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ANALYSIS STUDY PERSPECTIVE LEARNING: GROSS MOTOR OF DEAF STUDENTS AT EXTRAORDINARY SCHOOL

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ABSTRACT

This study intends to determine the gross motor skills of deaf students at extraordinary schools using a survey method from a learning perspective. This is a quantitative descriptive study. This research was conducted at one of the schools in the city of Makassar, namely Public SLB 1 Makassar. The sample used in this study was 15 students using the Purposive Sample method. The data collection technique involved conducting a motor ability test, which included activities such as walking on a straight line for 5 meters, zigzag running for 15 meters, standing on one foot for 10 seconds, and jumping from a 15 cm block. The quantitative descriptive data analysis technique was employed. The results indicated that the gross motor skills of deaf children fell into the good category for 11 (73%), the sufficient category for 4 (27%), and the less category for 0 (0%). So it can be concluded that the gross motor skills of deaf students at Public SLB 1 Makassar are in the excellent category from a learning perspective, especially the PJOK subject.

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1. INTRODUCTION

Students with hearing loss, or deafblindness, face various developmental challenges, including in the aspect of gross motor skills (Sundqvist et al., 2023). Gross motor refers to a child's ability to control large body movements involving large muscles, such as running, jumping, throwing, and catching. This ability is crucial in daily life as it helps children participate in physical activities, play, and maintain body balance (Perreault et al., 2020; Almeida et al., 2021). In hearing-impaired students, limitations in hearing ability can affect their gross motor development. Therefore, it is important to analyze the gross motor skills of hearing-impaired students to understand the extent to which these limitations affect motor development and how appropriate interventions can help.

Gross motor development is a crucial aspect of a student's physical development. Gross motor is a physical movement that requires balance and coordination between limbs, using large muscles, parts, or all of the body (Sutapa & Suharjana, 2019; Rohmatin & Wulan, 2019). Good gross motor skills can impact the development of

other social, emotional, and cognitive abilities. Motor development theory states that the development of children's motor skills is inseparable from the interaction between genetic, environmental, and learning variables. In his theory of cognitive development, Piaget states that a child's motor development is closely related to his cognitive development (Pakpahan & Saragih, 2022; Ramesh, 2022). This is especially true during the sensory-motor phase, where children learn through physical interaction with the surrounding world.

Students with hearing loss experience limitations in the perception of auditory stimuli, which can affect the development of balance, spatial awareness, and body coordination (Carpenter & Campos, 2020). Due to limited vocabulary and slurred speech, the deaf face major obstacles in communication (Mudjiyanto, 2018; Heriyanti, 2020). This is because auditory information plays an important role in helping children understand their surroundings, including things like balance and body orientation. For example, noise and sounds from certain directions can help children adjust their posture and react more efficiently to environmental situations. Students with hearing loss tend to experience delays in the development of gross motor skills compared to children without hearing impairments (Alkhamra & Abu-Dahab, 2020). Despite these limitations, students with hearing impairments are also entitled to proper teaching so that their development and growth can go well, especially their movement or psychomotor development (Suhartini, 2011). Students with hearing loss often have difficulty performing activities that require balance, such as running or jumping. This is due to a lack of auditory feedback, which affects balance and coordination (Gursel, 2014).

Students' motor movement is a coordinated activity that necessitates a significant amount of appropriate stimulation. This stimulation can be provided by parents, teachers, and the environment both at home and school by providing a supportive learning environment for early childhood motor development (Fitriani & Adawiyah, 2018). When a mother stimulates her child, the child develops new motor skills and performs actions according to their abilities (Yanti & Fridalni, 2020). The environment provides opportunities for action, which people interpret through their perceptions. Hearing limitations can inhibit deaf students from understanding environmental facilities, especially those related to body movement and balance (Maher, 2021; Wolter et al., 2021). As a result, the development of gross motor skills in hearing-impaired students can be affected by reduced auditory sensory input.

Motor development is the result of a complex system in which each aspect influences the other (Haywood et al., 2011; Haibach-Beach et al., 2023). In hearing-impaired students, the absence of auditory information can disrupt this system, ultimately affecting their ability to coordinate body movements optimally (Fadare et al., 2024). An analysis of the gross motor skills of hearing-impaired students is essential to determining the right type of intervention to support their motor growth. Improving balance and coordination through physical therapy and exercises that involve large movements, such as gymnastics, dancing, or regular sports games, can help improve the gross motor skills of deaf students (Hartman et al., 2011; Irawan et al., 2023). These

exercises can be adapted to the child's abilities and limitations, and parents and teachers can play a role in creating an environment that supports the students motor development.

To compensate for the lack of auditory input, a multisensory approach can be used. This approach enhances tactile and visual stimulation. For example, participating in sports activities or games with visual cues can help deaf students understand instructions and better organize their body movements. According to research, implementing multisensory strategies can increase deaf students participation and engagement in physical activities (Van Staden, 2013; Lieberman & Haegele, 2019; Daza Gonzalez et al., 2023). Ultimately, this will have a positive impact on their gross motor development. Therefore, this study aims to determine the gross motor skills of deaf students in special schools from a learning perspective.

2. METHOD

This type of research employs a quantitative descriptive method. This research was conducted at public SLB 1 Makassar. The use of a quantitative approach is to obtain a general description so that researchers can focus on the meaning and description of the research subjects. The sample used in this study was 15 deaf students.

The data collection technique was carried out through a survey. The level of gross motor skills of deaf students in public SLB 1 Makassar was assessed using five test items. The data analysis technique was implemented in three steps or flows: 1) data collection activities, which involved recording and recording data; 2) grouping data according to groups, which facilitated problem solving and further data collection; and 3) the data presentation stage. This activity helps researchers better understand the gross motor development of deaf students and the process of drawing conclusions. In addition, the data is presented descriptively.

3. RESULTS AND DISCUSSION

Results

This study aims to determine the gross motor skills of deaf students in special schools from a learning perspective. The data for this study on the gross motor skills of deaf children in public SLB 1 Makassar were obtained through the use of measurement tools and tests.

The level of gross motor skills of deaf students in public SLB 1 Makassar was assessed using five test items. The test items included walking a straight line for five meters, running for five meters while avoiding five obstacles, standing on one foot for ten seconds, and jumping from a fifteen-centimeter-high beam. After the data was collected from each test, the test items were categorized to show the students' motor skills. Table 1 presents a description of each group's motor skills.

Table 1. Descriptive Data of Gross Motor Movement

Mean	Median	Mode	Std. Dev	Variance	Min	Max
12.13	13.00	15.00	2.199	4.838	08.00	15.000

Table 1 displays the descriptive results of gross motor movement from 15 children, with a minimum value of 8, a maximum value of 15, a mean of 12.13, a median of 13.00, a mode of 15.00, a standard deviation of 2.199, and a variance of 4.838. Furthermore, the following are the results of the analysis of gross motor skills in deaf students, presented in Table 2.

Table 2. Results of Analysis of Gross Motor Ability of Deaf Students

Gross Motor Skills	Score	Frequency	Percentage
Good	11-15	11	73 %
Medium	6-10	4	27 %
Less	1-5	0	0 %
Total		15	100

Table 2 shows that the gross motor skills of deaf students at SLB Negeri 1 Makassar meet the good category with a frequency of 11 students (73%), the sufficient category with a frequency of 4 students (27%), and none of the students are in the poor category. Figure 1 below displays data in the form of a graph of the gross motor skills of deaf students.

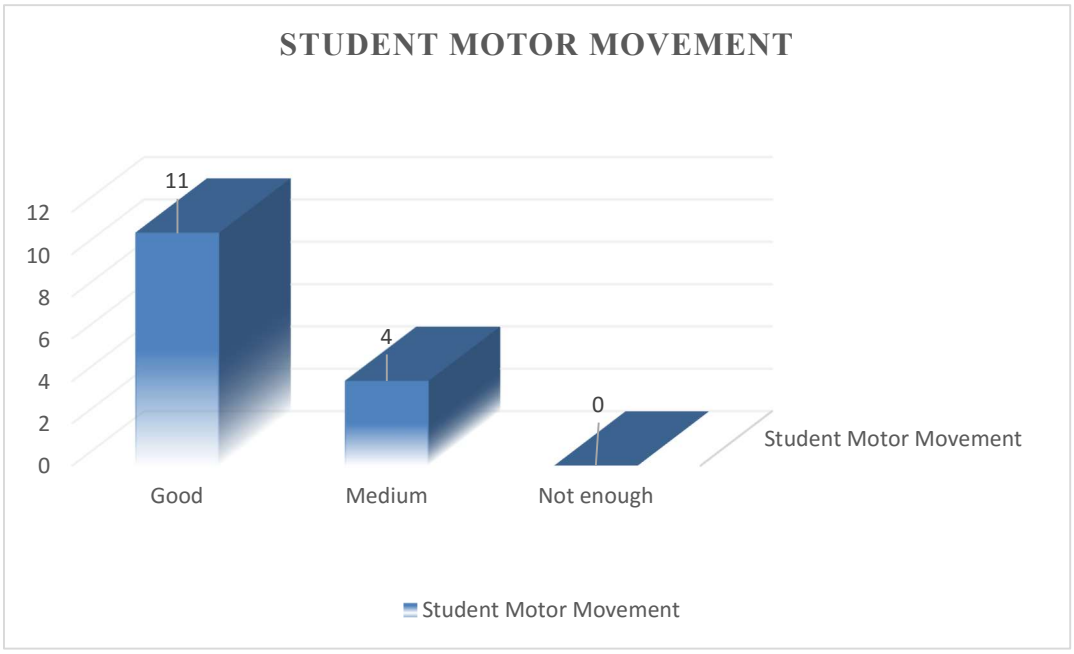

Figure 1. Gross motor skills of deaf students

Discussion

Deaf students at public SLB 1 Makassar have excellent motor skills. Their motor skills are, on average, comparable to normal children of the same age. The data indicates

that deaf students' gross motor development is not hindered by physical conditions that are like those of normal children. Deaf students struggle most with their sense of hearing. As a result, it will be extremely difficult for them to use other senses, such as vision, to process a large amount of information.

Different stages of ability exist for motor skills, ranging from young to old, from college level to secondary level, elementary level, and even in students as young as 4–5 years old (Brian et al., 2017; Rizki & Aguss, 2020; Bolger et al., 2021). Mechanisms involving muscles, nerves, and the brain facilitate the execution of gross motor activities. External stimuli cause movements that are responded to by the fine motor coordination center in the brain, which stimulates the motor nerves. The nerves then send signals to the muscles, causing movement. Deaf students experience problems with movement mechanisms due to weak sound stimulation (Zarei & Norasteh, 2023). Weak sound capture causes the students to be late in responding through movement. However, the gross motor skills of deaf students are not impaired like those of children with other disabilities, such as deafblindness (Sundqvist et al., 2023). This happens when stimuli appear and can be received properly.

Parents should support their child's motor development by giving them opportunities to experiment with the world around their home. Children are provided with means and facilities that support free mobility. Playing games of throwing and catching is one example of this, as parents today allocate a significant amount of time for their children to engage in play (Hartati et al., 2020).

Many factors can affect children's motor development, especially at the age of 0–6 years (Derikx et al., 2021). Children love to explore at this age. Children continue to enjoy playing and engaging in activities that involve movement without interruption. Environmental factors surrounding the child's home significantly influence their motor skills. If there are many children of the same age in the neighborhood, specifically those aged 3–6, they are more likely to prefer playing outside rather than staying indoors. Children's motor skills also need to be trained properly. To perform a motor activity, it requires the availability of quite a lot of energy (Jurimae & Jurimae, 2001; Gallahue & Donnelly, 2007). A well-developed gross motor provides many benefits, namely giving children the ability to master movements that are classified as difficult for people to do (Dini, 2022; Mohammad & Boushehry, 2023).

4. CONCLUSION

Based on the results of the analysis and discussion, it can be concluded that the gross motor development of deaf students at SLB Negeri 1 Makassar is in the excellent category. This shows that the gross motor skills of deaf children are in the good category as many as 11 (73%), the sufficient category as many as 4 (27%), and the lacking category as many as 0 (0%). These data show that the gross motor development of deaf students is not hampered by physical conditions like normal children. Deaf students have the most difficulty with their sense of hearing. As a result, it will be very difficult for them to use other senses, such as sight, to process large amounts of information.

We suggest that the results of this study can serve as a reference for improving the motor skills of deaf students, particularly in learning contexts. Furthermore, research can be conducted on a larger scale that includes the motor skills of children with special needs.

REFERENCES

Alkhamra, R. A., & Abu-Dahab, S. M. (2020). Sensory processing disorders in children with hearing impairment: Implications for multidisciplinary approach and early intervention. *International Journal of Pediatric Otorhinolaryngology*, *136*, 110154.

Almeida, M. B. D., Leandro, C. G., Queiroz, D. D. R., José-da-Silva, M., Pessoa dos Prazeres, T. M., Pereira, G. M., ... & Moura-dos-Santos, M. A. (2021). Plyometric training increases gross motor coordination and associated components of physical fitness in children. *European journal of sport science*, *21*(9), 1263-1272.

Bolger, L. E., Bolger, L. A., O'Neill, C., Coughlan, E., O'Brien, W., Lacey, S., ... & Bardid, F. (2021). Global levels of fundamental motor skills in children: A systematic review. *Journal of Sports Sciences*, *39*(7), 717-753.

Brian, A., Goodway, J. D., Logan, J. A., & Sutherland, S. (2017). SKIPing with teachers: An early years motor skill intervention. *Physical Education and Sport Pedagogy*, *22*(3), 270-282.

Carpenter, M. G., & Campos, J. L. (2020). The effects of hearing loss on balance: a critical review. *Ear and hearing*, *41*, 107S-119S.

Daza Gonzalez, M. T., Phillips-Silver, J., Maurno, N. G., García, L. F., & Ruiz-Castañeda, P. (2023). Improving phonological skills and reading comprehension in deaf children: A new multisensory approach. *Scientific Studies of Reading*, *27*(2), 119-135.

Derikx, D. F., Houwen, S., Meijers, V., Schoemaker, M. M., & Hartman, E. (2021). The relationship between social environmental factors and motor performance in 3-to 12-year-old typically developing children: a systematic review. *International journal of environmental research and public health*, *18*(14), 7516.

Dini, J. P. A. U. (2022). Deteksi dini motorik kasar pada anak usia 4-6 tahun. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, *6*(1), 558-564.

Fadare, S. A., Fadare, M. C., Adlawan, H. A., & Espino, A. I. G. (2024). Teaching Physical Education to Students with Hearing Impairments: An Approach to Physical Educators' Practices. *Sciences of Conservation and Archaeology*, *36*(3), 183-203.

Fitriani, R., & Adawiyah, R. (2018). Perkembangan fisik motorik anak usia dini. *Jurnal golden age*, *2*(01), 25-34.

Gallahue, D. L., & Donnelly, F. C. (2007). *Developmental physical education for all children*. Human Kinetics.

Gursel, F. (2014). Inclusive intervention to enhance the fundamental movement skills of children without hearing: a preliminary study. *Perceptual and motor skills*, *118*(1), 304-315.

Haibach-Beach, P. S., Perreault, M., Brian, A., & Collier, D. H. (2023). *Motor learning and development*. Human kinetics.

Hartati, S., Zulkifli, Z., & Hukmi, H. (2020). Analisis Kemampuan Motorik Kasar Anak Usia 5-6 Tahun di TK Pertiwi Kecamatan Pujud Kabupaten Rokan Hilir. *Jurnal Pendidikan Tambusai*, *4*(2), 931-938.

Hartman, E., Houwen, S., & Visscher, C. (2011). Motor skill performance and sports participation in deaf elementary school children. *Adapted physical activity quarterly*, *28*(2), 132-145.

Haywood, K. M., Roberton, M. A., & Getchell, N. (2011). *Advanced analysis of motor*

development. Human Kinetics.

Heriyanti, H. (2020). Metode auditory verbal therapy (AVT) dalam pengembangan kemampuan komunikasi anak tunarungu pengguna cohlear implant (CI) di sekolah inklusi aluna Jakarta selatan. In *Seminar Nasional Ilmu Pendidikan dan Multi Disiplin* (Vol. 3).

Irawan, B., Sumaryanti, S., & Ichsan, M. (2023). Effect of water game model on gross motor improvement of deaf children in SLB N Mesuji Lampung. *Int. J. Phys. Educ. Sports Health*, *10*, 211-214.

Jurimae, T., & Jurimae, J. (2001). *Growth, physical activity, and motor development in prepubertal children*. CRC Press.

Lieberman, L. J., & Haegele, J. A. (2019). Teaching children who are deafblind in physical education, physical activity and recreation. *The Routledge Handbook of Visual Impairment* (pp. 175-188). Routledge.

Maher, A. J. (2021). Disrupting phonocentricism for teaching Deaf pupils: prospective physical education teachers' learning about visual pedagogies and non-verbal communication. *Physical Education and Sport Pedagogy*, *26*(4), 317-329.

Mohammad, M., & Boushehry, H. R. (2023). The influence of using video media on basic movement skills in kindergarten. *Education and Information Technologies*, *28*(8), 9635-9654.

Mudjiyanto, B. (2018). Pola komunikasi siswa tunarungu di sekolah luar biasa negeri bagian B kota Jayapura. *Jurnal Studi Komunikasi Dan Media*, *22*(2), 151-166.

Pakpahan, F. H., & Saragih, M. (2022). Theory of cognitive development by jean Piaget. *Journal of Applied Linguistics*, *2*(1), 55-60.

Perreault, M., Haibach-Beach, P., Lieberman, L., & Foster, E. (2020). Relationship between motor skills, balance, and physical activity in children with charge syndrome. *Journal of Visual Impairment & Blindness*, *114*(4), 315-324.

Ramesh, S. (2022). The theories of cognitive development. In *The Political Economy of Human Behaviour and Economic Development: Psychology and Economic Development* (pp. 143-180). Cham: Springer International Publishing.

Rizki, H., & Aguss, R. M. (2020). Analisis Tingkat Pencapaian Perkembangan Motorik Kasar Anak Usia 4-5 Tahun Pada Masa Pandemi Covid-19. *Journal Of Physical Education*, *1*(2), 20-24.

Rohmatin, T., & Wulan, B. R. S. (2019). Kemampuan motorik kasar anak sekolah dasar berdasarkan perbedaan status ekonomi keluarga. *Premiere Educandum: Jurnal Pendidikan Dasar Dan Pembelajaran*, *9*(2), 172-180.

Suhartini, B. (2011). Merangsang motorik kasar anak tuna rungukelas dasar sekolah luar biasa melalui permainan. *Jurnal Pendidikan Jasmani Indonesia*, *8*(2).

Sundqvist, A. S., Wahlqvist, M., Anderzén-Carlsson, A., & Olsson, E. (2023). Interventions for children with deafblindness—An integrative review. *Child: Care, Health and Development*, *49*(3), 407-430.

Sutapa, P., & Suharjana, S. (2019). Improving gross motor skills by gross kinesthetic-and contemporary-based physical activity in early childhood. *Jurnal Cakrawala Pendidikan*, *38*(3), 540-551.

Van Staden, A. (2013). An evaluation of an intervention using sign language and multi-sensory coding to support word learning and reading comprehension of deaf signing children. *Child Language Teaching and Therapy*, *29*(3), 305-318.

Wolter, N. E., Gordon, K. A., Campos, J., Madrigal, L. D. V., Papsin, B. C., & Cushing, S. L. (2021). Impact of the sensory environment on balance in children with bilateral cochleovestibular loss. *Hearing Research*, *400*, 108134.

Yanti, E., & Fridalni, N. (2020). Faktor yang mempengaruhi perkembangan motorik anak

usia prasekolah. *Jurnal Kesehatan Medika Saintika*, *11*(2), 225-236.

Zarei, H., & Norasteh, A. A. (2023). Effects of proprioception and core stability training followed by detraining on balance performance in deaf male students: a three-arm randomized controlled trial. *Somatosensory & Motor Research*, *40*(2), 47-55.