To overcome the limitations in collecting data according to the target population and ensure that this research remains relevant, namely being able to answer and contribute to the research, the method of non-probability sampling with the convenience sampling (Saunders et al., 2019; Sekaran & Bougie, 2016). This technique is used because convenience sampling allows data collection from easily accessible sources. In addition, the targeted population is challenging to reach in its entirety, and sampling frame accuracy is not available (Simkus, 2023).

The sample size is determined using sample size guidelines stated by (Hair et al., 2010). In SEM analysis, the minimum sample size is recommended to be five times the number of variables to be analyzed. In addition, a minimum of 200 samples are needed to reduce potential bias in various types of Structural Equation Modeling (SEM) estimation (Loehlin, 1998). Therefore, this study requires a minimum of 200 samples, derived by multiplying 40 indicators by 5.

3.3. Data Collection Technique

The quantitative survey method with questionnaires will be used as a data collection technique (Sekaran & Bougie, 2016). The questions through the questionnaire will be distributed online to Gen Z employees who work in various formal organizations. The sample will be given several closed questions and divided into parts adjusted to the existing variables and the theory used: Social Exchange Theory. Gen Z employees will be asked questions about their leaders and employee creativity (Shafi et al., 2020), as well as questions about innovative work behaviors and knowledge sharing. Transformational Leadership is judged by using 19 items adopted from (Choongo et al., 2023). Employee Creativity consists of 6 items that are approved from (Tjoa & Arief, 2021). For Innovative Work Behavior using 5 items adopted from (Lambriex-Schmitz et al., 2020). Knowledge Sharing is measured using 10 items adopted from (Son et al., 2020). We quantified the responses to each inquiry using the Likert Scale, where a score of 1 means "strongly disagree", a score of 5 means "strongly agree". The reason for using surveys using online questionnaire techniques is that they are more cost-effective compared to other methods and techniques. In addition, it can reach samples faster and broader. This method also has a structured format, making it easier to analyze data quantitatively and perform statistical analysis efficiently.

3.4. Data Analysis

The proposed data analysis model is the PLS-SEM model (Partial Least Squares Structural Equation Modeling). The model can handle complex models with many variables and indicators, which is more effective even though the sample size is relatively small (Hair et al., 2022). The model can also handle well formative and reflective measurement models, moderation and mediation effects, high-level construction, and non-linear relationships (Magno et al., 2024). Testing in PLS-SEM consists of two measurements, namely the inner model and the outer model (Hair et al., 2022). The inner model assesses the quality of the model and the testing of the hypothesis, while the outer model assesses the reliability and validity of the question items. Validity testing consists of convergent validity (outer loading and Average Variance Extracted or AVE) and the validity of discrimination measured through the Heterotrait-Monotrait Ratio of Correlations (HTMT) (Henseler et al., 2015; Ringle et al., 2023). An item is considered valid if it meets the value requirements outer loading > 0.70 and AVE > 0.50 (Hair et al., 2022). Then for reliability, the approach used is *Composite Reliability (CR)* and *Cronbach's Alpha (CA)*. The reference value for CR and CA is > 0.70 because the value indicates adequate reliability (Hair et al., 2022). Furthermore, for model testing using collinearity problem tests, the significance of correlations between variables, explanatory power using the *R-square (R2)* and *f-square (f2)*, and the assessment of the predictive power of a model (Hair et al., 2022).

4. RESULTS AND DISCUSSION

4.1. Demographic Results

This study's respondents were 220 Generation Z individuals, 83.6% born between 1995 and 1999. Most are female (51.4%) and hold at least a bachelor's degree (80%). Regarding employment, 53.6% work in the private sector, 35.9% in state-owned enterprises (BUMN/BUMD), and 8.6% in the government sector. Their job fields vary, with 30.5% in infrastructure, 15.5% in finance, 15.5% in technology, and 10.5% in other services. A total of 86.8% of respondents occupy staff or non-structural positions. The survey distributed respondents geographically across several provinces, with 48.6% residing in DKI Jakarta, 18.6% in West Java, and 8.6% in Lampung. Furthermore, 64.5% of respondents indicate they are highly active technology users, spending over six hours a day on devices for daily activities such as work, communication, and entertainment.

4.2. Outer model evaluation

a. Validity Test

The study employed two approaches to evaluate the validity of the construct: convergent validity and discriminant validity. We evaluated the factor loadings to ensure they exceeded the threshold of 0.708. We retained some indicators in Table 1 with outer loadings below 0.7 based on (Hair et al., 2017), as CA, CR, and AVE values still met the required standards despite the lower loadings. Additionally, Table 2 shows that all constructs in the study model had Average Variance Extracted (AVE) values above 0.5, with the EC construct having the lowest AVE value at 0.513, which still surpassed the threshold.

Table 1 Outer Loading

Variable	Dimension	Indicator	Loading Factor Value
Transformational Leadership	Idealized Influence	II	0.931
	Inspirational Motivation	IM	0.877
	Intellectual Stimulation	IS	0.869
	Individual Consideration	IC	0.837
Employee Creativity	-	EC1	0.710
		EC2	0.663
		EC3	0.696
		EC4	0.804
		EC5	0.715
		EC6	0.702
Innovative Work Behavior	-	IWB1	0.752
		IWB2	0.840
		IWB3	0.838
		IWB4	0.843
		IWB5	0.837
Knowledge Sharing	Knowledge Donating	KD	0.950
	Knowledge Collecting	KC	0.937

Table 2. AVE

Construct	Average variance extracted (AVE)
EC	0.513
IWB	0.677

KS	0.890
TL	0.773

We utilized several methods to test discriminant validity, including the Heterotrait-Monotrait (HTMT), Fornell-Larcker, and cross-loading approaches. We present only the HTMT results (Table 3), considered the most accurate method. Table 3 shows the HTMT ratios for all variables, and it is essential to note that these ratios should be below 0.9 to ensure reliable outcomes. Our results show that the HTMT ratio for each variable is below 0.9. This result indicates that our predictions are reliable. This check increases our confidence in the relationships found and increases the robustness of our analysis.

Table 3. HTMT

Construct	EC	IWB	KS	TL
EC				
IWB	0.805			
KS	0.681	0.652		
TL	0.616	0.563	0.616	

b. Reliability Test

A reliability test evaluates the overall consistency of the indicator block measuring the constructs. Table 4 shows that the scores exceed 0.7, indicating their reliability.

Table 4. Composite Reliability

Construct	Composite reliability (rho_a)	Composite reliability (rho_c)
EC	0.816	0.863
IWB	0.881	0.913
KS	0.884	0.942
TL	0.906	0.931

Alongside composite reliability, Table 5 can be referenced, with acceptable values if they exceed 0.708 (Hair et al., 2024). The lowest EC value is 0.810.

Table 5 Cronbach's alpha

Construct	Cronbach's alpha
EC	0.810
IWB	0.880
KS	0.876
TL	0.901

4.3 Inner model evaluation

a. Effect of F-Square and R-Square

(Hair et al., 2024), classify F-Square values into minor, moderate, and substantial effects, represented by thresholds of 0.02, 0.15, and 0.35, respectively. The effect of TL on EC is 0.392 (large), indicating a substantial impact within this model. The effect of EC on IWB is 0.311 (medium), suggesting that EC influences IWB, though not as strongly as TL influences EC. The effect of TL on IWB is 0.017 (very weak), indicating that TL has a minimal effect on IWB.

Table 6. F-Square

Construct	EC	IWB
EC		0.311
IWB		
KS		0.059
TL	0.392	0.017

Table 7 Presents the R-Square simulation results, which generally fall between 0 and 1, as indicated by (Hair et al., 2024). TL variable accounts for 28.2% of the influence on EC, indicating a weak model. We assess the joint impact of TL and EC on IWB, which, at 54.1%, suggests that the model has moderate strength.

Table 7 R-Square

Construct	R-square	R-square adjusted
EC	0.282	0.278
IWB	0.541	0.532

b. Model Fit

A model fit test assesses how well the study model aligns with the data. As indicated by (Hair et al., 2024), an SRMR value below 0.08 is indicative the model is a good fit. Alternatively, research conducted by (Schermelleh-Engel et al., 2003) suggests that an SRMR value between 0.05 and 0.10 is indicative of an acceptable fit model. According to Table 8, the SRMR of 0.087 confirms that the model provides an acceptable fit.

Table 8 Model Fit

	Saturated model	Estimated model
SRMR	0.064	0.087
d_ULS	0.629	1.165
d_G	0.244	0.276
Chi-square	317.913	336.105
NFI	0.855	0.847

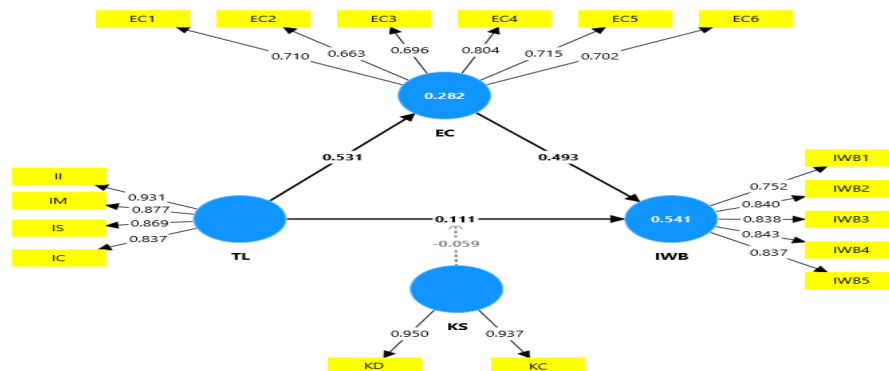


Fig. 2: SEM analysis result

c. Hypothesis Testing

We utilized SmartPLS 4.0 to test the hypotheses using bootstrapping, a statistical method. This approach enabled the evaluation of the direction and significance of the relationships among latent variables, as detailed in Table 9.

Table 9. Path Analysis (Direct Effects) and Hypothesis Testing

H	Relationship	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	Remarks
H1	TL → EC	0.531	0.531	0.059	9.028	0.000	Accepted
H2	TL → IWB	0.111	0.109	0.058	1.915	0.028	Accepted
H3	EC → IWB	0.493	0.502	0.053	9.254	0.000	Accepted

Table 10. Specific Indirect Effects and Hypothesis Testing

H	Relationship	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	Remarks
H4	TL → EC → IWB	0.262	0.267	0.042	6.238	0.000	Accepted
H5	KS x TL → IWB	-0.059	-0.063	0.043	1.371	0.085	Rejected

Hypothesis testing 1

H1: TL has a positive effect on EC gen Z

According to the findings of an analysis, employee creativity (EC) and transformational leadership (TL) have a positive correlation with a coefficient of 0.531. The relationship is statistically significant based on the p-value of 0.000 (<0.05) and the T statistic of 9.028. The acceptance of hypothesis H1 supports the positive effect of TL on EC.

Hypothesis testing 2

H2: TL has a positive effect on IWB gen Z the coefficient of the direct relationship between TL and IWB is 0.111. H2 is accepted because the T statistic is 1.915 and the p-value is 0.028 (<0.05), indicating that this relationship is significant.

Hypothesis testing 3

H3: EC has a positive effect on IWB gen Z

As indicated by the coefficient of 0.493, the results show that EC is stronger than IWB, indicating a positive correlation. This relationship holds significance, supported by a T-statistic value of 9.254 and a p-value of 0.000 (below 0.05). Therefore, H2 is accepted, indicating a positive correlation between EC and IWB.

Hypothesis testing 4

H4: EC mediates the relationship between TL and IWB gen Z

The analysis indicates that employee creativity (EC) mediates the relationship between TL and IWB. The beta value for the mediating path TL → EC → IWB is 0.262, suggesting that the indirect effect of TL on IWB through EC is positive. Additionally, the T statistic is 6.238, and the p-value is 0.000 (<0.05), demonstrating that this mediating path is statistically significant. This result indicates that EC significantly mediates the relationship between TL and IWB, leading to the acceptance of the mediation hypothesis (H4). From these findings, we can conclude that there is a significant mediation through EC within the relationship between TL and IWB. Considering the direct affect of TL on IWB is also significant, this suggests a partial mediation effect.

Hypothesis testing 5

H5: KS moderates the relationship between TL and IWB gen Z

In terms of the moderating relationship of knowledge sharing (KS) between TL and IWB, the p-value is 0.085 (>0.05), which suggests that the relationship lacks significance, resulting in its rejection of the moderation hypothesis (H5). This study's findings indicate no visible impact of the interaction between KS and TL on IWB. This result aligns with the finding shared by (Saif et al., 2024) that KS is neither a mediating nor a moderating variable. However, it contradicts previous research (Phong & Saeheng, 2021), which posited that KS can positively moderate the relationship between TL and organizational performance. Furthermore, researchers (Agata & Suhana, 2024) and (Rafique et al., 2022) observed that KS partially mediates the correlation between TL and IWB. In the context of this study, KS does not function as a moderator in the relationship between TL and IWB, even though TL can encourage KS. Not all forms of KS directly influence IWB. Generation Z employees tend to prefer being knowledge donors (KD) to knowledge collectors (KC) because they feel comfortable sharing knowledge. However, they often perceive their peers as providing inadequate feedback, leading to dissatisfaction and reduced motivation to engage actively in knowledge sharing.

5. CONCLUSION

This study investigates the connections among Generation Z workers between knowledge sharing (KS), employee creativity (EC), innovative work behavior (IWB), and transformational leadership (TL). The results show that encouraging employee innovation is significantly aided by transformational leadership. Leaders who encourage, inspire, and intellectually challenge employees' creative potential can be successfully unlocked. Innovative work practices are positively impacted by this creativity, suggesting that employees encouraged to think creatively are more likely to come up with original ideas and solutions at work.

The study also emphasizes how important employee creativity is in mediating the relationship between transformational leadership and creative work practices. This underlines that, even while leadership is crucial, creating an environment at work that supports creativity is the link that makes innovation possible. Organizations must direct leadership efforts through intermediary characteristics like creativity to achieve optimal innovation outcomes, as transformational leadership has a weaker direct impact on innovative work behavior.

The study concludes that knowledge sharing does not substantially moderate the association between transformational leadership and creative work practices. This result suggests that although transformational leadership may stimulate knowledge-sharing practices, innovative behaviors are not always the result of this process. The qualitative findings imply that Generation Z workers would rather provide information in a donor-focused way instead of actively gathering it, possibly due to feeling that peer support or feedback is lacking. This dynamic indicates more general difficulties in encouraging cooperative creativity in group environments.

To summarize, the data illustrate the importance of transformative leadership in encouraging the inventiveness and, consequently, the creativity of Generation Z employees. However, to create an innovative and collaborative workplace culture, efforts to promote knowledge-sharing must be paired with strategies to get beyond challenges like a lack of feedback. Organizations can more effectively create leadership and team-building initiatives to optimize employee potential by recognizing these intricate relationships.

6. AUTHOR'S CONTRIBUTIONS

AGI played a vital role in the conceptual framework design of the study. She carefully performed all the interpretation and analyses the data, establishing the foundation of the research findings. Her

expertise and thoroughness added weight and depth to the study, providing a reasonable basis for further research in the field.

SA played an essential role in designing the study and its structure. Moreover, she was not merely engaged at the conceptual level since her valuable resources were among those seriously utilized during this research.

MD contributed in two significant ways. First, he was responsible for drafting the manuscript and compiling the findings into a coherent document. Second, he actively participated in the data collection and management processes, which were integral to the analysis conducted in the study.

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No	Variable	Measurement Scale	Dimension	Measurement Indicators			Source
1	Transformational Leadership (TL) is a concept in management where leader motivate their subordinate to work creatively and effectively, build relationships, and develop their subordinates' potential and creativity (Asad et al., 2021) a leadership style that focuses on motivating and inspiring employees to exceed their limit through the development of a visionary strategy, thereby enhancing employee creativity (Gabriel, 2021). An effective leadership style can positively influence organizational innovation, and encourage employee creativity (Shafi, 2020)	Likert Scale	Idealized Influence	TL 1	IIa1	My manager makes me proud to have a connection with him	(Choongo et al., 2023)
				TL 2	IIa2	My manager goes beyond self-interest for the good of the group	
				TL 3	IIa3	My manager acted in a way that built my respect	
				TL 4	IIa4	My manager shows a sense of strength and confidence	
				TL 5	IIb1	My manager talks about his most important values and beliefs	
				TL 6	IIb2	My manager emphasizes the importance of having a sense of togetherness	
				TL 7	IIb3	My manager emphasized the importance of having a strong sense of purpose	
				TL 8	IIb4	My manager considers the moral and ethical consequences of the decision	
			Inspirational Motivation	TL 9	IM1	My manager spoke optimistically about the future	
				TL 10	IM2	My manager spoke enthusiastically about what needed to be achieved	
				TL12	IM4	My manager expressed confidence that the goal would be achieved	
			Intellectual Stimulation	TL13	IS1	My manager revisits critical assumptions to question whether they fit	
				TL14	IS2	My manager is looking for a different perspective when solving problems	
				TL15	IS3	My manager makes me look at the problem from different points of view	
				TL16	IS4	My manager suggested a new way to see how to complete a task	
			Individual Consideration	TL17	IC1	My manager spends time teaching and guiding	
				TL18	IC2	My manager treats me as an individual, not just as a member of a group	
				TL19	IC3	My manager helped me develop my strengths	
				TL20	IC4	My manager thinks I have different needs, abilities, and aspirations than everyone else	

No	Variable	Measurement Scale	Dimension	Measurement Indicators		Source	
2	Employee Creativity (EC) is seen as the initial phase of innovation where creativity involves proposing ideas" (Nguyen & Nguyen, 2024) "creativity is only limited to the generation of ideas" (Fatmawaty et al., 2023)	Likert Scale	-	EC 1	I'm excited to find useful information	Y. Tjoa and M. Arief, 2021	
				EC 2	I am confident in my abilities		
				EC 3	I am open to receiving input from outside		
				EC 4	I always try to implement the best solution		
				EC 5	I often use my imagination to advance the business		
				EC 6	I accept the possibility of failure as part of the process		
3	Innovative Work Behaviour (IWB) innovation involves putting those ideas into practice" (Nguyen & Nguyen, 2024) "Innovative work behavior is considered different from creativity, because innovative work behavior is sustainable until the idea can be promoted and implemented" (Fatmawaty et al., 2023)	Likert Scale	-	IWB 1	I discussed the possibility of increasing work effectiveness with colleagues	Lambriex-Schmitz et al. (2020)	
				IWB 2	I suggest new ideas to solve problems in the current work situation		
				IWB 3	I promote new ideas to my manager and colleagues to get their active support		
				IWB 4	I design strategies and criteria for the successful realization of new ideas		
				IWB 5	I discuss with colleagues for broader implementation and optimize solutions from new ideas		
4	Knowledge Sharing (KS) Knowledge sharing involves "the provision of task information and know-how to help others and to collaborate with others to solve problems, develop new ideas, or implement policies or procedures." (Wang & Noe, 2010) KS acts when group members receive (Knowledge Collecting) or provide knowledge (Knowledge Donating) resources, experience, or something useful (skills, expertise) to or from other members or between employees across departments or organizations (Mustika et al., 2022, Rohman et al., 2020).	Likert Scale	Knowledge Donating (KD)	KD1	KDa1	I often share with my colleagues about the new job skills I learned	Son et al., 2020
				KD2	KDa2	My colleagues often share with me about the new job skills they learn	
				KD3	KDa3	I often share with my colleagues about the new information I have gained	
				KD4	KDa4	My colleagues often share with me about new information they have acquired	
				KD5	KDa5	Sharing knowledge with my colleagues is considered a natural thing in my organization	
			Knowledge Collecting (KC)	KC1	KCb1	My coworkers often share with me about the job skills they know when I ask them	
				KC2	KCb2	I often share with my coworkers about the job skills I know when they ask me	
				KC3	KCb3	My coworkers often share information they know with me when I ask them	
				KC4	KCb4	I often share with my coworkers about the information I know when they ask me	
				KC5	KCb5	Staff in our organization often exchange knowledge about work skills and information	