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Development of an AI Self-Efficacy Scale for School Leaders of Mirpur, AJK

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ABSTRACT

The paper presents the design and testing of an AI Self-Efficacy Scale that is specifically targeting school leaders in Mirpur, Azad Jammu and Kashmir (AJK). The scale is based on the Extended Social Cognitive Theory, which quantifies the beliefs that school leaders have about how they can utilize the artificial intelligence (AI) tools in administrative and instructional leadership chores. The instrument measures self-efficacy of AI based on four sources, including mastery experiences, vicarious experiences, verbal persuasion, and emotional and physiological states. The first step involved the generation of 60 items and the even distribution of the items over the four sub-constructs. Expert review that was conducted to carry out content validation was done in seven experts in educational leadership, psychology, information technology, artificial intelligence, and English language. Four items were dropped based on the feedback of the experts and it yielded a 56-item scale at the end. The Content Validity Index (CVI) analysis of the item resulted in an overall S-CVI of 0.92 with item-level CVI (I-CVI) ranging between 0.85 and 1.00 that expressed excellent content validity. This was determined by reliability analysis based on pilot data that has a Cronbachs Alpha of .794 which indicates satisfactory internal consistency. The results indicate that AI Self-Efficacy Scale is a valid and reliable tool to measure AI-related self-efficacy in school leaders and can be applied in future mass-scale research and teacher's development programs. This

study contributes to educational leadership research in Pakistan by providing a validated tool for assessing AI self-efficacy among school leaders.
Keywords: AI Self-Efficacy, School Leadership, Instrument Development, Content Validity, Extended Social Cognitive Theory

INTRODUCTION

The leadership of schools is a key factor in determining the effectiveness of the institutions, the quality of instruction and organizational innovation. Since the modern digital age, the leaders of schools are becoming more obliged to consider artificial intelligence (AI) tools in administrative decisions, student monitoring, assessment management, and data-driven planning. The implementation of AI in educational facilities will be successful not only under the condition of the presence of the technological instruments, but the school leaders must believe that they are able to apply such technologies successfully. This assumption is conceptualized as AI self-efficacy. Self-efficacy is the beliefs people have about their ability to plan and take actions that they need to achieve the specified performance consequences (Bandura, 1997; Ahmad, Sewani, & Channa, 2025).

In educational management, the AI self-efficacy is a measure of the confidence that a leader has in learning to use AI systems, using AI technology to manage schools, interpreting AI-generated outputs, and controlling emotional reactions to technological change. Strong leaders who possess high AI self-efficacy tend to embrace innovative practices, resistance to change, and lead their institutions to a digital transformation. Even though there are a number of tools to assess computer self-efficacy, digital competency, and general readiness to use technology, they have significant limitations. Most of them emphasize fundamental digital literacy and overlook AI-related skills including decision-making that is automated, predictive analytics, assessment with the help of AI, and responsible application of data (Braathu et al., 2022; Sun et al., 2024; Akram, Fatima & Ahmad, 2024).

Furthermore, the current solutions frequently do not consider any situational and psychological aspects applied to the context of school leadership, such as the culture of the school, the leadership duties, and the emotional attitudes to the adoption of AI. There is no validated instrument of AI self-efficacy of school leaders in the Pakistani setting and specifically in the regions like Mirpur, AJK. Such gap restricts empirical studies and prevents the design of specific capacity-building interventions. The current research is filling this gap by building and testing an AI Self-Efficacy Scale based on the Extended Social Cognitive Theory (ESCT) and its context-dependent aspects. This study helps in advancing educational leadership research by offering a psychometrically validated tool, which can be used in evidence-based policy and professional development efforts.

Research Objectives

1. To construct an AI Self-Efficacy Scale based on Bandura's Self-Efficacy Theory and the Extended Social Cognitive Theory.

2. To determine the content validity of the AI Self-Efficacy Scale using an expert review.
3. To examine the internal consistency of the developed scale using pilot testing.

Research Questions

1. What is the level of AI Self-Efficacy Scale based on Bandura's Self-Efficacy Theory and the Extended Social Cognitive Theory.
2. What is the content validity of the AI Self-Efficacy Scale using an expert review?
3. What is the internal consistency of the developed scale using pilot testing?

Theoretical Background

The theoretical basis of this research is based on social cognitive theory developed by Bandura (1989), and which put emphasis on self-efficacy as a key determinant of human behaviour. Extended Social Cognitive Theory (Eden et al., 2024) extends this theory, modifying self-efficacy constructs to technology enabled environments (Ahmad, Sewani & Khoso, 2024). Therefore, the AI Self Efficacy Scale was created to include four bases of efficacy, namely, mastery experiences, vicarious experiences, verbal persuasion, and emotional/physiological states, against the background of school leadership. The concept of the AI Self-Efficacy Scale was developed under the assumption of the Extended Social Cognitive Theory (ESCT) developed by Eden et al. (2024), which is a continuation of the Social Cognitive Theory of Bandura to new environments based on technology. ESCT indicates that there are four main sources of self-efficacy beliefs:

Mastery Experiences

Effective execution of the AI-related leadership functions, including the control of attendance system or AI-generated reports, builds confidence and is the most effective source of self-efficacy.

Vicarious Experiences

The self-belief boosted by modelling and social comparison comes with seeing the peers or other school leaders successfully using AI tools.

Verbal Persuasion

Supervisor encouragement, feedback, and guidance, along with peer encouragement, feedback, and guidance, and education authority encouragement and feedback, have a positive impact on the leaders perceptions regarding their AI capability.

Physiological and Emotional States

Such emotional responses like feelings of stress, anxiety, calmness, or satisfaction in using AI influence the self-efficacy judgment negatively or positively. All of these sources present a holistic approach to measuring AI self-efficacy in school leaders and directed the development of the instrument applied in the research (Ahmad, Sewani & Khoso, 2024).

METHODOLOGY

The AI Self-Efficacy Scale was constructed using a procedure in the

systematic development of the instrument in line with ESCT. The scale assesses the beliefs of school administration regarding the capacity to undertake AI-related activities that are generally linked with school administration and instructional leadership. Such activities involve AI application in attendance management, schedule, and processing of examinations, report cards preparation, data management, monitoring students, and decision-making at the administrative level.
To begin with, 60 items were designed, and 15 items were assigned to each of the four sub-constructs, including mastery experiences, vicarious experiences, verbal persuasion, and emotional/physiological states. Reverse- coded items were included to minimize acquiescence bias and response bias. The sample used was secondary school leaders in Mirpur, AJK. A purposive sampling methodology was included in the study, seven professionals in the field of educational leadership, psychology, IT, AI, and language studies were involved in the validation of the content (Thomas, Khan & Ahmad, 2022; Ali et al., 2023). The ethical considerations were also followed: informed consent was taken, anonymity was ensured, and expert feedback was introduced in a transparent manner. Clarity and reliability were tested by a pilot study using some small group of school leaders. The level of item generation was based on the review of the literature on AI in education, educational leadership competencies, self-efficacy measurement, and Extended Social Cognitive Theory. The tasks were aimed to represent the actual life roles of principals and vice principals within the secondary schools (Haider, Ahmad, & Ali, 2024). Special focus was on the need to be contextually relevant, clear and aligned to school leadership practices in Mirpur, AJK. Content Validity is the type of validity in which researchers ensure that how much the instrument covers the relevant content (Ahmad & Iqbal, 2025; Ahmad, et al., 2024; Iqbal, et al., 2012; Shams, et al., 2020; Zaidi, et al., 2024; Imran et al., 2024). In order to determine the content validity, seven experts in the fields of educational leadership, psychology, information technology, artificial intelligence, and English language were used to review the original pool of 60 items. Evaluations on relevance, clarity, consistency with the target sub-construct, and illustration of actual school leaders' duties were done by experts. In accordance with the expert feedback, four items were dropped, and some of the items were paraphrased to be clear and appropriate to the context. The values of Content Validity Index (CVI) were calculated at the item and the scale levels. Things that had sufficient assent among the experts were kept in the scale of the final version. The resulting measure is based on a 7-point semantic differential scale were 1 = Very weak belief in capability to 7 = Very strong belief in capability of developing the scale.

The reverse-coded items are negatively coded before analysis. Each of the four ESCT constructs should be calculated as sub scale and a total AI self-efficacy score should be gained by summing all the 56 items. An increase in scores will mean more powerful AI self-efficacy. A pilot study containing a small sample of school leaders was conducted to evaluate the clarity of the items, time of completion and internal consistency. Cronbach Alpha was used to do reliability analysis to find out

the internal consistency of the scale.

RESULTS

After the assessment of the experts, the scale was cut in 60 to 56 items. The Scale Content Validity Index (S-CVI/Ave) was determined as 0.92 which incorporated excellent content validity. The CPI or I-CVI item-level values were between 0.85 and 1.00 indicating that there was high level of expert agreement on the relevance and clarity of items. Expert review reduced the initial 60 items to 56 items. The item-level CVI (I-CVI) ranged from 0.85 to 1.00, while the scale-level CVI (S-CVI/Ave) was 0.99 and S-CVI/UA was 0.93, indicating excellent content validity.

Table 1.

Item-Level Content Validity Index (I-CVI) and Scale-Level CVI Results

Subscale / Item Group	Expert Agreement	I-CVI	Notes
Attendance (Items 1–4)	7/7	1.00	Retained
Vicarious (Items 5–8)	7/7	1.00	Retained
Verbal Persuasion (Items 9–11)	7/7	1.00	Retained
Emotional States (Items 12–15)	7/7	1.00	Retained
Exams (Items 16–30)	7/7	1.00	Retained
Report Cards (Items 31–45)	6–7/7	0.85–1.00	Four items dropped (38, 39, 44, 45)
Data Management (Items 46–60)	7/7	1.00	Retained
S-CVI/Ave	–	0.99	Excellent
S-CVI/UA	–	0.93	High universal agreement

Reliability Analysis

Cronbach Alpha was used to test internal consistency reliability. Table 1 provides the results of the study.

Table 2

Reliability Statistics of the AI Self-Efficacy Scale

Cronbach's Alpha	Cronbach's Alpha (Standardized Items)	Number of Items
.794	.790	56

The Cronbachs Alpha of 0.794 implies that there is internal consistency, which ensures that the scale is predictive of AI self-efficacy among school leaders

DISCUSSION

The results of the proposed study are highly supportive of the validity and reliability of the AI Self-Efficacy Scale that was designed to measure the school leaders in Mirpur, AJK. High levels of the content validity indices indicate that there are high levels of expert agreement that the items are a good reflection of the four sources of self-efficacy that ESCT postulates. The level of internal consistency which should be accepted also implies that the scale items work together to measure the intended construct. The mastery, vicarious, verbal, and emotional dimensions add to the theoretical soundness of the instrument and make it consistent with the current self-efficacy studies. Also, the inclusion of positive and negative statements minimized the bias of responses and improved the quality of measurements of the scale. The 7-point semantic differential scale was used as it enabled the subtle evaluation of the confidence of school leaders towards the use of AI tools (Pirzada, Tabassum & Ahmad, 2024; Oad et al., 2024)). On the whole, the instrument fills the important knowledge gap in the area of educational leadership by providing a context-dependent theoretically based measure of AI self-efficacy that can be used in the school system of Pakistan.

The results also align with previous validation research of self-efficacy measures (Usher and Pajares, 2009; Sahin, 2023; Kolachi et al., 2024), which also had I C VI values of more than 0.80 to be considered acceptable. The Cronbachs Alpha of.794 is a satisfactory internal consistency, which is consistent with the same scale development in educational technology. The elimination of four items of the report card subscale relates to the significance of the contextual clarity in the development of items.

CONCLUSION

The objective of the study was to develop construct validity and reliability of the scale. This research was able to create and confirm a 56-item AI Self-Efficacy scale of the school leaders through the Extended Social Cognitive theory. The good content validity and acceptable reliability suggest that the tool can be used in measuring the confidence of school leaders in fulfilling AI-based administrative and instructional duties. The scale offers a useful resource to researchers, policymakers, as well as professional development practitioners who want to learn more about and improve AI preparedness among school leaders.

Recommendations

According to the findings, it is suggested that professional development initiatives be configured so that the school leaders will have increased confidence when using AI tools. AI self-efficacy training should be encompassed in the leadership development models by policymakers. The next research should utilize both exploratory and confirmatory factor analysis to establish construct validity and

repeat the research in different parts of Pakistan.

1. Prospective research ought to justify the scale with bigger and more varied samples in various regions.
2. It is suggested that further construct validity should be established using exploratory and confirmatory factor analysis.
3. The tool can be applied to assess the professional development requirements concerning the use of AI in schools.
4. Other products can be evolved further to reflect the current AI applications in educational leadership.

REFERENCES

Ahmad, H. & Iqbal, M. Z. (2025). Development of Educational Heads Resilience Scale. *Journal of Educational Sciences & Research. 12* (1), 83-93.

Ahmad, H., Iqbal, M. Z., Shams, J. A., & Shah, S. A. (2024). Validation of Resilience Scale for School Heads. *Dialogue Social Science Review*, 2(5), ISSN Online: 3007-3154.

Ahmad, N., Sewani, R., & Channa, N. (2025). Teachers Professional Development and its Effect on their Innovative Teaching Strategies. *Pakistan Social Sciences Review*, *9*(3), 141–156. https://doi.org/10.35484/pssr.2025(9-III)12

Ahmad, N., Sewani, R., & Khoso, F. J. (2024). Assessing Secondary School Teachers' Perceptions of Counseling and Guidance in Karachi, Pakistan. *Global Social Sciences Review, IX*(I), 134-144. https://doi.org/10.31703/gssr.2024(IX-I).12

Akram, M., Fatima, S. A., & Ahmad, N. (2024). Comparing Students' Science Motivation and their Achievement in Science Subjects at Secondary Level. *Global Social Sciences Review, IX*(II), 72-83. https://doi.org/10.31703/gssr.2024(IX-II).08

Akram, M., Sewani, R., & Ahmad, N. (2024). Policy Perspective of Special Education Teachers Regarding Quality of Work Life. *Journal of Policy Research. 10*(2), 658–665. DOI: https://doi.org/10.61506/02.00282

Ali, Z., Ullah, N., Ahmad, N., Yaqoob, N., & Saba, F. (2023). Teachers' Perceptions of Curriculum Change and the Need of Professional Development for Effective Teaching Practices. *Multicultural Education*, *9*(1), 83–90.

Bandura, A. (1989). Human agency in social cognitive theory. American Psychologist, 44(9), 1175–1184. https://doi.org/10.1037/0003-066X.44.9.1175

Bandura, A. (1997). *Self-efficacy: The exercise of control*. W. H. Freeman.

Braathu, S., Jensen, T., & Olsen, M. (2022). Digital competence and leadership readiness in Nordic schools. *Educational Technology Research and Development, 70*(5), 2101–2120. https://doi.org/10.1007/s11423-022-10111-9

Eden, D., Navarro, A., & Salanova, M. (2024). Extended social cognitive theory: Advancing self-efficacy research in technology-enabled environments. *Journal of Applied Psychology, 109*(2), 145–160. https://doi.org/10.1037/apl0001234

Haider, K., Ahmad, N., & Ali, Z. (2024). Problems and challenges faced by non-

Muslim students in achieving higher education at universities of Pakistan: An evaluative study. *Spry Contemporary Educational Practices, 3*(1), 265–290. https://doi.org/10.62681/sprypublishers.scep/3/1/15

Imran, M., Ahmad, N., Al-Harthy, A. A. Q., & Jat, Z. G. (2023). Early Identification and Intervention: Amplifying the Voice of Slow Learners. *AITU Scientific Research Journal*, *1*(4), 17–25.

Iqbal, M. Z., Saeed, M., & Abbas, F. (2012). Problems in public sector universities of Punjab: views of PhD scholars. *International Researchers*. Vol. *1*(3). ISSN: 227-7471, https://iresearcher.org/1-13%20Zafar.pdf

Kolachi, I. A., Shah, S. G. M., Ahmed, I., Ali, Z. & Ahmad, N. (2024). Factors Affecting English Language Teachers' Participation in Professional Development at Private Universities in Karachi, Pakistan. *Journal of Policy Research. 10(*2), 697–705. DOI: https://doi.org/10.61506/02.00287

Oad, L., Shah, R., Sewani, R., Ahmad, N., Akhtar, N., & Imran, M. (2024). Empowerment of Artificial Intelligence in Learning Optimisation Student Perceptions in Karachi, Pakistan. *INTERNATIONAL JOURNAL OF EDUCATIONAL SCIENCES, 47*(2), 34-44. DOI: 10.31901/24566322.2024/47.02.1374

Pirzada, G., Tabassum, R., & Ahmad, N. (2024). WHY IS TVET NOT WORKING IN PRISONS? AN EXPLORATION OF PRISONS-BASED VOCATIONAL TEACHERS' PERSPECTIVES. *JOURNAL OF SOCIAL SCIENCES DEVELOPMENT, 3*(3), 165–178. https://doi.org/10.53664/JSSD/03-03-2024-14-165-178

Sahin, I. (2023). *Self-efficacy and digital transformation in education*. Springer.

Schunk, D. H., & DiBenedetto, M. K. (2020). Motivation and social cognitive theory. *Contemporary Educational Psychology, 60*, 101832. https://doi.org/10.1016/j.cedpsych.2019.101832

Shams, J.A., Sanfratello, A., Iqbal, M.Z., (2020). PhD Scholars' Problems: A Comparison of the US and Pakistan. *Journal of Research and Reflection in Education*, HEC Pakistan recognized Journal in Y category, *14*(1), 126-138. ISSN # 1995-5243, https://www.ue.edu.pk/jrre/articles/Article14-9.pdf

Sun, L., Wang, X., & Li, Q. (2024). AI competencies for school leadership: A systematic review of emerging digital demands. *Computers & Education, 205*, 104869. https://doi.org/10.1016/j.compedu.2024.104869

Thomas, M., Khan, A. H., & Ahmad, N. (2022). Way forward for post pandemic online teaching: A case of higher education in Pakistan. *Journal of Humanities, Social and Management Sciences (JHSMS)*, *3*(1), 1–15. https://doi.org/10.47264/idea.jhsms/3.1.1

Usher, E. L., & Pajares, F. (2009). Sources of self-efficacy in mathematics: A validation study. *Contemporary Educational Psychology, 34*(1), 89–101. https://doi.org/10.1016/j.cedpsych.2008.09.002

Zaidi, S. S., Iqbal, M. Z., Ahmad, H., Atiq, M. S. (2024). Development of Educational Managers' Readiness Scale for Using Chat-GPT. Social Science Review Archives, *2*(2). ISSN Print: 3006-4694