



Development of Transformational Leadership Instrument to Measure Principal's Leadership

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Abstract: The transformational leadership instrument has been used to analyze academic leadership behavior and to gather data on academics' perceptions of transformational leadership. The instrument development used RnD and Confirmatory Factor Analysis (CFA) to confirm, analyze, and develop the items. The instrument design followed a four-step process (4-D model) to construct 39 items on a Likert scale. The instrument items were reviewed and revised based on expert judgment. A panel tested and analyzed the revised items using Aiken's V Index to assess their validity. As much as 82% of the items were found to have good validity criteria. The reliability test results were highly significant. The final instrument was confirmed to have a good fit model and can be used as a standardized tool by educational institutions. A multi-step process to develop and validate a transformational leadership instrument involves expert review, statistical analysis, and confirmation of the instrument's psychometric properties. The high validity and reliability of the final instrument make it a potentially useful tool for assessing transformational leadership in educational settings. The detailed description of the development process provides confidence in the quality of the instrument.

Keywords: instrument, principal leadership, transformational leadership

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INTRODUCTION

Transformational leaders are described as those who seek to create new ideas and innovations and who believe that every individual possesses tremendous potential that can be unlocked through their leadership. Transformational leadership is widely studied and considered adequate in the school context; there are also some concerns and limitations that school leaders should be aware of when implementing this leadership approach. It is nothing new; the term was coined by James MacGregor Burns in the 1970s. It is the leadership style of people who anticipate change. This leadership identifies changes and quickly draws up a plan according to what is required. This type of leadership is indispensable in an organization, especially educational institutions or schools (Bogler et al., 2013; López-Domínguez et al., 2013; Lee et al., 2023). Posts that transformational leaders can increase the interest and commitment of their followers to achieve goals together by transcending self-interest for mutual benefit.

The school, as an organization that adheres to the input-process and output system, will depend on the strength of human resources (HR) in the school. Principals and teachers, as human resources in schools, play an essential role in achieving educational goals. As the head of the institution, the principal must be influential and able to become a professional leader by the times. Edwards et al. (2010), Cuevas-Vargas et al. (2023), and Schiuma et al. (2024) argue that transformational leadership can produce strategic organizational changes based on the times. The school's success is heavily dependent on the principal's leadership, and transformational leadership can help the principal drive strategic changes in the school organization to adapt to evolving needs and demands. Additionally, Numerous organizational outcomes have been demonstrated to be significantly impacted by transformational leadership. For this reason, developing a legitimate and trustworthy tool to assess this leadership style is essential for research and real-world applications.

To determine whether an Educational Institution or school leader can lead, it is necessary to conduct a comprehensive survey of transformational leadership. Research on instrument development in transformational leadership has been widely carried out. Oterkiil and Ertesvåg (2014) develop transformational and transactional to measure a school's capacity to implement school-based interventions. Ariani et al. (2024) conduct the Development of a Model of Transformational Leadership Behaviour, which focuses on the model of transformational leadership behavior and ethical leadership of elementary school principals. Based on both studies, the research that has been conducted has different dimensions, indicators, and items that have been developed. In addition, the sample and analysis techniques used in this study differ from the previous development model. Moreover, the second study focuses more on developing a transformational leadership model, not the instrument itself.

It is generally associated with leadership in a non-educational Institution. The development of transformational leadership instruments was faxed at the health institution's manager level and the business economics institute in Mexico. Additionally, the existing transformational leadership factors, such as idealized influence, inspirational motivation, intellectual consideration, and individual consideration, can account for developing a new transformational leadership questionnaire (Alimo-Metcalfe & Alban-Metcalfe 2001). So crucial is the position of a leader, and an instrument is needed that can measure his leadership attitude. This research aims to develop instruments by adopting the transformational leadership dimensions of Bass and Riggio (2006). Based on the results of previous research, it is essential to develop standardized and tested traditional leadership instruments both logically and empirically as a measurement of leadership attitudes. Specifically, this instrument was developed in the realm of educational leadership in high schools.

The construct validity of the transformational leadership instrument is of utmost importance. Establishing the instrument's validity is crucial to ensure it accurately measures the intended leadership construct. It is crucial to create a brief and manageable transformational leadership tool since it makes it possible to evaluate this leadership approach effectively. Thomas (2024) states that developing transformational leaders across all levels of an organization is strongly recommended. There are several tools available today to gauge transformational leadership. Nevertheless, several crucial elements are not regularly evaluated. Additionally, most instruments currently in use have one- or two-dimensional scales. This method is effective for evaluating the overall construct of the fundamental transformational elements, but it falls short when looking more closely at the elements for coaching and self-evaluation. Additionally, the General Leadership Questionnaire is the most widely utilized and thorough assessment of transformational leadership (Edwards et al., 2010). A deep comprehension of the concept and its underlying dimensions should serve as the foundation for creating transformative leadership tools. This guarantees that the tool includes all the crucial elements of transformative leadership (Carless et al., 2000). Developing a new transformational leadership instrument can help researchers and practitioners better understand the factors contributing to this leadership style, assess its validity, and support the development of transformational leaders who can effectively lead their organizations through change and challenges.

METHODS

This research was conducted on the principals and several Senior High School teachers in Bogor city. Research and Development was used as a method in this study, starting from Identifying Needs by determining the need for a transformational leadership instrument. Design and Development were done by creating a conceptual framework based on existing literature and leadership theories. Prototype creation was done by drafting initial items for the instrument, such as questions or statements. Validation was conducted by testing the prototype for reliability, validity, and applicability using statistical methods like CFA and Aiken's V. Refinement was done by Iteratively improving the instrument based on feedback and empirical evidence. Four Designs (Four D) (Borg & Gall, 1989; Branch, 2009; Resmanti et al., 2024; Hidayah et al., 2024), which consist of Defining, Designing, Developing, and Disseminating, were also used in this study.

The product produced in this study was a non-test instrument in the form of a Likert scale to measure Transformational Leadership. These stages are supported by theoretical/logical care testing involving two experts, educational evaluation experts, and education management experts. This development research adopted the dimensions of Transformational Leadership 2nd Edition from Bass and Riggio (2006). Four dimensions were developed: idealized influence (II), inspirational motivation (IM), intellectual stimulation (IS), and individualized consideration (IC). The four dimensions were tested with a Confirmatory Factor Analysis (CFA) model to confirm whether the device developed and then tested had a fit model or not (Kueh et al., 2024; Jung et al., 2024). CFA is a statistical technique used to validate the structure of an instrument by testing the hypothesized relationships between items and their underlying factors. It ensures the instrument aligns with the theoretical constructs of transformational leadership by identifying Model Fit: Evaluate the goodness-of-fit indices such as RMSEA, CFI, and TLI to confirm if the data supports the proposed factor structure.

The dimensions determined to be developed were then integrated into indicators and developed into instrument items with a Likert scale (Richter & Richter, 2024). The model of developing transformational leadership instruments for high school principals of Bogor used the Four-D model (Thiagarajan et al., 1974; Nabilah & Lutfi, 2022), namely define, design, develop and disseminate. In the first stage, the definition of variables was established, which was then developed into measurable indicators that can be interpreted as instrument items. Second, the design and preparation of instrument items based on dimensions and indicators were carried out. Then, the instrument grid was arranged according to the variables to be measured. A Transformational Leadership instrument device was also designed with a Likert scale at this stage. The development of this instrument device was intended to design grain constructs according to the characteristics of the Likert scale. Third, the development stage of this research was carried out by distributing it to experts in

Education Evaluation and Education Management. The experts' assessments were then revised according to their advice and corrections. The revised results were then panel tested and analyzed using the Aikens' V formula (Anculle-Arauco et al., 2024) so that the analyzed instrument could determine which items are valid and which items are drops. Aiken's V was used to assess the content validity of an instrument, ensuring that the items are relevant, clear, and appropriate for measuring the intended construct. At the last stage, instruments were deployed to be tested. Instrument items are tested in one test stage. The test results were processed using MPlus software version 7 (Muthén & Muthén, 2012; Bakker et al., 2023; Li et al., 2024), which is a test tool for finding the fit index or match of the model of each item.

Table 1. Transformational Leadership Instrument Grids

Dimensions/Components	Item Indicators	Total
<i>Individualized Consideration</i>	Appreciating teacher performance	4 items
	Get to know the teacher's personality	4 items
	Growing teacher confidence	4 items
<i>Intellectual Stimulation</i>	Express opinions	4 items
	Encourage teachers to improve their competencies and skills	5 items
<i>Inspirational Motivation</i>	Provide personal motivation	3 items
	Communicate high expectations for teachers	3 items
<i>Idealized Influence</i>	Become a figure in the school environment	6 items
	Treat teachers with respect	4 items
	Prioritize group interests above personal interests	3 items

RESULT AND DISCUSSION

Before the Aikens V test was carried out with 15 panelists consisting of high school teachers in Bogor City, an expert test was carried out on the instrument items that had been designed, and experts commented on elements of language, leadership, and sentence constructs. On expert testing, experts commented on some items that need to be corrected related to grammar that is less specific to what they want to measure. In addition, experts also examine and provide comments on the suitability of indicators and instrument items. Thirty-nine instruments were commented on, and researchers were recommended for improvement. The results of instrument repairs are as follows:

Table 2. Results of Expert Improvement of Leadership Instruments Transformational

Dimension	Item Indicator	Item
Individualized Consideration	Appreciating teacher performance	1. Praise the teacher's performance 2. Express gratitude to the teacher 3. Giving awards to outstanding teachers 4. Provide an assessment of the teacher's performance
	Get to know the teacher's personality	5. Get to know the teacher individually 6. Know the characteristics of each teacher 7. Understand the diversity of potential that teachers have 8. Get to know the teacher's background
	Growing teacher confidence	9. Provide opportunities for teachers to solve problems 10. Foster teacher optimism regarding the future of students and schools 11. Provide flexibility to teachers in carrying out their duties 12. Provide opportunities to participate in training outside of school
Intellectual Stimulation	Express opinions	13. Providing freedom of expression 14. Receive criticism and suggestions from the teacher 15. Respect your colleagues' opinions 16. Conduct deliberations with teachers regarding the problems faced
	Encourage teachers to improve their competencies and skills	17. Increase knowledge to improve the quality of work 18. Practicing innovations that are based on developments in science and technology 19. Provide direction and guidance to teachers 20. Appreciate the abilities and talents of teachers
Inspirational Motivation	Provide personal motivation	21. Motivate to generate teacher enthusiasm and optimism 22. Encourage teachers to practice creative learning models 23. Spur teachers to optimize their potential
	Communicate high	24. Pay attention to the teacher's ideas 25. Pay attention to expectations and input from the teacher 26. Carrying out tasks and obligations in a disciplined manner

	expectations for teachers	
Idealized Influence	Become a figure in the school environment	27. Providing a role model for teachers and employees
		28. Implement discipline according to school rules
		29. Provide guidance to teachers
		30. Guide teachers to develop their potential
		31. Have a wide network and connections
		32. Capable of communicating well
	Treat teachers with respect	33. Creating an atmosphere of togetherness in school
		34. Listen to teacher complaints related to learning
		35. Create a conducive social atmosphere
		36. Maintain conduciveness in the school environment
	Prioritize group interests above personal interests	37. Dividing institutional tasks in a professional and proportional manner
		38. Prioritize school interests
		39. Devote time for the benefit of the school

After expert testing, empirical testing was carried out with panel tests involving 15 panelists. The panelists' data acquisition was tested using the Aiken's V Index formula to calculate the Aikens' V Validity Coefficient. The results of the panelists' tests with the Aikens' V Index are presented in the table as follows:

Table 3. Tabulation of Panelist Scores with Aiken's V Index

Item	Aiken's V Index	Item Quality
Item 1	0.750	Valid
Item 2	0.725	Valid
Item 3	0.675	Valid
Item 4	0.750	Valid
Item 5	0.712	Valid
Item 6	0.712	Valid
Item 7	0.662	Drop
Item 8	0.625	Drop
Item 9	0.725	Valid
Item 10	0.712	Valid
Item 11	0.712	Valid
Item 12	0.737	Valid
Item 13	0.712	Valid
Item 14	0.700	Valid
Item 15	0.725	Valid
Item 16	0.712	Valid
Item 17	0.712	Valid
Item 18	0.587	Drop
Item 19	0.725	Valid
Item 20	0.637	Drop
Item 21	0.737	Valid
Item 22	0.750	Valid
Item 23	0.737	Valid
Item 24	0.725	Valid
Item 25	0.675	Valid
Item 26	0.725	Valid
Item 27	0.712	Valid
Item 28	0.725	Valid
Item 29	0.575	Drop
Item 30	0.737	Valid
Item 31	0.575	Drop
Item 32	0.725	Valid
Item 33	0.737	Valid
Item 34	0.737	Valid
Item 35	0.725	Valid
Item 36	0.725	Valid
Item 37	0.587	Drop
Item 38	0.712	Valid
Item 39	0.687	Valid

Based on the table above, 32 instruments were obtained that were declared valid, and seven instruments were declared dropped. This is because the index of items declared to fall below the V-index table score is 0.67 with $\alpha = 0.05$. Based on the panel test results, the drop items are 7, 7,8,18,20,29,31, and 37. The panel test results identified the specific items that were below the acceptable validity score and needed to be removed from the final instrument. A total of 32 instruments that have been declared valid were tested for reliability with the Cronbach Alpha formula with the help of Software SPSS v. 21. The reliability test value measures the stability of an instrument (Asma, 2023; Govindasamy et al., 2024; Ansari et al., 2024), and the results are presented at the SPSS output as follows:

Table 4. Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.920	.923	29

Based on the above output, a high level of reliability of 0.920 was obtained. Thus, it can be concluded that the instruments indexed by Aikens V are highly efficient, have a strong internal consistency, and reliably measure the intended construct. The Transformational Leadership Instruments tested by experts and panelists totaled 32 instruments. The 32 items were then tested on 40 teacher respondents from various schools in state high schools in Bogor City. The collected trial data is then analyzed using Confirmatory Factor Analysis (CFA) to obtain standard instruments. The testing and processing of the data uses Mplus version 7. The resulting outcome is as follows:

Table 5. Factor Loadings of Individualized Consideration Items

Two-Tailed				
Estimate	S.E.		Est./S.E.	P-Value
	IC	BY		
TRSLDR1	0.623	0.091	6.883	0.000
TRSLDR2	0.216	0.102	2.123	0.034
TRSLDR3	-0.318	0.101	-3.148	0.002
TRSLDR4	0.914	0.044	20.690	0.000
TRSLDR5	0.807	0.060	13.382	0.000
TRSLDR6	0.820	0.075	10.906	0.000
TRSLDR7	0.189	0.099	1.917	0.055
TRSLDR8	0.863	0.055	15.762	0.000
TRSLDR9	0.712	0.087	8.193	0.000
TRSLDR10	0.034	0.099	0.344	0.731

Based on the table of trial results on the Individualized Consideration dimension, as many as four instruments have a loading factor below 0.50. This means the instrument item cannot be used because it does not have good question criteria. The instrument items are numbers 2, 3, 7, and 10. The content factor for the Intellectual Stimulation dimension is presented in the following table:

Table 6. Item Factor Charge of Intellectual Stimulation

Two-Tailed				
Estimate	S.E.	Est./S.E.	P-Value	
	IS	BY		
TRSLDR11	0.697	0.090	7.720	0.000
TRSLDR12	0.425	0.075	5.680	0.000
TRSLDR13	0.789	0.057	13.884	0.000
TRSLDR14	0.564	0.082	6.849	0.000
TRSLDR15	-0.101	0.095	-1.065	0.287
TRSLDR16	0.571	0.104	5.507	0.000

Based on the results of empirical tests on the Intellectual Stimulation dimension, five instruments were obtained with a loading factor above 0.50, while the rest, namely instrument item number 15, were below 0.50, which cannot be accepted as valid instrument items. The next dimension is the Inspirational Motivation dimension. The results of trials or empirical outputs are presented in the following table:

Table 7. Content of Inspirational Motivation Item Factor

Two-Tailed				
Estimate	S.E.		Est./S.E.	P-Value
	IM	BY		
TRSLDR17	0.267	0.097	2.746	0.006
TRSLDR18	0.532	0.090	5.912	0.000
TRSLDR19	0.416	0.094	4.405	0.000
TRSLDR20	0.609	0.064	9.491	0.000
TRSLDR21	0.755	0.071	10.672	0.000
TRSLDR22	0.187	0.094	1.990	0.047

The table above explains that six instruments exceed the loading factor, while the other two items are below 0.50. The two items are instrument items number 17 and 22. The last dimension that is developed and tested empirically is the Idealized Influence (charismatic) dimension, and the test results on that dimension are as follows:

Table 8. Idealized Influence Grain Factor Charge

Two-Tailed				
Estimate	S.E.		Est./S.E.	P-Value
	II	BY		
TRSLDR23	0.646	0.070	9.198	0.000
TRSLDR24	0.850	0.059	14.339	0.000
TRSLDR25	0.583	0.117	4.987	0.000
TRSLDR26	0.857	0.053	16.219	0.000
TRSLDR27	0.605	0.098	6.182	0.000
TRSLDR28	0.811	0.094	8.653	0.000
TRSLDR29	0.008	0.073	0.108	0.914
TRSLDR30	0.897	0.069	12.943	0.000
TRSLDR31	0.910	0.039	23.387	0.000
TRSLDR32	0.864	0.058	14.909	0.000

Based on the table above, ten instruments were obtained, with nine grains having a loading factor above 0.50 and the remaining 1 grain below the loading factor threshold. The explanation in each table shows good significance because the loading factor met the test requirements. Likewise, other information shows that the value of Chi-Square = 1586.245, Degree of Freedom (df) = 496, p-value = 0.0000, and Comparative Fit Index (CFI) = 0.700. From the acquisition of these data, it can be concluded that there are as many as 24 eligible instrument items from a total of 32 items that were tested to meet the fit model level according to the criteria. After validity testing, reliability testing is continued using SPSS v. 21 with the Cronbach Alpha formula (Oka et al., 2022; Saif et al., 2024), which involves 24 question items with valid criteria. The results of the reliability test are presented in the following table:

Table 9. Reliability Test Results

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.884	.892	24

Based on the acquisition table above, it can be concluded that a reliability test value of = 0.884 can be declared to have a high level of reliability. This provision is in line with the theory that states that "A commonly accepted rule for describing using Cronbach's alpha is (Rui & Costa, 2017): 0 to 0.49 unacceptable, 0.50 to 0.59 poor, 0.60 to 0.69 questionable, 0.70 to 0.79 acceptable, 0.80 to 0.89 good and from 0.9 to 1 excellent. The distribution is presented in the following table:

Table 10. Item Spread of Instruments That Have a Good Fit Model Rate

Dimension	Item
Individualized Consideration	1, 4, 5, 6, 8, 9
Intellectual Stimulation	11, 12, 13, 14, 16
Inspirational Motivation	18, 19, 20, 21
Idealized Influence	23, 24, 25, 26, 27, 28, 30, 31, 32
Total	24 Instrument

Judging from the history of leadership development, the concept of leadership is divided into three concepts: first, the concept that considers that leadership is an ability in the form of traits carried from birth; second, as a group function; and third, seen as a function of the situation. Leadership is also interpreted as an activity that influences people to be directed to achieve goals. Traditional leadership comes from the word transform, which means transforming into a different form. A transformational leader must be able to bring change to human resources and their institutions to achieve predetermined goals (Nguyen et al., 2023; Tian, 2023). It also can provide inspiration and motivation to achieve planned results. Transformational leadership is not just influencing those he leads to achieve the desired goals but changing attitudes and fundamental values through empowerment. Additionally, Wang et al. (2024) support the idea that transformational leaders create inspiring visions and provide employees with challenging work that aligns with individual and organizational objectives. It emphasizes that leadership encompasses various concepts, including inherent traits, group dynamics, and situational factors, with transformational leadership standing out as a vital approach that inspires change and aligns individual and organizational goals through empowerment and motivation. Effective leadership is characterized by influencing and inspiring others toward achieving shared objectives.

In line with the above statement, there are four critical factors in leadership. These four factors are also the concept of conventional leadership, including a) Idealized Influence, in which the leader acts as a role model. In concrete form, this charisma is shown through understanding the organization's vision and mission, having a firm stand, and being committed and consistent toward every decision. b) Inspirational Motivation. A leader who can create a clear picture of the state of affairs that will come can inspire and motivate his followers. c) Intellectual Consideration, a leader with intellect who can become a decision maker. d) Individual Consideration: a leader who can control himself, putting the group's interests ahead of personal interests (Bass & Riggio, 2006; Avolio, 2011; Warrilow, 2012; Odumeru & Ogbonna, 2013; Njaramba, 2024). Thus, effective leadership is characterized by four essential factors: Idealized Influence, Inspirational Motivation, Intellectual Consideration, and Individual Consideration, each contributing to a leader's ability to inspire, guide, and prioritize the needs of the organization over personal interests. The results of a research process cannot be separated from measuring instruments in the form of instruments regardless of the field of research study. Miller et al. (2009) suggest that an instrument is used to collect research data or variables that will be analyzed and developed systematically to measure behavior. Measuring instruments function as collectors of data obtained from a group of individuals. The acquisition data from the instrument is described and narrated or attached and used to test the hypotheses proposed in a study accordingly. An instrument is a mechanism for measuring phenomena, which is used to gather and record information for assessment, decision-making, and, ultimately, understanding. As one of the instruments, it has a crucial role in determining the quality of a study because the validity of the data obtained is determined based on the quality of the measuring instruments used and to show that the instrument is correct and aligned with the construct (Colton & Covert, 2007; Miller et al. 2009; Nurunisa et al. 2024). In addition to the data collection procedures taken, the instrument functions to reveal facts in data so that if the instrument used has adequate quality in a valid and reliable sense, the data obtained will be based on the facts or actual circumstances in the field.

The development and validation of the 24-item transformational leadership instrument can make several important contributions to the research on principals' leadership. First, providing a Reliable and Valid Measure: The rigorous process of item development, panel review, and empirical testing resulted in a highly reliable instrument ($\alpha = 0.884$). The use of Confirmatory Factor Analysis ensured the instrument has strong construct validity. This well-validated transformational leadership measure can be used confidently in future research on principals' leadership. Second, Advancing Transformational Leadership Theory. The instrument covers key dimensions of transformational leadership, such as idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. Using this instrument, researchers can further examine the multidimensional nature of transformational leadership in the context of principals' leadership. This can help refine and expand the theoretical understanding of transformational leadership in educational leadership. Third, enabling Comparative Research. The standardized 24-item instrument provides a common metric for measuring principals' transformational leadership across different studies and contexts. This allows for more meaningful comparisons of transformational leadership among principals, schools, and educational systems. Such comparative research can yield important insights into the antecedents, outcomes, and contextual factors associated with transformational leadership in school settings. Fourth, Informing Leadership Development. The validated instrument can be used to assess principals' transformational leadership competencies. The results can guide the design and implementation of leadership development programs to enhance transformational leadership skills among current and aspiring principals. This can ultimately improve the quality of school leadership and, consequently, student outcomes.

CONCLUSION

In conclusion, the study developed and validated a 24-item transformational leadership instrument through rigorous logical and empirical testing involving panel review, item analysis, and confirmatory factor analysis, ultimately resulting in a highly reliable measure of transformational leadership. The comprehensive approach to instrument development and validation described in the results highlights the importance of establishing the psychometric properties of a transformational leadership measure to ensure its validity and reliability for research and practical applications. The development and validation of this transformational leadership instrument represents a significant contribution to the research on principals' leadership. It provides a reliable and valid measure, advances theoretical understanding, enables comparative research, and informs leadership development efforts - all of which can have important implications for improving educational leadership and student success. Well-developed instruments provide a robust framework to understand the core elements of transformational leadership, including idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. Standardized tools ensure reliable and valid measurement, allowing researchers to draw meaningful conclusions about leadership's impact on organizational outcomes. Effective instruments contribute to refining and testing leadership theories, facilitating the development of more nuanced models. Instruments enable organizations to benchmark their leaders' transformational capabilities, comparing them across industries or regions. Additionally, Instruments help identify leaders' strengths and areas for improvement, guiding targeted development programs to enhance transformational behaviors.

REFERENCES

- Alimo-Metcalfe, B., & Alban-Metcalfe, R. J. (2001). The development of a new transformational leadership questionnaire. *Journal of occupational and organizational psychology*, 74(1), 1-27.
- Anculle-Arauco, V., Krüger-Malpartida, H., Arevalo-Flores, M., Correa-Cedeño, L., Mass, R., Hoppe, W., & Pedraz-Petrozzi, B. (2024). Content validation using Aiken methodology through expert judgment of the first Spanish version of the Eppendorf Schizophrenia Inventory (ESI) in Peru: A brief qualitative report. *Spanish Journal of Psychiatry and Mental Health*, 17(2), 110-113.
- Ansari, M. S. A., Abouraia, M., El Morsy, R., & Thumiki, V. R. R. (2024). Influence of transformational and transactional leadership on agile project success. *Project Leadership and Society*, 5, 100136.
- Ariani, D., Riswandi, R., & Maulina, D. (2024). Development of a Model of Transformational Leadership Behavior and Ethical Leadership of Elementary School Principals in Creating Excellent Schools. *International Journal of Recent Educational Research*, 5(4), 835-851.
- Asma, A. (2023). Development of an Ethnic-Math HOTS-Based Assessment Instrument to Measure the Numerical Students' Literacy. *Journal of Innovation in Educational and Cultural Research*, 4(4).
- Avolio, B. J. (2011). *Full Leadership Development: Building the Vital Forces in Organizations*. Sage
- Bakker, A. B., Hetland, J., Olsen, O. K., & Espevik, R. (2023). Daily transformational leadership: A source of inspiration for follower performance? *European Management Journal*, 41(5), 700-708.
- Bass, B. M., & Riggio, R. E. (2006). *Transformational leadership*. Psychology press.
- Bogler, R., Caspi, A., & Roccas, S. (2013). Transformational and passive leadership. *Educational Management Administration & Leadership*, 41(3), 372-392.
- Borg, W. R., & Gall, M. D. (1989). *Educational research. An Introduction* (5th ed.) Longman.
- Branch, R. M. (2009). *Instructional Design: The ADDIE Approach*. Springer US.
- Carless, S. A., Wearing, A. J., & Mann, L. (2000). A short measure of transformational leadership. *Journal of business and psychology*, 14, 389-405.
- Colton, D., & Covert, R. W. (2007). *Designing and Constructing Instruments for Social Research and Evaluation*. Jossey-Basse. John Wiley & Sons, Inc.
- Cuevas-Vargas, H., Lozano-García, J. J., Morales-García, R., & Castaño-Guevara, S. (2023). Transformational leadership and innovation to boost business performance: The case of small Mexican firms. *Procedia Computer Science*, 221, 1139-1146.
- Edwards, J. R., Knight, D. K., Broome, K. M., & Flynn, P. M. (2010). The development and validation of a transformational leadership survey for substance use treatment programs. *Substance use & misuse*, 45(9), 1279-1302.

- Govindasamy, P., Cumming, T. M., & Abdullah, N. (2024). Validity and reliability of a needs analysis questionnaire for the development of a creativity module. *Journal of Research in Special Educational Needs*, 1–16.
- Hidayah, N., Ramli, M., Fauzan, L., Nor, M. B. M., Rofiqoh., Hanafi, H., & Saputra, N. M. A. (2024). Development of a Hybrid Training Package of Narrative Counseling Based on Parebhasan Culture to Improve Counselor Skills in Madura. *Journal of Innovation in Educational and Cultural Research*, 5(3), 417-425.
- Jung, J. Y., & Kim, J. Y. (2024). Validity and Reliability of the Korean Version of the Caregiver Burden Questionnaire for Family Caregivers of Hemodialysis Patients. *Asian Nursing Research*, 18(5), 509-515.
- Kueh, Y. C., Atamamen, T., Arifin, W. N., Abdullah, N., & Kuan, G. (2024). Validation of the Malay version of the recovery-stress questionnaire for athletes: Application of confirmatory factor analysis and exploratory structural equation modeling. *Asian Journal of Sport and Exercise Psychology*, 4(2), 65-72.
- Lee, C. C., Yeh, W. C., Yu, Z., & Lin, X. C. (2023). The relationships between leader emotional intelligence, transformational leadership, and transactional leadership and job performance: A mediator model of trust. *Heliyon*, 9(8).
- Li, F., Zhang, H., Wong, C. U. I., & Chen, X. (2024). Interpreting the mixed model of sustained engagement in online gamified learning: A dual analysis based on MPLUS and FSQCA. *Entertainment Computing*, 50, 100643.
- López-Domínguez, M., Enache, M., Sallan, J. M., & Simo, P. (2013). Transformational leadership as an antecedent of change-oriented organizational citizenship behavior. *Journal of business research*, 66(10), 2147-2152.
- Miller, D., Robert L., & Norman E. G. (2009). *Measurement and Assessment in Teaching*. Pearson Education Inc.
- Muthén, L. K., & Muthén, B. O. (2012). *Mplus User's Guide* (7th ed.). CA.
- Nurunisa, F. A., & Shodiq, S. F. (2024). Developing Quality Social Relationships: Technology-Based Learning Model to Enhance Social Skills in Boarding Schools. *Journal of Innovation in Educational and Cultural Research*, 5(3), 364-372.
- Nguyen, N. P., Hang, N. T. T., Hiep, N., & Flynn, O. (2023). Does transformational leadership influence organisational culture and organisational performance: Empirical evidence from an emerging country. *IIMB Management Review*, 35(4), 382-392.
- Nabilah, S., & Lutfi, A. (2022). Development of Flappy Chem Game Media on Electron Configuration Materials on Students' Happiness Level. *Journal of Innovation in Educational and Cultural Research*, 3(4), 635-644.
- Njaramba, F. (2024). Transformational leadership in a crisis: Dimensional analysis with psychological capital. *Heliyon*, 10(16).
- Odumeru, J. A., & Ogbonna, I. G. (2013). Transformational vs. transactional leadership theories: Evidence in literature. *International review of management and business research*, 2(2), 355.
- Oka, I. G. A. A. M., Masito, F., Irfansyah, A., Purwaningtyas, D. A., & Pramono, Z. A. (2022). Development of Safety Management System Learning Through MOOCS to Improve Mastery of Aviation Safety Concepts for Cadets. *Journal of Innovation in Educational and Cultural Research*, 3(4), 645-650.
- Oterkiil, C., & Ertesvåg, S. K. (2014). Development of a measurement for transformational and transactional leadership in schools taking on a school-based intervention. *Educational Management Administration & Leadership*, 42(4), 5-27.
- Resmanti, P., Faridah, A., Yusmerita, Y., & Hendriyani, Y. (2024). Development of the E-module with Project-Based Learning for the Flat Pattern Design Course. *Journal of Innovation in Educational and Cultural Research*, 5(3), 408-416.
- Richter, E., & Richter, D. (2024). Measuring the quality of teacher professional development: A large-scale validation study of an 18-item instrument for daily use. *Studies in Educational Evaluation*, 81, 101357.

- Saif, N., Goh, G. G. G., Rubin, A., Shaheen, I., & Murtaza, M. (2024). Influence of transformational leadership on innovative work behavior and task performance of individuals: The mediating role of knowledge sharing. *Heliyon*, 10(11).
- Schiuma, G., Santarsiero, F., Carlucci, D., & Jarrar, Y. (2024). Transformative leadership competencies for organizational digital transformation. *Business Horizons*, 67(4), 425-437.
- Tian, A. W., Meyer, J. P., Ilic-Balas, T., Espinoza, J. A., & Pepper, S. (2023). In search of the pseudo-transformational leader: A person-centered approach. *Journal of Business Research*, 158, 113675.
- Thomas, V. (2024). The importance of transformational leadership. *British Journal of Healthcare Assistants*, 18. 66–71.
- Wang, F., Liu, H., & Fan, M. (2024). The relationship between transformational leadership and teacher autonomy: A latent moderation analysis. *Acta Psychologica*, 249, 104444.
- Warrilow. S. (2012). *Transformational Leadership Theory—The 4 Key Components in Change & Managing Change*.