

Strategic Human Resource Management in Inclusive Schools: The Synergy of Teacher Competence, Digital Infrastructure, and Policy Implementation

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ABSTRACT

This study analyzes the role of digital infrastructure and the competence of special education support teachers (Guru Pendamping Khusus, GPK) in improving the effectiveness of inclusive schools through the synergy of basic education policy, technology, and community needs. A qualitative multi-site case study was conducted at SMAN 4 Sidoarjo and SMAN 21 Surabaya. Data were collected through in-depth interviews, observation, documentation, and field notes, and were analyzed using thematic analysis and cross-case analysis. The findings show that the effectiveness of inclusive schools is shaped by human resource readiness, the availability and competence of GPK, physical facilities, digital infrastructure, social support, initial assessment, and financing. SMAN 4 Sidoarjo demonstrates a more operational model of inclusion through instructional adaptation, GPK involvement, shadow teacher support, and a culture of social acceptance. SMAN 21 Surabaya illustrates a more responsive implementation pattern because it still faces limitations in GPK availability, resource rooms, accessibility facilities, and early identification systems. Digital technology has the potential to support inclusive learning, but its benefits depend on teacher competence, adaptive media, mentoring, and device accessibility. The study confirms that inclusive education is an ecosystem that requires synergy among policy, GPK competence, social environment, digital infrastructure, assessment, and financing.

Keywords: *inclusive education, digital infrastructure, GPK competence, inclusive schools*

1. INTRODUCTION

Inclusive education in Indonesia is a constitutional mandate intended to guarantee equal access to education for all citizens, including students with special educational needs (SEN). This mandate is consistent with Law Number 20 of 2003 on the National Education System and Minister of National Education Regulation Number 70 of 2009 concerning inclusive education. However, the implementation of inclusive education continues to face a gap between policy norms and school-level practice because the education system is not yet fully adaptive to the diverse needs of students (Darma & Rusyidi, 2015).

The phenomenon in East Java indicates that the number of inclusive schools and SEN students has continued to increase, but this quantitative growth has not always been followed by adequate service readiness. The data used in this article show that the number of inclusive schools increased from 826 in 2023 to 933 in 2025, while the number of SEN students increased from 2,349 to 2,758. In contrast, the number of GPK decreased from 89 to 75. This imbalance indicates that expanded access has not been matched by sufficient human resource availability.

Table 1. Statistics on Inclusive Schools, SEN Students, and GPK in East Java

Year	Inclusive Schools	SEN Students	GPK
2023	826	2,349	89
2024	867	2,491	78
2025	933	2,758	75

Source: Summary of data used in the research article.

In the context of digital transformation, digital infrastructure should function as a solution for expanding access, reducing learning barriers, and supporting differentiated instruction. Nevertheless, the literature shows that digital gaps remain a major challenge, particularly in schools with limited devices, internet access, assistive technologies, and teachers' pedagogical capacity (Seun et al., 2021; Timotheou et al., 2023). Therefore, technology should not be understood merely as the availability of devices, but as part of a learning ecosystem that requires accessibility-oriented design.

This study is grounded in Social Cognitive Theory, which emphasizes reciprocal interactions among personal, environmental, and behavioral factors (Bandura, 1986; Wiziack et al., 2021). In the context of inclusive schools, personal factors are reflected in the competence of GPK and regular teachers; environmental factors are reflected in school culture, parental support, facilities, and policy; and behavioral factors are reflected in instructional adaptation and technology use. Accordingly, inclusive school effectiveness should be understood as the outcome of synergy among multiple elements rather than the effect of a single factor.

The focus of this study is to understand how inclusive education policy implementation, GPK competence, social environment support, and digital infrastructure interact to improve inclusive school effectiveness at two sites in East Java. The novelty of this article lies in the integration of basic education policy, GPK competence, social environment, and digital technology in a single qualitative analysis based on a multi-site case study.

2. RESEARCH METHODS

This study employed a qualitative approach with a multi-site case study design. A qualitative approach was selected because the study aims to understand the processes, meanings, and dynamics of inclusive education implementation in the real context of schools, rather than to test statistical relationships among variables. A multi-site design was used to compare two contexts, namely SMAN 4 Sidoarjo and SMAN 21 Surabaya, in order to identify similarities, differences, and contextual factors that influence inclusive school effectiveness (Yin, 2018; Ridder, 2020).

The research sites were selected purposively. SMAN 4 Sidoarjo was chosen because it has more visible inclusive service practices, including the presence of GPK, instructional adjustment, and peer social support. SMAN 21 Surabaya was chosen because it represents a school with the potential to serve SEN students but still faces limitations in GPK availability, resource rooms, accessibility facilities, and early identification systems. The differences between the two sites enabled a cross-case analysis of school readiness in implementing the same policy.

Research informants were selected using purposive sampling and snowball sampling. The main informants included school principals, GPK or teachers who performed support functions, subject teachers, guidance and counseling teachers or homeroom teachers where relevant, and parents of SEN students. The criteria for informants were direct experience in inclusive services, understanding of school policy or learning practice, willingness to provide information, and ability to explain their experiences reflectively. Informant adequacy was determined through data saturation, namely when information became repetitive and no longer generated significant new themes (Saunders et al., 2018; Hennink & Kaiser, 2022).

Data were collected through semi-structured in-depth interviews, observation, documentation, and field notes. Interviews were used to explore policy implementation, GPK competence, digital technology use, facility constraints, social support, and the meaning of synergy. Observation was used to capture classroom interaction, support practices, digital device use, school accessibility, and social dynamics. Documentation was used to verify administrative data, while field notes were used to record contextual information and researcher reflections (Noble & Heale, 2019; Nowell et al., 2017).

Data analysis was conducted interactively through transcription, repeated reading, initial coding, category grouping, theme development, theme review, and the formulation of provisional conclusions that were verified with the data. The analysis was carried out in two stages. First, within-site analysis was used to understand the characteristics of each school. Second, cross-case analysis was used to identify similarities, differences, supporting factors, inhibiting factors, and patterns of synergy among policy, teacher competence, social environment, and technology (Castleberry & Nolen, 2018; Nowell et al., 2017).

Data trustworthiness was maintained through credibility, transferability, dependability, and confirmability. The strategies used included triangulation of sources, techniques, time, and sites; member checking of summary findings; an audit trail of coding processes and analytical decisions; and thick description to help readers understand the context in which the findings emerged. Research ethics were maintained through informed consent, confidentiality of informant identity, responsible data use, and protection of sensitive information related to SEN students (Korstjens & Moser, 2018; Ahmed, 2024).

3. RESULTS AND DISCUSSION

3.1 Inclusive Implementation as an Adaptive Process

The findings show that inclusive education was not implemented uniformly across the two schools. At SMAN 4 Sidoarjo, inclusion was understood as providing equal opportunity accompanied by service adjustment. SEN students continued to follow the regular curriculum as a general reference, but learning materials, assignments, instructional language, and achievement targets could be simplified. For technical materials such as coding, teachers selected the core content that was most relevant and understandable for students. This practice shows that inclusion had moved from administrative acceptance toward pedagogical adaptation.

At SMAN 21 Surabaya, implementation was more responsive and selective. The school accepted the principle that public schools should provide opportunities for SEN students, but admission needed to be accompanied by initial assessment so that students could receive appropriate services. Teachers explained that some students with indications of special needs were only identified after the learning process had begun because they did not bring assessment documents from their previous educational level. This condition required the school to respond reactively through coordination among homeroom teachers, guidance and counseling teachers, subject teachers, and parents.

These findings confirm that inclusive education should not be interpreted merely as an obligation to admit students, but as an adaptive process requiring a flexible curriculum, learning strategies, facilities, support, and a culture of acceptance. Gal et al. (2025) show that teachers' attitudes toward inclusion are influenced by student-teacher ratios, staff support, training, and adequate knowledge. This reinforces the finding that school commitment must be supported by institutional capacity so that inclusion does not stop at administrative compliance.

3.2 GPK Competence as a Mechanism of Personal Agency

The presence of GPK emerged as the strongest theme. At SMAN 4 Sidoarjo, GPK functioned as a bridge between the needs of SEN students and subject teachers, homeroom teachers, guidance and counseling units, curriculum staff, student affairs staff, and parents. GPK helped simplify learning materials, provide repetition, conduct remedial activities, adjust assessment, and explain student characteristics to regular teachers. Support could not rely on a single approach because every student had different needs, levels of repetition, and forms of communication.

At SMAN 21 Surabaya, the absence of GPK was identified as a major constraint. The school principal and subject teachers considered GPK essential, particularly in subjects requiring higher levels of abstraction such as mathematics and physics. Without GPK, regular teachers had to make adjustments independently, even though not all teachers had a background in special education. Thus, GPK is an important prerequisite for ensuring the quality of inclusive services in regular schools.

From the perspective of Social Cognitive Theory, GPK can be understood as a form of personal agency that translates student needs into pedagogical action. Franzen et al. (2024) and Binammar et al. (2023) emphasize that self-efficacy, training, experience, and resources are related to teachers' readiness to implement inclusion. The present findings show that the competence of GPK and regular teachers can develop when supported by training, experience, collaboration, and institutional recognition.

3.3 Digital Infrastructure as a Socio-Technical Ecosystem

The findings show that digital technology was already used in schools, but it had not yet fully become inclusive infrastructure. At SMAN 4 Sidoarjo, students were relatively accustomed to using mobile phones, laptops, and simple digital media. However, for students with intellectual barriers, the main challenge was not only the availability of devices but also the ability to understand, remember, and process information. Technology therefore needs to be used gradually, simply, and with appropriate support.

At SMAN 21 Surabaya, technology was viewed as an opportunity, for example through voice-based devices for visually impaired students or mobile phones to support assignments. However, the school did not yet have specialized devices, resource rooms, assistive technologies, or digital facilities specifically designed for SEN students. In other words, technology use remained at a general level and had not yet become an adaptive accessibility system.

This discussion is consistent with Timotheou et al. (2023), Bešić et al. (2025), and Navas-Bonilla et al. (2025), who emphasize that digital technology can support inclusion when it is aligned with student characteristics, universal design, teacher training, policy support, and accessibility. Dhoub et al. (2025) also argue that inclusive smart learning

environments require universal design and systemic support. Therefore, technology cannot replace the role of teachers; instead, it must be combined with assessment, adaptive pedagogy, and mentoring.

3.4 Social Environment, Policy-Practice Gaps, and the Synergy Model

Social support was an important factor in inclusive school effectiveness. At SMAN 4 Sidoarjo, regular students were relatively accustomed to helping and accepting SEN peers. SEN students remained involved in the classroom so that they did not feel separated. At SMAN 21 Surabaya, social support was evident in the coordination among teachers, homeroom teachers, guidance and counseling teachers, and parents, but an inclusive culture had not yet been fully institutionalized because the school did not yet have complete service instruments.

The gap between policy and practice was not primarily caused by school resistance to inclusion. Both schools accepted the principle of inclusion, but their implementation capacities were uneven. Schools are required to admit SEN students, while support in the form of GPK, accessibility facilities, resource rooms, assistive technology, initial assessment, financing, and operational regulations remains insufficient. Desombre et al. (2021) emphasize that social support is related to teachers' attitudes toward inclusive education, while Shi et al. (2025) show that professional development in inclusive digital pedagogy can improve teacher competence and self-efficacy.

Based on the cross-case findings, inclusive school effectiveness is formed through the synergy of five elements: inclusive education policy; the competence of GPK and regular teachers; accessible digital and physical infrastructure; the school social environment; and assessment, data, and financing systems. Policy provides direction; GPK translates student needs; technology and facilities provide access; the social environment builds acceptance; and assessment and financing ensure that services are aligned with student needs. If one element is weak, inclusive practice tends to become administrative, reactive, and dependent on individual initiative. This synthesis is presented in Table 2.

Table 2. Synthesis of the Synergy Model for Inclusive School Effectiveness

Synergy Element	Function in Inclusive School Effectiveness	Risk if Not Fulfilled
Inclusive education policy	Provides the normative basis for admitting and serving SEN students.	Inclusion remains administrative compliance.
GPK and regular teacher competence	Translates student needs into learning strategies and assessment practices.	Learning depends on teacher improvisation.
Digital and physical infrastructure	Provides access to learning, mobility, communication, and adaptive media.	Students are formally admitted but still experience access barriers.
School social environment	Builds acceptance, safety, peer support, and parent collaboration.	Students risk isolation or negative labeling.
Assessment, data, and financing	Identifies service needs from the beginning and ensures support sustainability.	Schools work reactively after problems arise in class.

3.5 Novelty and Propositions Derived from the Findings

The novelty of this study lies in positioning inclusive school effectiveness as the result of socio-technical interaction, rather than as the outcome of the availability of GPK or technology in isolation. The cross-case findings show that schools with inclusive commitment still require consistent service structures. Conversely, the availability of digital devices does not automatically create inclusive learning when it is not accompanied by needs assessment, adaptive media, and teacher support. Therefore, inclusive school effectiveness is an outcome of the relationship among actors, policy, facilities, technology, and school culture.

The first proposition is that GPK competence strengthens the school's ability to translate inclusive policy into learning practice. The second proposition is that digital infrastructure becomes inclusive only when it is designed according to diverse student barriers and supported by teachers' pedagogical competence. The third proposition is that school social support strengthens regular teachers' willingness to adapt instruction. The fourth proposition is that initial

assessment and financing are prerequisites for preventing inclusive services from becoming reactive after problems emerge in the classroom.

The implication of this discussion is that inclusion policy needs to be accompanied by minimum service standards at the school level. These standards should include the availability of GPK or support teams, mechanisms for identifying student needs, resource rooms, accessibility facilities, assistive technology, regular teacher training, and communication systems with parents. Without such standards, schools may admit SEN students administratively but may not be able to guarantee safe, meaningful, and potential-oriented learning experiences. To clarify the relationship among the elements of inclusive school effectiveness, this study formulates a logic model linking inclusive education policy, GPK competence, digital and physical infrastructure, school social environment, and assessment and financing. The model is presented in Figure 1.

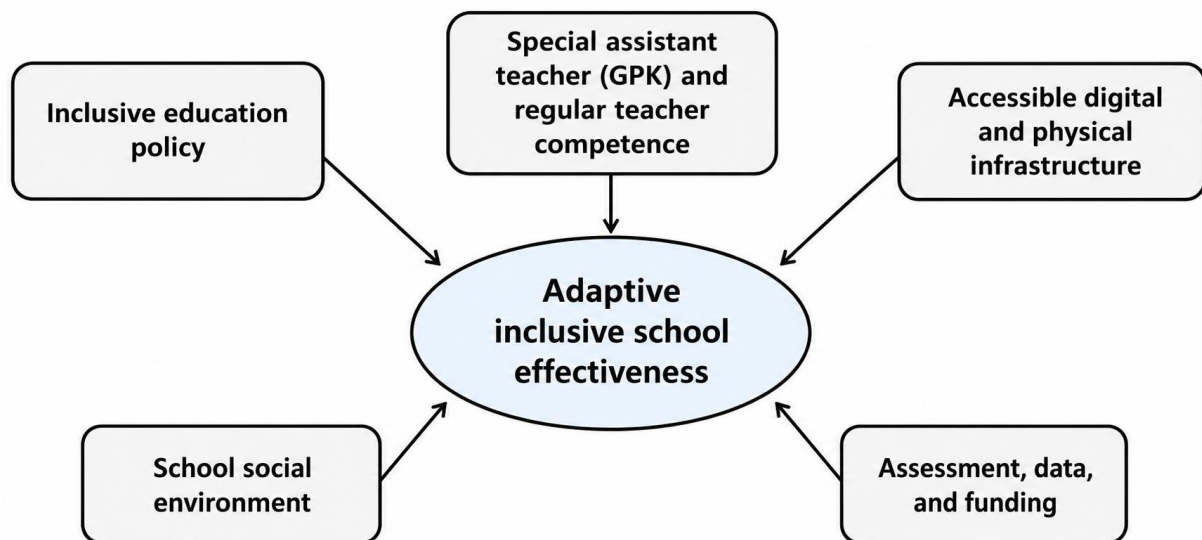


Figure 1. Logic model of the research findings

4. CONCLUSION

This study concludes that inclusive school effectiveness is formed through synergy among basic education policy, GPK and regular teacher competence, digital and physical infrastructure, social environment support, assessment systems, and financing. SMAN 4 Sidoarjo demonstrates more operational inclusive practices through instructional adjustment, GPK involvement, shadow teacher support, and a culture of acceptance. SMAN 21 Surabaya illustrates a more responsive condition because it still faces limitations in GPK availability, resource rooms, accessibility facilities, initial assessment, and assistive technology.

Inclusive policy implementation cannot be understood merely as an administrative obligation. Equality in the context of inclusion means that every student receives services according to their needs and potential. GPK has a strategic role as a support teacher, translator of student needs, connector among school actors, and facilitator of instructional adaptation. However, the limited number of GPK and the weak institutional recognition of their role remain serious barriers to service sustainability.

Theoretically, this study extends Social Cognitive Theory by showing that inclusive effectiveness is shaped by the interaction of personal factors, social environment, learning behavior, and technological environment. Personal factors are not limited to individual teacher ability, but also include GPK competence, patience, adaptive capacity, and self-efficacy. Environment is not limited to social support, but also includes facilities, digital infrastructure, regulation, assessment, and financing. Digital technology is understood as an affordance that enables access and participation when supported by adaptive pedagogy.

Practically, government and education authorities need to accompany policies on the admission of SEN students with operational support, including GPK provision, recognition of GPK status and workload, resource rooms, accessibility facilities, assistive technology, teacher training, initial assessment, and special financing. Schools need to build inclusive service systems from the beginning, strengthen communication with parents, and develop an inclusive culture through disability literacy. Regular teachers need to collaborate with GPK, guidance and counseling teachers,

homeroom teachers, and parents in simplifying materials, conducting adaptive assessment, and using technology according to student characteristics.

The limitation of this study lies in the small number of sites and the fact that data were obtained mainly from principals, GPK, and teachers. Future research should involve more schools, SEN students, parents, and more specific uses of assistive technology so that the model of inclusive school effectiveness can be developed more comprehensively.

In the managerial context of schools, the findings also highlight the need for an inclusion implementation roadmap. This roadmap can begin with mapping student needs, forming an inclusive service team, providing basic training for regular teachers, establishing a simple resource room, mapping available digital devices, and prioritizing assistive technology procurement. This gradual approach is important so that schools do not wait until all ideal facilities are available, but can still develop safe, realistic, and accountable services based on institutional capacity.

Overall, this article positions inclusive schools as systems that must be managed collaboratively. Each element has a different function, but all elements are interdependent. Therefore, improving inclusive school effectiveness requires data-based planning, teacher capacity strengthening, accessible technology support, and regular service evaluation.

REFERENCES

- Ahmed, S. K. (2024). The pillars of trustworthiness in qualitative research. *Journal of Medicine, Surgery, and Public Health*, 2, 100051. <https://doi.org/10.1016/j.glmedi.2024.100051>
- Aisy, N. R., & Aprilia, I. D. (2025). The important role of inclusive education for the social interaction of students with special needs. 11(1), 13-20.
- Aspers, P., & Corte, U. (2019). What is qualitative in qualitative research. *Qualitative Sociology*, 42(2), 139-160. <https://doi.org/10.1007/s11133-019-9413-7>
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice-Hall.
- Bešić, E., Frizzarin, A., & Todorova, K. (2025). Digital technology use in inclusive schools in four European countries: Within- and between-school differences. *Journal of Research on Technology in Education*, 57, 1-14. <https://doi.org/10.1080/15391523.2024.2378084>
- Binammar, S., Khasawneh, M. A. S., & Alsharman, N. (2023). Factors influencing special education teachers' self-efficacy to provide transitional services for students with disabilities. *Frontiers in Psychology*, 14, 1140566. <https://doi.org/10.3389/fpsyg.2023.1140566>
- Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal*, 9(2), 27-40. <https://doi.org/10.3316/QRJ0902027>
- Braun, V., & Clarke, V. (2021). *Thematic analysis: A practical guide*. Sage Publications.
- Brinkmann, S. (2020). *Qualitative interviewing*. Oxford University Press.
- Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S., Bywaters, D., & Walker, K. (2020). Purposive sampling: Complex or simple? Research case examples. *Research in Nursing & Health*, 43(6), 652-661. <https://doi.org/10.1002/nur.22059>
- Castleberry, A., & Nolen, A. (2018). Thematic analysis of qualitative research data: Is it as easy as it sounds? *Currents in Pharmacy Teaching and Learning*, 10(6), 807-815. <https://doi.org/10.1016/j.cptl.2018.03.019>
- Creswell, J. W. (2016). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Sage Publications.
- Darma, I. P., & Rusyidi, B. (2015). Pelaksanaan sekolah inklusi di Indonesia. *Prosiding Penelitian dan Pengabdian kepada Masyarakat*, 2(2), 223-227.
- Denzin, N. K., & Lincoln, Y. S. (2018). *The Sage handbook of qualitative research* (5th ed.). Sage Publications.
- Desombre, C., Delaval, M., & Jury, M. (2021). Influence of social support on teachers' attitudes toward inclusive education. *Frontiers in Psychology*, 12, 736535. <https://doi.org/10.3389/fpsyg.2021.736535>
- Dhouib, A., Hijab, M. H. F., Chemnad, K., Al-Thani, D., & Othman, A. (2025). Advancing inclusive smart learning environments: A systematic review of technologies, challenges, and best practices for students with disabilities. *Smart Learning Environments*, 12, Article 70. <https://doi.org/10.1186/s40561-025-00416-y>

- Flick, U. (2022). *The Sage handbook of qualitative research design*. Sage Publications.
- Franzen, K., Moschner, B., & Hellmich, F. (2024). Predictors of primary school teachers' self-efficacy beliefs for inclusive education. *Frontiers in Education*, 9, 1437839. <https://doi.org/10.3389/educ.2024.1437839>
- Gal, C., Ryder, C. H., & Amsalem, S. R. (2025). Shaping inclusive classrooms: Key factors influencing teachers' attitudes toward inclusion of students with special needs. *Education Sciences*, 15(5), 541. <https://doi.org/10.3390/educsci15050541>
- Hennink, M., & Kaiser, B. N. (2022). Sample sizes for saturation in qualitative research: A systematic review of empirical tests. *Social Science & Medicine*, 292, 114523. <https://doi.org/10.1016/j.socscimed.2021.114523>
- Johnson, J. L., Adkins, D., & Chauvin, S. (2020). A review of the quality indicators of rigor in qualitative research. *American Journal of Pharmaceutical Education*, 84(1), 7120. <https://doi.org/10.5688/ajpe7120>
- Kawulich, B. B. (2020). Participant observation as a data collection method. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, 21(1). <https://doi.org/10.17169/fqs-21.1.3342>
- Kazanopoulos, S., & Tejada, E. (2022). The self-efficacy of special and general education teachers in implementing inclusive education in Greek secondary education. *Education Sciences*.
- Korstjens, I., & Moser, A. (2018). Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *European Journal of General Practice*, 24(1), 120-124. <https://doi.org/10.1080/13814788.2017.1375092>
- Kvale, S., & Brinkmann, K. (2009). *Interviews: Learning the craft of qualitative research interviewing* (2nd ed.). Sage Publications.
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage Publications.
- Lloyd, N., Hyett, N., & Kenny, A. (2024). To member check or not to member check? An evaluation of member checking in an interpretive descriptive study. *International Journal of Qualitative Methods*, 23, 1-12. <https://doi.org/10.1177/16094069241301383>
- Maxwell, J. A. (2013). *Qualitative research design: An interactive approach* (3rd ed.). Sage Publications.
- McKim, C. (2023). Meaningful member-checking: A structured approach to member-checking. *American Journal of Qualitative Research*, 7(2), 41-52. <https://doi.org/10.29333/ajqr/12973>
- Miles, M. B., Huberman, A. M., & Saldana, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). Sage Publications.
- Morgan, H. (2022). Conducting a qualitative document analysis. *The Qualitative Report*, 27(1), 64-77. <https://doi.org/10.46743/2160-3715/2022.5044>
- Navas-Bonilla, C. R., Guerra-Arango, J. A., Oviedo-Guado, D. A., & Murillo-Noriega, D. E. (2025). Inclusive education through technology: A systematic review of types, tools and characteristics. *Frontiers in Education*, 10, 1527851. <https://doi.org/10.3389/educ.2025.1527851>
- Noble, H., & Heale, R. (2019). Triangulation in research, with examples. *Evidence-Based Nursing*, 22(3), 67-68. <https://doi.org/10.1136/ebnurs-2019-103145>
- Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, 16(1), 1-13. <https://doi.org/10.1177/1609406917733847>
- Olayvar, S. R. (2022). Effects of teachers' demographic characteristics and self-perceived competencies on their self-efficacy in implementing inclusive education. 15(4), 375-394.
- Parker, C., Scott, S., & Geddes, A. (2019). Snowball sampling. In P. Atkinson et al. (Eds.), *SAGE research methods foundations*. Sage Publications. <https://doi.org/10.4135/9781526421036831710>
- Patton, M. Q. (2015). *Qualitative research & evaluation methods* (4th ed.). Sage Publications.
- Pettersson, F. (2018). On the issues of digital competence in educational contexts: A review of literature. *Education and Information Technologies*, 1005-1021. <https://doi.org/10.1007/s10639-017-9649-3>

- Potthoff, S., Hempeler, C., Gather, J., Gieselmann, A., Vollmann, J., & Scholten, M. (2023). Research ethics in practice: An analysis of ethical issues encountered in qualitative health research with mental health service users and relatives. *Medicine, Health Care and Philosophy*, 26, 679-691. <https://doi.org/10.1007/s11019-023-10169-5>
- Pradipta, R. F. (2018). Social environment of special needs in inclusive primary school: A descriptive research with phenomenology approach. 244, 181-184.
- Ridder, H. G. (2020). The theory contribution of case study research designs. *Business Research*, 13, 19-39. <https://doi.org/10.1007/s40685-019-00110-3>
- Rudiyati, S., Pamungkas, B., Tyas, D., & Phytanza, P. (2021). Enhancing the pedagogical competence of inclusive school teachers in handling children with special needs. 680-688. <https://doi.org/10.18502/kss.v6i2.10025>
- Saldana, J. (2021). *The coding manual for qualitative researchers* (4th ed.). Sage Publications.
- Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., Burroughs, H., & Jinks, C. (2018). Saturation in qualitative research: Exploring its conceptualization and operationalization. *Quality & Quantity*, 52, 1893-1907. <https://doi.org/10.1007/s11135-017-0574-8>
- Schofield, G., Dittborn, M., Huxtable, R., Brangan, E., & Selman, L. E. (2021). Defining ethical challenge(s) in healthcare research: A rapid review. *BMC Medical Ethics*, 22, 135. <https://doi.org/10.1186/s12910-021-00700-9>
- Seun, G., Bunmi, S., Yetunde, A., & Falajiki, C. (2021). Left behind? The effects of digital gaps on e-learning in rural secondary schools and remote communities across Nigeria during the COVID-19 pandemic. *International Journal of Educational Research Open*, 2, 100092. <https://doi.org/10.1016/j.ijedro.2021.100092>
- Shi, Y. R., Sin, K. F. K., & Wang, Y. Q. (2025). Teacher professional development of digital pedagogy for inclusive education in post-pandemic era: Effects on teacher competence, self-efficacy, and work well-being. *Teaching and Teacher Education*, 168, 105230. <https://doi.org/10.1016/j.tate.2025.105230>
- Sim, J., Saunders, B., Waterfield, J., & Kingstone, T. (2018). Can sample size in qualitative research be determined a priori? *International Journal of Social Research Methodology*, 21(5), 619-634. <https://doi.org/10.1080/13645579.2018.1454643>
- Spradley, J. P. (1980). *Participant observation*. Holt, Rinehart and Winston.
- Stake, R. E. (2006). *Multiple case study analysis*. Guilford Press.
- Timotheou, S., Miliou, O., Dimitriadis, Y., Villagrà Sobrino, S., Giannoutsou, N., Cachia, R., Martínez Monés, A., & Ioannou, A. (2023). Impacts of digital technologies on education and factors influencing schools' digital capacity and transformation: A literature review. *Education and Information Technologies*, 28(6), 6695-6726. <https://doi.org/10.1007/s10639-022-11431-8>
- Wiziack, J. C., Manuel, V., & Duarte, P. (2021). Evaluating an integrated cognitive competencies model to enhance teachers' application of technology in large-scale educational contexts. *Heliyon*, 7, e05928. <https://doi.org/10.1016/j.heliyon.2021.e05928>
- Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). Sage Publications.