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The Orientation Mobility Social Communication (OMSC) Learning Based Universal Design for Learning: Optimizing the Potential of Students with Multiple Disabilities and Visual Impairments (MDVI)

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Abstract

Multiple Disabilities with Visual Impairment (MDVI) refers to individuals with visual impairments—ranging from total blindness to partial vision or residual vision—accompanied by additional limitations. These limitations may include cognitive, developmental, hearing, or mobility impairments. Orientation is utilizing functional senses to position oneself relative to significant objects in the surrounding environment. At the same time, mobility refers to the ability to move from one location to another in a practical, precise, and safe manner. Orientation and mobility are interdependent; orientation is ineffective, and mobility cannot function without orientation. Similarly, social and communication skills are interconnected, as communication skills positively impact the social aspects of multiple disabilities with visual impairment (MDVI) students. This study examines the effectiveness of The Orientation Mobility Social Communication(OMSC) based Universal Design for Learning for students with MDVI. Specifically, it explores the application of OMSC learning in a school with a unique setting that researchers in the Banten area used as research objects. The study employs a mixed-methods research approach, integrating qualitative and quantitative methodologies. The findings demonstrate that media and subject matter experts validated the developed instructional guide, and its trial implementation with students revealed improvements in OMSC skills. These improvements were observed through graphical analyses during baseline 1, intervention, and baseline 2 phases. The study concludes that implementing The Orientation Mobility Social Communication (OMSC) Learning Based Universal Design for Learning is effective for MDVI students, as evidenced by enhancing their OMSC skills during the intervention.

Keywords: Multiple Disabilities and Visual Impairments(MDVI), Orientation Mobility Social Communication (OMSC), Universal Design for Learning (UDL)

INTRODUCTION

Education is fundamentally one of the most critical elements in students' lives, serving as a foundation for engaging in activities related to learning or training. Through education, students can develop and enhance their potential to meet future needs (Usman, 2024). In its implementation, education is generally categorized into two types: general education and special education. Special education refers to programs designed for individuals with physical, mental, intellectual, emotional, or social impairments, commonly known as special needs education or ortho pedagogy. According to the World Health Organization (Pedzisai & Charamba, 2023), disability is a global issue affecting millions. One area of significant concern is children with visual impairments accompanied by additional disabilities, commonly referred to as Multiple Disabilities with Visual Impairment (MDVI).

Several education experts define MDVI such as: Grumi (Peltokorpi *et al.,* 2024), "MDVI, such as developmental delay, cerebral palsy, or hearing impairment, presents

challenges in reciprocal interactions with parents from the start." Similarly, Bishof (Alfaathir, 2018) defines MDVI as: "Children with visual impairments and multiple disabilities are a heterogeneous group with visual impairment as the common characteristic. Additional disabilities typically include mental retardation, speech and language deficits, neurological involvement, cerebral palsy, orthopedic impairment, behavioral disorders, and hearing loss. Rohmawati (2022) state that, individuals with multiple disabilities and visual impairment (MDVI) are those with developmental disabilities, including delays in neurodevelopment, resulting from one or a combination of impairments in intelligence, motor skills, language, or social and interpersonal relationships.

Persons with MDVI invariably experience additional impairments, classifying MDVI as a dual disability (Yanti & Asmawati, 2024). It causes MDVI Disabilities to have less experience in visual concepts. Therefore, the information which they obtain is not optimal. In addition to the limitations in movement/mobility, they also get some obstacles in visual learning. However, other impacts occur in MDVI children, such as their learning being less than optimal (Yaum *et al.,* 2023). The combination of challenges faced by children with MDVI often hinders their developmental progress and creates unique learning needs; therefore, they need specialized services tailored to their impairments (Fitri & Meiyani, 2020). Children with special needs classified under MDVI require equitable access to education, as their condition significantly impacts various aspects of development and learning (Lownfeld, 2010).

According to Argyloropoulus (2020) he said "Children with vision impairment and multiple disabilities (MDVI), may present developmental delays in conjunction with learning difficulties in all areas and levels of perception, cognition, and functioning. Hence, it is reasonable to presume that all these delays would negatively impact their cognitive, visual, communication and language skills, gross and fine motor skills, daily living, and social-emotional skills". Consequently, understanding the provision of educational services for MDVI individuals necessitates clarity on who requires assistance, the nature and rationale of the support needed, and how to implement effective interventions to address their challenges. The ultimate objective is to empower MDVI individuals to achieve independence and generally enable them to participate actively in society.

Visual impairments, often accompanied by other disabilities, significantly impact various aspects of life, particularly orientation and mobility. Effective movement and relocation involve two key components: orientation and mobility (Ambarsih *et al.,* 2024). *Orientation* is utilizing the remaining functional senses to position oneself with other

significant objects in the surrounding environment. Mobility, on the other hand, refers to the ability to move from one location to another effectively, accurately, and safely (Munawar & Suwandi, 2013). Children with visual impairments face substantial limitations in mobility due to their reliance on sensory capabilities other than vision (Afriani, 2023). Mobility skills among individuals with visual impairments generally vary (Heryati *et al.,* 2023). Hidayati *et al.* (2020) emphasizes mobility as the "ability, readiness, and ease of movement and relocation." Mobility involves physical movement and relocation, so physical readiness is critical to mobility skills.

Furthermore, orientation and mobility training are shaped significantly by the physical environment (Handajani & Laksmiwati, 2014). When doing mobility, a person will have orientation regarding important objects and signs around him, such as the position of tables, chairs, cupboards and so on. This activity will give a blind person an idea of the condition of the environment around him. A person will do mobility according to the picture of the environment that has been oriented. The mobility orientation program is individual, so it must be adjusted to the student's needs (Yudhiastuti & Azizah, 2019).

Introducing orientation and mobility (O&M) training at an early age can significantly support the development of independence, body image, and goal-directed movement in children with visual impairments (Sidiq, 2016). Furthermore, it enables them to compete and achieve balance with sighted peers (Pristiwawaluyo *et al.,* 2022). The varying levels of independence are also a factor in the ineffectiveness of OMSC learning (Praditya, 2024). Individuals with MDVI impairments who experience difficulty in orientation and mobility face challenges in mimicking movements or processing visual information daily. These challenges include activities related to personal care or Activities of Daily Living (ADL). To navigate their surroundings effectively, individuals with multiple disabilities and visual impairments (MDVI) must develop a strong sense of self-concept and master various mobility orientation (O&M) techniques. O&M facilitates safe and efficient travel, particularly within the school environment (Sundoro, 2020). The aim of this orientation and mobility learning is for MDVI children to have knowledge that will enrich their experience in their ability to move from place to place and interact with their environment (Yaum, 2021).

According to Anita and Nur (Praditya, 2024), orientation and mobility programs are specialized for visually impaired students. Under the KTSP Curriculum, orientation and mobility programs are standalone, focusing solely on mobility and orientation skills. However, in the 2013 Curriculum, these programs are integrated with two additional specialized programs: social and communication skills, which form the Orientation, Mobility, Social, and

Communication (OMSC) program. Similarly, learning programs for students with multiple disabilities and visual impairment (MDVI) are often a part of classroom activities (Rudiyanti *et al.,* 2015). Hathazi (2022) stated that "MDVI children acquire and develop communication skills based on their specific features and usually they need a large amount of time to learn how to employ different systems of communication to express a need and have an impact on other people or on the environment". MDVI in children causes severe impairments in communication and other developments as well as the need for early intervention and education where their needs cannot be met in programs intended for children with only one disorder. For this reason, special handling is also needed so that they can carry out daily activities and fulfill their right to education (Hidayah, 2020).

Mobility skills in visually impaired children are significantly constrained, as they rely heavily on sensory skills other than visual perception (Eliskar *et al.,* 2024). "Children with MDVI cannot adequately exploit the information derived from the environment (Vassilis Argyropoulos *et al,* 2020). Among orientation, mobility, and social and communication skills are inherently interconnected. Orientation is ineffective without mobility, and mobility cannot function without orientation. Similarly, communication skills have a profound impact on the social development of visually impaired children. This finding is consistent with the assertion by Oliynyk *et al.* (2024), which emphasizes that communication in nursing is a fundamental clinical skill and one of the essential tools for providing quality patient care and improving patient satisfaction. In this context, orientation and mobility can be viewed as mental preparedness, while social and communication skills represent physical ones. Both must be integrated to enable MDVI individuals to navigate independently to their desired destinations. The acquisition of orientation, mobility, social, and communication skills among independent MDVI individuals results from structured practice and learning. Educational institutions serve as effective public policy instruments to enhance knowledge and skills in these domains. Furthermore, many students perceive school activities as enjoyable opportunities for social interaction.

A preliminary study conducted at a special needs school in Banten revealed that MDVI students cannot perform independent orientation and mobility, negatively affecting their social and communication skills. To address these challenges, the school employs direct teaching methods for orientation and mobility techniques, delivered once a week. However, due to the dual challenges of visual impairment and intellectual disabilities, students' comprehension of the material remains limited. Teachers have an important role in teaching OMSC skills. The first thing they do to teach it is the concept of the body, direction, and its

techniques. OMSC learning taught by teachers can begin a child's journey in acquiring skills to move and access the environment independently (Sugini *et al.,* 2024).

This condition lowers the self-confidence of MDVI (Multiple Disabilities with Visual Impairment) students, as at this age, they still face significant challenges in recognizing their environment, which impacts their ability to socialize with peers. Schools have the potential to enhance students' social skills and awareness. Schools serve as a medium for interaction between students and teachers, fostering intelligence, skills, and mutual care among them. According to Rizqyta *et al.* (2024), As the closest party to the child, the family, especially the parents, is one of the sources that has the potential to help children develop more optimally. This role also includes the contributions of teachers and schools. "Teachers have an important role in the learning process. Ideally, teachers understand the characteristics of their students. Teachers who teach students with MDVI must be well prepared to deal with the differences in each student" (Brades, 2023). However, current OMSC learning practices for MDVI students in schools must be revised, necessitating innovative approaches to optimize their skills in OMSC.

In implementing OMSC learning, researchers chose Universal Design for Learning or abbreviated as UDL as the basis for learning. UDL is an educational concept or approach to designing learning methods, teaching materials, learning activities, and evaluation procedures to help individuals with disabilities, such as disabilities in seeing, hearing, speaking, moving, reading, writing, understanding language, and remembering. Orkwis & McLane (1998) in Utomo (2015) define UDL as a learning framework that contains a method for diversifying learning so that the general education curriculum can be provided for each student. According to the Ohio State University Partnership Grants (2010) in Trianto Utomo (2015) UDL has several benefits after being implemented in the United States, including learning for students who speak English as a second language, students with disabilities, and students whose learning styles are inconsistent with their teacher's teaching style.

Learning media in the form of electronic books, which are completed by images that produce sound, is included in assistive technology so that it can make it easier for MDVI students to understand OMSC techniques based on Universal Design for Learning. Such accessibility facilitates the learning process, as selecting appropriate media for specific instructional purposes requires detailed consideration of both the medium and the user by educators (Isnan & Benowati, 2024). For students with MDVI, assistive and adaptive technology are essential to enhance their learning experience. They can obtain information and participate in teaching activities with the help of this technology (Aneraye, 2023). The

voice-based e-book developed by this researcher is following the needs of MDVI students as expressed by Bondok *et al.* (2024); people who are blind or have low vision may utilize assistive technologies to access information, this includes text-to-speech screen readers, which convert visual screen content into audio that the user can listen to, as well as text magnifiers.

Based on the discussion above, the researcher concludes that learning media in the form of an OMSC-based Universal Design for Learning needs to be created to optimize the potential of multiple disabilities with visual impairment (MDVI) students. The learning media can be used by teachers in the future and can be accessed directly by students to facilitate the learning process.

METHOD

This study employs a mixed-methods research design, integrating qualitative and quantitative approaches. Mixed-methods research is a methodological approach that combines qualitative and quantitative data collection and analysis within a single study to provide a more comprehensive understanding of the research problem (Creswell, 2010). Similarly, Sugiyono (2011) describes mixed methods as a research approach that combines these two methodologies simultaneously in a single research activity, resulting in more comprehensive, valid, reliable, and objective data. The mixed-methods approach is utilized in this study to address the following research questions: (1) What forms of communication are commonly used by children with MDVI (Multiple Disabilities with Visual Impairment) daily? (2) What are the orientation and mobility needs of children with MDVI? (3) What media can enhance children's orientation and mobility skills (OMSK) during learning? (4) How effective is OMSK learning for children with MDVI using Universal Design for Learning (UDL) teaching materials? This approach is employed to uncover field-based issues, providing new insights for educators and parents as alternative solutions to address these challenges effectively.

This study employs a phased mixed-methods approach. According to Creswell (2010), this strategy involves integrating data derived from one method with another to provide a comprehensive analysis. As noted earlier, the research adopts a sequential mixed-methods strategy, specifically the exploratory sequential design. In the first phase, qualitative data is collected through interviews to analyze and capture OMSC's initial portrait, description, and baseline condition in children with Multiple Disabilities with Visual Impairments (MDVI). Additionally, to address the second research question, single-subject research (SSR) is employed in the subsequent phase to analyze quantitative data. This approach evaluates the

effectiveness of an OMSC learning guide based on the Universal Design for Learning in enhancing OMSC skills in children with MDVI. The study design follows the exploratory sequential framework, wherein the initial phase focuses on collecting and analyzing qualitative data, and the second phase analyzes the quantitative data from the first phase.

The research design in this study employs a mixed-methods approach utilizing the Research and Development (R&D) model. The first stage involves the qualitative data collection, which is then analyzed. The results of this analysis lead to the identification of key findings. Based on the approach above, the subsequent concrete research stages appeared in detail as part of the research plan. From the findings obtained, an attempt was made to develop the application. Once the application was ready, it underwent a test, and data was collected through qualitative methods. This data is then analyzed quantitatively using an experimental research approach with a single-subject or Single Subject Research (SSR), which results in a conclusion.

RESULTS AND DISCUSSION

The researcher collected the data qualitatively through observations and interviews with the subjects and two teachers.

Qualitative Data Findings

Based on the observation results, it is evident that the use of learning media for OMSC (Orientation of Mobility Social Communication) still needs to be improved in variety. The school employs a direct practice strategy to teach children OMSC, but no significant changes or improvements have been observed. The children's ability to recognize directions, positions, and sounds and move from one location to another need improvement, indicating more guidance from teachers or caregivers. Furthermore, the children's ability to comprehend instructions is still within basic instruction.

Based on the results of the interviews regarding the use of learning media to enhance the OMSK skills of MDVI students, teachers have employed various forms of media. This approach is part of the teachers' efforts to improve the skills of MDVI children. The teachers responded positively to the creation of audiobooks initiated by the researcher, viewing it as a means of supporting the continued introduction of alternative media to enhance the OMSK skills of MDVI children. Teachers indicated that children have communication potential, which can be further developed when supported by appropriate media and methods provided consistently and continuously. This approach allows for observable progress in the child's development, stage by stage. It also provides a basis for evaluation for improvement in the future, thus contributing to better outcomes over time.

In addition to conducting interviews and observations, the researcher also performed media validation with content and media experts. The first validation provided several recommendations to improve the audiobook's visual presentation and content. Based on the results of two rounds of validation, it was concluded that the designed audiobook was ready for trial implementation with the subjects.

Quantitative Findings using Single Subject Research (SSR)

The baseline-1 data refers to the initial communication skills of the research subjects before receiving any intervention. This data resulted from The Orientation Mobility Social Communication ability test. During this phase, the researcher guided the subjects through spatial orientation exercises, communication activities, and familiarization with the classroom environment. If the subject demonstrated the ability, a score of 3 was awarded. Conversely, if the subject could not perform the task, a score of 1 was given. Throughout the four sessions in this phase, the subjects needed help to engage in The Orientation Mobility Social Communication learning process effectively. Consequently, each item in the assessment received a score of 1. The percentage and variability of the communication ability scores of the research subjects in baseline-1 (A1), consisting of 4 sessions, resulted in a total score of 33%.

In the Intervention Phase (B), the researcher implemented interventions to improve the subjects' Social Mobility Orientation Communication skills using a Universal Design for Learning guide. Data obtained from the first session of the intervention phase showed that the subject received a score of 2. The total score achieved by the subject in the first session was 14, which equals 66.6%. From the second to the fourth session of the intervention phase, the subject scored 15, corresponding to 71.4%. From the fifth to the sixth session of this phase, the subject's score increased to 17, or 80.9%. Finally, in the last two sessions, the subject received a score of 19, or 90.4%. In contrast, during the Baseline-2 Phase (A2), the Social Mobility Orientation Communication skills of the subject after being given the intervention treatment using the Universal Design for Learning-based guide were as follows: From the first to the second session of the Baseline-2 phase (A2), the subject achieved a score of 71.4%. The total score obtained by the subject during this phase's third to fourth session was 80.9%.

When the data from Baseline-1 (A1), Intervention Phase (B), and Baseline-2 (A2) are combined and presented in graphical form, the resulting graph in Figure 1.

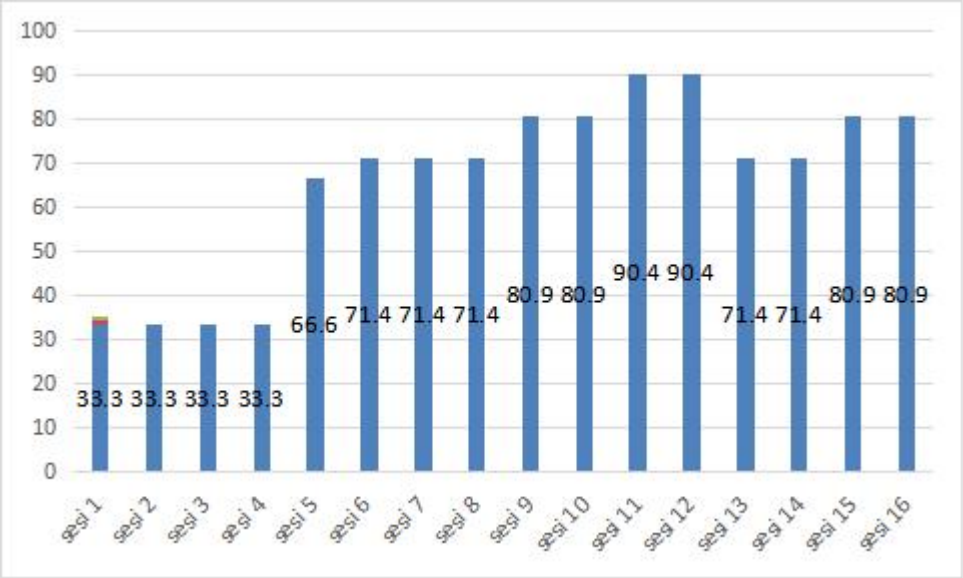

Figure 1. Orientation of Social Mobility Communication Graph on *Baseline*-1 (A1), Intervention (B), and *Baseline*-2 (A2)

The trend in the graph indicates changes in the data from session to session. In this study, the trend direction was determined using the split-middle method. Sunanto (2010) states, "The split-middle method involves drawing a straight line that divides the data in a given condition based on the median." The trend line was then used to determine the direction of the graph, indicating whether it was horizontal, descending, or ascending at each stage of the respective phases. In the baseline-1 phase (A1), the trend direction shows stability, as indicated by the horizontal straight line crossing all data points in this phase. The horizontal trend is evident from the consistent data obtained in each session, demonstrating the same percentage from the first to the fourth session. During this baseline-1 phase (A1), the data were collected under natural conditions without treatment or intervention.

In the intervention phase (B), a tendency toward an increasing direction is observed, as evidenced by an upward straight line crossing all data points during the eight sessions of the intervention phase. This increasing trend is particularly noticeable in the data obtained, which show an increase in percentage from session four to session five. During this phase, the intervention to enhance The Orientation Mobility Social Communication (OMSC) skills was implemented using a Universal Design for Learning guide. The trend in the baseline-2 phase (A2) shows a stable direction, depicted by a horizontal straight line crossing all data points in this phase. During this phase, the data collected reflects the natural conditions without any treatment or intervention, providing a comparison to assess the effect of the intervention using the UDL-based guide implemented in phase (B). Based on the results of the study/trial of the

Universal Design for Learning-based guide for OMSC learning for MDVI students, it can be concluded that the use of the guide led to a significant improvement in the OMSK skills of the MDVI students who were the subjects of this study.

At the beginning of the introduction to the Universal Design for Learning-based guidebook for MDVI students to learn OMSC, the researcher provided a direct example of its usage. The researcher then instructed the subjects to operate the guidebook independently, and the subjects could navigate and use it easily. This ease of use can be attributed to the simple layout of the guidebook, which facilitated user interaction. The researcher instructed the subjects to begin by opening the guidebook from the start and progressing through to the final menu. Throughout the entire process, the subjects successfully mastered all steps involved in its usage.

The implications of using a guidebook based on Universal Design for Learning for Multiple Disabilities and Visual Impairment students to learn OMSC are improving communication, interaction, and socialization with their surroundings. The development of this guidebook will further be expanded to other devices, such as smartphones and tablets, to enhance accessibility and ease of use. The results of the credibility test using data triangulation techniques indicate that the UDL-based guidebook for OMSK education for MDVI students has identified several limitations, which are now prioritized for further development. These limitations include the need for the guidebook to be accessible on iOS, Android, and website platforms, thereby broadening its user reach. Based on the media creation process, which followed the stages of development and product specifications in terms of content and media, validation was subsequently carried out by experts in subject matter and media. The validated media product was then tested on MDVI children as trial subjects. Based on the overall results, the UDL-based guidebook for OMSK education for MDVI students is suitable for use and dissemination.

CONCLUSION

The design of the development plan for The Orientation Mobility Social Communication(OMSC) guidebook for students with MDVI, based on Universal Design for Learning, is an audiobook intended to optimize the OMSK skills of MDVI students. According to the validation results from media and content experts, the guidebook is both usable and ready for trial with subjects. Following the implementation of a trial with the Single Subject Research (SSR) method, results showed a significant increase in the average percentage or mean level for each subject across the baseline-1 (A1), intervention (B), and baseline-2 (A2) phases, with values of 33%, 78.76%, and 76.15%, respectively. The

percentage in phase A1 reflects the initial skills of the subjects in OMSK, which were not yet visible. In phase B, there was a significant improvement in communication skills following the intervention using the OMSK guidebook based on Universal Design for Learning. Phase A2, which evaluates the audiobook's usage, indicated an increase in the children's skills after the intervention compared to before the application was used.

Furthermore, the data changes during the baseline-1 phase (A1), intervention phase (B), and baseline-2 phase (A2) showed stability. The change in data levels for the three subjects during the analysis between conditions from the intervention phase (B) to baseline-1 (A1) showed an increase of 33 points. Meanwhile, the change from baseline-2 (A2) to intervention (B) decreased 22 points. Data from baseline-2 (A2) were lower than those from the intervention phase (B), whereas baseline-2 (A2) data were higher than baseline-1 (A1), suggesting a positive effect of the intervention. Additionally, the overlap data between the intervention phase and baseline-1 (B/A1) and baseline-2 to intervention (A2/B) showed a 0% overlap. Therefore, these findings support the hypothesis that using the OMSK guidebook based on Universal Design for Learning for students with Multiple Disabilities and Visual Impairments (MDVI) can enhance their OMSC skills.

SUGGESTIONS

Implementing The Orientation Mobility Social Communication(OMSC) guidebook for students with Multiple Disabilities, including Visual Impairments (MDVI), based on the Universal Design for Learning framework, has undergone limited trials. Broader trials are recommended to evaluate the effectiveness of this application comprehensively. Findings from the research indicate that the development and utilization of the OMSC guidebook for MDVI students should continue to enhance their OMSC skills. Moreover, this guidebook should be applicable beyond a single school setting, incorporating a more comprehensive range of diverse content to address varying student needs.

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REFERENCES

Alfaathir, N. F. (2018). Kemampuan Komunikasi Anak MDVI (Multiple Disability with Visual Impairment) dalam Interaksi Sosial. *Jurnal pendidikan khusus*, *10*, 1-10.

Ambarish, S., Shirsand, S., Anandkumar, Y., & Shirsand, S. (2024). To study the effect of HPMC and Carbopol in mucoadhesive buccal tablets of Meclizine hydrochloride using Central Composite Design: In-vitro Characterization. *German Journal of Pharmaceuticals and Biomaterials*, *3*(1), 3-18.

Aneraye, A. V., Shirpurkar, S. K., DSER, N. D., Pandey, R. K., Ex-Director, C. R. C., & Warle, S. S. (2023). Study of Communication Ability of Visually Impaired Adults.

Afriani, A. (2023). *Pengaruh Dukungan Sosial Terhadap Kepercayaan Diri Penyandang Disabilitas Fisik Di UPT Pemberdayaan Penyandang Disabilitas Daksa Pekanbaru* (Doctoral dissertation, Universitas Islam Negeri Sultan Syarif Kasim Riau).

Argyropoulos, V., Kanari, C., Hathazi, A., Kyriacou, M., Papazafiri, M., & Nikolaraizi, M. (2020). Children With Vision Impairment And Multiple Disabilities: Issues Of Communication Skills And Professionals'challengeS. In *Proceedings of the International Conference on Education and New Developments* (pp. 271-275). inScience Press.

Bondok, M., Bondok, M. S., Selvakumar, R., El-Hadad, C., & Ing, E. (2024). Accessibility of United States ophthalmology hospital webpages to people with visual disabilities. *AJO International*, *1*(3), 100059.

Brades, M. K. (2023). Peran Guru Dalam Tumbuh Kembang Anak Tunanetra Majemuk di Yayasan Pendidikan Dwituna Rawinala Jakarta Timur. *Jurnal Ilmiah Wahana Pendidikan*, *9*(2), 351-361.

Creswell, J. W. (2010). Mapping the developing landscape of mixed methods research. *SAGE handbook of mixed methods in social & behavioral research*, *2*(0), 45-68.

Eliskar, N. R., Susetyo, B., Aprilia, I. D., & Hernawati, T. (2024). Meningkatkan Pemahaman Konsep Lingkungan Pada Anak Dengan Hambatan Penglihatan Melalui Program Orientasi Mobilitas, Sosial Dan Komunikasi Di Slbn A Citeureup. *Jurnal Pendidikan: Kajian dan Implementasi*, *6*(2).

Fitri, H. S., & Meiyani, N. Penerapan Teknik Time Out Terhadap Pengurangan Perilaku Agresif Peserta Didik MDVI. *JASSI ANAKKU*, *20*(1), 40-48.

Hatházi, A. (2022). Will we meet in the theatre?. *Symbolon*, *23*(Special), 105-112.

Hidayah, A. N. (2020). *MANAJEMEN KELAS PADA MADRASAH IBTIDAIYAH NEGERI 3 BANDAR LAMPUNG (Analisis Tentang Penerapan Prinsip-prinsip Manajemen Kelas)* (Doctoral dissertation, UIN Raden Intan Lampung).

Hidayati, N. A., Waluyo, H. J., & Winarni, R. (2020). Exploring the Implementation of Local Wisdom-Based Character Education among Indonesian Higher Education Students. *International Journal of Instruction*, *13*(2), 179-198.

Heryati, E., Rochyadi, E., Aprilia, I. D., Homdijah, O. S., Tarsidi, I., & Handayani, R. T. (2023). Meningkatkan Kemampuan Orientasi dan Mobilitas Anak Usia Dini Tunanetra melalui Permainan Petak Umpet yang Dimodifikasi. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, *7*(2), 2361-2372.

Usman, M. I. (2024). Peningkatan Kemampuan Orientasi Dan Mobilitas Melalui Teknik Melawat Mandiri Pada Muridtunanetra Kelas Ii Di Slb Abcd Muhammadiyah Palu.

Utomo, J. T. (2015, November). Universal design for learning: pengertian, prinsip, dan penerapan. In *Seminar Nasional Teknologi Pendidikan, Malang* (Vol. 14, pp. 703-711).

Isnan, J., & Banowati, E. (2024). Peningkatan Kesiapsiagaan Pada Siswa Tunanetra Berbantu Media Evarom-Net Di SLB Negeri 1 Sleman. *Edu Geography*, *12*(1), 50-67.

Handajani, R. P., & Laksmiwati, T. (2014). *Interior Ruang Kelas Pada Taman Kanak-Kanak Luar Biasa Tunanetra Di Malang Berdasarkan Pedoman Mobilitas Dan Orientasi* (Doctoral dissertation, Brawijaya University).

Lowenfeld, A. F. (2010). The International Monetary System: A Look Back Over Seven Decades. *Journal of International Economic Law*, *13*(3), 575-595.

Munawar, M., & Suwandi, A. (2013). Mengenal dan memahami Orientasi dan Mobilitas. *Jakarta: Pt. Luxima Metro Media*.

Oliynyk, N., Khmilyar, I., Rudakova, N., Klontsak, O., Shvab, M., & de Jong, N. (2024). Formation of communicative competence of massage therapists with visual impairments: A research study. *Heliyon*, *10*(18).

Orkwis, R., & McLane, K. (1998). A Curriculum Every Student Can Use: Design Principles for Student Access. ERIC/OSEP Topical Brief.

Pedzisai, E., & Charamba, S. (2023). A novel framework to redefine societal disability as technologically-enabled ability: A case of multi-disciplinary innovations for safe autonomous spatial navigation for persons with visual impairment. *Transportation Research Interdisciplinary Perspectives*, *22*, 100952.

Peltokorpi, S., Salo, S., Hart, P., Nafstad, A., Kajamies, A., & Laakso, M. (2024). Developing reciprocity between one-year-old children with visual impairment and additional disabilities and their mothers: The effects of bodily-tactile early intervention. *Learning, Culture and Social Interaction*, *48*, 100849.

Praditya, N. K. (2024). SEMAR sebagai Media Pembelajaran Orientasi Mobilitas Sosial Komunikasi (OMSK) untuk Meningkatkan Kemandirian Peserta Didik Tunanetra. *Ideguru: Jurnal Karya Ilmiah Guru*, *9*(2), 981-988.

Pristiwawaluyo, T., Srirahayu, U. F., & Umar, N. F. (2022). Peningkatan Keterampilan Independent Travel Melalui Prinsip Orientasi Mobilitas Pada Murid Tunanetra. *Indonesian Journal of Learning Education and Counseling*, *5*(1), 23-29.

Rizqita, A. J., Sunardi, S., & Bela, M. R. W. A. T. Development of Traluli Program of Family-Resourced Early Intervention for Multiple Disability and Visual Impairment (MDVI) Children with Fine Motor Impairment in Inclusive School. *Indonesian Journal of Community and Special Needs Education*, *4*(1), 65-74.

Rohmawati, N. (2022). Meningkatkan Kepatuhan Pada Anak MDVI Melalui Teknik Reinforcement Positif. *Jurnal Ilmiah Psikologi Candrajiwa*, *7*(2), 123-132.

Rudiyati, S., Sukinah, S., & Rahmawati, R. (2015). Identifikasi kebutuhan pembelajaran bagi anak multiple disabilities visualy impairment (MDVI) secara terpadu. *Jurnal Penelitian Ilmu Pendidikan*, *8*(2).

Sidiq, Z. (2016). Peranan Orang Tua Dalam Pengembangan Kompetensi Social Anak Tunanetra. *PEDAGOGIA*, *14*(3), 425-442.

Sugini, S., Sunardi, S., Martika, T., Prakosha, D., & Anwar, M. (2024). Pendampingan Pengembangan Program Kebutuhan Khusus Orientasi Mobilitas Sosial Komunikasi (OMSK) bagi Guru SLBN Boyolali sebagai Penyiapan Peserta Didik Berkebutuhan Khusus (PDBK) Tunanetra Mengakses Lingkungan. *SPEED Journal: Journal of Special Education*, *7*(2), 50-56.

Sugiyono. (2011). Metode Penelitian Kuantitatif, Kualitatif dan R&D. Bandung: Alfabeta.

Sundoro, T. G. (2020). Studi Pustaka Kemampuan Orientasi Dan Mobilitas Berbasis Peta Elektronik Pada Tunanetra. *Jurnal Pendidikan Khusus*, *15*(1).\

Sunanto, J. (2010). Pengembangan Konsep, Komunikasi, dan Gerak terhadap Anak dengan Hambatan Penglihatan yang disertai Hambatan Lain (MDVI). *JASSI ANAKKU*, *10*(2), 164-171.

Utomo, J. T. (2015, November). Universal design for learning: pengertian, prinsip, dan penerapan. In *Seminar Nasional Teknologi Pendidikan, Malang* (Vol. 14, pp. 703-711).

Yanti, M. G. D., & Asmawati, W. O. (2024). Upaya Pemenuhan Hak Bagi Anak Multiple Disabilities With Visual Impairment (MDVI) Di Yayasan Dwituna Rawinala Jakarta Timur. *Indonesian Journal of Science, Technology and Humanities*, *1*(3), 127-138.

Yaum, L. A. (2021). Metode Pembelajaran Berbasis Outbond terhadap Hasil Belajar Mata Kuliah Orientasi Mobilitas. *Jurnal Ortopedagogia*, *7*(1), 49-52.

Yaum, L. A., Mais, A., & Emyus, A. Z. (2023, July). The Use of Modification Audio Media in Recognition of Braille Letters Symbol on Multiple Disabilities with Visual Impairment (MDVI) Students. In *3rd International Conference on Education and Technology (ICETECH 2022)* (pp. 676-684). Atlantis Press.

Yudhiastuti, A., & Azizah, N. (2019). Implementation of Contextual Approach in Learning orientation and Mobility in Visual Impairment Students in SLB PGRI Sentolo. In *International Conference on Special and Inclusive Education (ICSIE 2018)* (pp. 55-60). Atlantis Press.