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Perspectives of Teachers on the Integration of Assistive Technology in Higher Education Inclusive Classrooms in the Philippines: Importance, Benefits, Social Support, and Challenges

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Abstract. This study explored the perspectives of teachers on using assistive technology (AT) in inclusive higher education classrooms. Although previous research showed AT benefits students with disabilities, there is limited understanding of the challenges, social support, and strategies from teachers' viewpoints in this context. The study also looked at how teachers' demographics—such as age, education, and experience—affect their views on AT. Using a quantitative descriptive correlational design, surveys were given to teachers in various higher education institutions in the 2nd District of Misamis Oriental. The findings revealed that teachers strongly agree on the importance of AT in the classroom and its positive impact on student learning. Despite recognizing challenges, especially a lack of training, they still viewed AT as valuable for independent living, job skills, and community involvement. A strong negative correlation was found between teachers' views on AT and their age, meaning older teachers were less positive about AT integration. In contrast, a strong positive correlation was found between teachers' attitudes and their highest educational qualifications, indicating that teachers with higher qualifications have more favorable views on AT, likely due to better understanding and exposure. The very weak negative correlation between attitudes and years of teaching experience suggested that teaching experience does not significantly affect views on AT. Therefore, professional development in AT should be provided regardless of experience. A strong positive correlation was found between teachers' attitudes and the use of specific AT devices, meaning teachers who use these devices are more positive about AT. The results suggest that while teachers value AT, their views were influenced by age, education, and experience with AT devices. Improving AT training and providing hands-on experience will enhance attitudes toward AT, benefiting students in inclusive classrooms. Tailored professional development programs may also support effective AT use in education.

Keywords: Assistive technology; Higher education; Inclusive classroom; Social support; Teachers.

1.0 Introduction

Inclusive education aims to offer equal learning opportunities for all students, including those with and without disabilities. It ensures that students can participate fully in the educational process regardless of their physical or cognitive abilities. Assistive technology (AT) plays an important role in achieving this goal by providing tools and

devices that help remove barriers to learning, enabling students to engage more effectively in academic tasks. AT includes various resources, such as screen readers, hearing aids, and adaptive software, facilitating communication, materials access, and independent learning (McNaughton & Light, 2013). By addressing the specific needs of students, AT supports the creation of more inclusive learning environments.

Despite its potential, the effective integration of AT depends significantly on teachers' attitudes and practices. Research shows that teachers' beliefs about the usefulness and impact of assistive technology are key factors in its adoption (Roose et al., 2019). Studies indicate that AT can enhance student outcomes, including improved access to materials, increased class participation, and greater independence (Kisanga & Kisanga, 2022). It can also positively affect students' academic performance and engagement (McNicholl et al., 2021). However, adopting AT is not without challenges; barriers such as lack of training, insufficient resources, and technical difficulties often hinder the successful use of AT in classrooms (Bouck & Long, 2021). Influenced by these challenges, teachers' attitudes play an essential role in whether AT is effectively used to support inclusive education.

Previous studies have explored the benefits of AT in educational settings. Still, there needs to be more understanding of how teachers perceive and implement this technology, particularly in higher education institutions in the Philippines. The Philippine education system presents unique challenges, including varying levels of technological infrastructure, access to resources, and diverse student populations (Dela Fuente, 2021). While research has highlighted the benefits of AT in improving learning outcomes, there is a noticeable gap in understanding how teachers in the Philippines approach AT integration in higher education-inclusive classrooms.

The integration of assistive technology (AT) in inclusive classrooms is widely recognized for its potential to support students with diverse needs and enhance their learning experiences. These technologies, designed to provide tailored support and facilitate equal access to education, are important for creating effective learning environments. However, the successful implementation of AT is influenced by various factors, including teachers' perspectives on its use and their professional profiles. Research has demonstrated that teachers' attitudes towards assistive technology and their perceived competence in using these tools can significantly affect how AT is integrated into their teaching practices. For instance, teachers with specialized training or extensive experience with assistive technology tend to exhibit more positive attitudes and higher confidence in its application (McNicholl et al., 2021). Despite these findings, there is a need for more detailed investigations into how specific aspects of teachers' profiles, such as their educational background, years of experience, and training in AT, influence their perspectives on technology integration.

Thus, this research addressed this gap by examining teachers' perspectives on using assistive technology in Philippine higher education, particularly in inclusive settings. Moreover, this study aims to explore teachers' views on assistive technology within inclusive classrooms, focusing on the benefits, challenges, and social support available for integrating AT in teaching practices. By examining these perspectives, the study aims to provide insights into how AT is currently utilized and how it can be better implemented to support student learning and inclusion. The findings will be valuable for educational institutions and policymakers in developing more effective strategies for AT integration, ultimately fostering more inclusive and supportive learning environments in Philippine higher education. This research also seeks to contribute to the broader understanding of how teachers' attitudes and practices influence the success of AT in diverse educational contexts. Understanding these relationships is important for identifying potential barriers or facilitators in adopting assistive technology. Therefore, examining whether teachers' profiles are associated with their perspectives on AT in inclusive classrooms is important.

2.0 Methodology

2.1 Research Design

This research employed a quantitative descriptive-correlational design to investigate teachers' perspectives on the integration of Assistive Technology (AT) in inclusive classrooms. A quantitative methodology was chosen to analyze and quantify teachers' perceptions, allowing for exploring patterns, trends, and relationships within the data. The descriptive-correlational design facilitates the examination of teachers' attitudes, beliefs, and experiences related to AT integration.

2.2 Research Participants

The sampling technique used in this study was purposive sampling. This method was selected to ensure the inclusion of participants with specific characteristics relevant to the study's focus. Purposive sampling is useful for targeting individuals with attributes or expertise related to the research objectives (Schreier, M., 2018). The study included 303 teachers involved in education programs at selected local colleges. The participants were teacher education instructors from local colleges in the 2nd District of Misamis Oriental, Philippines, teaching professional education (ProfEd), major, and general education (GenEd) courses. By focusing on this specific geographical area, the study aimed to achieve a homogeneous sample, thereby enhancing its internal validity by ensuring that the sample reflects a consistent educational context.

2.3 Research Instruments

The primary instrument used in this study was the questionnaire developed by Areej Ahmed (2018), which assesses teachers' perceptions of using assistive technology for students with or without disabilities in the classroom. This instrument was adapted to fit the context of the 2nd district of Misamis Oriental, Philippines. The adaptation involved modifying the original instrument to better suit the study's context, ensuring that it captured teachers' perceptions in this particular geographic and educational setting (Sousa et al., 2017). To establish the content validity of the adapted questionnaire, a validation process was employed. Six (6) experts in the field reviewed the questionnaire to assess its relevance and appropriateness for the study's objectives. Their evaluations resulted in a Content Validity Index (CVI) of 0.89, indicating excellent content validity, meaning the questionnaire effectively covers the relevant content areas determined by the experts (Yusoff, 2019).

To further ensure the instrument's appropriateness and reliability in this context, a pilot test was conducted with thirty (30) teachers who were not part of the main study. This step verified that the adapted questionnaire suited the local educational setting. The reliability of the questionnaire was assessed using Cronbach's Alpha, which resulted in a coefficient of 0.975. This high value indicated excellent internal consistency, ensuring the instrument provides reliable and stable measures of the constructs it intended to assess. By adapting the questionnaire and following rigorous validation procedures, the study ensured that the research instrument was both valid and reliable, enhancing the findings' strength.

2.4 Data Gathering Procedure

The data collection for this study was carried out by administering a validated questionnaire to a selected sample of teachers in higher education institutions within the 2nd District of Misamis Oriental, Philippines. The questionnaire assessed teachers' perspectives on integrating assistive technology (AT) in inclusive classrooms. It had undergone content validation by an expert panel and a pilot test before distribution. To ensure accessibility and ease of response, the questionnaire was distributed electronically over a specified period, allowing participants ample time to complete it. Clear instructions were provided to ensure uniformity and consistency in the responses. Informed consent was obtained from all participants before data collection, ensuring their voluntary participation and the confidentiality of their responses.

Data collection was conducted within a defined timeline, allowing sufficient time to gather a representative number of responses from the 303 teachers involved in the study. After data collection, the responses were systematically compiled and entered into data analysis software for further examination. Descriptive statistics were used to summarize the data, while correlational analysis was employed to identify patterns and relationships between variables. The analyzed data provided insights into teachers' perspectives on integrating AT in inclusive classrooms, which were used to address the study's research objectives. Following analysis, the results were interpreted and discussed, as well as the existing literature, offering conclusions and recommendations for future practice and research. To ensure transparency and compliance with ethical guidelines, the data were securely stored and retained for a specified period, after which they were properly disposed of to maintain participant confidentiality.

2.5 Data Analysis

Quantitative data analysis was conducted using statistical techniques to explore teachers' perspectives on integrating assistive technology (AT) in inclusive classrooms. The data analysis procedures followed a systematic approach, employing quantitative methods to address the research questions. The process began with data

collection, gathering information on variables such as sex, age, highest educational attainment, years of teaching experience, and technological device usage in teaching. A descriptive analysis was then conducted to summarize the teachers' profiles. Frequencies and percentages were calculated for categorical variables like sex, educational attainment, age, and years of teaching experience.

For analyzing teachers' perceptions regarding technology integration in inclusive classrooms, responses were collected on various aspects, including the integration of assistive technology, academic benefits, social acceptance, challenges, and overall assessment. Descriptive statistics, such as mean scores and standard deviations, were calculated for each perception category, providing an understanding of the overall sentiment. Data was grouped according to profile variables to investigate the relationship between teachers' perspectives and their profiles, ensuring adequate sample sizes for meaningful analysis. Correlation analysis was conducted to assess whether a significant relationship exists between teachers' perspectives on integrating AT in inclusive classrooms and their profiles. Despite a rigorous methodology, this study faced certain limitations. The generalizability of findings was constrained due to the specific sample characteristics and geographical focus. Additionally, the reliance on self-reported data and potential response biases may have influenced the accuracy and validity of the responses.

2.6 Ethical Considerations

Ethical considerations were a top priority in this study to ensure that participants' rights, privacy, and confidentiality were upheld. Participants were provided with informed consent forms that outlined the purpose of the study, their voluntary participation, the procedures involved, and the confidentiality of their responses. They were also informed of their right to withdraw from the study without consequence. Anonymity was strictly maintained throughout the data collection, analysis, and reporting processes, ensuring that individual participants were not identified. To further safeguard privacy, all data were securely stored, and access was restricted to authorized personnel only. These measures were implemented to minimize potential biases, risks, or discomfort for the participants in full compliance with ethical research standards and institutional guidelines.

3.0 Results and Discussion

3.1 Profile of the Participants

Results revealed that 234, or 77%, of the total population were female, while males represented 69, or 23%, of the population. This indicated a significant gender disparity in the teaching profession, with more women than men entering and remaining in the teaching field. Research suggests that teaching is increasingly dominated by women, partly due to historical gender norms associating teaching with nurturing roles traditionally assigned to women (Dela Cruz et al., 2020). This has implications for gender dynamics within educational settings and may reflect broader societal trends in career choices.

210, or 69%, of the teachers were between 26 and 44 years old, suggesting that a large proportion of the workforce was in their mid-career stage. The next largest group was younger teachers (18-25 years old), who made up 52, or 17%, of the total. The smallest group consisted of 41, or 14%, older teachers (45-59 years old). This distribution suggested that the teaching profession is relatively young but also has a healthy representation of experienced professionals, which is important for mentoring and passing on expertise. The older age group is also important for mentoring younger teachers, ensuring a steady flow of experienced teachers (Ewing, 2021).

The data also showed that 123, or 41%, of teachers held a bachelor's degree, and 87, or 29%, had pursued a degree with MA units. Seventy-three, or 24%, held a master's degree, and only 7, or 2%, had completed a doctoral degree. This indicated that while many teachers continued their education beyond undergraduate studies, a smaller proportion advanced to the highest levels of academic attainment. This reflected the trend where teachers often pursued further qualifications to improve their teaching effectiveness or career prospects (Ewing, 2021). Professional development and advanced qualifications could be key investment areas to enhance education quality further.

Forty-one percent (125) of the respondents had 0-5 years of teaching experience, indicating that many were relatively new to the profession. Another 32% (96) had 6-10 years of experience. This suggested that the teaching workforce was dynamic, with a constant influx of new teachers. However, only 2% (5) had over 31 years of

experience, indicating that few teachers remained in the profession for their entire careers. This could raise concerns about retention and the need for support for long-term career development. This highlighted a dynamic workforce and the need for ongoing professional development and support to retain talent in the long term (Dela Fuente, 2021).

Lastly, the most commonly used assistive technology was the laptop, utilized by 54% (163) of teachers, followed by televisions at 26% (79) and computers at 7% (20). The use of more advanced technologies, such as interactive whiteboards, tablets, and digital interactive whiteboards, was minimal at 1%. This highlighted a reliance on basic technology, with limited adoption of more specialized tools. It suggested a potential area for growth in integrating more diverse and advanced technological resources into the classroom, which could enhance teaching and learning outcomes. However, the lower usage of advanced technologies like interactive whiteboards suggested that there was still room for technological advancements in classrooms (Ewing, 2021).

Overall, the data revealed a teaching workforce that was predominantly female, relatively young, and varied in educational attainment and experience. The use of technology in teaching was widespread but could be expanded to incorporate more advanced tools. These findings suggested that while the teaching profession is evolving, there are opportunities for further professional development, gender balance initiatives, and enhanced technology integration in education.

3.2 Perception of Teachers on the Importance and Integration of Assistive Technology

Table 1 reveals teachers' perceptions of assistive technology in their classrooms. Teachers overall strongly agreed (M = 3.28, SD = 0.51) on the importance and benefits of integrating assistive technology into their lessons, highlighting its value in enhancing student learning. However, differences emerged in teachers' perceptions of specific aspects, such as adapting assignments and students' enthusiasm for these technologies. The highest agreement among teachers was on the importance of having assistive technology available in classrooms (M = 3.45, SD = 0.61), suggesting an increasing awareness of its potential to meet diverse learning needs and improve educational outcomes, reflecting a broader trend of digital tool integration in education. Teachers' strong agreement (M = 3.34, SD = 0.63) on the benefits of technology integration in lessons aligned with the workforce profile, where laptops and other basic devices were the main technological resources used.

Table 1. Perception of teachers on the importance and integration of assistive technology

Indicators	Mean	SD	Interpretation
1. The availability of assistive technology devices for students is important in my class.	3.45	0.61	Strongly Agree
2. Integrating technology into lessons for students is beneficial in my class.	3.34	0.63	Strongly Agree
3. Adapting assignments for students, including using assistive technology, is appropriate in my class.	3.15	0.64	Agree
4. A growing number of students in my class are eager to use assistive technology devices.	3.17	0.60	Agree
Total	**3.28**	**0.51**	**Strongly Agree**

Despite this positive perception, teachers showed slightly lower agreement on adapting assignments with assistive technology (M = 3.15, SD = 0.64), potentially indicating certain challenges or reservations. This may suggest additional training or resources to help teachers utilize assistive technology effectively for personalized instruction. Teachers observed that students were generally enthusiastic about using assistive technology (M = 3.17, SD = 0.60), indicating a favorable reception among students. However, this enthusiasm likely depended on device availability and students' familiarity with technology, consistent with findings that most teachers relied on basic technological tools and had limited access to advanced resources.

Given that many teachers had fewer than 10 years of experience and primarily relied on basic technology, providing additional training in assistive technology could help them adapt more confidently. Research supports that successfully implementing assistive tools requires adequate professional development (Alsolami, 2022; Kisanga & Kisanga, 2022). As noted in the workforce profile, the low adoption of advanced technology tools suggests that improving access to diverse technological resources is essential. Providing interactive devices like tablets and interactive whiteboards could allow teachers to diversify instructional approaches. This aligns with

studies showing that teachers' access to resources impacts the effective use of assistive technology (Bice & Tang, 2022).

Since most teachers were early or mid-career professionals, targeted professional development in assistive technology could support career satisfaction and retention by equipping them to meet students' needs effectively. This investment in training and resources could contribute to long-term workforce stability, especially given the relatively high turnover rate among those with fewer years of experience. With a predominantly female workforce, investing in technology could empower teachers by providing diverse tools to address various learning needs. Research shows that assistive technologies are particularly valuable in inclusive settings, supporting differentiated instruction and equitable student access (McNicholl et al., 2021). Encouraging equitable resource distribution could help make the profession more attractive across genders, emphasizing inclusivity and a progressive learning environment.

3.2 Perception of Teachers on the Academic and Learning Benefits of Assistive Technology

Table 2 reveals teachers' perceptions of the academic and learning benefits of assistive technology (AT) in their classrooms. While teachers generally agreed that AT was beneficial, their level of agreement varied across different aspects (M = 3.02, SD = 0.53). Teachers expressed skepticism regarding AT's impact on students' achievement scores (M = 2.88, SD = 0.72), indicating a potential need for more targeted professional development and evidence-based training. This skepticism suggested that teachers could benefit from exposure to concrete examples and data demonstrating how AT can directly improve academic performance (Dela Cruz et al., 2020). The mixed agreement on achievement scores implied a gap in confidence about AT's academic benefits, potentially due to limited firsthand evidence or experience with these outcomes in practice.

Table 2. Perception of teachers on the academic and learning benefits of assistive technology

Indicators	Mean	SD	Interpretation
1. Students who use assistive technology devices in my class will have higher achievement scores.	2.88	0.72	Strongly Disagree
2. Assistive technology devices in my class will help students achieve independence.	3.04	0.66	Agree
3. Students using assistive technology devices in my class can identify their strengths and weaknesses.	2.99	0.64	Agree
4. Assistive technology devices used in my class are effective in the students' learning process.	3.17	0.59	Agree
Total	**3.02**	**0.53**	**Agree**

On a more positive note, teachers showed stronger agreement (M = 3.04, SD = 0.66) that AT helped students work towards independence. This finding aligned with research showing that AT enhances student autonomy, especially for students with disabilities (Alsolami, 2022), suggesting teachers recognize AT's role in fostering self-reliance, which is critical for long-term student success. Teachers also agreed (M = 2.99, SD = 0.64) that AT supported students in identifying their strengths and weaknesses. This reflected an appreciation for AT's role in promoting personalized learning and self-assessment, enabling students to understand their learning processes better. The overall agreement (M = 3.17, SD = 0.59) on AT's effectiveness in the learning process indicated that teachers generally believed in its benefits, though they were cautious about specific outcomes like achievement scores. This cautious optimism suggested that while teachers valued AT's role in supporting independence and self-assessment, they had reservations about its direct impact on traditional academic measures.

The skepticism about AT's impact on academic achievement indicated a need for professional development focused on evidence-based approaches. Providing teachers with data and real-life examples of AT's positive influence on student outcomes could bridge this confidence gap. Research shows that strong training and support increase teachers' confidence in using AT effectively in classrooms (Al-Dababneh et al., 2022). Teachers' recognition of AT's value in self-assessment and identifying strengths and weaknesses highlighted a belief in personalized learning's potential. Schools could leverage this by implementing AT tools that support self-paced learning, aligning instruction with students' strengths. This approach aligns with research that AT enhances personalized instruction, improving engagement and learning outcomes over time (Alsolami, 2022). Since the workforce profile showed a relatively young workforce reliant on basic technology, these findings highlight the need for ongoing support to help teachers deepen their understanding and use of AT. Continuous professional

development, mentorship from experienced teachers successfully using AT, and resources that connect AT use with student success would support this growth.

3.3 Perception of Teachers on Social Acceptance and Support

Table 3 revealed teachers' perceptions of social acceptance and support for using assistive technology (AT) in classrooms. The overall mean score of 3.11 (SD = 0.56) indicated that teachers generally agreed that students using AT were accepted by their peers and supported by the school community. Teachers strongly believed (M = 3.20, SD = 0.64) that students using AT would be accepted by their peers, reflecting a positive outlook on social inclusion in classrooms. This aligns with the previous profile, showing that mid-career teachers are particularly aware of inclusivity's importance in the learning environment. The recognition of peer acceptance suggests that these teachers value AT's role in fostering social integration, which is essential for the long-term success of all students, especially those with disabilities.

Table 3. Perception of teachers on social acceptance and support

Indicators	Mean	SD	Interpretation
1. Students who use assistive technology devices in my class will be accepted among their peers.	3.20	0.64	Strongly Agree
2. Administrators, teachers, and parents will be helpful when I need assistance or explanations regarding assistive technology devices for my class.	3.01	0.70	Agree
3. I believe my classroom set-up is important for students who use assistive technology devices.	3.12	0.67	Agree
Total	**3.11**	**0.56**	**Agree**

Teachers also agreed (M = 3.01, SD = 0.70) that administrators, other teachers, and parents supported AT implementation, reflecting a collaborative environment. However, this score suggests that more proactive involvement and structured support systems may be beneficial while support exists. Since 69% of respondents were mid-career teachers, they may have experienced the challenges and benefits of AT integration. Still, they might seek more robust backing from administrators and parents to sustain these efforts. Additionally, teachers recognized (M = 3.12, SD = 0.67) the importance of classroom arrangements for students using AT, showing an understanding of necessary physical and instructional modifications. This awareness aligns with the evolving needs of the profession, particularly for mid-career teachers who might benefit from guidance on adapting classroom spaces to integrate AT better. Research by Roose et al. (2019) supports the notion that strong beliefs in peer acceptance can reduce stigma and promote social integration, particularly for students with disabilities.

These findings have several implications, especially considering the teacher profile, which indicates a workforce that values inclusivity but may need additional support in certain areas. First, while teachers generally agree on support from administrators, teachers, and parents, there is room for improvement. Schools could enhance support systems by providing proactive assistance, including dedicated training, troubleshooting resources for AT tools, and targeted professional development (Zepeda, 2019). Since many teachers are mid-career, they likely seek structured and ongoing support as they integrate AT into their practices. Teachers' recognition of classroom arrangements' importance implies that schools should provide resources to enable effective AT use. This could include adapting physical spaces, such as offering adaptive furniture or technology that enhances accessibility (Ewing, 2021). For mid-career teachers with established classroom setups, guidance on updating spaces to accommodate AT better would be beneficial.

The strong teacher belief in peer acceptance highlights the value of creating an inclusive environment for students using AT. Schools could benefit from fostering an atmosphere where all students feel accepted, regardless of AT use. Social integration is crucial, as peer and teacher support contributes to emotional and social growth beyond academic achievement (McNicholl et al., 2021). Mid-career teachers, in particular, could be encouraged to promote an inclusive culture that reduces stigma around AT use. Lastly, recognizing that administrators, teachers, and parents need to support AT integration suggests the need for open communication and involvement from all parties. When stakeholders actively participate, AT implementation is more successful, leading to better student learning and social outcomes (Kisanga & Kisanga, 2022). As key stakeholders, teachers should be empowered to facilitate this collaborative effort.

3.4 Perception of Teachers on Challenges and Overall Assessment

Table 4 presents teachers' perspectives on the benefits and challenges of assistive technology (AT) in their classrooms. While teachers generally agreed on AT's usefulness, they also identified significant barriers to its effective implementation. Teachers reported (M = 3.11, SD = 0.67) that a lack of training is a major challenge, emphasizing the need for professional development. With 69% of the respondents being mid-career teachers, this finding suggests they may face unique challenges as they adapt to an increasingly technology-integrated educational landscape and could benefit from targeted, skill-enhancing training.

Table 4. Perception of teachers on challenges and overall assessment

Indicators	Mean	SD	Interpretation
1. I believe the lack of teacher training in using assistive technology devices is a major barrier to students' success in my class.	3.11	0.67	Agree
2. There will be challenges to overcome to accommodate students who use assistive technology devices in my class.	3.15	0.61	Agree
3. I believe that overall, assistive technology devices used in my class are useful and helpful for students.	3.06	0.62	Agree
4. I believe assistive technology devices are useful for all core academic classes.	3.16	0.58	Agree
5. I believe assistive technology devices help students with independent living skills.	3.10	0.61	Agree
6. I believe assistive technology devices help students with job skills.	3.16	0.57	Agree
7. I believe assistive technology devices help students with community skills.	3.15	0.58	Agree
8. I believe assistive technology devices help students accomplish their tasks in my class.	3.23	0.58	Agree
Total	**3.14**	**0.50**	**Agree**

Teachers also expressed (M = 3.15, SD = 0.61) that accommodating students who use AT poses distinct challenges, likely related to limited resources, technical difficulties, or unfamiliarity with AT integration. This finding points to the need for structural and instructional support to address these challenges. For experienced mid-career teachers, specialized training that addresses complex AT integration could enhance their ability to meet the needs of students who rely on these technologies. Teachers acknowledged (M = 3.06, SD = 0.62) AT's value in supporting students' skills, specifically in areas like independent living (M = 3.10, SD = 0.61) and job readiness (M = 3.16, SD = 0.57). This reflects teachers' recognition of AT's potential to promote autonomy and future success for students. However, the gap in effective integration suggests a need for further support to help teachers maximize AT's impact on these outcomes. The teacher profile reveals limited use of advanced tools—such as interactive whiteboards and tablets, used by only a small percentage—highlighting a disconnect between perceived AT benefits and the resources available.

Research supports that while teachers acknowledge AT's value, many feel unprepared to utilize it fully due to inadequate training and resources (Al-Dababneh et al., 2022). This is particularly relevant given the limited access to advanced technology tools among teachers in the study. The data thus suggests an essential need for professional development and improvements in infrastructure to bridge the gap between teachers' perceptions and their ability to integrate AT effectively. These findings hold several implications for schools and educators. First, the lack of AT training highlights the need for comprehensive, ongoing professional development. For mid-career teachers, specific hands-on workshops could bridge gaps between traditional methods and modern AT practices. Second, the identified challenges—such as insufficient resources and technical support—highlight the need for improved technological infrastructure in schools. This could involve providing necessary devices, consistent internet access, and technical assistance, especially as many classrooms lack access to more sophisticated tools like tablets and interactive whiteboards.

Recognizing AT's role in supporting student autonomy suggests that teachers understand its potential but may require further guidance for effective incorporation. Schools could support this by organizing specialized workshops and fostering peer collaboration to share best practices. Research also highlights that collaborative, skill-based learning approaches can empower teachers to feel more confident and effective in using AT (Zepeda, 2019).

3.5 Relationship Between the Teachers' Perspectives on the Integration of Assistive Technology in Inclusive Classrooms and Sex

This study hypothesized that sex does not significantly impact teachers' perspectives on integrating assistive technology (AT) in inclusive classrooms. Results revealed that this hypothesis was confirmed. The correlation coefficient ($r = 0.009$) showed a very weak relationship, and the high p-value ($p = .880$) indicated that the result was not statistically significant. Thus, the study found no meaningful association between teachers' sex and their views on AT integration, suggesting that gender does not influence their attitudes toward AT. This finding aligns with research studies suggesting that sex differences in attitudes toward technology are becoming less relevant in educational contexts. Studies by Reilly et al. (2019) and McNicholl et al. (2021) support that other factors, such as teaching methodology and technology proficiency, play more influential roles than sex in shaping teachers' views on technology. In this study, even with a predominantly female teacher sample (77% female and 23% male), no significant differences were found between sexes in attitudes toward AT, reinforcing that experience and proficiency matter more than gender.

The teacher profile, particularly that 69% of participants are mid-career professionals, suggests that factors such as experience with digital tools and confidence in technology use are likely more influential in shaping AT perspectives. Teachers' access to basic technology tools (e.g., laptops and televisions) and limited access to advanced tools indicate varying levels of technology proficiency. This may mean that male and female teachers encounter similar challenges in effectively integrating AT, pointing to a shared need for skill development rather than gender-specific intervention. Since sex does not appear to influence perspectives on AT, professional development efforts should be designed to address common technology proficiency challenges across all teachers. Training programs could focus on enhancing specific skills related to AT usage and providing strategies for overcoming common integration barriers. Tailoring professional development to meet teachers' diverse skill levels will ensure that educators, regardless of gender, are better equipped to use AT effectively.

The absence of gender differences in AT perspectives highlights the value of fostering an inclusive, collaborative classroom culture. Teachers of all genders can benefit from sharing best practices and supporting one another in integrating AT to enhance student learning. Such collaboration improves instructional outcomes and builds a supportive network for teachers navigating the integration of new technologies. While sex does not significantly influence teachers' perspectives on AT integration, this study highlights the importance of focusing on technology proficiency, experience, and professional development. By addressing these factors, schools can support teachers in using AT effectively in inclusive classrooms, ensuring that all students benefit from these tools regardless of teacher demographics.

3.6 Relationship Between the Teachers' Perspectives on the Integration of Assistive Technology in Inclusive Classrooms and Age

The hypothesis speculated that there was no significant relationship between age and teachers' perspectives on AT integration. However, the analysis revealed a strong negative correlation of -0.931, indicating an inverse relationship: as teachers' age increased, their perspectives on integrating AT became more negative. The significance level ($p = 0.000$) was well below the 0.05 threshold, making this finding statistically significant. Thus, the null hypothesis was rejected. The strong negative correlation suggests that older teachers are generally less favorable toward integrating AT than younger teachers. This trend aligns with existing literature on generational differences in technology adoption. Younger teachers, who are more comfortable with technology and have grown up in digital environments, tend to embrace AT integration more readily (Kisanga et al., 2022). In contrast, older teachers may face challenges such as lower technological literacy, fewer training opportunities, or differing personal beliefs, impacting their views on AT (Dela Cruz et al., 2020).

The teacher profile provides additional context, indicating that 69% of respondents are mid-career teachers aged 26-44. Most teachers in this study are young to middle-aged, which may explain why a significant portion is more open to integrating AT into their classrooms. These teachers likely had more exposure to technology in their education and are thus more familiar with its potential benefits. The 14% of respondents aged 45-59, who may have had less exposure to emerging technologies earlier in their careers, showed a more cautious or negative view toward AT integration. Challenges they face could include adapting to new tools, lack of familiarity, or insufficient training, which aligns with the study's findings on age-related differences.

The results suggest that professional development initiatives should be tailored to the needs of teachers based on age and technological proficiency. For older teachers who may need more support in adapting to AT, programs offering hands-on training and demonstrating the practical benefits of AT could be beneficial. Younger teachers, already comfortable with technology, might benefit from more advanced training focusing on specialized AT tools or classroom integration strategies. Schools must adjust their approaches to AT integration to accommodate varying levels of comfort and proficiency across age groups. Implementing peer mentoring programs, where younger teachers share their experiences with older colleagues, could help bridge the gap in technology adoption. The study's findings emphasize the importance of demographic factors, particularly age when implementing AT in inclusive classrooms. Tailoring professional development and support initiatives to address specific needs by age group could enhance technology adoption effectiveness, fostering a more inclusive and supportive learning environment.

3.7 Relationship Between the Teachers' Perspectives on the Integration of Assistive Technology in Inclusive Classrooms and Highest Educational Qualification

The Pearson Correlation Coefficient (r = 0.80) reflected a strong positive relationship between teachers' educational qualifications and attitudes toward integrating AT. A coefficient close to 1 suggests that as one variable increases, so does the other (Schober et al., 2018). The p-value (0.000), well below the 0.05 threshold, confirmed that this correlation was statistically significant, indicating the relationship was not due to random chance. Teachers with higher educational qualifications tended to have more positive perspectives on AT integration. Advanced education contributes to a better understanding of AT's role and benefits in inclusive classrooms. Higher qualifications often come with more training and exposure to AT, enhancing teachers' understanding of how it can support diverse students. This finding aligns with Bice and Tang (2022), who noted that higher-formal teachers are more inclined to recognize AT's benefits and incorporate it into their teaching.

Among the study's respondents, 41% held a bachelor's degree, 29% had MA units, and 24% held a master's degree, while only 2% held a doctoral degree. The relatively high proportion of teachers with master's degrees or MA units aligns with the finding that higher qualifications favor AT integration, suggesting that advanced education equips teachers with the necessary knowledge and experience for effective AT use. The study revealed that 69% of respondents were mid-career teachers aged 26-44. This group likely benefited from advanced training and exposure to AT during their educational journeys. With both higher qualifications and familiarity with technology, these mid-career teachers are well-positioned to integrate AT into their practices. In contrast, the smaller percentage of teachers holding doctoral degrees (2%) may reflect a focus on leadership and research rather than practical classroom technologies.

The findings highlight the importance of continuing education and professional development to enhance teachers' perspectives on AT. Schools could invest in programs offering advanced AT training, encouraging teachers to pursue further qualifications that strengthen their technological skills. Given the correlation between higher qualifications and positive attitudes toward AT, supporting ongoing educational opportunities could further promote AT integration. While teachers with higher qualifications are more positive about AT, providing support across all qualification levels is essential. Tailored training programs could address the specific needs of teachers with varying educational backgrounds, ensuring that all educators, regardless of qualification, can integrate AT effectively in inclusive classrooms. The study highlights the significance of educational qualifications in shaping teachers' attitudes toward AT. Higher qualifications are associated with more positive perspectives on AT integration, indicating that advanced education enhances teachers' readiness and effectiveness in using assistive technology in inclusive classrooms.

3.8 Relationship Between the Teachers' Perspectives on the Integration of Assistive Technology in Inclusive Classrooms and Years of Teaching Experience

The Pearson Correlation Coefficient (r = -0.023) indicated a very low negative correlation between teaching experience and teachers' views on integrating AT, suggesting an almost nonexistent relationship. The p-value (p = 0.688), much higher than the 0.05 significance threshold, confirmed that the correlation was not statistically significant. Thus, the hypothesis that no significant relationship existed between years of experience and attitudes toward AT integration was supported. The findings revealed that years of teaching experience did not

significantly affect teachers' perspectives on AT integration. Whether a teacher was new or experienced did not influence their attitudes toward using AT in the classroom, contrasting with the expectation that experience might shape familiarity and openness to technology.

This study's respondents varied in teaching experience: 41% had 0-5 years, 32% had 6-10 years, and only 2% had over 31 years of experience. This profile reflects a younger, less experienced teacher population. Despite this, the findings suggested that experience level was not a significant factor in AT attitudes, implying that other factors—such as training, resources, and personal interest—might play a more substantial role. The results highlight the importance of providing professional development tailored to individual needs rather than years of experience. The teacher profile, showing many newer teachers, highlights the value of introducing effective AT training early in their careers. For experienced teachers, especially those less familiar with newer technologies, ongoing professional development should be emphasized to build confidence and skills in AT use.

The study suggests that collaborative learning communities and mentorship programs could support novice and experienced teachers. These programs allow teachers to exchange experiences, share best practices, and stay updated on AT advancements (Dela Fuente, 2021). Consistent with Hersh and Trief (2020), the findings stress the need for continuous support and training to enable teachers at all experience levels to integrate AT effectively. Overall, the study's findings indicate that the effectiveness of AT integration is not closely related to teaching experience. Rather, it depends on the quality and focus of professional development and support initiatives. Schools should offer training programs that are accessible and relevant to all teachers, regardless of their experience level, to maximize the impact of AT in inclusive classrooms.

3.9 Relationship Between the Teachers' Perspectives on the Integration of Assistive Technology in Inclusive Classrooms and Assistive Technological Device Used in Teaching

The study revealed a strong positive relationship between teachers' perspectives on assistive technology (AT) integration and the specific AT devices they used in their teaching. The Pearson Correlation Coefficient ($r = 0.870$) indicated a high positive correlation, suggesting that increased use of AT devices was associated with more favorable attitudes toward AT integration. The p-value (0.010), below the 0.05 significance threshold, confirmed that this correlation was statistically significant. Teachers who used specific AT devices were more likely to have positive views on integrating AT, likely due to their firsthand experiences with the benefits of these tools in supporting diverse students. Direct interaction with AT devices helped teachers appreciate their utility, leading to a stronger endorsement of AT integration in classrooms.

The teacher profile provided further context, showing that 54% of respondents used laptops, 26% used televisions, 7% used computers, and only 1% used advanced tools like interactive whiteboards and tablets. The reliance on basic technology suggests that teachers' positive attitudes were shaped by their experiences with accessible devices like laptops and televisions. Additionally, a significant portion of respondents were mid-career professionals (69% aged 26-44), who may have more exposure to technological devices, reinforcing their favorable attitudes toward AT integration. The limited use of advanced AT tools among respondents indicates a need for training and resources to expose teachers to a wider range of assistive technologies. Teachers' experiences with diverse AT tools, beyond basic devices, could further enhance their perspectives on AT integration.

The findings highlight the value of hands-on experience with AT devices in training programs. Providing teachers with direct interaction with various AT tools can enhance their understanding of how these tools support students with diverse learning needs. Schools should offer teachers flexibility in selecting AT devices that meet their students' needs, thereby increasing engagement with AT. Expanding teachers' access to advanced AT tools, such as text-to-speech software or interactive whiteboards, could foster more positive attitudes toward AT in inclusive education. Ongoing support and exposure to these devices are essential for sustaining positive attitudes and effective integration practices. Schools can help teachers recognize the benefits of AT by allowing them to experience the tangible impact of these tools, as supported by Schober and Schwarte (2018) and McNicholl et al. (2021).

Thus, the findings highlight that teachers' attitudes toward AT integration significantly shaped their experiences with specific AT devices. Positive firsthand experiences contributed to more favorable perspectives on AT in

inclusive classrooms, emphasizing the need to improve teachers' access to and training with various AT tools to promote effective integration in educational settings.

4.0 Conclusion

The study on teachers' perspectives regarding assistive technology (AT) in inclusive classrooms in Philippine higher education has several key implications for educational institutions, policymakers, and stakeholders. The study highlights teachers' willingness to embrace AT and the need for further training and support. Training programs on AT can be tailored to teachers' diverse backgrounds and preferences, as understanding AT's practical applications requires technological literacy. Institutions should prioritize promoting technological literacy among teachers to maximize the potential of assistive technologies. This could enhance teaching effectiveness, particularly in inclusive education settings.

The findings can also serve as a valuable resource for policymakers aiming to improve teaching practices and inclusion in higher education. By acknowledging the significant influence of demographic factors such as age and educational qualifications, policies should be designed to address the specific needs of different teacher groups. Institutions should establish ongoing initiatives to incorporate AT into educational curricula and develop strategies to support teachers through workshops, technical support, and cross-institutional collaborations.

The overall positive perception of AT among teachers suggests a receptive environment for further AT integration. Teachers are open to AT enhancing learning and inclusion, which could facilitate the adoption of new AT tools and methods. Despite existing challenges, the willingness of teachers to integrate assistive technology provides a strong foundation to explore its applications further, suggesting that future efforts should focus on building upon this enthusiasm.

Since age and educational qualifications significantly influence perspectives on AT, policymakers and administrators may benefit from considering these factors when planning AT-related interventions. For instance, younger teachers or those with higher educational qualifications may have different needs or attitudes toward AT than older or less qualified teachers. The lack of correlation between sex and years of teaching experience with attitudes toward AT suggests that these factors may not need to be heavily prioritized when designing training or interventions.

Effective AT integration requires collaboration between teachers, administrators, policymakers, and technology providers. By working together, these groups can address challenges, such as resource constraints or training gaps, and ensure that assistive technologies are used effectively in classrooms. Support systems for teachers should include professional development and administrative support, funding for AT devices, and avenues for collaboration to share best practices.

The study suggests that further research is needed to explore the nuances of AT integration, including how specific AT devices influence teaching and learning outcomes. Additionally, further investigation could explore how different technologies impact various student demographics in inclusive settings. Since the study was correlational, longitudinal research could be useful to examine how sustained exposure to AT training and resources affects teacher attitudes and the quality of education in inclusive classrooms over time.

The study highlights the importance of a multifaceted approach to AT integration in Philippine higher education. A combination of targeted professional development, supportive policy frameworks, collaboration, and further research is essential to fully realize the potential benefits of assistive technology in inclusive classrooms.

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6.0 Conflict of Interests

No conflict of interest.

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