

Teachers' Adoption and Barriers to Using Assistive Technology in Special Education Classroom

Archie L. Tangal
Cebu Technological University
lebriaarchie231@gmail.com

Date Submitted:
February 3, 2026

Date Accepted:
March 25, 2026

Date Published:
July 13, 2026

DOI:
10.5281/zenodo.21330802

ABSTRACT

This study investigated teachers' adoption of, and barriers to, using assistive technology in special education classrooms at Mandaue City SPED Center during School Year 2025-2026. Anchored on the Theory of Planned Behavior and Ertmer's technology-integration barrier framework, the study employed a descriptive-correlational design using complete enumeration of 37 public school special education teachers. Data were gathered through a structured questionnaire covering demographic profile, intrinsic and extrinsic barriers, and the theory-based constructs of attitude, subjective norms, perceived behavioral control, and behavioral intention. Frequency, percentage, weighted mean, Pearson correlation, Spearman correlation, and multiple linear regression were used for analysis. Findings showed that respondents were predominantly female, generally in the 31-50 age range,

mostly with graduate units or degrees, and largely within the first ten years of special education teaching experience. Teachers reported strong intrinsic barriers, particularly reliance on traditional methods and anxiety in using new assistive tools, while extrinsic barriers were generally minor, with time constraints emerging as the main practical concern. Attitude was very high, while subjective norms, perceived behavioral control, and behavioral intentions were high. Demographic variables were not significantly related to theory-based readiness indicators, whereas extrinsic barriers were significantly and negatively related to attitude and subjective norms. Attitude, subjective norms, and perceived behavioral control were all significantly associated with behavioral intention, with subjective norms showing the strongest relationship. The study concludes that assistive technology adoption in the school is a socially influenced and institutionally conditioned process. Project ADAPT-SPED is proposed to strengthen time-credited training, peer coaching, resource access, anxiety reduction, and home-school support for sustained assistive technology integration.

Keywords: *assistive technology, behavioral intention, digital inclusion, special education, teacher adoption, Theory of Planned Behavior*

INTRODUCTION

The integration of assistive technology has become an essential concern in special education because it supports access, participation, communication, independence, and meaningful learning for learners with disabilities. In special education classrooms, assistive technology may include low- and high-technology devices, specialized software, digital instructional materials, screen readers, communication tools, adaptive keyboards, and other tools that help learners overcome barriers to learning. Its adoption is therefore connected not only with pedagogical innovation but also with inclusive education and the broader goal of equitable access to quality learning opportunities.

In the Philippine special education context, the adoption of assistive technology depends heavily on the teachers who select, adapt, and integrate these tools into individualized instruction and Individualized Education

Programs. The literature cited in the source manuscript emphasizes that assistive technology can improve learning outcomes, motivation, participation, and independence among learners with special needs, but the smooth integration of these technologies is not guaranteed. Teachers may hold positive beliefs about assistive technology while simultaneously facing personal anxieties, workload concerns, weak technical support, limited time, and inadequate access to functional devices.

This study responds to an empirical gap in the Mandaue City SPED Center, where the adoption of assistive technology had not yet been examined through the complete lens of the Theory of Planned Behavior. The study considered demographic profiles and intrinsic and extrinsic barriers as background factors that may shape teachers' attitude, subjective norms, perceived behavioral control, and behavioral intentions. In doing so, the study moves beyond a simple description of technology use and investigates how personal, social, and institutional conditions influence teachers' willingness to adopt assistive technology in special education classrooms.

Specifically, the study sought to describe the demographic profile of special education teachers, determine the extent to which intrinsic and extrinsic barriers influence assistive technology adoption, assess the level of the Theory of Planned Behavior variables, test the relationship between demographic profiles, barriers, and theory-based constructs, determine the influence of attitude, subjective norms, and perceived behavioral control on behavioral intention, and craft a strategic plan based on the findings. The resulting intervention, Project ADAPT-SPED, is intended to help the school system translate teachers' positive intentions into sustainable classroom practice.

Literature Review

Assistive technology in special education classrooms

Assistive technology is increasingly recognized as a practical bridge between learners' diverse needs and inclusive classroom participation. In special education settings, these technologies support access to instructional content, communication, mobility, and independent learning. Studies cited in the thesis indicate that assistive technology can augment learning outcomes, enhance motivation, and increase participation among learners with disabilities (Campado et al., 2023; Manuel, 2025; Olakanmi et al., 2020). These findings support the position that assistive technology is not merely an optional supplement but a necessary instructional support for inclusive education.

However, assistive technology does not automatically improve classroom outcomes unless teachers know how to select, adapt, and implement it in ways that match learner needs. In the special education classroom, teachers often play multiple roles as curriculum implementers, IEP planners, instructional designers, family partners, and technology facilitators. This explains why teachers' readiness, attitudes, technical knowledge, and confidence are critical to the meaningful use of assistive technology (Binammar et al., 2023; Surajudeen et al., 2023).

Theory of Planned Behavior and technology adoption

The study is anchored on Ajzen's Theory of Planned Behavior, which explains that behavioral intention is shaped by attitude toward the behavior, subjective norms, and perceived behavioral control (Ajzen, 1991, 2020). In the present study, attitude refers to teachers' favorable or unfavorable evaluation of assistive technology use; subjective norms refer to perceived expectations from administrators, colleagues, parents, and the school community; and perceived behavioral control refers to teachers' perceived capacity to use assistive technology despite internal and external constraints.

The Theory of Planned Behavior is appropriate for this study because assistive technology adoption is not only a technical decision but also a behavioral and social process. Existing studies have applied the theory to explain technology adoption in education and other professional contexts, showing that positive attitudes, supportive social pressure, and a strong sense of control can predict intention to use technology (Hagger & Hamilton, 2025; Sadaf et al., 2016; Scherer & Teo, 2019; Yusop et al., 2021). For special education, the theory

provides a strong lens for identifying whether teachers' intentions are driven more by personal beliefs, institutional expectations, or perceived access and capability.

Intrinsic and extrinsic barriers to assistive technology integration

Ertmer's barrier framework further supports the study by distinguishing between first-order or extrinsic barriers and second-order or intrinsic barriers. Extrinsic barriers refer to external institutional limitations such as insufficient devices, weak internet connectivity, lack of technical support, inadequate training, and limited preparation time. Intrinsic barriers refer to internal or psychological obstacles such as computer anxiety, traditional pedagogical beliefs, resistance to change, and low self-efficacy (Ertmer, 1999; Ertmer et al., 2012). These barriers are especially relevant in special education because assistive technology often requires specialized equipment, technical support, and individualized instructional planning.

Recent studies cited in the source manuscript show that teachers may value assistive technology yet still struggle to integrate it because of resource limitations, professional development gaps, and workload concerns (Abu-Alghayth, 2022; Cheng et al., 2025; Ogondiek, 2025; Starks & Reich, 2023). In the Philippine context, available literature also points to the need for stronger training, better access to functional devices, and more localized support systems for special education teachers (Campado et al., 2023; Retiro et al., 2025). These findings justify the present study's focus on both intrinsic and extrinsic barriers.

Legal and institutional support for inclusive technology use

The legal bases integrated in the source manuscript reinforce the relevance of assistive technology adoption. The Convention on the Rights of Persons with Disabilities affirms the right of persons with disabilities to inclusive education and access to appropriate supports, while Republic Act No. 7277 or the Magna Carta for Disabled Persons supports the provision of services and educational opportunities for persons with disabilities. The Marrakesh Treaty also strengthens accessible learning by reducing copyright barriers to adapted instructional materials for persons with print disabilities.

These legal frameworks connect with the Theory of Planned Behavior constructs. Inclusive education laws create institutional expectations that shape subjective norms, policies on learner support strengthen perceived behavioral control, and improved access to adapted materials can positively influence teachers' attitudes toward technology-based accommodation. Thus, assistive technology adoption should be understood as both an instructional concern and a rights-based responsibility.

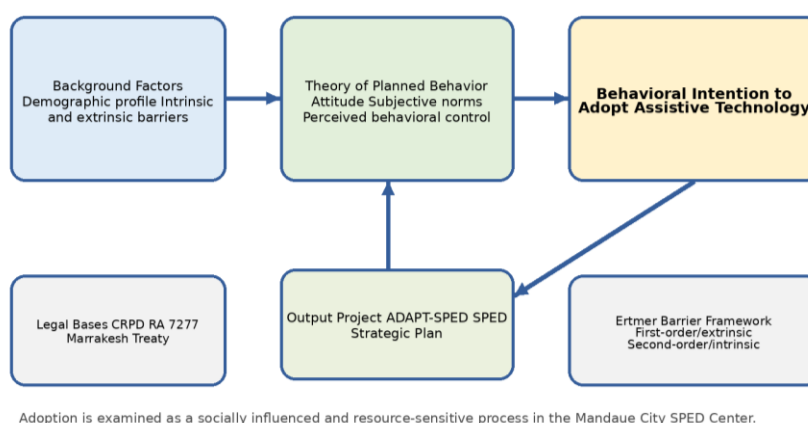


Figure 1. *Theoretical-Conceptual Framework of the Study*

METHODS

Research Design

The study employed a descriptive-correlational research design. The descriptive component was used to profile the respondents and determine the extent of perceived barriers and the level of Theory of Planned Behavior variables. The correlational component was used to examine the relationships among demographic profile, perceived barriers, attitude, subjective norms, perceived behavioral control, and behavioral intention to adopt assistive technology. Multiple linear regression was also used to determine the influence of the theory-based constructs on behavioral intention.

Research Locale

The study was conducted at Mandaue City SPED Center in the Division of Mandaue City. The center serves learners with various special educational needs and functions as a major special education institution in the city. Its context is appropriate for the study because assistive technology is an important instructional support for learners with disabilities and because the school setting provides direct evidence on teachers' experiences, opportunities, and barriers in technology use.

Participants and Sampling Technique

The respondents were all public school special education teachers handling special education classes at Mandaue City SPED Center during School Year 2025-2026. Complete enumeration was used. Of the 37 teachers in the target population, all 37 responded, yielding a 100% participation rate. Newly hired public special education teachers were also eligible because the study aimed to capture the whole teaching population in the center.

Table 1. *Distribution of Respondents*

School/Station	Target Population (N)	Actual Responded (v)	Participation Rate (%)
Mandaue City SPED Center	37	37	100%
Total	37	37	100%

Research Instrument

The main instrument was a structured questionnaire composed of three parts. Part I gathered demographic data on age, gender, highest educational attainment, and years of teaching experience in special education. Part II measured technology-integration barriers using intrinsic and extrinsic barrier indicators adapted from literature on technology integration barriers. Part III measured the Theory of Planned Behavior constructs, namely attitude, subjective norms, perceived behavioral control, and behavioral intentions, using a five-point Likert scale. The barrier scale was interpreted from not a barrier at all to a very strong barrier, while the theory-based scale ranged from very low to very high levels.

Data Gathering Procedure

Permission to conduct the study was secured through appropriate communication with the Schools Division Superintendent and the school principal. The respondents were informed about the purpose, benefits, voluntary nature, and withdrawal rights associated with the study. The survey was administered online through the school principal and the teachers' group chat. After data collection, responses were consolidated and prepared for descriptive and inferential statistical analysis.

Data Analysis

Frequency and percentage distribution were used to describe demographic profile. Weighted mean and standard deviation were used to determine the level of perceived barriers and Theory of Planned Behavior variables. Pearson's product-moment correlation was used for continuous and dichotomous demographic variables and barriers, while Spearman's rank correlation was used for ordinal educational attainment. Multiple linear regression was used to test the influence of attitude, subjective norms, and perceived behavioral control on behavioral intention to adopt assistive technology. Statistical significance was tested at the 0.05 level.

Ethical Consideration

Ethical procedures were observed throughout the study. Respondents were informed of the nature of their participation, their right to withdraw without harm, and the voluntary character of the survey. Data were used only for the study and were handled with confidentiality. The questionnaire also allowed optional identification, which helped protect respondent anonymity and privacy.

RESULTS AND DISCUSSION

Profile of the special education teachers

The respondents were predominantly female, with 31 out of 37 teachers or 83.78% of the sample. The largest age group was 31 to 40 years old (35.14%), followed by 41 to 50 years old (32.43%). This indicates that most respondents were within the young-to-mid-career and mature professional age groups. In terms of educational attainment, most teachers had graduate-level preparation, with 37.84% having master's units, 27.03% having doctorate units, 13.51% holding a full-fledged master's degree, and 10.81% holding a full-fledged doctorate. Only 10.81% were college graduates without reported graduate units. In terms of special education teaching experience, 62.16% had one to ten years of experience, while 27.03% had eleven to twenty years.

These findings show that the teaching force at Mandaue City SPED Center is academically prepared and generally engaged in professional advancement. However, the distribution also suggests that many respondents are still within the early-to-mid stages of specialized SPED experience, which makes continuing professional development in assistive technology important. The profile supports the view that teacher background provides context, but it does not automatically determine technology readiness.

Table 2. *Demographic Profile of the Respondents*

Variable	Category	f	%
Age	51 to 65 years old	4	10.81
Age	41 to 50 years old	12	32.43
Age	31 to 40 years old	13	35.14
Age	21 to 30 years old	8	21.62
Gender	Female	31	83.78
Gender	Male	6	16.22
Educational Attainment	Full-fledged Doctorate	4	10.81
Educational Attainment	With Doctorate's Units	10	27.03
Educational Attainment	Full-fledged Master	5	13.51
Educational Attainment	With Master's Units	14	37.84
Educational Attainment	College Graduate	4	10.81
SPED Teaching Experience	31 to 36 years	1	2.70
SPED Teaching Experience	21 to 30 years	3	8.11
SPED Teaching Experience	11 to 20 years	10	27.03
SPED Teaching Experience	1 to 10 years	23	62.16

Intrinsic and extrinsic barriers to assistive technology adoption

Intrinsic barriers were rated as influential, with an overall mean of 3.51 and an interpretation of Agree. The highest-rated intrinsic indicator was the belief that the current teaching style did not require assistive technology ($M = 3.76$), followed by the belief that traditional teaching methods were more effective for SPED students than digital tools ($M = 3.62$) and anxiety or feeling overwhelmed when asked to use a new assistive technology ($M = 3.54$). These results indicate that teachers value technology but still experience psychological and pedagogical hesitation, particularly when assistive technology challenges existing teaching routines.

Extrinsic barriers were generally rated as minor, with an overall mean of 2.46. However, insufficient time in the daily schedule to learn how to operate new assistive tools had the highest mean among extrinsic barriers ($M = 2.84$), interpreted as a moderate barrier. Inadequate internet connectivity ($M = 2.54$) and lack of functional

hardware ($M = 2.46$) also surfaced as practical issues, although they were interpreted as minor barriers. This pattern suggests that resource limitations exist, but the most concrete institutional issue is protected time for learning, adapting, and integrating assistive tools.

Table 3. *Perceived Barriers to Assistive Technology Adoption*

Barrier Type	Highest/Key Indicator	Mean	SD	Interpretation
Intrinsic	Current teaching style does not require assistive technology	3.76	1.23	Agree
Intrinsic	Traditional methods are more effective than digital tools	3.62	1.23	Agree
Intrinsic	Anxious or overwhelmed when asked to use new AT	3.54	1.14	Agree
Intrinsic	Overall intrinsic barriers	3.51	1.15	Agree
Extrinsic	Insufficient time in the daily schedule	2.84	1.01	Moderate Barrier
Extrinsic	Inadequate internet connectivity or bandwidth	2.54	0.84	Minor Barrier
Extrinsic	Lack of functional AT hardware	2.46	1.07	Minor Barrier
Extrinsic	Overall extrinsic barriers	2.46	1.00	Minor Barrier

Level of Theory of Planned Behavior variables

The respondents reported a very high level of attitude toward assistive technology adoption ($M = 4.46$, $SD = 0.66$), showing that teachers strongly recognized the value and benefits of assistive technology for learners with special needs. Behavioral intention was also high ($M = 4.16$, $SD = 0.62$), with particularly strong agreement on willingness to invest time in learning new assistive technology tools ($M = 4.22$) and using technology whenever appropriate to support student learning ($M = 4.27$).

Subjective norms were rated high ($M = 3.89$, $SD = 0.75$), indicating that teachers perceived expectations from colleagues, administrators, and parents to use assistive technology. Perceived behavioral control was also high ($M = 3.76$, $SD = 0.81$), although the item on access to sufficient resources had the lowest mean in the domain ($M = 3.51$). Overall, the teachers showed positive readiness, but the findings also reveal that high intention must be supported by adequate time, resources, coaching, and institutional reinforcement.

Table 4. *Summary of Theory of Planned Behavior Variables*

Sub-variable	Mean	SD	Verbal Description
Attitude	4.46	0.66	Strongly Agree / Very High
Subjective Norms	3.89	0.75	Agree / High
Perceived Behavioral Control	3.76	0.81	Agree / High
Behavioral Intentions	4.16	0.62	Agree / High
Overall	4.07	0.76	Agree / High

Relationships among demographic profile, barriers, and TPB variables

Correlation analysis showed that the respondents' demographic profile was not significantly related to attitude, subjective norms, and perceived behavioral control. Age, gender, highest educational attainment, and years of teaching experience all yielded non-significant p -values greater than 0.05. This result indicates that

technology readiness in this context was not determined by age, gender, academic credential, or length of service. Instead, teachers appeared to share common institutional realities and technology-integration experiences regardless of background.

In contrast, barriers showed more meaningful relationships with the TPB variables. Intrinsic barriers had a weak but significant positive relationship with attitude ($r = 0.348$, $p = 0.035$), suggesting that teachers who recognized internal anxieties still maintained favorable attitudes toward assistive technology. Extrinsic barriers were more damaging: they had a moderate negative relationship with attitude ($r = -0.500$, $p = 0.002$) and subjective norms ($r = -0.454$, $p = 0.005$). This means that as structural limitations increase, teachers' personal evaluation of assistive technology and their perception of professional and social support decline.

Table 5. *Correlative Inference on Barriers and TPB Variables*

Variables	r	Strength	p-value	Decision/Remarks
Intrinsic Barriers and Attitude	0.348	Weak	0.035	Significant
Intrinsic Barriers and Subjective Norms	0.233	Weak	0.166	Not significant
Intrinsic Barriers and PBC	0.132	Very weak	0.438	Not significant
Extrinsic Barriers and Attitude	-0.500	Moderate	0.002	Significant
Extrinsic Barriers and Subjective Norms	-0.454	Moderate	0.005	Significant
Extrinsic Barriers and PBC	-0.284	Weak	0.088	Not significant

Influence of TPB constructs on behavioral intention

The test of significance showed that all three core Theory of Planned Behavior constructs were significantly related to behavioral intention. Subjective norms had the strongest relationship with behavioral intention ($r = 0.519$, $p = 0.001$), followed by attitude ($r = 0.494$, $p = 0.002$) and perceived behavioral control ($r = 0.491$, $p = 0.002$). These results confirm that teachers' intention to adopt assistive technology is shaped by personal favorability, perceived capacity, and especially social and institutional expectations.

The strongest relationship of subjective norms suggests that assistive technology adoption at Mandaue City SPED Center is highly collective in nature. Teachers are more likely to intend to use assistive technology when they perceive support and expectations from colleagues, administrators, and parents. This finding aligns with the Theory of Planned Behavior and supports the need for a strategic plan that does not rely only on individual teacher initiative but also builds peer mentoring, administrative reinforcement, and home-school collaboration.

Table 6. *Relationship of TPB Constructs with Behavioral Intention*

Variables	r	Strength	p-value	Decision/Remarks
Attitude and Behavioral Intention	0.494	Moderate	0.002	Significant
Subjective Norms and Behavioral Intention	0.519	Moderate	0.001	Significant
Perceived Behavioral Control and Behavioral Intention	0.491	Moderate	0.002	Significant

Proposed Project ADAPT-SPED strategic plan

Based on the findings, Project ADAPT-SPED or Accelerating Digital Access, Peer-coaching, and Time-credited Training in SPED was proposed as the output of the study. The project directly addresses the empirical findings: time constraints as the main extrinsic barrier, anxiety and traditional teaching preferences as intrinsic

barriers, the importance of resource access in perceived behavioral control, and the strong influence of subjective norms on behavioral intention. The plan focuses on schedule realignment, resource maximization, peer coaching, IEP-centered training, and multi-stakeholder support.

Table 7. *Summary of Project ADAPT-SPED Strategic Action Plan*

Key Result Area	Objective	Major Strategies	Time Frame	Success Indicator
Schedule Optimization and Time Credits	Reduce time constraints by institutionalizing dedicated assistive technology learning time.	Restructure weekly schedules and designate two hours per week as official Tech-Integration Time.	Months 1-2	All SPED teachers receive protected schedule blocks for technology adaptation.
Resource Maximization and Infrastructure Access	Improve availability and practical access to assistive technology tools.	Conduct asset mapping and establish an AT Co-Laboratory with shared open-source and school-supported tools.	Months 3-4	Inventory map and functional repository of AT resources are available.
Peer Coaching and Professional Culture Building	Leverage strong subjective norms through collaborative technology mentoring.	Designate Assistive Technology Mentors and conduct cluster-based peer modeling and troubleshooting sessions.	Months 3-4	Peer coaching network activated with mentoring logs and demonstration sessions.
Anxiety Mitigation and Pedagogical Integration	Lower technology anxiety and connect tools directly with IEP objectives.	Implement bite-sized micro-credentialing modules and require low-pressure classroom trials.	Months 5-8	Teachers complete at least one IEP-linked classroom technology trial.

CONCLUSION

The study concludes that teachers at Mandaue City SPED Center have a strong positive orientation toward assistive technology adoption. Their attitude toward assistive technology is very high and their behavioral intention is high, indicating readiness to integrate assistive tools for learners with special needs. However, this readiness is moderated by intrinsic barriers such as technology anxiety and continued reliance on traditional teaching methods, as well as extrinsic barriers, especially insufficient time for learning and applying new assistive tools.

Demographic variables did not significantly relate to attitude, subjective norms, or perceived behavioral control, suggesting that adoption concerns are not primarily age-based, gender-based, credential-based, or tenure-based. Instead, assistive technology adoption is shaped more strongly by common institutional experiences and by the social expectations surrounding teachers. The significant relationships of attitude, subjective norms, and perceived behavioral control with behavioral intention confirm the relevance of the Theory of Planned Behavior in explaining adoption in this special education context. Subjective norms emerged as the strongest predictor, showing that assistive technology adoption is a collective and socially driven process.

Overall, the study contributes localized evidence on assistive technology adoption in a Philippine special education setting. It shows that successful technology integration requires more than positive teacher beliefs. It requires institutional time, resource access, peer support, reduced anxiety, and coordinated home-school expectations. Project ADAPT-SPED responds to these needs by translating the findings into a structured intervention for sustainable assistive technology integration.

Recommendation

School administrators should institutionalize protected and time-credited professional development blocks for assistive technology integration. Since insufficient time was the highest extrinsic barrier, training should be embedded within official work schedules rather than added as an after-hours responsibility.

The school and division should strengthen access to functional assistive technology tools, open-source applications, text-to-speech tools, screen readers, alternative input devices, and other locally appropriate instructional supports. An assistive technology inventory and shared resource repository should be created to maximize existing resources and guide future procurement.

Special education teachers should be supported through IEP-centered coaching rather than generic technology seminars. Training should focus on matching specific assistive technologies with learner needs, disability profiles, IEP goals, and classroom tasks. This approach can reduce anxiety and improve confidence in practical use.

Peer coaching should be formalized through Assistive Technology Mentors who can model classroom use, provide immediate troubleshooting, and build a collaborative culture of innovation. Since subjective norms strongly influence behavioral intention, adoption efforts should intentionally involve colleagues, school leaders, parents, and the broader SPED community.

Future researchers may replicate the study in other SPED centers, compare public and private special education contexts, include learner outcome measures, or use mixed-methods designs to explore the lived experiences behind intrinsic anxiety and structural barriers. Longitudinal studies may also evaluate the actual impact of Project ADAPT-SPED on classroom practice and learner participation.

References

- Abu-Alghayth, K. (2022). Teachers' use of assistive technology in Saudi special education schools: A mixed-methods enquiry. *International Journal of Developmental Disabilities*, 68(4), 547-557.
<https://doi.org/10.1080/20473869.2020.1836943>
- Abubakar, I. B. (2023). Factors influencing lecturers' intention to use assistive technologies for teaching students with special needs in colleges of education in North-West Nigeria [Doctoral dissertation].
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.
[https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Ajzen, I. (2020). The theory of planned behavior: Frequently asked questions. *Human Behavior and Emerging Technologies*, 2, 314-324. <https://doi.org/10.1002/hbe2.195>
- Baghdasaryan, B., Ghawi, G., Godfrey-Faussett, T., & Castillo, U. H. (2024). Paving the pathway: Inclusive education for children with disabilities in Cambodia. UNICEF Innocenti-Global Office of Research and Foresight.
- Benitez Ojeda, A. B., & Carugno, P. (2025). Special education. In StatPearls. StatPearls Publishing.
- Binammar, S., Alqahtani, A., & Alnahdi, G. H. (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>
- Campado, R. J., Toquero, C. M. D., & Ulanday, D. M. (2023). Integration of assistive technology in teaching learners with special educational needs and disabilities in the Philippines. *International Journal of Professional Development, Learners and Learning*, 5(1), ep2308. <https://doi.org/10.30935/ijpdll/13062>
- Cawaing, C. G., Gertos, C. M., Guillen, P. J., Lopez, J. D., Maliwat, M. P., Rancap, C. R., Reaño, N. T., & Rivas, G. L. (2023). Acceptability of assistive technology to selected special education teachers of students with specific learning disability in Dasmariñas City [Bachelor's thesis, De La Salle Medical and Health Sciences Institute].
- Cheng, H. Y., Chen, Y. C., Yu, Y. C., & Ju, Y. Y. (2025). Policy drivers and barriers to inclusive EdTech adoption in special education: A logistic regression study. *International Journal of Inclusive Education*, 1-20.
<https://doi.org/10.1080/13603116.2025.2528107>
- Ertmer, P. A. (1999). Addressing first- and second-order barriers to change: Strategies for technology integration. *Educational Technology Research and Development*, 47(4), 47-61.

- Ertmer, P. A., Ottenbreit-Leftwich, A. T., Sadik, O., Sendurur, E., & Sendurur, P. (2012). Teacher beliefs and technology integration practices: A critical relationship. *Computers & Education*, 59(2), 423-435. <https://doi.org/10.1016/j.compedu.2012.02.001>
- Hagger, M. S., & Hamilton, K. (2025). Progress on theory of planned behavior research: Advances in research synthesis and agenda for future research. *Journal of Behavioral Medicine*, 48(1), 43-56. <https://doi.org/10.1007/s10865-024-00545-8>
- Manuel, B. R. B. (2025). Assessing the role of assistive technology tools in enhancing learning outcomes for students with disabilities: Basis for instructional plan. *International Journal of Research and Innovation in Social Science*, 9(6), 1342-1352.
- Ogondiek, J. W. (2025). Barriers to assistive technology utilization in education: Teachers' perspectives on challenges and solutions. *Technology and Disability*.
- Olakanmi, O. A., Akcayir, G., Ishola, O. M., et al. (2020). Using technology in special education: Current practices and trends. *Educational Technology Research and Development*, 68, 1711-1738. <https://doi.org/10.1007/s11423-020-09795-0>
- Opoku, M. P., Elhoweris, H., Alhosani, N., Mustafa, A., Alkhateri, T., & Nketsia, W. (2023). Factors influencing the intention of trainee special education teachers to integrate assistive technology into teaching students with disabilities in the United Arab Emirates. *Heliyon*, 9(12), e22736. <https://doi.org/10.1016/j.heliyon.2023.e22736>
- Retiro, K. T., Jumao-As, A. N., Gonzales, W. C., Pepito, J. C., Capuno, R. G., Delos Reyes, N. R. T., Pinili, L. C., Cabigon, A. F. P., Espina, R. C., & Añero, M. B. (2025). Teachers' attitudes toward the use of assistive technology and its correlation with students learning outcomes in special and inclusive education. *Power System Technology Journal*, 49(1).
- Rofi'i, A., & Arnadi, A. (2025). The use of technology in the education of children with special needs: A review of recent literature. *INJOSEDU: International Journal of Social and Education*, 2(4), 782-793.
- Sadaf, A., Newby, T. J., & Ertmer, P. A. (2016). Prediction of preservice teachers' intentions to use digital literacy tools: A structural equation modeling approach. *Journal of Computing in Higher Education*, 28(1), 41-58. <https://doi.org/10.1007/s12528-015-9104-z>
- Scherer, R., & Teo, T. (2019). Unpacking teachers' intentions to use technology: A meta-analysis. *Educational Research Review*, 27, 67-96. <https://doi.org/10.1016/j.edurev.2019.02.003>
- Seung, Y. (2025). Barriers and enablers of technology integration in special education: Implications for teacher educators.
- Starks, A. C., & Reich, S. M. (2023). What about special ed?: Barriers and enablers for teaching with technology in special education. *Computers & Education*, 193, 104665. <https://doi.org/10.1016/j.compedu.2022.104665>
- Surajudeen, T. B., Ibironke, E. S., & Aladesusi, G. A. (2023). Special education teachers' readiness and self-efficacy in utilization of assistive technologies for instruction in secondary school. *Indonesian Journal of Community and Special Needs Education*, 3(1), 33-42.
- Yusop, F. D., Habibi, A., & Razak, R. A. (2021). Factors affecting Indonesian preservice teachers' use of ICT during teaching practices through theory of planned behavior. *SAGE Open*, 11(2). <https://doi.org/10.1177/21582440211027572>