Traditional Game Based Learning Model: Can it be applied in increasing the movement of mentally retarded children?

Merlina Sari[1], Novri Gazali*[2], Daharis[3], Agus Sulastio[4], Rola Angga Lardika[5]
*{*novri.gazali@edu.uir.ac.id}*

[1,2,3] *Departement of Physical Education Health and Recreation, [Universitas Islam Riau]*
[4,5] *Departement of Physical Education Health and Recreation, [Universitas Riau]*

Abstract. The purpose of this study is to develop a traditional game-based learning model for children with special needs. It is hoped that this learning model can help teachers improve the competencies of children with special needs in accordance with the curriculum in SLB such as walking, running and jumping. This research is a research and development (Research and Development). The type of data obtained in this research and development is quantitative data. The subjects in this study were mild mentally retarded children. Small-scale trials were carried out at SLB Kasih Ibu Pekanbaru and large-scale trials were conducted at SLB Negeri Pembina Pekanbaru. The second data collection instrument used is the value scale. Data analysis technique used in this research is descriptive data analysis. Descriptive data analysis technique used is quantitative descriptive data analysis, this analysis is carried out to analyze the data of observations of physical education learning experts, adaptive sports experts, teachers and media experts on the quality of draft models that are prepared and analyzed by experts before conducting field trials. . From the results of the study, it can be said that with traditional games can be used as an approach in providing learning or basic motion exercises for mentally disabled children.

Keyword : Study, Research, Development

1. Introduction

Every Indonesian citizen has the right to receive proper education including children with special needs. Children with special needs go to special schools such as Extraordinary Schools (SLB). Extraordinary School (SLB) is a formal educational institution that serves education for children with special needs [1]. The purpose of SLB is not only to fulfill the goal of national education, but also to explore the abilities of students with special needs optimally [2].

The subjects taught in SLB are the same as those normally taught in schools in general, one of which is physical education, sports, and health. In the SLB curriculum content in competency standards that are doing basic movements in simple games, including: (1) doing basic movements of the road, running, and jumping in simple games, (2) doing basic movements of turning, swinging and bending in simple games, (3) do basic throwing and catching movements, (4) do standing posture, (5) do posture in the walking position, (6) do

ICASI 2020, June 20, Medan, Indonesia

DOI 10.4108/eai.20-6-2020.2300689

static basic balance motion without tools, and (7) practice rhythmic motion with music. Children with special needs discussed in this study are mentally disabled children.

The mentally disabled child is one of the children with special needs who experience mental retardation, this is because the brain development and nerve function are not perfect [3]. Children with mental disabilities experience deficiencies in mental, social and conceptual adaptation skills, which are at a meaningful level, at an early age [4]. Some peculiarities that exist in mentally disabled children require patience and a lot of repetition [4].

Based on the above, mentally disabled children really need games to be able to improve their competencies such as walking, running and jumping. Saleh., Nugraha & Nurfitriani said that the game is something fun and exciting because the game satisfies our exploration drive [5]. Whereas Siregar., Budiningsih & Novitasari said that the game is a form of recreation that aims to have fun, fill in spare time, or exercise lightly. [6]. The benefits of games for children can be a primary educational tool for physical and spiritual growth [7], through play activities children can achieve physical, intellectual, emotional and social development [8], further benefits of the game are a) developments in physical aspects, b) social aspects development, c) fine and gross motor development, d) emotional and personality development, e) cognitive development, f) sharpening sensing acuity, g) developing sports skills and dancing, h) therapeutic media, i) intervention media [5].

The game is divided into two, namely traditional games and modern games. In this study the researchers only discussed traditional games because it was believed that traditional games could increase the competency of children with special needs in accordance with the curriculum in SLB such as walking, running and jumping. Traditional games are children's games made from simple materials according to cultural aspects of people's lives [9]. Meanwhile According to Mahendra in Burhaein [10], traditional game is a form of game and or sport activity that develops from a certain community's habits. Burhaein's research states that traditional games contribute effectively to character formation in learning through manipulative and locomotor movement skills [10].

The purpose of this study is to develop a traditional game-based learning model for children with special needs. It is hoped that this learning model can help teachers improve the competencies of children with special needs in accordance with the curriculum in SLB such as walking, running and jumping.

2. Methodology

2.1 Types of research

This research is a research and development (Research and Development). According to Borg and Gall there are 10 stages of R&D research as follows: (1) a preliminary study, (2) analyzing the information that has been collected, (3) developing the initial draft, (4) validating the initial draft, (5) scaling field tests small, (6) revisions, (7) large-scale field tests, (8) final revisions, (9) manufacture of final products, and (10) dissemination and implementation of final products [11].

2.2 Research Locations

This research was conducted in two Extraordinary Schools (SLB) located in Pekanbaru City, Riau Province, Indonesia. These SLBs are Pekanbaru Mother's Love SLB and Pekanbaru

Public Assistance SLB. Pekanbaru Mother's Love SLB was conducted for small-scale trials, while the Pekanbaru Public Assistance SLB was conducted for large-scale trials.

2.3 Collection Techniques

The type of data obtained in this research and development is quantitative data. Quantitative data were obtained from: (a) material expert assessments of traditional game-based learning models, and (b) teacher assessments of the effectiveness of traditional game-based learning models. The subjects in this study were mild mentally retarded children.

The second data collection instrument used is the value scale. The value scale is used to assess the feasibility of traditional game-based learning models developed before the implementation of small-scale trials, after experts assess that traditional game learning is in accordance with the elements in the value scale, new traditional game-based learning models can be tested in trials small scale. There are ten rating formats for each game, different with different game goal indicators in each game. The assessment system in the assessment format consists of four assessment criteria: the child can do the movements correctly, get a score of 3, the child can do the movements themselves but is not yet perfect to get a score of 2, the child can do the movements with the help of getting a score of 1, and the child cannot make the movements get score of 0.

2.4 Data Analysis

Data analysis technique used in this research is descriptive data analysis. There are two kinds of descriptive data analysis techniques performed, the first is quantitative descriptive data analysis, this analysis is conducted to analyze the data of observations of physical education experts, adaptive sports experts, teachers and media experts on the quality of draft models that are prepared and analyzed by experts before the trial run in the field. The second data analysis is descriptive qualitative data analysis, this analysis is carried out on the data of observations of physical education experts, adaptive sports experts, teachers and media experts in providing suggestions or input as well as revisions to the models prepared especially in the small-scale field trial phase and large scale.

The draft game is considered worth testing on a small scale if experts in physical education learning materials, adaptive sports and media have validated and stated that all classification items in the value scale are rated "appropriate" by putting a check mark (√) in the appropriate column. In this case, there are two types of values, namely the results of the "in accordance" assessment get a value of one (1) and the results of the "in accordance" assessment get a zero value (0). If there are experts in the material opinion that the item classification is not appropriate (zero value), then a review of the game model can be followed up with a revision process. For the observations of material experts on the game model, the "yes" observations get a value of one (1) and the "no" observations get zero (0). The results of the assessment of the observation items are added up, then the total value is converted according to the Benchmark Reference Assessment (PAP) standard.

3. Result and Discussion

3.1 Expert Evaluation

Expert evaluation consisted of 3 people with details of 1 person for adaptive physical education experts, 1 person for traditional game experts and 1 motorist. The draft product that has been made by researchers consists of 4 types of traditional games, namely: “hadang”, “bentengan”, “istata”, “terompah panjang”. After being evaluated by experts it turns out that 4 types of traditional games are worthy of continuing.

3.2 First Product Revision

After the product is validated by an expert, the product is repaired according to the input / advice of the experts. The input from experts is to give more input to the equipment and equipment suitable for children with mild disabilities, material content and the implementation of the model.

3.3 Small Group Trials

A small group trial was conducted at SLB Kasih Ibu Pekanbaru with a sample size of 10 students with mild disabilities. The results of small group trials can be concluded that the product "can be used by mildly mentally retarded children but still needs to be given directions/instructions from the teacher/mentor".

3.4 Second Product Revision

The second revision was carried out after the implementation of a small-scale trial. The input for the revision are: (1) the task of the teacher and students during implementation, (2) the assistant to help the teacher's role, and (3) the companion can involve the students' parents.

3.5 Large Group Trial

Large group trials were conducted at SLB Negeri Pembina Pekanbaru with a number of study samples, consisting of 12 mild mentally disabled students. The results of a large group trial can be concluded that the product "can be used by all children with mild disabilities but still with instructions/instructions from the teacher/mentor".

3.6 Final Product Revision

The results of the field trials indicate that the basic motion model can be applied and can be done by students with mild disabilities. Therefore, there is nothing that needs to be revised because it meets the required standards and aspects so that the product is suitable for use.

3.7 Model Effectiveness

Test the effectiveness of the model conducted in this study is to re-test the two SLBs, namely: SLB Kasih Ibu Pekanbaru and SLB Negeri Pembina Pekanbaru with 22 students by providing treatment in the form of a basic motion model for mildly mentally retarded children. The following are the results of testing the effectiveness of the model:

Table 1. Paired samples statistics locomotor motion

		Mean	N	Std. Deviation	Std. Error Mean	
Pair 1	Pre Test	11.12	22	2.87	.361	
	Post Test	9.24	22	2.02	.243	

The table above shows that there was a decrease in time before and after treatment. It also shows that the locomotor motion of students increases after being treated, seen from the

average value of the test results running straight on rubber for mildly mentally retarded children who had previously been 11.12 to 9.24 seconds.

Table 2. Paired samples of locomotor motion correlations

		N	Correlation	Sig.
Pair 1	Pre Test & Post Test	22	0.86	0

The results of p-value α (0.05)> (0.00) indicate that there is a significant relationship between locomotor motion before and after the basic game model is based on traditional games. Test results show that there is a significant improvement. So, it can be concluded that the basic motion model based on traditional games for mild mentally disabled children is effective and feasible so that it can be used by mildly mentally disabled children.

The basic motion model for children with mild mental disabilities based on traditional games is declared feasible and effective for use by mild mentally disabled children. Declared feasible because it has been tested (small scale and large scale) and evaluated by experts (adaptive physical education, motor skills and mentally disabled). The results of this study indicate that through the play approach will make it easier for children to follow the activities of the motion being taught because in play there is a feeling of pleasure and a sense of satisfaction that they can also realize other aspects of development apart from physical development. This is in line with Putro's opinion that through playing children can satisfy the demands and development needs of the motor, cognitive, creativity, language, emotions, social, values and life attitudes [12]. While Safari states that the benefits children get from playing are able to strengthen and develop muscles and coordination through movement, can develop emotional and social skills, can develop intellectual abilities and can develop their personality [13]. Research that discusses the development of games for mentally retarded children which mentions gesture-based games positively help learning basic life skills of children [14][15][16].

From the results of the research that has been discussed in this study, it can be said that with traditional games can be used as an approach in providing learning or training in this regard related to basic motion. Games other than to stimulate the psychomotor children, can also stimulate cognitive and attitude / affective for mentally disabled children. In addition, in order for the material to be conveyed properly, it must understand the characteristics of mentally disabled children because mentally disabled children have a slow level of understanding and diverse egos that require paying more attention and supervision. Therefore, for further research it is expected that the model is arranged based on the level of difficulty to make it easier for teachers, trainers, parents and students.

4. Conclusion

The conclusion of this research is to produce a product in the form of a basic motion model based on traditional games for children with mild disabilities. This model can be applied during learning or basic motion exercises.

References

[1] I. N. B. Pramartha, “Sejarah Dan Sistem Pendidikan Sekolah Luar Biasa Bagian a Negeri Denpasar Bali,” *Historia Santiago.*, vol. 3, no. 2, p. 67, 2015, doi: 10.24127/hj.v3i2.274.

[2] F. Y. Al-Irsyadi and Y. S. Nugroho, “Game Edukasi Pengenalan Anggota Tubuh Dan Pengenalan Angka Untuk Anak Berkebutuhan Khusus (ABK) Tunagrahita Berbasis Kinect,” in *Prosiding SNATIF*, 2015, vol. 2, pp. 1–8.

[3] Y. I. Utari and N. Indahwati, “Upaya meningkatkan gerakan dasar lokomotor anak tungrahita,” *J. Pendidik. Olahraga dan Kesehat.*, vol. 3, no. 2, pp. 279–282, 2015.

[4] D. N. Kara and Y. Çerkez, “The risk factors for the mentally disabled in the use of social media,” *Qual. Quant.*, vol. 52, no. August, pp. 1211–1218, 2018, doi: 10.1007/s11135-018-0684-y.

[5] Y. T. Saleh, M. F. Nugraha, and M. Nurfitriani, “Model Permainan Tradisional ‘Boy-boyan’ untuk Meningkatkan Perkembangan Sosial Anak SD,” *Pendidik. dan Pembelajaran Sekol. Dasar*, vol. 1, no. 2b, pp. 127–138, 2017.

[6] N. M. Siregar, M. Budiningsih, and E. F. Novitasari, “Model Latihan Kelentukan Berbasis Permainan Untuk Anak Usia 6 Sampai 12 Tahun,” in *Prosiding Seminar dan Lokakarya Fakultas Ilmu Keolahragaan Universitas Negeri Jakarta*, 2018, pp. 75–87.

[7] A. D. Intani, “Pengembangan Model Pembelajaran Motorik Berbasis Permainan Pada Mata Pelajaran Pendidikan Jasmani Anak Tunagrahita,” *Motion*, vol. VII, no. 1, pp. 73–88, 2016.

[8] A. Ardianto, “Pengembangan Model Pembelajaran Berbasis Permainan Tradisional untuk Meningkatkan Kemampuan Motorik Kasar Anak Tunagrahita Ringan,” in *Prosiding Seminar Nasional: Optimalisasi Active Learning dalam Meningkatkan Daya Saing Bangsa di Era MEA*, 2013, vol. 369, no. 1, pp. 1689–1699, doi: 10.1017/CBO9781107415324.004.

[9] U. Hasanah, “Pengembangan Kemampuan Fisik Motorik Melalui Permainan Tradisional Bagi Anak Usia Dini,” *J. Pendidik. Anak*, vol. 5, no. 1, pp. 717–733, 2016, doi: 10.21831/jpa.v5i1.12368.

[10] E. Burhaein, “Aktivitas Permainan Tradisional Berbasis Neurosainslearning Sebagai Pendidikan Karakter Bagi Anak Tunalaras,” *J. Sport. J. Penelit. Pembelajaran*, vol. 3, no. 1, p. 55, 2017, doi: 10.29407/js_unpgri.v3i1.580.

[11] M. D. Gall, J. P. Gall, and W. R. Borg, *Educational Research: An Introduction*, Eight. New York: Pearson Education, Inc., 2007.

[12] K. Z. Putro, “Mengembangkan Kreativitas Anak Melalui Bermain,” *Apl. J. Apl. Ilmu-ilmu Agama*, vol. 16, no. 1, p. 19, 2016, doi: 10.14421/aplikasia.v16i1.1170.

[13] M. Safari, “Bermain Sebagai Belajar Dalam Membantu Proses Perkembangan Anak,” *J. Ilm. Pendidik. Anak*, vol. 2, no. 2, pp. 1–22, 2017.

[14] M. J. Nazirzadeh, K. Çagiltay, N. Karasu, and I. A. for D. of the I. S. (IADIS), “Developing a Gesture-Based Game for Mentally Disabled People to Teach Basic Life Skills,” *Int. Assoc. Dev. Inf. Soc.*, no. 2011, p. 5, 2017.

[15] N. Vernadakis, V. Derri, E. Tsitskari, and P. Antoniou, “The effect of Xbox Kinect intervention on balance ability for previously injured young competitive male athletes: a preliminary study,” *Phys. Ther. Sport*, vol. 15, no. 3, pp. 148–155, 2014.

[16] B. Lange *et al.*, “Interactive game-based rehabilitation using the Microsoft Kinect,” in *2012 IEEE Virtual Reality Workshops (VRW)*, 2012, pp. 171–172.