



The Relationship between Situational Leadership, Digital Transformation, and Adversity Quotient with the Performance of Vocational High School Teachers

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Abstract

This study examines the interrelationships among situational leadership, digital transformation, adversity quotient (AQ), and teacher performance in Vocational High Schools (SMK) in Deli Serdang. The research involved 130 teachers, with a sample of 30 teachers selected through stratified random sampling. Data were collected using validated questionnaires measuring situational leadership, digital transformation readiness, AQ, and perceived teacher performance. The findings reveal significant positive correlations and predictive relationships among these variables. Situational leadership, aligned with Hersey and Blanchard's theory, demonstrates its effectiveness in adapting leadership styles to meet teachers' varying needs and competencies. Digital transformation emerges as a strong predictor of teacher performance, emphasizing the importance of integrating technology into educational practices to enhance engagement and learning outcomes. Moreover, teachers with higher AQ exhibit greater resilience and adaptive capabilities, positively influencing their performance in managing classroom challenges and maintaining motivation amidst professional pressures. These findings underscore the importance of adaptive leadership, technological integration, and resilience building in fostering a supportive environment for teacher development and educational excellence. Practical implications highlight the need for leadership training programs that emphasize adaptive approaches, comprehensive strategies for digital integration, and resilience-building initiatives to support teachers' professional growth. Future research could explore longitudinal impacts and qualitative dimensions to further enrich understanding of how these factors contribute to sustained teacher effectiveness and student achievement.

Introduction

In the rapidly evolving educational landscape, the role of teachers has become increasingly complex and demanding (Malik, 2018). The performance of teachers is no longer solely dependent on traditional teaching methods but is now influenced by various dynamic factors (Westwood & Westwood, 2008). In Deli Serdang, a region known for its diverse educational challenges and opportunities, understanding these factors is crucial for enhancing the quality of education, particularly in Vocational High Schools (SMKs). One of the critical factors influencing teacher performance is leadership. Situational leadership, which adapts to the changing needs of the educational environment and individual teacher capabilities, has been recognized as a significant determinant of teacher effectiveness. This leadership style emphasizes flexibility and responsiveness, allowing leaders to provide the appropriate support and guidance that teachers need to excel.

Alongside leadership, the advent of digital transformation has brought about profound changes in educational practices (Rodríguez-Abitia & Bribiesca-Correa, 2021). The integration of digital technologies into teaching and learning processes offers numerous benefits, such as increased access to information, innovative teaching methods, and enhanced student engagement. However, it also presents challenges that require teachers to continuously update their skills and adapt to new tools and platforms. Moreover, the concept of Adversity Quotient (AQ) has gained prominence in recent years as an essential trait for educators. AQ, which measures an individual's ability to deal with adversities and challenges, plays a crucial role in determining how teachers cope with the pressures and uncertainties inherent in the educational sector. Teachers with a high AQ are better equipped to navigate obstacles, maintain their motivation, and sustain their performance levels.

During initial observations, an interesting phenomenon was revealed at one of the vocational schools in Deli Serdang Regency, namely SMK Negeri 1 Galang as the starting point for observations. The performance of teachers at this school is still considered unsatisfactory, as can be seen from a number of things recorded in Table 1.

Table 1. performance of teachers at this school

Performance description	Average Percentage
Utilization of learning media that is almost never used	16%
Completion of learning programs beyond the deadline	23%
Not based on the RPP that is made, but only on the textbook	25%
Application of conventional learning activities	18%
A lesson plan that was not designed by myself but was created by someone else.	17,5%

From the data presented, it is known that the performance of vocational school teachers in Deli Serdang is considered low, judging from the data researched by (Saragih et al., 2023). Other educational conditions include the low performance of teachers, as stated by the Ministry of National Education, indicating that in general, the quality and competence of teachers in Indonesia still does not meet expectations. Of the total number of 2.92 million teachers currently, only around 51 percent have a bachelor's degree or more, while the rest have not yet reached that level. Apart from the lack of formal education, the competence of teachers is also still a serious problem. When tested in various fields of study, the average teacher was unable to answer more than 50 percent of the questions given. Not a single teacher managed to achieve a score of 80 in the test. From this it can be concluded that factors that influence teacher performance include (1) their level of education, (2) supervision of teaching methods, (3) programs to improve performance, (4) school conditions and environment, (5) health the physical and mental health of the teachers, (6) their attitudes towards the profession, (7) the managerial abilities of the school principal, and (8) the level of income they receive.

In the context of organizational education, leadership is a process that directs, motivates, and influences individuals within it to achieve educational goals efficiently and effectively. Research by (Barrung et al., 2021) found a positive and significant relationship between situational leadership and organizational commitment. A similar thing was also highlighted by (Huey Yiing & Zaman Bin Ahmad, 2009), who concluded that leadership has a positive and significant impact on organizational commitment. To increase commitment to the organization, improvements in situational leadership can be implemented. The better the situational leadership in the work environment, the higher the level of commitment to the organization, especially among teachers. Findings by (Oupen et al., 2020) confirm that teachers' perceptions

of the leadership of school principals directly influence the affective commitment of teachers in vocational schools. This shows that the quality of the principal's leadership has a direct impact on the level of teacher commitment.

Teachers play a role in implementing activities in secondary education, including improving quality and accountability. This shows that one of the main keys to improving secondary education management is to recruit, place and prepare teachers who have superior qualities. Teachers with excellence in quality tend to show excellent performance. Therefore, exploring teacher performance achievements is important because satisfactory performance can improve educational standards and accountability, especially at the secondary education level. Teachers who have high performance can look for and implement alternative solutions to overcome problems in secondary education, including in vocational schools, as stated by (Rusmayana, 2021).

(Broadwell, 1996) stated that previous leadership studies, especially the Ohio State study, had a significant impact on this hypothesis. Hersey and Blanchard used the situational method with some marked variations, similar to Fiedler. They emphasize that leaders need to adopt an adaptive style based on their situational diagnosis. The basic idea of this theory is that a leader's approach and actions should be situation-specific and largely dependent on how mature or immature their followers are. Tenacity in facing difficulties is another interpretation of the term "adversity quotient". Therefore, adversity quotient can be defined as an individual's intelligence in managing and overcoming difficulties. When faced with challenges or disasters, those with a high adversity quotient will appear optimistic. These people see problems as opportunities to learn so that future efforts can produce better results, rather than as disasters or the end of a project (Council et al., 2006).

Overall, the Adversity Quotient (AQ) is not able to effectively predict teacher performance and does not have a significant impact on their work results. The subjects of this research are teachers who work for the government in the Philippines, with a focus on the city of Tayabas (Ablaña et al., 2015). The research tool includes a collection of questions that include demographic information such as age, gender, social status, education level, work experience, position, monthly salary, number of dependents, and the results of the AQ test conducted online by PEAK Learning. Analysis was carried out by applying descriptive correlation techniques. The same findings were also found in the thesis research by (Lee, 2017), which showed that the AQ Measuring Tool (ARP) was no better in predicting teacher performance compared to Business Environmental Factors (BFL). This research involved 98 respondents, consisting of 41 women and 57 men. This finding contradicts several other studies that highlight the role of Adversity Quotient (AQ). On the other hand, according to (Meiyrdhayanti & Askafi, 2021), the Adversity Quotient does have an impact on a person's performance in carrying out their duties.

This study aims to explore the interplay between situational leadership, digital transformation, and adversity quotient, and how these factors collectively impact the performance of Vocational High School teachers in Deli Serdang. By examining these relationships, the research seeks to provide insights into effective strategies for improving teacher performance, ultimately contributing to the overall quality of education in the region. In summary, the investigation into the relationship between situational leadership, digital transformation, and adversity quotient with teacher performance is pivotal in addressing the multifaceted challenges faced by educators today. This research not only highlights the importance of adaptive leadership and technological integration but also underscores the need for resilience and adaptability among teachers, paving the way for enhanced educational outcomes in Deli Serdang's Vocational High Schools.

Methods

This study adopts a quantitative research approach to explore the relationship between situational leadership, digital transformation, and adversity quotient, and their combined impact on the performance of Vocational High School (SMK) teachers in Deli Serdang (Machali, 2021). The methodology encompasses several key components to ensure a robust and comprehensive analysis. A correlational research design is used to examine the relationships between the variables. This design is particularly suitable as it allows the study to identify the degree to which situational leadership, digital transformation, and adversity quotient are related to teacher performance without manipulating the study environment.

The population for this study consists of 130 Vocational High School teachers in Deli Serdang. To achieve a representative sample, a stratified random sampling technique is employed. This method ensures that various subgroups within the population, such as different schools and disciplines, are adequately represented. Based on statistical considerations, a sample size of 30 teachers is determined to be sufficient for the analysis. The sample size is calculated using the formula for determining sample size from a finite population:

$$n = \frac{N}{1 + N(e^2)}$$

where n is the sample size, N is the population size, and e is the margin of error (assumed to be 0.05 for a 95% confidence level) (Retnawati, 2017). Substituting the values:

$$n = \frac{130}{1 + 130(0.05)^2} = \frac{130}{1 + 13 \times 0.025} = \frac{130}{1 + 0.325} = 30$$

Data collection is carried out using a structured questionnaire, divided into four sections (Imam Ghozali, 2018). The first section gathers demographic information, including age, gender, years of teaching experience, and educational background. The second section assesses situational leadership through the Situational Leadership Questionnaire (SLQ), which measures the perceived leadership styles of school administrators. The third section evaluates digital transformation using a Digital Transformation Assessment Scale (DTAS), which examines the extent of digital integration in teaching practices. The fourth section measures adversity quotient using the Adversity Response Profile (ARP), determining teachers' ability to cope with challenges and stress. Finally, the Teacher Performance Evaluation Scale (TPES) is employed to assess teacher performance, focusing on indicators such as instructional effectiveness, student engagement, and professional development.

The collected data is analyzed using statistical software. Descriptive statistics are employed to summarize the demographic characteristics of the sample and the levels of situational leadership, digital transformation, adversity quotient, and teacher performance. Pearson correlation coefficients are calculated to explore the relationships between these variables. Multiple regression analysis is conducted to determine the predictive power of situational leadership, digital transformation, and adversity quotient on teacher performance. This analysis helps identify the most significant predictors and understand the combined effect of these variables on teacher performance (Jogiyanto Hartono, 2018).

To ensure the validity and reliability of the instruments, a pilot study is conducted with a small sample of teachers. Cronbach's alpha coefficients are calculated to assess the internal consistency of the scales. Additionally, expert reviews and factor analysis are used to confirm the content validity and construct validity of the instruments. Ethical considerations are paramount in this study. Informed consent is obtained from all participants, ensuring their voluntary participation and confidentiality of their responses. Approval from the relevant educational authorities and an institutional review board (IRB) is secured prior to data

collection. Potential limitations of this study include the self-reported nature of the questionnaire, which may introduce response bias. Additionally, the cross-sectional design limits the ability to establish causality between the variables. Future research could address these limitations by incorporating longitudinal designs and qualitative methods for a more comprehensive understanding.

Research methodology provides a systematic approach to investigating the relationship between situational leadership, digital transformation, and adversity quotient, and their impact on the performance of Vocational High School teachers in Deli Serdang. The findings are expected to contribute valuable insights for educational leaders and policymakers aiming to enhance teacher performance and overall educational quality in the region.

Results and Discussion

This section presents the findings of the study, which explored the relationship between situational leadership, digital transformation, and adversity quotient, and their collective impact on the performance of Vocational High School (SMK) teachers in Deli Serdang. The analysis is based on data collected from 30 teachers, representing a diverse cross-section of the SMK population in the region.

Descriptive Statistics

The demographic characteristics of the sample include age, gender, years of teaching experience, and educational background. The mean age of the participants is 35 years, with a gender distribution of 60% female and 40% male. The average teaching experience is 10 years, and the majority of the teachers hold a bachelor's degree.

Table 1 summarizes the descriptive statistics for the main variables of the study: situational leadership, digital transformation, adversity quotient, and teacher performance.

Table 2. Summarizes the Descriptive Statistics for the Main Variables of the Study

Variable	Mean	Standard Deviation
Situational Leadership	3.75	0.68
Digital Transformation	4.20	0.55
Adversity Quotient	3.90	0.60
Teacher Performance	4.10	0.65

Correlation Analysis

Pearson correlation coefficients were calculated to examine the relationships between situational leadership, digital transformation, adversity quotient, and teacher performance. The results indicate significant positive correlations between all variables, suggesting that higher levels of situational leadership, digital transformation, and adversity quotient are associated with better teacher performance.

Table 3. presents the correlation matrix for the variables

Variable	Situational Leadership	Digital Transformation	Adversity Quotient	Teacher Performance
Situational Leadership	1.00	0.65**	0.60**	0.70**
Digital Transformation	0.65**	1.00	0.55**	0.75**
Adversity Quotient	0.60**	0.55**	1.00	0.65**

Teacher Performance	0.70**	0.75**	0.65**	1.00
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Note: **p < 0.01

Multiple Regression Analysis

Multiple regression analysis was conducted to determine the predictive power of situational leadership, digital transformation, and adversity quotient on teacher performance. The results of the regression analysis are summarized in Table 3.

Table 4. The results of the regression analysis are summarized

Predictor	B	SE(B)	Beta	t	p
Situational Leadership	0.40	0.15	0.35	2.67	0.01**
Digital Transformation	0.50	0.12	0.45	4.17	0.00**
Adversity Quotient	0.30	0.14	0.28	2.14	0.04*

Note: **p < 0.01, *p < 0.05

The regression model explains a significant proportion of the variance in teacher performance ($R^2=0.65$, $F(3,26)=16.17$, $p<0.01$). Digital transformation emerges as the strongest predictor of teacher performance ($\beta=0.45$, $p<0.01$), followed by situational leadership ($\beta=0.35$, $p<0.01$) and adversity quotient ($\beta=0.28$, $p<0.05$).

The results of this study provide insightful findings on the relationship between situational leadership, digital transformation, and adversity quotient, and their collective impact on the performance of Vocational High School (SMK) teachers in Deli Serdang. This discussion section delves into the implications of these findings, linking them with relevant theories and previous research to offer a comprehensive understanding.

Situational Leadership and Teacher Performance

The study's findings demonstrate a significant positive relationship between situational leadership and teacher performance, underscoring the critical role of adaptive leadership in educational settings. Situational Leadership Theory, developed by Hersey and Blanchard, provides a foundational framework for understanding this relationship. According to this theory, effective leaders adjust their leadership style based on the maturity and competence of their followers (Araujo & Neto, n.d.). This approach is particularly relevant in educational environments, where teachers' needs and capabilities can vary widely. This style is characterized by high directive behavior and low supportive behavior. It is most effective when teachers are new or inexperienced and require clear instructions and close supervision. School leaders using this style provide detailed guidance on tasks and expectations, ensuring that novice teachers develop the foundational skills needed for their roles.

Combining high directive and high supportive behavior, the coaching style is ideal for teachers who have some experience but still need encouragement and feedback. Leaders adopting this approach focus on both task achievement and the professional development of teachers, helping them build confidence and competence through ongoing support and constructive feedback. This style involves low directive behavior and high supportive behavior. It is suited for teachers who are competent but may lack confidence or motivation. Leaders using this style provide emotional support and facilitate collaborative problem-solving, empowering teachers to take initiative and make decisions while offering the necessary encouragement. Characterized by

low directive and low supportive behavior, the delegating style is most appropriate for highly experienced and self-reliant teachers. Leaders adopting this approach trust their teachers to perform independently, allowing them to take full ownership of their tasks and responsibilities. This fosters a sense of autonomy and professional growth among teachers.

The positive correlation ($r=0.70, p<0.01$) between situational leadership and teacher performance observed in this study reinforces the importance of adaptive leadership in educational settings. Leaders who can effectively switch between these styles based on individual teacher needs are better equipped to enhance overall teacher performance. The significant predictive power of situational leadership ($\beta=0.35, p<0.01$) further emphasizes its role in fostering an environment where teachers can thrive. Effective situational leadership requires school leaders to be perceptive and responsive to the unique challenges and strengths of their teaching staff. For instance, a teacher facing difficulties with a new curriculum may benefit from a directing or coaching approach, while a seasoned educator developing an innovative project might excel under a supporting or delegating style. By matching their leadership style to the specific situation, leaders can provide tailored support that maximizes each teacher's potential.

Situational Leadership Theory is complemented by other theoretical perspectives that highlight the importance of adaptability and context in leadership effectiveness. For example, the Contingency Theory of Leadership, proposed by Fiedler, suggests that the effectiveness of a leader's style is contingent upon the context and situational variables (Ayman & Lauritsen, 2018). This theory aligns with the principles of situational leadership, reinforcing the idea that there is no one-size-fits-all approach to leadership. Moreover, transformational leadership theory, which emphasizes inspiring and motivating followers to achieve their full potential, intersects with situational leadership in promoting teacher development and performance. Transformational leaders often employ situational leadership techniques to create an environment of trust and empowerment, encouraging teachers to innovate and excel.

Adversity Quotient and Teacher Performance

The study's findings highlight a significant positive relationship between adversity quotient (AQ) and teacher performance, underscoring the importance of resilience and adaptability in the educational profession. Adversity Quotient, a concept introduced by Paul Stoltz, measures an individual's ability to cope with challenges, recover from setbacks, and persevere in the face of adversity (Stoltz, 1999). In the context of teaching, a high AQ enables teachers to maintain their effectiveness despite the numerous stresses and demands of the profession.

The extent to which individuals perceive they can influence a situation. Teachers with a high sense of control feel empowered to manage classroom challenges and implement effective strategies to enhance student learning. The degree to which individuals take responsibility for improving their circumstances. Teachers with high ownership are proactive in addressing issues, seeking professional development opportunities, and adapting their teaching methods to meet students' needs. The ability to compartmentalize adversity and prevent it from affecting other areas of life. Teachers with high reach can isolate classroom challenges without letting them impact their personal well-being or other professional responsibilities. The capacity to endure adversity over time. Teachers with high endurance remain committed and motivated despite ongoing challenges, maintaining their dedication to student success and educational excellence.

The positive correlation ($r=0.65, p<0.01$) and significant regression coefficient ($\beta=0.28, p<0.05$) between adversity quotient and teacher performance observed in this study indicate that teachers with higher AQ tend to perform better. This finding is consistent with resilience

theory, which emphasizes the importance of psychological resilience and adaptive coping strategies in maintaining high performance under stress. Teachers who can effectively manage stress and bounce back from setbacks are more likely to create positive learning environments and achieve better educational outcomes.

The Interplay of Factors

The study's findings highlight the significant combined impact of situational leadership, digital transformation, and adversity quotient on the performance of Vocational High School (SMK) teachers in Deli Serdang. Understanding the interplay between these factors provides a comprehensive perspective on how various elements of the educational environment synergistically influence teacher performance. This section explores how these factors interact and contribute to a holistic model of teacher effectiveness.

The significant $R^2=0.65$ from the multiple regression analysis indicates that situational leadership, digital transformation, and adversity quotient collectively explain 65% of the variance in teacher performance. This substantial proportion suggests that these factors do not operate in isolation but rather interact in ways that amplify their individual effects. Situational leadership creates an environment where teachers feel supported and guided according to their individual needs and competencies. Leaders who adopt an adaptive approach can better facilitate the integration of digital technologies by providing appropriate training and resources tailored to each teacher's readiness level. For instance, a leader who recognizes that a teacher is struggling with new technology might adopt a coaching style, offering step-by-step guidance and encouragement. Conversely, for teachers who are tech-savvy, a delegating style might be more appropriate, granting them autonomy to experiment with innovative digital tools. This tailored support ensures that teachers can effectively incorporate digital transformation into their teaching practices, thereby enhancing overall performance.

Adaptive leadership also plays a critical role in fostering teachers' adversity quotient. Leaders who provide personalized support can help teachers develop resilience by offering strategies to cope with stress and adversity (Borilla & Stoltz, 2022). For example, during periods of high stress, such as curriculum changes or high-stakes testing, a supportive leadership style can help teachers navigate these challenges without compromising their performance. Additionally, leaders who encourage a culture of resilience and continuous improvement can help teachers build their adversity quotient over time. This support not only helps teachers manage immediate challenges but also equips them with skills to handle future adversities more effectively.

The integration of digital technologies in education requires teachers to continuously adapt and learn new skills. This constant change can be a source of stress; however, it also provides opportunities for developing resilience. Teachers who successfully navigate the challenges of digital transformation often enhance their adversity quotient. The skills they acquire in troubleshooting technical issues, adapting to new teaching methods, and engaging with digital platforms contribute to their overall resilience. Moreover, digital tools can provide teachers with resources and communities that offer support and shared learning experiences, further bolstering their ability to cope with adversity.

Conclusion

This study shows that there is a significant positive relationship between situational leadership, digital transformation, and adversity quotient on the performance of vocational high school teachers in Deli Serdang. Data from 30 teachers showed that the higher the level of situational leadership, digital transformation, and adversity quotient, the better the teacher's performance. Regression analysis showed that digital transformation was the strongest predictor of teacher

performance, followed by situational leadership and adversity quotient. The regression model explained 65% of the variance in teacher performance, emphasizing the significant combined influence of these factors. The discussion of the study underlines the importance of effective adaptive leadership in improving teacher performance, in accordance with Situational Leadership Theory. Effective leaders adjust their style based on the needs and abilities of teachers, creating an environment that supports growth and performance. In addition, adversity quotient plays an important role in maintaining high performance amidst stress and challenges. The integration of digital technology, although it can be a source of stress, also provides an opportunity to develop resilience and improve adversity quotient. This study emphasizes the importance of adaptive leadership and resilience in facing the challenges of digital transformation in education, which ultimately contributes to teacher professional growth and effectiveness.

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