Borneo Engineering & Advanced Multidisciplinary International Journal (BEAM)
Volume 5, Issue 1, May 2026, Pages 16-22

Knowledge as Foundation: Understanding Special Education Lecturers' Knowledge of Assistive Technology among Students with Disabilities

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Full Paper

Article history
Received
6 January 2026
Received in revised form
31 March 2026
Accepted
13 April 2026
Published online
1 May 2026

Abstract

The contemporary pedagogical environment of special needs education recognizes the lecturer as the key player in the implementation of Assistive Technology (AT). Although AT is built to address accessibility issues, its effectiveness largely relies on the capacity of the lecturer to shift the traditional way of teaching to a technology-facilitated inclusive approach. Nevertheless, the effectiveness of these tools in practice is often compromised by the fact that faculty are not pedagogically aligned and technologically prepared. Correspondingly, this research explores the self-image of lecturers and their theoretical knowledge of their duties as facilitators in the community college sector. A qualitative research design was employed to conduct semi-structured interviews with six purposely selected respondents. These participants are teaching special education programs in the Malaysian northern zone. This research design allowed researchers to delve into the lived experiences of educators and professional issues in the industry. The research indicates that although lecturers understand their role as facilitators of learning, they do not have the conceptual and technical preparation necessary to execute AT closely. Although there is strong interest, they are limited in their role as facilitators through the presence of large systemic barriers and inadequate expertise. Furthermore, the paper enumerates institutional barriers that can impede the successful implementation of AT, such as inadequate institutional infrastructure and a lack of specialized training. The study observes that effective inclusion cannot be maintained solely by interest. Academic institutions need to emphasize systematic, ongoing professional development to make lecturers transformative facilitators. In essence, these interventions play a vital role in ensuring that teachers are competent to manage a diverse classroom and offer equal opportunities to every student, and they also serve as the background for subsequent policy formulation regarding lecturer training and resource distribution.

Keywords: - Students with disabilities, lecturers' knowledge, assistive technology, teaching aids

1. Introduction

Technology in education in Malaysia is growing and is increasingly viewed as a necessity. Among them, the Malaysian Education Development Plan 2013-2025 (PPPM), there are 11 shifts to be implemented, including one to utilize ICT to improve the quality of learning in Malaysia (Ministry of Education Malaysia, 2013). Attention to the use of technology is not limited to mainstream students; it is evident among students with special needs as well. There are various Assistive Technology (AT) innovations that help students with special needs better understand learning in the classroom. In general, AT includes devices, software, and support systems designed to help individuals overcome learning, communication, and functional constraints, thus enabling them to participate meaningfully in the teaching and learning process (Rahim & Mazlan, 2025). In addition, research indicates that the use of AT in technology integration, training, and social skills development greatly affects the development of students with special needs (Arbi Prasetya et al., 2025).

However, the effectiveness of AT does not depend solely on its availability. Instead, it is influenced by lecturers' levels of knowledge and understanding in integrating the technology into pedagogical practices (Alsolami, 2022). Likewise, various educational initiatives and policies emphasize the use of technology in special education. Previous studies have demonstrated that the level of knowledge and understanding of lecturers on AT remains uneven and often basic, especially in terms of conceptual and pedagogical understanding (Alanazi, 2020). Without a strong pedagogical understanding, AT tends to be used in isolation, relying on mainstream technology. It is less strategically used in special education instruction, thus limiting its potential as a catalyst for learning. In line with this, most existing studies focus more on the impact of AT on students. At the same time, research that explores in depth the knowledge, interpretation, and experience of lecturers, the main implementers of AT, is still limited, especially in local contexts and TVET education. In this regard, this study aims to explore the knowledge of special education lecturers on AT in supporting MBK learning by examining i) What is the level of knowledge of lecturers regarding AT for the use of students with special needs, ii) How lecturers assess the role of AT as a facilitator of learning for students with special needs, and finally iii) What are the challenges and supports that influence lecturers' knowledge in the use of AT in teaching and learning for students with special needs. Therefore, this finding will provide an empirical picture of special education lecturers' knowledge of AT use and its role in supporting the learning of students with special needs. Correspondingly, this study identifies the challenges that affect lecturers' knowledge of AT use for students with special needs. With continuous training support, adequate technological facilities, and collaboration among stakeholders, AT has the potential to be a significant catalyst in empowering students with special needs. This, in turn, advances inclusive education and SDG 4 more sustainably in the future.

2. Literature Review

2.1 Assistive Technology in Special Education

Today, technological advances play an important role in education. The same is true in special education. Accordingly, AT is classified as all types of technology and tools used by teachers, whether high or low technology, to make it easier for students with special needs to understand and learn the activities taught in class (Hata et al., 2023). In essence, AT is one of the elements that can help students with special needs make the learning and teaching process more efficient and interesting and improve their memory.

Apart from being used for learning, AT is also a social interactive communication tool that supports the needs of students with special needs in the classroom. For instance, Suwahyo et al. (2022) believed that AT can help students with special needs in performing assigned tasks and improve understanding in class.

Furthermore, the presence of AT in the teaching and learning process can improve social skills and self-involvement in classroom engagement (Kaluri et al., 2024). Previous studies have emphasized that AT is not merely a technical tool. Rather, it is a pedagogical instrument that must be strategically integrated to support inclusive learning (Saabi et al., 2025). Although the importance of AT is increasingly recognized globally, its implementation in educational institutions remains unevenly accepted. The effectiveness of AT often depends on the extent to which teachers understand the function, potential, and suitability of the technology with the needs of students. Even without sufficient pedagogical understanding, the use of AT is often limited to basic use, not integrated with teaching strategies, and subsequently has little meaningful impact on the learning of students with special needs (Alsolami, 2022).

2.2 Teacher Knowledge of Assistive Technology

In the era of educational transformation towards technology, teachers' knowledge of technology, especially AT for students with special needs, is an important factor in ensuring equitable learning. Comprehensive knowledge of AT enables teachers to create a learning environment that is appropriate to the needs of students with special needs (Ghani et al., 2025). The opinion of Mokhtar & Hassan (2024) stated that teachers need to strengthen their efforts in a variety of technological innovations to improve the delivery of existing teaching. This, in turn, achieves a high impact on students with special needs. However, there is a significant gap in teachers' knowledge of the use of AT in the teaching and learning process of students with special needs.

While the study noted that special education teachers are aware of the existence of AT, the difficulty in using AT during the teaching process occurs due to a lack of knowledge in the use of technology and the opinion that students with special needs are less skilled in the use of technology (Wei & Alias, 2023). This statement aligns with Alanazi (2020), stating that some teachers know the basics of using AT, though they find it challenging to adapt to the use and capabilities of students with special needs. Moreover, some teachers do not understand the functions of AT suitable for use in the teaching and learning process, which causes the use of AT to be marginalized (Papadopoulos et al., 2025). In addition, Campado et al. (2023) argued that the lack of teacher knowledge is due to insufficient support from management and from continuous teacher training. Therefore, teacher knowledge is underdeveloped and limited in the use of AT for students with special needs. This statement is supported by Wei & Alias (2023), who asserted that the main factor in teachers' lack of knowledge of AT is the lack of continuous training workshops, which leave teachers feeling incompetent in its use in special needs classes.

Following this, the main factor in improving teachers' knowledge in the use of AT is to provide appropriate and continuous training to teachers. In addition to increasing knowledge, it can also increase teachers' confidence in using AT in the classroom during the teaching and learning process (Eyo et al., 2025).

2.3 Constructivism and Social Learning Theory in the Use of AT

To understand teachers' competence in the use of AT, several theories underpin the study to yield strong findings on teachers' knowledge of AT for students with special needs. From a Constructivist perspective, teachers' knowledge of AT will be actively constructed through experience, interaction, and reflection on teaching practices (Voon & Amran, 2021). According to Rahim et al. (2020), teachers need to undergo a process of cognitive adaptation to absorb new information about the complex functions of AT, making it relevant to their pedagogical practice. In this context, teachers need support or training from experts to bridge the gap between existing knowledge and the competencies required to manage AT effectively (Warsi & Rani, 2024).

Building on this, the challenge of teacher knowledge is further reinforced by Social Learning Theory, which emphasizes that observation, modeling, and self-efficacy influence teacher behavior (Lim et al., 2024). A study by Eyo et al. (2025) noted that teachers who face limited knowledge tend to have low self-efficacy, which, in turn, raises concerns about the application of AT during teaching sessions. Hence, the combination of these two theories places the lecturer's knowledge and awareness as a critical foundation in the successful implementation of effective AT.

3. Methodology

This study uses qualitative, phenomenological research design. This approach was selected since the purpose was to explore in depth lecturers' knowledge of the use of AT for students with special needs in the teaching and learning process. In particular, the study focuses on understanding the extent to which lecturers' pedagogical knowledge can bridge the accessibility gap in the use of AT for students with special needs in community college institutions. Meanwhile, selecting study informants through sampling techniques aims to ensure they have experience and expertise in working with students with special needs. Accordingly, the study sample comprises six informants who teach students with special needs and have more than two years of teaching experience at community colleges in the northern zone of Malaysia.

3.1 Research Instrument

A set of semi-structured questions was used for the interview protocol. The selection of the semi-structured interview protocol was intended to allow informants space to provide clearer, deeper, and more flexible information for elaboration (Lebar, 2007). Correspondingly, there are five sections in the semi-structured question set, namely i) demographics, ii) experience and knowledge in using AT, iii) importance and value of AT in teaching and learning, iv) assessment and influencing factors in AT in the learning of students with special needs, and v) challenges and support for AT in teaching and learning. This semi-structured script will facilitate the interview process with informants and help ensure that important information is conveyed.

3.2 Data Collection Procedure

This study uses data collection methods through interviews among the informants involved to obtain more accurate and detailed information regarding the study being conducted. This interview method was conducted separately, depending on the informant's suitability and availability.

3.3 Data Analysis Procedure

In this study, the researcher analyzed interview data from transcripts to produce concepts and themes related to the study to be conducted. The data analysis procedure used the Atlas.ti software to produce themes. The data analysis steps included open coding, which was used to derive codes from all study participants' interview findings and to form themes. Moreover, the researcher used three data analysis processes according to Williams and Moser (2019), namely: open coding, axial coding, and selective coding. Subsequently, the researcher reported the study findings using thematic analysis to identify themes that answered the study questions.

4. Result and Discussion

As a result of data analysis, several themes emerged to answer the research questions. The study discovered that lecturers' knowledge of AT use in the teaching and learning process for students with management needs was divided into three themes. This includes: i) Lecturers' conceptual knowledge of AT, ii) AT as a learning enhancer for students with special needs, and iii) Challenges and systemic support needs in the implementation of AT. The informants' backgrounds, including age, educational level, and teaching experience in working with students with special needs, are summarized in Table 1.

Table 1: Informants' background in terms of age, level of education, teaching experience, and experience handling students with special needs

Informant's	Age	Academic Qualification	Teaching Experience
P1	44	Degree	3 years
P2	47	Degree	5 years
P3	46	Degree	10 years
P4	41	Degree	3 Years
P5	45	Master's	10 years
P6	46	Master's	10 years

4.1 Lecturer's Conceptual Knowledge of Assistive Technology

The study's findings reveal a knowledge gap among lecturers regarding the use of AT in classroom teaching and learning. Of the six informants, two stated they have knowledge of AT, though their understanding of its use remains vague and requires guidance.

"Assistive technology is technology that supports the learning of students with special needs so that they can more easily understand and follow PdP." (P2)

"To me, assistive technology is any tool or method that can help special needs students better engage in learning, even if they have limitations." (P6)

In addition, knowledge of the types of technology lecturers identifies and use is limited. Findings indicate that lecturers are more likely to refer to mainstream technologies such as smartphones, videos, images, and digital applications. These are considered practical and easy to use in supporting the learning of students with special needs.

"Mobile phones, digital books… those are some of the things I use to help students."(P4)

"Canva, CapCut, ChatGPT, Gemini… these applications help students understand a lot."(P5)

This scenario suggests that lecturers have limited knowledge and do not delve deeply into the uses of AT that can help students with special needs.

However, some lecturers admit they have no formal exposure to AT and understand its use only through teaching experience and self-study.

"Sorry, this is my first time hearing about it. And I don't know much about assistive technology." (P3)

"I had to Google it first. I don't know what kind of assistive technology is specific."(P1)

The results of this theme analysis are supported by Alanazi (2020) & Alsolami (2022), who highlighted that special education lecturers often build their knowledge of AT through practical experience rather than formal training. This situation leads knowledge of AT to focus more on what "works" in the classroom than on conceptual understanding of pedagogical purposes and the suitability of technology for the individual needs of students with special needs. Notably, this finding is supported by the Constructivist theory, which states that teachers' knowledge of AT is actively formed through experience, interaction, and reflection on teaching practices. Similarly, Voon and Amran (2021) emphasized that without systematic exposure, lecturers tend to use general education technology alongside AT, thereby limiting the potential for more targeted learning support. Although the use of AT in the classroom can benefit lecturers, it should be considered in light of the lecturer's knowledge and understanding of its implementation. Generally, the improvement of lecturers' knowledge of AT use needs to be strengthened, such as providing training that emphasizes mastery of tools and a pedagogical and reflective understanding of the role of AT in the learning of students with special needs.

4.2 Assistive Technology as a Catalyst for Understanding and Learning for Students with Special Needs

Lecturers' understanding of the use of AT as a teaching tool can positively impact the learning process. As such, lecturers view AT as a medium that helps students understand teaching content more clearly and supports their ability to perform tasks more independently. In addition, AT is not observed merely as a technical support tool; rather, it serves as a medium that helps MBK understand learning content more clearly and systematically. Interestingly, this finding aligns with previous studies that emphasize that AT can increase active participation and learning effectiveness among students with special needs when used meaningfully in a pedagogical context (Saabi et al., 2025).

"Assistive technology is very important because it helps students understand what is being taught and increases their motivation." (P2)

In addition to improving understanding, AT is also observed to support independent learning among students with special needs.

"When using technology, students are more focused and dare to try to do things themselves. They are not too dependent on lecturers." (P6)

Consistent with this, AT is identified as a learning medium that supports students with special needs in certain contexts, such as self-study and classroom assessment, where they require additional support to understand instructions and perform tasks.

"Assistive technology is critical during classroom assessment and self-directed learning, which is why I think AT is very helpful as a supplement to PDP in the classroom."(P4)

This finding is in line with the study by Damastuti (2021), which emphasizes that AT functions as a teaching aid when it increases the functionality and active participation of students with special needs. From the perspective of Social Learning Theory, the success of students with special needs in using AT to complete tasks can increase self-efficacy, which, in turn, positively influences motivation and learning behavior (Seman et al., 2024). Nonetheless, the study's findings suggest that lecturers' interpretation of AT's role as a catalyst remains more focused on visible learning outcomes and less clearly

linked to systematic pedagogical planning (Wei & Alias, 2023). This indicates the need to strengthen lecturers' pedagogical knowledge to ensure that AT can be used more strategically in supporting the learning of students with special needs.

4.3 Systemic Support and Professional Development Needs in Assistive Technology Implementation

Despite the positive attitudes voiced by all lecturers regarding AT, the results of the study revealed that its application has not been well addressed or improved. This is particularly true in terms of professional training, facilities, and institutional support. According to the lecturers, the absence of specialized training made them apply self-education and the trial-and-error method when working with AT.

"Lack of specific knowledge and training is a major challenge in the use of assistive technology."(P1)

"I just use what I know. If there were a course or specific guide, maybe the use of assistive technology could be more effective." (P6)

Moreover, the convenience and cost of equipment have been reported to pose problems that have hindered the mass adoption of AT.

"Insufficient training and facilities as well as high equipment costs." (P2)

The lecturer further reiterated that institutional management should actively support the provision of AT in a uniform and sustainable manner.

"Management involvement is very important to improve lecturers' understanding." (P3)

This result reinforces the research (Rahim et al., 2020), stating that interest and awareness among educators are insufficient unless they are structured and systematized. According to Campado et al. (2023), the lack of follow-up support after short-term training does not create sustainable pedagogical competence. Even though all lecturers have demonstrated the necessary awareness of and positive attitude towards AT, the absence of specific training, facilities, and institutional support has restricted their capacity to align AT use on a regular and sustainable basis. In addition, this finding indicates that continuous professional development that emphasizes conceptual understanding, pedagogical application, and practice reflection is essential to empower lecturers' roles as facilitators of AT (Sulaiman & Mansor, 2024). Without strong institutional support, the use of AT risks remains a separate and unsustainable individual initiative.

4.4 Lecturer's Conceptual Knowledge of Assistive Technology

The findings indicate a knowledge gap among lecturers regarding AT use. While some lecturers demonstrated awareness of AT, their understanding remained vague, often relying on self-study and practical experience rather than formal training. Many lecturers primarily referred to mainstream technologies such as smartphones, digital books, and applications like Canva, CapCut, ChatGPT, and Gemini to support learning. These findings align with studies by Alanazi (2020) & Alsolami (2022), which highlighted that lecturers' knowledge of AT is often practical rather than conceptual. Constructivist theory supports this, suggesting that teachers' knowledge of AT is actively formed through experience, interaction, and reflection (Voon & Amran, 2021). Without systematic exposure and formal training, lecturers may rely on general education technology, limiting targeted support for students with special needs.

4.5 Assistive Technology as a Catalyst for Learning

Lecturers viewed AT as a medium that enhances understanding, motivation, and independent learning for students with special needs. AT was not only seen as technical support but also as a pedagogical tool that helps students engage more actively in learning and perform tasks independently. These observations resonate with Social Learning Theory, which emphasizes self-efficacy and observational learning (Seman et al., 2024). Effective use of AT can boost students' confidence and motivation. However, lecturers' understanding of AT's pedagogical integration remained limited, often focusing on visible learning outcomes rather than systematic planning (Wei & Alias, 2023). Strengthening pedagogical knowledge is crucial to ensure AT is used strategically to enhance learning outcomes.

4.6 Systemic Support and Professional Development Needs

Despite positive attitudes toward AT, lecturers reported significant challenges in implementing it effectively. Lack of formal training, inadequate facilities, high equipment costs, and limited institutional support were major barriers. These findings highlight that interest and awareness alone are insufficient; systematic professional development and institutional support are essential for sustainable AT integration (Campado et al., 2023 & Sulaiman & Mansor, 2024). Continuous training emphasizing conceptual understanding, pedagogical application, and reflective practice can empower lecturers to serve as transformative facilitators in inclusive classrooms.

5. Conclusion

This study provides insight into special education lecturers' knowledge and use of AT in Malaysian community colleges. The findings indicate that while lecturers recognize the importance of AT in supporting students with special needs, their knowledge is largely practical and grounded in experience rather than formal conceptual understanding. Lecturers rely heavily on mainstream technologies and self-directed learning, which limits the strategic application of AT in pedagogy. Institutional support, professional training, and adequate

facilities were identified as crucial factors in enabling effective AT implementation. Without these supports, AT use remains dependent on individual initiative and experience, risking fragmented and unsustainable practices. Practically, these findings emphasize the need for ongoing, classroom-oriented training programs and structured professional development. Policy-wise, institutions should provide clear guidelines, appropriate technological facilities, and foster collaboration among educators, industry, and the community to ensure AT can be effectively used to enhance inclusive learning, especially within the TVET framework. Finally, while the study is limited by its small sample size and focus on a specific region, it provides valuable preliminary insights into lecturers AT knowledge and highlights areas for future research, including larger-scale studies and the development of specialized professional training models to improve lecturers' competencies.

Author Contributions: The research study was carried out successfully with contributions from all authors.

Conflicts of Interest: The authors declare no conflict of interest.

References

Alanazi, A. (2020). Special Education Teachers' Knowledge of Using Assistive TECHNOLOGY with Students with Autism Spectrum Disorder. *Technium*, *2*(7), 54–63.

Alsolami, A. S. (2022). Teachers of special education and assistive technology: Teachers' perceptions of knowledge, competencies and professional development. *Sage Open*, *12*(1), 1–12.

Arbi Prasetya, R., Beny Novari Ovel, A., Pamuji, Wagino, & Murtadlo. (2025). Pelatihan Teknologi Asistif Bagi Forum Tunanetra Di Surabaya. *Jurnal Pengabdian Masyarakat: Pemberdayaan, Inovasi Dan Perubahan*, *5*(6), 78–83.

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.

Damastuti, E. (2021). *Teknologi asistif*. IRDH.

Eyo, R. E., Rubilla, A. A. D., & Ricaforte, R. M. (2025). The Influence of Assistive Technology and Instructional Design in Student Perceptions of Teacher Competence in Handling Students with Special Needs Among Senior High School. *International Journal of Research and Innovation in Social Science*, *9*(4), 3387–3395. https://doi.org/10.47772/ijriss.2025.906000252.

Ghani, M. Z., Azmi, A. A., Radzuan, M. F., Bakar, E. A. A., Idris, N., & Khan, S. S. S. S. (2025). Scoping Review: Assistive Technology in Special Education: A Comparative Analysis of Malaysia and the Global Context with Success Stories. *Jurnal Evolusi*, *6*(1), 25–32.

Hata, A., Wang, H., Yuwono, J., & Nomura, S. (2023). *Assistive Technologies for Children with Disabilities in Inclusive and Special Schools in Indonesia*. The World Bank. https://doi.org/10.1596/40387.

Kaluri, R., Mahmud, M., Gadekallu, T. R., Rajput, D. S., & Lakshmanna, K. (2024). *Applied assistive technologies and informatics for students with disabilities*. Springer.

Lebar, O. (2007). *Qualitative research: An introduction to theory and method*. Universiti Pendidikan Sultan Idris.

Lim, G. F. C., Abdul Jalil, N., Awang Hidup, D. S., & Omar, M. (2024). Pengintegrasian teknologi dalam pendidikan: Cabaran guru. *International Journal of Modern Languages and Applied Linguistics (IJMAL)*, *8*(1), 49–67.

Ministry of Education Malaysia. (2013). *Malaysia Education Blueprint 2013-2025*. Ministry of Education Malaysia.

Mokhtar, M. M. M., & Hassan, H. (2024). Readiness and knowledge of mobile technology based teaching and learning among KAFA teachers in enhancing teacher quality. *Jurnal Al- Sirat*, *24*(1), 131–140.

Papadopoulos, K., Koustriava, E., Chronopoulou, E., Molina-Carmona, R., Manganello, F., Isaraj, L., Fountouki, C., & Fernández Gil, J. M. (2025). Accessible Educational Material for Higher Education Students with Disabilities: Knowledge and Skills of Teaching Staff. *Social Sciences*, *14*(8), 489.

Rahim, M. Z. A., Nasri, N. M., & Talib, M. A. A. (2020). Pedagogi responsif budaya: Kesedaran, pengetahuan dan kesediaan guru. *Jurnal Pendidikan Malaysia*, *45*(1), 25–34.

Rahim, N., & Mazlan, N. D. (2025). Design Thinking in Educational Applications: Innovations to Enhance the Cognition of Students with Learning Difficulties. *Malaysian Journal of Information and Communication Technology (MyJICT)*, *10*(1), 33–49.

Saabi, N., Chlioui, I., & Radgui, M. (2025). A Review of Assistive Technology in Special Education. *Engineering Proceedings*, *112*(1), 45. https://doi.org/10.3390/engproc2025112045.

Seman, S. A., Sulaiman, T., & Burhanuddin, N. A. N. (2024). Sorotan Literatur Bersistematik: Efikasi Kendiri Teknologi Digital dalam Kalangan Murid Pintar Cerdas dan Berbakat. *International Journal of Education and Training (InjET)*, *10*(2), 1–12.

Sulaiman, Z., & Mansor, M. (2024). Pembelajaran profesional guru: Konsep dan perspektif. *International Journal of Modern Education*, *6*(23), 15–29.

Suwahyo, B. W., Setyosari, P., & Praherdhiono, H. (2022). Pemanfaatan Teknologi Asistif Dalam Pendidikan Inklusif. *Edcomtech: Jurnal Kajian Teknologi Pendidikan*, *7*(1), 51–63. https://doi.org/10.17977/um039v7i12022p055.

Voon, S. H., & Amran, M. S. (2021). Pengaplikasian Teori Pembelajaran Konstruktivisme Dalam Pembelajaran Matematik: application of constructivism learning theory in mathematical learning. *Sains Insani*, *6*(2), 73–

82. https://doi.org/10.33102/sainsinsani.vol6no2.285.
Warsi, L. Q., & Rani, Y. (2024). Analysis of teachers' Readiness in using digital technology for students' learning: problems and potential solutions. *Human Nature Journal of Social Sciences*, *5*(2), 292–305.
Wei, Y. S., & Alias, A. (2023). Challenges When Using Assistive Technologies in Lesson Activities for Students With Visual Impairments. *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, *8*(4), e002240. https://doi.org/10.47405/mjssh.v8i4.2240.
Williams, M., & Moser, T. (2019). The art of coding and thematic exploration in qualitative research. *International Management Review*, *15*(1), 45–55.