Technical Support Availability and Academic Confidence on the Technological Overdependence of Teachers in Central Schools

Shaira Pearl Rulida[1], James L. Paglinawan[2]

[1]Graduate Student, Central Mindanao University

[2]Faculty, Central Mindanao University

DOI: https://doi.org/10.47772/IJRISS.2026.100400380

Received: 17 April 2026; Accepted: 22 April 2026; Published: 11 May 2026

ABSTRACT

This study determined the effect of technical support availability and academic confidence on the technological overdependence of teachers in central schools in the Division of Bukidnon for the school year 2025–2026. Specifically, it examined the levels of technical support availability, academic confidence, and technological overdependence, as well as the relationships among these variables and the best predictor of technological overdependence. The study employed a descriptive-correlational research design involving 304 teacher-respondents. Data were gathered using a structured questionnaire adapted from established instruments, including the study of Joo et al. (2016) on technostress, the Ohio State Teacher Efficacy Scale by Tschannen-Moran and Woolfolk Hoy (2001), and the technostress model of Tarafdar et al. (2007). Technological overdependence in this study is operationally defined as excessive reliance on digital tools characterized by instructional disruption, pedagogical substitution, anxiety and stress, and diminished adaptability. Data were analyzed using mean, Pearson Product-Moment Correlation, and multiple regression analysis. Findings revealed that both technical support availability and academic confidence were high, while technological overdependence was moderate. Correlation analysis showed that technical support availability has no significant relationship with technological overdependence. In contrast, academic confidence has a significant negative relationship, indicating that higher academic confidence is associated with lower technological overdependence. Regression analysis further revealed that instructional competence is the best predictor of technological overdependence. The study concludes that while technology is essential in instruction, teachers' academic confidence—particularly instructional competence—reduces their tendency toward technological overdependence. However, due to the correlational nature of the design, causal relationships cannot be established. Future studies incorporating variables such as digital literacy and institutional support are recommended to provide a more comprehensive understanding of technological dependence.

Keywords: technostress, teacher self-efficacy, instructional competence, digital reliance, classroom management

INTRODUCTION

The rapid advancement of digital technologies has significantly transformed contemporary educational practices, reshaping classrooms into technology-mediated learning environments. While the integration of digital tools enhances access to information, supports diverse instructional strategies, and promotes interactive learning, it also introduces new challenges related to teachers' reliance on technology. Effective technology integration is not solely dependent on the availability of digital resources but also on the adequacy of technical support and the level of teachers' academic confidence.

In the Philippine context, particularly in the central schools of the Division of Bukidnon, national initiatives such as the Department of Education's Computerization Program and Learning Management System implementation have accelerated the adoption of technology in teaching. Despite these developments, teachers increasingly encounter issues associated with technological disruptions, including unstable internet

connectivity, malfunctioning devices, and limited technical assistance. Such challenges may lead to instructional interruptions, heightened stress, and reduced teaching effectiveness, highlighting concerns regarding technological overdependence.

Previous studies underscore the importance of support systems and teacher-related factors in successful technology integration. Paran et al. (2023) found that insufficient technical support remains a significant barrier to effective use of digital tools in Philippine schools. Similarly, Mayantao and Tantiado (2024) reported that teachers' confidence in using technology significantly influences their engagement with digital resources. Moreover, research suggests that excessive reliance on technology may diminish teachers' adaptability and pedagogical flexibility, particularly when technical failures occur.

This study is anchored on the premise that technical support availability and academic confidence are critical factors influencing teachers' level of technological dependence. Technical support availability encompasses accessibility, responsiveness, competence, and reliability, while academic confidence includes subject matter expertise, pedagogical content knowledge, instructional competence, and classroom management.

Technological overdependence in this study is operationally defined as a teacher's excessive reliance on digital tools for instructional delivery, characterized by four measurable dimensions: (1) instructional disruption when technology fails, (2) substitution of pedagogical strategies with digital tools, (3) increased anxiety and stress related to technology use, and (4) diminished adaptability in non-technological teaching contexts. This construct reflects not merely frequency of technology use but the extent to which teaching effectiveness becomes contingent upon technological availability.

While prior studies have examined technostress and technology integration, there remains limited clarity in distinguishing productive technology use from overdependence. By explicitly operationalizing technological overdependence, this study aims to provide a more consistent theoretical and empirical framework for understanding teachers' reliance on digital tools.

Despite the growing body of literature, limited empirical research has examined the combined influence of technical support availability and academic confidence on technological overdependence among teachers in Philippine central schools. Furthermore, other contextual factors such as digital literacy and institutional support may also influence teachers' reliance on technology, although these are beyond the scope of the present study. Addressing this gap, the present study aims to determine the levels of these variables, examine their relationships, and identify the factors that best predict technological overdependence.

The findings of this study are expected to provide insights for educational policymakers and school administrators in designing targeted interventions and professional development programs that promote balanced technology integration. Ultimately, the study seeks to support teachers in maintaining instructional effectiveness while fostering resilience and adaptability in increasingly technology-driven classrooms.

Objectives Of The Study:

Objectives of the Study

This study aimed to assess the effect of technical support availability and academic confidence on technological overdependence of teachers in central schools in the Division of Bukidnon for the school year 2025-2026.. Specifically, this study aims to:

1. Determine the level of technical support availability in terms of:

a. accessibility;

b. responsiveness;

c. competence; and

d. reliability.

2. Ascertain the level of teachers' academic confidence in terms of:

a. subject matter expertise;

b. pedagogical content knowledge;

c. instructional competence; and

d. classroom management.

3. Assess the level of technological overdependence among teachers in terms of:

a. instructional disruption

b. pedagogical substitute

c. anxiety and stress

d. diminished adaptability

4. Correlate between technological overdependence of teachers in central schools and;

a. technical support availability; and

b. academic confidence.

5. Identify any variable, singly or in combination, that best predicts the technological overdependence of teachers in central schools.

MATERIALS AND METHODS

A. Respondents

The respondents of this study consisted of 304 teachers from selected central schools in the Division of Bukidnon during the School Year 2025–2026. These teachers were chosen as participants because they are directly involved in the implementation of technology-integrated instruction and are among the primary recipients of technical support within their respective schools. The sample included teachers from different central schools to ensure a comprehensive representation of experiences related to technical support availability, academic confidence, and technological reliance.

B. Research Design

This study employed a descriptive-correlational research design. The descriptive component was used to determine the levels of technical support availability, academic confidence, and technological overdependence among teachers. Meanwhile, the correlational component was utilized to examine the relationships between these variables. Furthermore, the design enabled the identification of variables that significantly predict technological overdependence. This approach allowed for a systematic and objective analysis of the relationships among the variables.

C. Instrument

The instrument used for data collection was a structured questionnaire adapted from established studies. It consisted of three main parts: (1) Technical Support Availability, (2) Academic Confidence, and (3) Technological Overdependence.

The first part was patterned from the study of Joo et al. (2016), which focused on technostress and technology use among teachers. The second part was based on the Ohio State Teacher Efficacy Scale developed by Tschannen-Moran and Woolfolk Hoy (2001), which measures teachers' confidence in instructional practices and classroom management. The third part was patterned from the work of Tarafdar et al. (2007), which examined technostress and its impact on performance.

The questionnaire utilized a five-point Likert scale, where 1 indicated the lowest level and 5 indicated the highest level of agreement. Higher scores reflected greater levels of technical support availability, academic confidence, and technological overdependence.

D. Statistical Analysis

The collected data were analyzed using appropriate statistical techniques. Descriptive statistics, particularly the mean, were used to determine the levels of the variables under study. Pearson Product-Moment Correlation Coefficient (Pearson's r) was employed to examine the relationships between technological overdependence and the independent variables, namely technical support availability and academic confidence.

Furthermore, multiple regression analysis was conducted to identify the variable or combination of variables that best predict technological overdependence among teachers. All statistical analyses were performed at a 0.05 level of significance to ensure the reliability of the results.

E. Scope and Delimitations

While the study focused on technical support availability and academic confidence, it recognizes that technological overdependence may also be influenced by other variables such as digital literacy, professional development, and institutional support systems. These variables were not included and are recommended for future research.

RESULTS and DISCUSSION:

This section presents, analyzes, and interprets the findings of the study on technical support availability, academic confidence, and technological overdependence among teachers, as well as the relationships among these variables.

As presented in Table 1, the overall level of technical support availability among teachers was high (M = 3.67). Among its dimensions, competence obtained the highest mean, followed by accessibility, while responsiveness and reliability recorded slightly lower but still high ratings. This indicates that technical support systems in central schools are generally available, and support personnel are perceived as knowledgeable and accessible. However, the relatively lower means in responsiveness and reliability suggest that delays in response time and inconsistencies in technological infrastructure may still be experienced. These findings imply that while technical support is present, its efficiency and consistency may still influence how teachers utilize technology in instruction.

Table 1. Summary of the level of technical support availability

Sub-variables	Overall Mean	Descriptive Rating	Qualitative Interpretation
Accessibility	3.7322	Good	High Availability
Responsiveness	3.5905	Good	High Availability
Competence	3.7595	Good	High Availability
Reliability	3.5941	Good	High Availability
OVERALL MEAN	**3.6715**	Good	High Availability

Scale	Range	Descriptive Rating	Qualitative Description
1	1.0 – 1.50	Very Poor	Very Low Availability
2	1.51 – 2.50	Poor	Low Availability
3	2.51 – 3.50	Fair	Moderate Availability
4	3.51 – 4.50	Good	High Availability
5	4.51 – 5.00	Excellent	Very High Availability

In terms of academic confidence, Table 2 shows that teachers demonstrated an overall high level of confidence (M = 3.89). Among the dimensions, classroom management and instructional competence recorded the highest means, followed by pedagogical content knowledge and subject matter expertise. This indicates that teachers are confident in managing classroom dynamics, delivering instruction, and applying appropriate teaching strategies. Such findings suggest that teachers possess strong internal competencies necessary for effective teaching, regardless of the level of technology integration.

Table 2. Summary of the level of Academic Confidence

Sub-variables	Overall Mean	Descriptive Rating	Qualitative Interpretation
Subject Matter Expertise	3.7952	Good	High Confidence
Pedagogical Content Knowledge	3.9454	Good	High Confidence
Instructional Competence	3.9990	Good	High Confidence
Classroom Management	4.0543	Good	High Confidence
OVERALL MEAN	3.8939	Good	High Confidence

Scale	Range	Descriptive Rating	Qualitative Description
1	1.0 – 1.50	Very Poor	Very Low Confidence
2	1.51 – 2.50	Poor	Low Confidence
3	2.51 – 3.50	Fair	Moderate Confidence
4	3.51 – 4.50	Good	High Confidence
5	4.51 – 5.00	Excellent	Very High Confidence

Meanwhile, Table 3 reveals that the level of technological overdependence among teachers was moderate (M = 2.54). Pedagogical substitute and instructional disruption were rated moderate, indicating that teachers sometimes rely on technology in delivering instruction and may experience disruptions when technology fails. On the other hand, diminished adaptability and anxiety and stress were rated low, suggesting that teachers are still capable of adjusting their teaching strategies and do not experience high levels of stress related to technology use. This implies that while technology is integrated into teaching practices, teachers are not excessively dependent on it.

Table 3. Summary of the Level Technological Overdependence

Sub-variables	Overall Mean	Descriptive Rating	Qualitative Interpretation
Pedagogical Substitute	2.7110	Fair	Moderate Dependence
Instructional Disruption	2.5507	Fair	Moderate Dependence
Diminished Adaptability	2.4961	Poor	Low Dependence
Anxiety and Stress	2.4770	Poor	Low Dependence
OVERALL MEAN	2.5419	Fair	Moderate Dependence

Scale	Range	Descriptive Rating	Qualitative Description
1	1.0 – 1.50	Very Poor	Very Low Dependence
2	1.51 – 2.50	Poor	Low Dependence
3	2.51 – 3.50	Fair	Moderate Dependence
4	3.51 – 4.50	Good	High Dependence
5	4.51 – 5.00	Excellent	Very High Dependence

Regarding relationships among variables, the results of the correlation analysis indicate that technical support availability has no significant relationship with technological overdependence ($r = .026$, $p > .05$). This suggests that the presence of technical support alone does not directly influence teachers' reliance on technology. In contrast, academic confidence has a significant negative relationship with technological overdependence ($r = –.134$, $p < .05$), indicating that teachers with higher levels of confidence are less likely to depend heavily on technological tools.

Furthermore, regression analysis identified instructional competence as the best predictor of technological overdependence ($\beta = –.122$, $p < .05$). This finding implies that teachers who possess stronger instructional skills are less likely to rely on technology, as they can effectively employ alternative teaching strategies when necessary.

These findings are supported by existing literature which highlights that teacher-related factors, particularly self-efficacy and instructional competence, play a crucial role in technology integration and reduce technostress (Burić & Kim, 2020; Joo et al., 2020). Similarly, Li and Wang (2021) emphasized that teachers with higher confidence demonstrate greater adaptability and are less affected by technological disruptions. The results of this study reinforce the idea that while technical support systems are important, teachers' internal competencies have a stronger influence on their level of technological dependence. The findings suggest that enhancing teachers' academic confidence, particularly instructional competence, is essential in promoting balanced and effective use of technology in education.

The findings revealed high technical support availability and academic confidence, and moderate technological overdependence.

Technical support availability showed no significant relationship with technological overdependence ($r = .026$, $p > .05$). Given the correlational design, this does not imply causation.

The absence of a significant relationship may be explained by the fact that technical support functions as a facilitating condition rather than a determining factor. Teachers' reliance on technology appears to be shaped more by personal teaching beliefs, pedagogical approaches, and confidence levels rather than the mere presence of support services.

Additionally, teachers demonstrated adaptability, as reflected by low anxiety and diminished adaptability scores. This suggests that teachers can function effectively even without consistent support, indicating that internal competencies are more influential than external systems.

In contrast, academic confidence showed a significant negative relationship ($r = –.134$, $p < .05$). Instructional competence emerged as the strongest predictor ($\beta = –.122$), suggesting that confident teachers rely less on technology and can employ alternative strategies.

These findings indicate that technological overdependence is more strongly influenced by internal teacher characteristics. However, the exclusion of variables such as digital literacy and institutional support limits the explanatory scope of the model. Future research should incorporate these factors.

CONCLUSION

This study examined the influence of technical support availability and academic confidence on the technological overdependence of teachers in central schools in the Division of Bukidnon. This study found that while technical support availability and academic confidence were high, technological overdependence remained moderate. Technical support availability showed no significant relationship with technological overdependence, suggesting it is not a determining factor. However, due to the correlational design, causation cannot be inferred. Academic confidence, particularly instructional competence, significantly reduces technological overdependence. This highlights the importance of strengthening teacher capability rather than relying solely on external support systems. The study acknowledges limitations in variable scope, particularly the exclusion of digital literacy and institutional support. Future research should incorporate these variables to develop a more comprehensive model. Enhancing instructional competence is essential for promoting balanced, flexible, and sustainable technology integration in education.

REFERENCES

1. Abu Bakar, N. S., Maat, S. M., & Rosli, R. (2018). A systematic review of teacher's self-efficacy and technology integration. International Journal of Academic Research in Business and Social Sciences, 8(8), 540–557. https://doi.org/10.6007/IJARBSS/v8-i8/4611
2. Adnan, M., & Boz, M. (2022). Post-pandemic educational technology: A boon or a bane? International Journal of Educational Research, 110, 102123. https://doi.org/10.1016/j.ijer.2022.102123
3. Almerino, J., Reyes, T., & Santos, L. (2022). Perceived technical support and teacher anxiety in digital instruction. Philippine Journal of Educational Technology, 8(2), 45–62.

4. Almerino, P. M., Abellana, D. P. M., & Ocampo, L. A. (2020). Assessing the level of readiness and acceptance of higher education faculty members in the Philippines towards technology-enhanced teaching and learning. Philippine Journal of Educational Measurement, 5(1), 1–18.
5. Almerino, P. M., Ocampo, L. A., & Abellana, D. P. M. (2022). Technical support and teacher technostress: A Philippine perspective. Journal of Educational Technology Systems, 51(1), 89–112. https://doi.org/10.1177/00472395221122375
6. American Psychological Association. (2023). APA dictionary of psychology (2nd ed.). American Psychological Association. https://dictionary.apa.org/
7. Bandura, A. (1997). Self-efficacy: The exercise of control. W. H. Freeman.
8. Barni, D., Danioni, F., & Benevene, P. (2019). Teachers' self-efficacy: The role of personal and job resources. Social Psychology of Education, 22(1), 189–207. https://doi.org/10.1007/s11218-018-9479-y
9. Blau, I., Grinberg, R., & Shamir-Inbal, T. (2023). From integration to dependency: Digital pedagogy and teacher flexibility. Teaching and Teacher Education, 122, 103945. https://doi.org/10.1016/j.tate.2022.103945
10. Boyatzis, R. E. (1982). The competent manager: A model for effective performance. John Wiley & Sons.
11. Burić, I., & Kim, L. E. (2020). Teacher self-efficacy, instructional quality, and student motivational beliefs: An analysis using multilevel structural equation modeling. Learning and Instruction, 66, 101302. https://doi.org/10.1016/j.learninstruc.2019.101302
12. Cabaron, R. R. (2023). Influence of self-efficacy on teaching digital technology as perceived by maritime education faculty in the Philippines. International Journal of Multidisciplinary: Applied Business and Education Research, 4(5), 78–95.
13. Chemers, M. M., Hu, L., & Garcia, B. F. (2001). Academic self-efficacy and first-year college student performance and adjustment. Journal of Educational Psychology, 93(1), 55–64. https://doi.org/10.1037/0022-0663.93.1.55
14. Collie, R. J. (2021). COVID-19 and teachers' somatic burden, stress, and emotional exhaustion: Examining the role of principal leadership and workplace buoyancy. AERA Open, 7, 1–15. https://doi.org/10.1177/2332858420986187
15. Cruz, M. A. (2024). Collaborative professional development and teacher self-efficacy in Philippine secondary schools [Unpublished doctoral dissertation]. University of the Philippines.
16. Darling-Hammond, L. (2006). Constructing 21st-century teacher education. Journal of Teacher Education, 57(3), 300–314. https://doi.org/10.1177/0022487105285962
17. Department of Education (DepEd). (2023). National Learning Recovery Plan: Leveraging technology for learning (DepEd Order No. 013, s. 2023). Department of Education.
18. Eballa, A. D., Montañez, E. D., & Eballa, E. A. (2023). Development and validation of the Teachers' Professional Life Cycle Scale. International Multidisciplinary Research Journal, 5(2), 130–143.
19. Eballa, M., Montañez, P., & Eballa, L. (2023). Institutional support and teacher job satisfaction in Philippine public schools. Journal of Southeast Asian Education, 11(1), 34–52.
20. Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2010). Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. Journal of Research on Technology in Education, 42(3), 255–284. https://doi.org/10.1080/15391523.2010.10782551
21. Evertson, C. M., & Weinstein, C. S. (2006). Classroom management as a field of inquiry. In C. M. Evertson & C. S. Weinstein (Eds.), Handbook of classroom management: Research, practice, and contemporary issues (pp. 3–15). Lawrence Erlbaum Associates.
22. Farrell, C., & Marsh, J. (2023). Reliability engineering in educational technology support. Journal of Educational Administration, 61(3), 245–263.
23. Farrell, R., & Marsh, H. (2023). Reliability engineering for educational technologies: Preventive maintenance and predictive troubleshooting. Journal of Educational Technology Management, 5(1), 12–28.
24. Garcia, L., & Fernandez, R. (2024). Instructional fragility and digital reliance among Filipino teachers. Asia-Pacific Education Researcher, 33(1), 45–59.
25. Garcia, M., & Oducado, R. (2024). Technical support responsiveness and faculty satisfaction in Philippine higher education institutions. International Journal of Educational Technology, 15(2), 78–95.

26. Garcia, P., & Fernandez, R. (2024). Instructional fragility and overreliance on prepackaged digital resources: Evidence from the Philippines. Philippine Studies in Education, 6(1), 15–39.
27. Gavade, S., Sidotam, A., & Varanasi, P. (2023). Pandemic, hybrid teaching and sociotechnical support practices in low-income Indian schools. Education and Information Technologies, 28, 3125–3146. https://doi.org/10.1007/s10639-022-11234-1
28. Guo, J., Pi, Z., & Wang, J. (2024). Teacher self-efficacy in digital environments: A meta-analysis. Educational Psychology Review, 36(1), 112–134.
29. Guo, L., Pi, S., & Wang, Y. (2024). Teacher self-efficacy and contextual influences: A meta-analysis of interventions. Teaching and Teacher Education, 119, 103888.
30. Howard, L., Martinez, S., & O'Connor, P. (2021). Technostress and the professoriate: A post-COVID-19 chronicle. Higher Education Research & Development, 40(7), 1375–1390.
31. Howard, S. K., Curwood, J. S., & McGraw, K. (2021). Technology integration and the tragedy of the commons: Teacher technostress and the impact on pedagogical risk-taking. British Journal of Educational Technology, 52(5), 1723–1741.
32. Hwang, G. J., & Lee, H. Y. (2023). The paradox of smart classrooms: Technology richness and pedagogical poverty. Educational Technology Research and Development, 71(2), 567–589.
33. Inoncillo, F. A. (2024). Perceived learning management system effectiveness, teacher self-efficacy, and work engagement: Groundwork for an upskilling plan. International Journal of Research and Scientific Innovation, 11(3), 560–584.
34. International Organization for Standardization. (2018). ISO/IEC 20000-1:2018—Information technology—Service management—Part 1: Service management system requirements. ISO.
35. International Society for Technology in Education. (2023). Building teacher confidence in the digital age: ISTE standards in practice. ISTE Publications.
36. Joo, Y. J., Lim, K. Y., & Kim, N. H. (2020). The effects of secondary teachers' technostress on the intention to use technology in South Korea. Computers & Education, 150, 103833. https://doi.org/10.1016/j.compedu.2020.103833
37. Joo, Y. J., Lim, K. Y., & Kim, N. H. (2023). Organizational support as a buffer against technostress: A longitudinal study. Computers in Human Behavior, 139, 107532.
38. Kim, L. E., & Asbury, K. (2020). "Like a rug had been pulled from under you": The impact of COVID-19 on teachers in England during the first six weeks of the UK lockdown. British Journal of Educational Psychology, 90(4), 1062–1083. https://doi.org/10.1111/bjep.12381
39. Kim, M., & Song, J. (2023). Subject matter expertise as a foundation for critical technology integration. Journal of Digital Learning in Teacher Education, 39(2), 85–102.
40. Lazarides, R., Watt, H. M. G., & Richardson, P. W. (2020). Teachers' classroom management self-efficacy, perceived classroom management and teaching contexts from beginning until mid-career. Learning and Instruction, 69, 101346. https://doi.org/10.1016/j.learninstruc.2020.101346
41. Li, L., & Wang, X. (2021). Technostress inhibitors and creators and their impacts on university teachers' work performance in higher education. Cognition, Technology & Work, 23(2), 315–330. https://doi.org/10.1007/s10111-020-00625-0
42. Llego, M. A. (2023). On-site technical support as a barrier to effective technology use in Philippine public schools. Philippine Educational Review, 17(2), 101–118.
43. Macasio, J. (2022). Bridging the support gap: Technical personnel in Philippine schools. Foundation for Information Technology Education and Development Journal, 3(1), 14–27.*
44. Mayantao, L. C., & Tantiado, R. Q. (2024). Teachers' utilization of digital tools and confidence in technology. International Journal of Educational Research, 98(2), 45–62.*
45. Mercado, J., & Ocampo, L. (2024). Digital substitution in Philippine classrooms: A mixed-methods study. Proceedings of the Philippine Education Research Conference, Manila.
46. Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. Teachers College Record, 108(6), 1017–1054.
47. Moore, M. G., Dickson-Deane, C., & Galyen, K. (2011). E-learning, online learning, and distance learning environments: Are they the same? The Internet and Higher Education, 14(2), 129–135. https://doi.org/10.1016/j.iheduc.2010.10.001
48. Nunnally, J. C. (1978). Psychometric theory (2nd ed.). McGraw-Hill.

49. Ortega-Dela Cruz, C. J. (2022). Teacher self-efficacy and work engagement in the new normal. The Philippine Educator, 45(2), 23–45.
50. Paller, M., & Quirap, L. (2024). Teachers' resilience and self-efficacy: Predictors of adaptability in Cagayan de Oro City. Mindanao Journal of Education, 2(1), 40–57.
51. Paran, A. P., Abad, M. G., & Pacheco, R. A. (2023). Challenges in technology integration for elementary teachers. Cognizance Journal of Multidisciplinary Research, 4(12), 1–12. https://cognizancejournal.com/vol4issue12/V4I1212.pdf
52. Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. Journal of Retailing, 64(1), 12–40.
53. Pfitzner-Eden, F. (2019). Professional development for pedagogical confidence: Beyond technical training. Teacher Development, 23(4), 421–439.
54. Puentedura, R. R. (2006). Transformation, technology, and education. Retrieved from http://hippasus.com/resources/tte/
55. Pulakos, E. D., Arad, S., Donovan, M. A., & Plamondon, K. E. (2000). Adaptability in the workplace: Development of a taxonomy of adaptive performance. Journal of Applied Psychology, 85(4), 612–624. https://doi.org/10.1037/0021-9010.85.4.612
56. Rodriguez-Barboza, A. (2022). Exploring technostress effects on teachers' job performance: Evidence from Peru. Journal of Educational Technology Studies, 12(3), 211–229.*
57. Scherer, R., Siddiq, F., & Tondeur, J. (2022). Instructional technology coaches and the pedagogical integration of digital tools. Computers & Education, 181, 104407.
58. Selwyn, N. (2022). The future of the professor: Technology and the transformation of academic work. Learning, Media and Technology, 47(3), 321–335.
59. Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. Educational Researcher, 15(2), 4–14. https://doi.org/10.3102/0013189X015002004
60. Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. Harvard Educational Review, 57(1), 1–22. https://doi.org/10.17763/haer.57.1.j463w79r56455411
61. Tango, J. D., Lansangan, R. V., & Ancheta Jr., R. A. (2021). Unpacking the dimensions of technostress among teachers in the Philippines: A sequential exploratory study. International Journal of Learning, Teaching and Educational Research, 20(10), 1–23.
62. Tarafdar, M., Cooper, C. L., & Stich, J. F. (2019). The technostress trifecta – Techno eustress, techno distress, and design: Theoretical directions and an agenda for research. Information Systems Journal, 29(1), 6–42. https://doi.org/10.1111/isj.12169
63. Timotheou, S., Nikiforidou, Z., & Pange, J. (2023). Impacts of digital technologies on education: A review of opportunities and challenges. Education Sciences, 13(12), 1247. https://doi.org/10.3390/educsci13121247
64. Trust, T., & Prestridge, S. (2021). The rise of teacher-powered professional development: Peer-supported technical networks. Professional Development in Education, 47(2–3), 225–240.
65. Tschannen-Moran, M., & Woolfolk Hoy, A. (2020). Teacher efficacy: Two decades of reflection. Teaching and Teacher Education, 99, 103255.
66. UNESCO. (2018). ICT competency framework for teachers (Version 3). UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000265721
67. Valencia, M. S. P., Garrucha, S. P., & Villalongja, S. S. (2023). Self-efficacy beliefs and teaching performance of practice teachers. PRISM Journal, 4(1), 12–29.
68. Wang, Q., et al. (2023). Understanding the impact of technostress on university teachers. International Journal of Educational Technology in Higher Education, 20, 58.
69. Zee, M., & Koomen, H. M. Y. (2021). Teacher self-efficacy in the context of educational innovation. Educational Research Review, 34, 100400.
70. Zhang, H. (2025). The paradox of self-efficacy and technological dependence: Understanding digital reliance in the age of AI. Computers in Human Behavior, 153, 107289. https://doi.org/10.1016/j.chb.2024.107289
71. Zheng, X., & Wang, L. (2022). Digital burnout in K–12 teachers: From content curators to learning facilitators. Teaching and Teacher Education, 115, 103732.