Original Article

Survey on the Application of Assistive Technology in Physical Education

ALIT RAHMAT[1], ASEP SUMPENA[1], TETEN HIDAYAT[1]

[1]Physical Education Health and Recreation Study Program, University Pendidikan Indonesia, INDONESIA

Abstract
Introduction: Blind students need special services to learn skills that peers usually know; these services include skills in academic matters, orientation and mobility, socio-emotional development, independent living, recreation, career education, sensory efficiency, self-determination, and assistive technology, how important physical education teachers need the assistive technology training needs to get attention. **Purpose:** This study aims to determine whether assistive technology training in physical education for physical education teachers in Bandung is necessary or not. **Methods:** The study used a survey method using a questionnaire. This research is quantitative descriptive—the sampling technique used cluster random sampling technique. The research sample is all physical education teachers who are in the Bandung City environment totaling 100 teachers. The instrument used in this research is a simple questionnaire consisting of five survey questions. The data analysis technique used is quantitative descriptive statistics. **Results:** This study showed that 66% knew assistive technology, 25% said that assistive technology had been applied to physical education learning in schools in Bandung City, 18% said they had attended assistive technology training, 98% of physical education teachers could understand assistive technology after attending this training, and 98% of physical education teachers can add insight related to the implementation of assistive technology in physical education in the city of Bandung. **Conclusions:** The use of assistive technology in physical education learning can support learning to be more effective, and the creativity of physical education teachers is needed when making effective and efficient assistive technology. Therefore, massive assistive technology training is required for physical education teachers.

KeyWords: blind, assistive technology, orientation, mobility, physical education, disability

Introduction

It is common knowledge that blind people often experience challenges, both physical and functional barriers, that limit them from participating in their lives to the fullest. Even in certain situations, they are often associated with negative perceptions of their disability and often experience discrimination (Louvet E, 2007). In everyday life, the appearance of a blind person who is different from ordinary people can make him feel inferior, even though he cannot see the environment. Still, he often feels ashamed (Somantri, 2006). In some communities, the deficiency in one part of the body of a blind individual can affect the individual as a whole (Tentama, 2010). Discrimination and judgment are also influenced by the type of disability (Santos et al. 2020). According to Louvet (2007), mental and sensory disorders, such as visual impairment, are more often associated with negative perceptions than physical disabilities. In general, the main problems faced by individuals with visual impairment or loss of vision result in three severe limitations: the variety and type of experience, the ability to move and interact with their social and emotional environment. (Lowenfeld in Sunanto, 2005 p.47).

Blind students need special services to learn skills that peers usually know; these include skills in academic matters, orientation and mobility, socio-emotional development, independent living, recreation,

Corresponding Author: ALIT RAHMAT, E-mail: alitrahmat@upi.edu

----

career education, sensory efficiency, self-determination, and assistive technology (Hatlen, 1996). In the context of education, one of the significant needs of blind students is the need for mobility, which is a non-negotiable need and must be possessed by blind students as a skill that must be integrated into the blind. However, the problem now is that the ability to perform mobility cannot automatically be mastered by the blind but must go through a long, systematic training process and the opportunity to move and move in the environment. Thus, an effort is needed from the school environment to provide services that lead to efforts to eliminate the boundaries that cause limitations for blind students. One of these efforts is the birth of assistive technology. Assistive technology is hardware (equipment) and software or product systems designed to be modified or directly used to help improve, maintain, or improve the functional abilities of people with disabilities. Some assistive technology provides physical assistance, while others offer helpful assistive devices for individuals with learning disabilities. In general, these types of adaptive technology products can be grouped into two kinds of tools, namely; First, adaptive technology related to the interests of daily life activities, which was developed based on compensatory students with disabilities, and secondly adaptive technology related to learning (academic), developed based on the needs of students with disabilities following the compensation they have in various educational activities at school.

The effect of assistive technology on students with disabilities is positive. However, to achieve it requires knowledge on the user's part (Merbler, Azar, & Ulman, 1999). In its development, the use of assistive technology did not increase over the five years (2000-2004), and that parental involvement and educational placement significantly impacted the use of assistive technology. Many barriers can contribute to the lack of assistive technology use, including cultural attitudes or biases towards technology (Carey, DelSordo, & Goldman, 2004), personal attitudes (Zascavage & Keefe, 2004) lack of resources (Lahm, 2003; Lee & Vega, 2005).) and lack of teaching time (Collier, Weinburgh, & Rivera, 2002). However, the literature reveals that the most prominent barrier to the use of assistive technology may be the lack of technology skills among qualified professionals, particularly teachers of visually impaired students (Abner & Lahm, 2002; Candela, 2003; Lee & Vega, 2005; Zascavage & Keefe, 2004). Several researchers have documented that teachers of blind students report that they do not feel competent enough to teach their students to use assistive technology (Abner & Lahm, 2002; Edwards & Lewis, 1998; Kapperman et al., 2002; Zhou, Ajuwon, et al., 2012; Zhou, Parker, Smith, & Griffin-Shirley, 2011; Zhou, Smith, Parker, & GriffinShirley, 2011), Ajuwon, et al. (2012). Unfortunately, research funding for visually impaired students has long been underfunded (Corn & Ferrell, 2000; Mason, Davidson, & McNerney, 2000). This training intends to provide additional knowledge and skills for adaptive physical education teachers who teach in special schools (Sekolah Luar Biasa/SLB) or inclusive schools so that they can carry out the teaching and learning process more optimally and provide motivation for these teachers to be able to make simple assistive technology that can be applied. In the teaching and learning process.

Material & methods

This research is quantitative descriptive. According to Sugiyono (2017, p.147), descriptive analysis is used to describe or describe the data that has been collected as it is. Therefore, the method used in this research is a survey method using a questionnaire as the instrument.

Participants

The population in this study was physical education teachers in Bandung, totaling 135 high schools, 125 vocational schools, and 264 junior high schools, so there were 524 secondary schools in Bandung (https://data-school.school-kita.net /kabupaten-kota/Kota%20Bandung_74). The research sample was 100 high school physical education teachers in Bandung, which was selected using a cluster random sampling technique. Therefore, the sample used was 100 physical education teachers.

Instruments

The instrument used in this study is a questionnaire; there are two answer choices in the questionnaire using a nominal scale, namely. On this nominal scale, the researcher will group objects, either individuals or groups, into certain categories symbolized by specific labels or codes. i.e., "Yes" or "No" answers. The statements contained in the questionnaire are as follows:

Table 1. List of questionnaire statements

No.	statements	Yes	No
1	Are you familiar with Assistive Technology		
2	If yes, has assistive technology been applied in your school		
3	Have you ever received training on Physical Education Assistive Technology Training		
4	Do you understand assistive technology in physical education after attending this training		
5	Will you become knowledgeable about assistive technology in physical education by participating in this training?		

Data analysis

Data analysis in this survey research utilizes data that is processed automatically contained in Google Form so that the information is in the form of percentages and pie charts..

Results

Based on the data obtained in this survey research, that 34% of physical education teachers are not familiar with assistive technology, while 66% of physical education teachers are familiar with assistive technology, as shown in Fig. 1
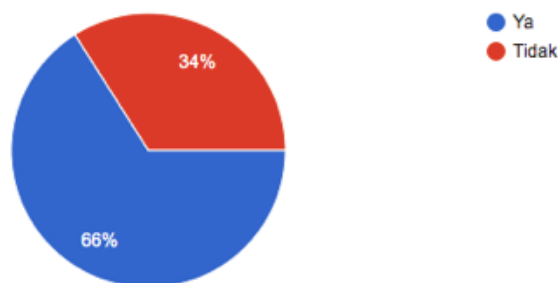

Figure 1. Pie chart statement about assistive technology

25% of physical education teachers have applied assistive technology in learning physical education in their respective schools. In comparison, 75% of physical education teachers have not used this assistive technology, as shown in Fig. 2. Furthermore, 82% of physical education teachers in Bandung have never received training on assistive technology training in physical education. In comparison, 18% have received training on the application of assistive technology, and even then dominated by physical education teachers who teach in special schools or inclusive category schools, as seen in Fig. 3.
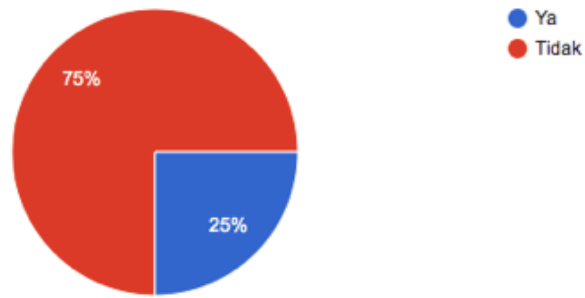
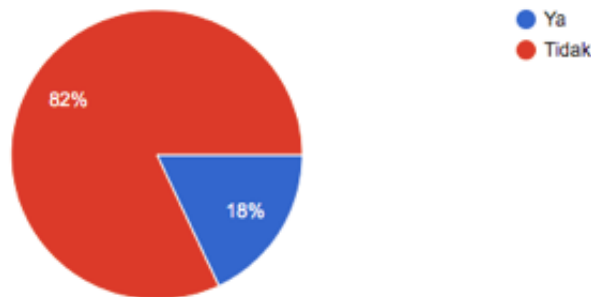Figure 2. Pie chart Technology has been implemented at school

Figure 3. Pie chart statement whether or not you have received assistive technology training in physical education learning

As many as 98% of physical education teachers who participated in assistive technology training stated that they became more aware of the application of assistive technology in learning physical education at school, but only 2% indicated that they did not understand it, as shown in Fig.4
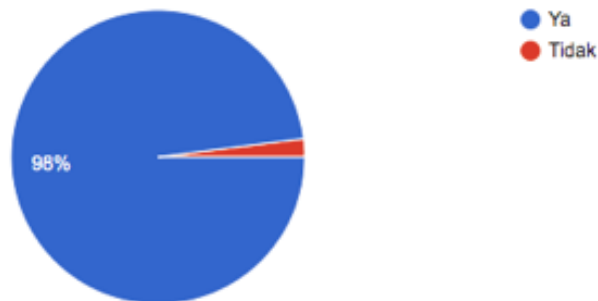

Figure 4. Pie chart statement of understanding of assistive technology after attending training on the application of assistive technology in physical education
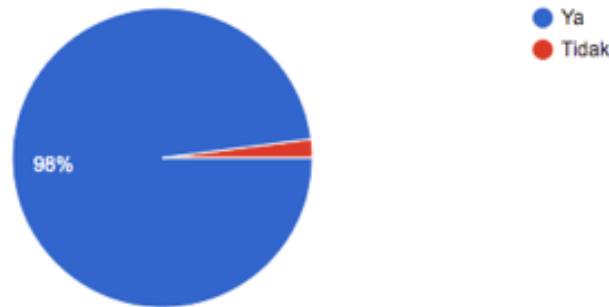
61

Figure 5. The statement pie chart adds insight after attending training related to the use of assistive technology in physical education

In Fig.5, it can be seen that 98% also stated that they gained insight after attending training related to the use of assistive technology in physical education. Still, only 2% said they did not.

Dicussion

Assistive technology training can help adaptive physical education teachers in special schools and adaptive physical education teachers in inclusive schools. Assistive technology can overcome some of the obstacles experienced by teachers and students in the teaching and learning process of physical education. Sources for assistive technology can be obtained from elementary materials to more complex materials, from cheap materials to expensive materials, from materials easily obtained within the school environment to materials obtained outside the school environment. The effectiveness and efficiency of assistive technology do not always lie in the price of the material but instead in the utilization of the function of the assistive technology. Teacher creativity is needed in making effective and efficient assistive technology.

Conclusions

Based on the results of this training, the conclusions that can be obtained include (1) The use of assistive technology in learning physical education learning can support learning to be more effective, and (2) The creativity of physical education teachers is very much needed when making assistive technology that is effective and efficient.

Conflicts of interest

In this article, the author declares no potential conflicts of interest concerning copyright, publication, and research.

References:

Abner GH, Lahm EA. Implementation of assistive technology with students who are visually impaired: teachers' readiness. *Journal of Visual Impairment & Blindness,*2002;*96*(2), 98–105.

Ajuwon PM. Making inclusive education work in nigeria: evaluation of special educators' attitudes. Disability Studies Quarterly 2012;32(2) .

Lee Y. Vega L. Perceived knowledge, attitudes, and challenges of AT use in special education. Journal of Special Education Technology. 2005;20(2):60–63.

Collier S, Weinburgh M, Rivera M. Infusing technology skills into a teacher education program: change in students' knowledge about and use of technology. Journal of Information Technology for Teacher Education. 2002;12(3).

Kapperman et al. Survey of the use of Assistive Technology by Illinois Students who are Visually Impaired,

Journal of Visual Impairment & Blindness. 2002;96(2).

Louvet E. Social judgment toward job applicants with disabilities: perception of personal qualities and competences. Rehabil Psychol. 2007;52(3):297–303.

Mason C, Davidson R, McNerney C. 2000. National plan for training personnel to service children with blindness and low vision. Reston, VA: Council for Exceptional Children.

Merbler JB, Azar H, Ulman J. Using assistive technology in the inclusive classroom. Preventing School Failure. 1999; 43(3). ISSN 1045-988X

Zascavage VT, Keefe CH. 2004. Students with severe speech and physical impairments: opportunity barriers to literacy. sagepub.com

Zhou, Parker, Smith, Griffin S. Assistive technology competencies for teachers of students with visual impairments: a national study. Journal of Visual Impairment & Blindness. 2011;106(10):656-665.

https://data-school.school-kita.net /kabupaten-kota/Kota%20Bandung_74 (Visited 28 August 2021)