



THE EFFECTIVENESS OF SELF-DIRECTED LEARNING BY USING GROUP WORKSHEET IN SCIENCE SUBJECTS FOR HEARING IMPAIRED STUDENTS

Permata Primadhita Nugraheniⁱ, Abdul Salim, Sunardi

Sebelas Maret University Surakarta, Indonesia

Abstract:

The aim of this research is to determine the effectiveness of self-directed learning by using group worksheet in science subjects for hearing impaired students. This is a quantitative research. Method used in this research is pre-experimental method and its design is one group pretest-posttest design. This design uses one or a group of subject that is given pretest before treatment and it is given posttest after treatment. Subject used in this research is 4 hearing impaired students in SLB B YRTRW Surakarta. Data is collected by using simple essay test. Data analysis technique used is Wilcoxon Sign Rank Test and it is processed by using SPSS version 22. Result of this research shows that mean of self-directed learning by using group worksheet after treatment is 78.75. It is higher than result of pretest, namely 43.75. Based on the data analysis, the value of Z is -2.000 with Asymp. Sig (2-tailed) is 0.046 on significance level (α) is 0.05 or 5%. It can be concluded that there is positive effect on the implementation of self-directed learning by using group worksheet in science subjects for hearing impaired students in SLB-B YRTRW Surakarta.

Keywords: self-directed learning, group worksheet, hearing impairment

1. Introduction

Education is very important and main aspect in life. Every individual has right to obtain education without exception. Every children has right to receive proper education without considering their social status, economic level, or gender. This

ⁱ Correspondence: email permata196@gmail.com

statement is in line with Indonesia Constitution 1945 article 31 paragraph 1 that states *“every citizen has right to receive education”*.

It is also for children with special needs. They have right to receive proper education to maximize their skill to live their life ignoring disability that they have. It is supported by Regulation of Indonesia no. 20 Year 2003 article 5 paragraph 2 that states *“Citizens with physical, emotional, intellectual, and/or social disorder have right to receive special education”*.

Children with special needs in Indonesia are divided into some groups and one of them is hearing impairment. Children with hearing impairment are children suffering loss hearing either total or partial and it causes the children hard to obtain information and difficult to communicate. Hearing impairment is divided into two groups, namely total hearing loss and partial hearing loss. According to Dwijosumarto (1995: 35-36) hearing impairment is a condition of hearing loss causing someone cannot obtain any senses especially from hearing sense.

Children with hearing impairment have difficulty in their lives. The difficulty will affect their daily activity, e.g. low language ability, low socialization ability, sensitive, low learning achievement, and difficult to receive new concept due to their limited vocabulary.

Science is knowledge studying about nature and environment. Based on Asy'ari (2006: 7), science is human knowledge about nature obtained through a systematic way. To develop science academic achievement, it is needed an interesting learning for students in order to raise their learning achievement. In this research, self-directed learning by using group worksheet is used to develop the learning achievement.

Self-directed learning according to Rusman (2012: 359) is students' ability and desire to learn based on their initiative, with or without others help either to set learning objective, learning method, or learning evaluation. This self-directed learning trains students to be responsible of what they will obtain and also to look for relevant learning source. Self-directed learning or self- directed learning according to Knowles (1975, p. 18) in (Karakas & Manisaligil, 2012: 713) is a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes.

Self-directed learning for this research used worksheet to be conducted in group. Based on Trianto (2007: 73), worksheet or students' worksheet is students' guide used to do activity or problem solving. This worksheet is done in group or individually.

From the elaboration above, it can be drawn a research problem, namely to develop academic achievement of science subjects of hearing impaired students by using self-directed learning group worksheet. From the research problem, the objective of this research is obtained, namely: to determine the effectiveness of self-directed learning by using group worksheet in science subjects for hearing impaired students.

2. Research Method

2.1 Participants

Population in this research is all students with hearing impairment in SLB-B YRTRW Surakarta. Sample used is four students with hearing impairment. Those students are included in severe hearing impairment with loss hearing degree is 80 – 180 dB.

2.2 Instrumentation and Procedures

This research is conducted in SLB-B YRTRW Surakarta located in Jl. Gumunggung RT 01/12 Gilingan Surakarta, Indonesia. This is a quantitative research using pre-experiment method. Design for this research is one group pretest-posttest design. One group of hearing impaired students is given treatment by using experiment method through self-directed learning group worksheet in certain period of time. Measurement is done both before and after treatment to determine the difference between result of first measurement (pretest) and final measurement (posttest).

Data is collected by using test, namely 20 questions of simple essay test. Statistic non parametric is used as data analysis technique by using Wilcoxon Sign Rank Test. This statistic technique is used because the data is non-parametric and the sample is in small amount, namely less than 25.

3. Result

Result from analysis of the effectiveness of self-directed learning by using group worksheet in science subjects for hearing impaired students by using analysis tool SPSS 22 with Wilcoxon Sign Rank Test technique is obtained. Data analysis of pretest and posttest of self-directed learning by using group worksheet for hearing impaired students are as follows.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Pretest	4	40	50	43.75	4.787
Posttest	4	75	85	78.75	4.787

Table 1: Descriptive Score of Pretest and Posttest of self-directed learning by using group worksheet

From the descriptive analysis, it is obtained mean of pretest by 43.75 and posttest by 78.75. This result shows that there is improvement in self-directed learning by using group worksheet in science subjects for hearing impaired students.

Result from test analysis data of pretest and posttest of self-directed learning by using group worksheet in science subjects for hearing impaired students is as follows.

Test Statistics ^a	
	posttest - pretest
Z	-2.000 ^b
Asymp. Sig. (2-tailed)	.046
a. Wilcoxon Signed Ranks Test	
b. Based on negative ranks.	

Table 2: Result from data analysis by using Wilcoxon Sign Rank Testinter pretest and posttest of self-directed learning by using group worksheet in science subjects for hearing impaired students

The result from descriptive analysis, it is obtained mean of pretest as 43.75 and post-test as 78.75. It tells that there is improvement. Result from statistical analysis is obtained as $Z = -2.000$ while $\text{Asymp. Sig (2-tailed)} = 0.046$ is lower than 0.05. It means that there is significant different between pretest and posttest for using self-directed learning group worksheet on science subjects for hearing impaired students.

4. Discussion

Result of hypothesis test shows that there is improvement on academic achievement through self-directed learning by using group worksheet in science subjects for hearing impaired students in SLB-B YRTRW Surakarta. From this result, it can be known that the using of self-directed learning by using group worksheet can improve academic achievement in science subjects of hearing impaired students.

Fact shows that by using group worksheet, students will encourage each other. Students with difficulty to answer will affect by other students to try to get the correct

answer. Besides, through interaction between students, they will understand discussed material easier. From their group worksheet, students will be guided to discuss with another students. Students who have not understood yet will be helped by those who have already understood. This interaction makes students understand more about materials. Students' involvement in group affects students with low ability to be more active. Group worksheet makes students communicate frequently to share ideas. This condition gives advantages for students. In self-learning, students will obtain strategy of how to communicate properly and how to get correct answer through discussion.

Indeed, hearing impaired students have weakness. However, they will be enthusiast to do group activities because they have their own language that can be understood among them only. Through this group activity, they can discuss and help each other by using their own language, so that the material will be delivered well.

Children with hearing impairment have difficulty to receive information due to their hearing loss. They need suitable learning model to improve their learning achievement, including science subjects. In science, suitable learning model is needed to do exercises. Through self-learning, students can explore their potential and they can practice to learn independently. As stated by Nazlely (2011), self-directed learning or self-directed learning is knowledge development, skill, achievement, or selected self-development done by an individual through any way and any time. From this explanation, this learning model can improve students' skill through any way they want.

According to Johnson (2009: 153), self-directed learning is a learning process guiding students to do individual activity by involving at least one person, sometimes one group. This individual activity is created to associate academic knowledge with their daily live to reach meaningful purposes.

Learning is also supported by suitable facility and atmosphere. In self-directed learning activity, teachers are requested to be more creative to support the implementation of self-directed learning activity. As mentioned by Handayani, Dantes, and Suastra (2013), self-directed learning model is effective to be implemented in science subjects separately or continuously to improve individual learning and students' academic achievement. One strategy in this self-directed learning is by using group worksheet. In this case, worksheet can help students to give more understanding about material.

As mentioned by Hamdani (2011:74) worksheet or students' worksheet is a learning tools as a complement or supported tool; worksheet is in the form of sheet of paper contained either information or questions for students. Because of this reason, the use of worksheet can support students to give more understanding about material in

science, so that their learning achievement can be developed. This is also in line with statement from Yunitasari (2013) mentions that the use of worksheet or students' worksheet can improve students' academic achievement in science.

There are advantages in using group worksheet as mentioned by Ratna (2004), namely: 1) Make students to be more active, 2) Force students to reach expected basic competence, 3) Make students' condition to be more democratic, so that the students can be more enthusiast in learning, 4) Train and develop students' learning strategy to study independently, and 5) Teachers can determine how for their students' academic achievement through examined worksheets. Worksheet can trigger students to be more active and can develop their potential.

Self-directed learning using group worksheet is good to be implemented because of students' interest in doing learning activity together or in group. It is better to deliver material in an interesting condition by using simple language. In this case, self-directed learning by using group worksheet is more interesting for students and they will be more enthusiasts to learn, so their academic achievement improves.

5. Conclusion

Based on the result above, it can be drawn that there is improvement on academic achievement of self-directed learning by using group worksheet in science subjects for hearing impaired students in SLB-B YRTRW Surakarta Indonesia. In the other words, self-directed learning by using group worksheet in science subjects for hearing impaired students is effective to be implemented to improve academic achievement.

References

1. Asy'ari Maslichah. (2006). *Penerapan Pendekatan Sains-Teknologi-Masyarakat Dalam Pembelajaran Sains Di Sekolah Dasar*. Yogyakarta. Universitas Sanata Darma.
2. Dwidjosumarto, Andreas. 1995. *Ortopedagogik Anak Tunarungu*. Bandung: DEPDIKBUD DIRJEN DIKTI Proyek Pendidikan Tenaga Guru.
3. Hamdani. 2011. *Strategi Belajar Mengajar*. Bandung: Pustaka Setia.
4. Handayani, N.N.L., Dantes, N., Suastra, I.W. 2013 *Pengaruh Model Pembelajaran Mandiri Terhadap Kemandirian Belajar Dan Prestasi Belajar Ipa Siswa Kelas Viii Smp N 3 Singaraja*. Singaraja : Universitas Pendidikan Ganesha
5. Johnson, Elani.B. 2009. *Contextual Teaching and Learning* (terjemahan). Jakarta: Mizan.

6. Knowles MS. 1975. *Self-directed learning: a guide for learners and teachers*. Parsippany. New Jersey: Globe Fearon.
7. Nazlely. 2011. Perbedaan *Self Directed Learning* Ditinjau Dari Pola Pembelajaran *E-Learning* Pada Mahasiswa Universitas Sumatera Utara. Universitas Sumatera Utara.
8. Sugiyono. 2009. *Metode Penelitian Pendidikan (Pendekatan Kuantitatif, Kualitatif, dan R&D)*. Bandung: Alfabeta.
9. Rusman. 2012. *Model – Model Pembelajaran*. Jakarta. RajaGrafindo Persada.
10. Trianto. 2007. *Model-model Pembelajaran Inovatif Berorientasi Konstruktivistik*. Jakarta: Prestasi Pustaka.
11. Yunitasari, H.U. 2013. Pengembangan Lembar Kerja Siswa (Lks) Ipa Terpadu Berpendekatan Sets Dengan Tema Pemanasan Global Untuk Siswa SMP. Semarang. Universitas Negeri Semarang

Creative Commons licensing terms

Authors will retain the copyright of their published articles agreeing that a Creative Commons Attribution 4.0 International License (CC BY 4.0) terms will be applied to their work. Under the terms of this license, no permission is required from the author(s) or publisher for members of the community to copy, distribute, transmit or adapt the article content, providing a proper, prominent and unambiguous attribution to the authors in a manner that makes clear that the materials are being reused under permission of a Creative Commons License. Views, opinions and conclusions expressed in this research article are views, opinions and conclusions of the author(s). Open Access Publishing Group and European Journal of Special Education Research shall not be responsible or answerable for any loss, damage or liability caused in relation to/arising out of conflict of interests, copyright violations and inappropriate or inaccurate use of any kind content related or integrated on the research work. All the published works are meeting the Open Access Publishing requirements and can be freely accessed, shared, modified, distributed and used in educational, commercial and non-commercial purposes under a [Creative Commons Attribution 4.0 International License \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/).