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115

Brain Gym Development for Kindergarten Child

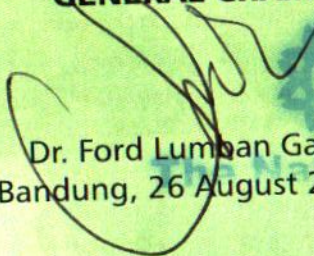
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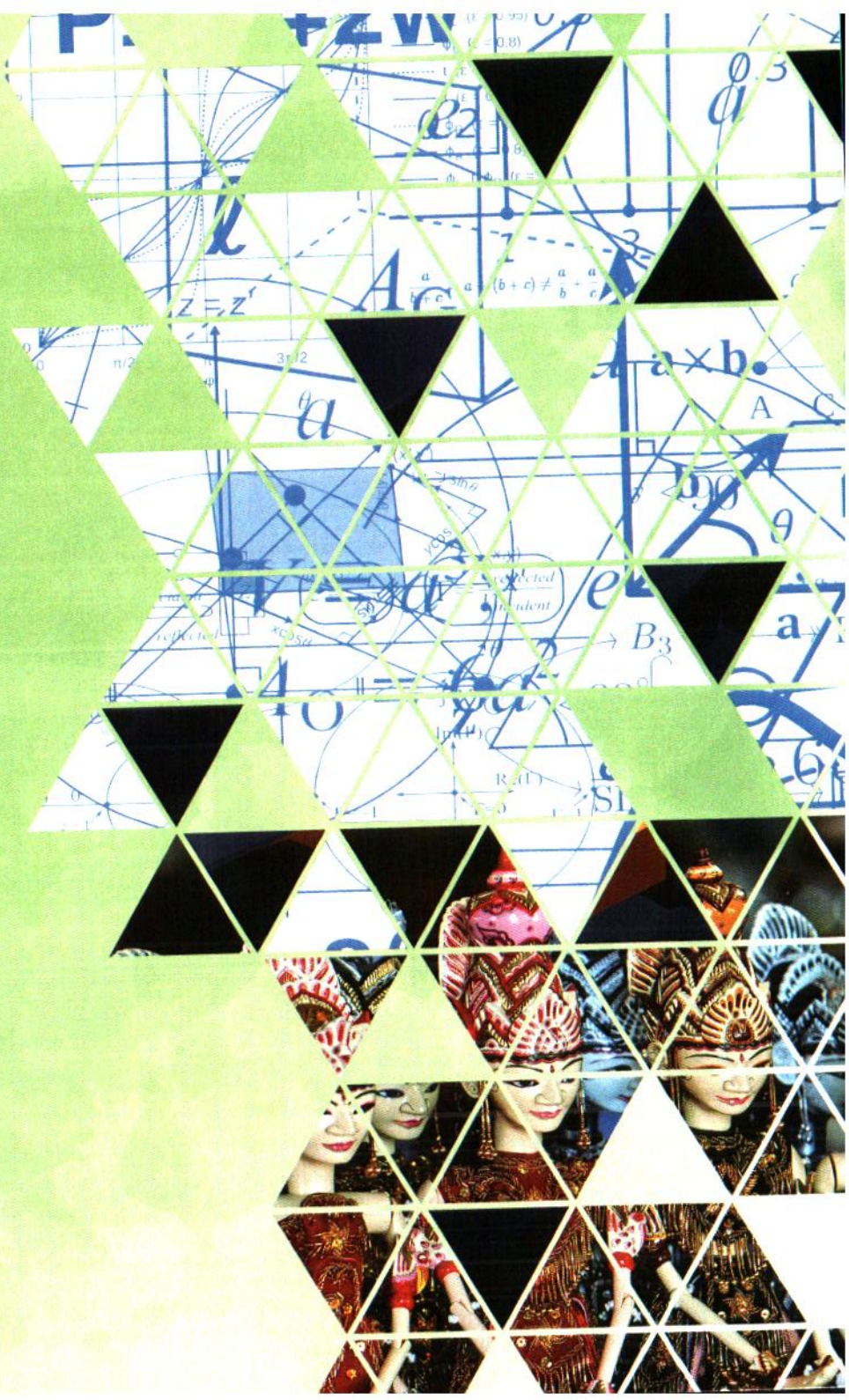
The 2nd Congress on Industrial and Applied Life Sciences & Mathematics 2017
(The Nature-Math 2017)

which were held at
Sheraton Bandung Hotel & Towers – Indonesia
26 - 27 August 2017

On behalf of the Organizing Committee

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Bandung, 26 August 2017





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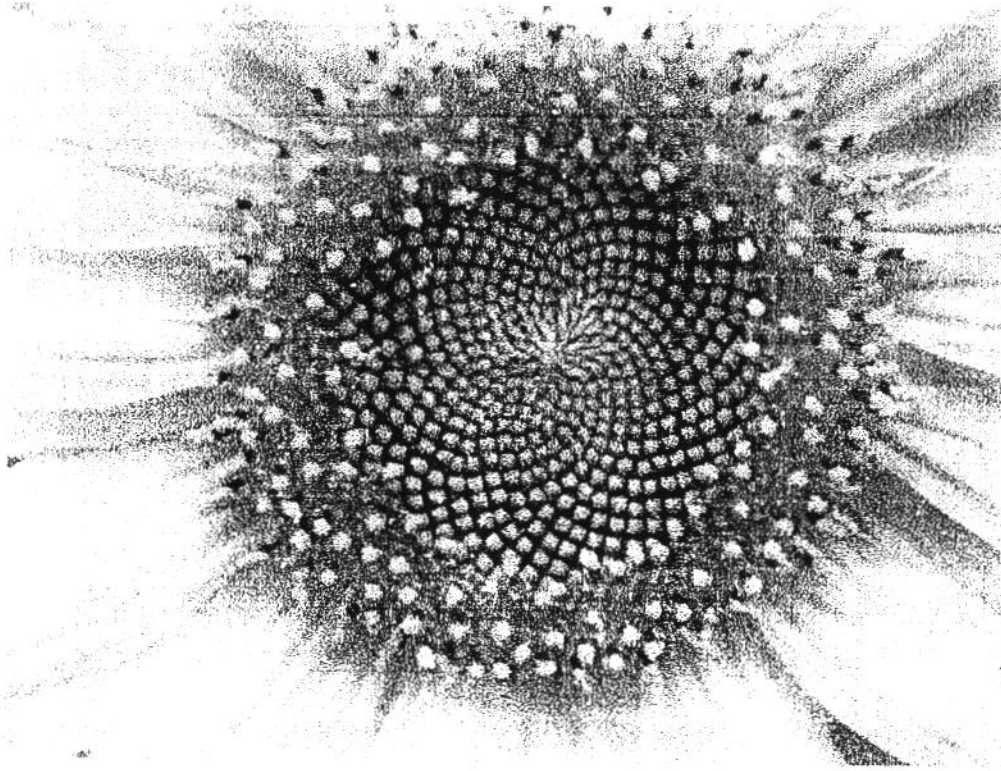
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The 2nd Congress on Industrial and Applied Life Sciences & Mathematics 2017 (The Nature-Math 2017)



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Instructions for Presenters

1. Please check this Program for your presentation time(s) and room(s). Please go to the room five minutes before the session starts and report to the Session Chair.
2. Please do not exceed your allotted time. Please follow the instructions of the Session Chair.
3. If the Session Chair(s) is/are absent from the session, the last speaker should serve as the Session Chair.

Instructions for Session Chairs

Session chairs are kindly requested to do the following:

1. Calculate the time allocated for each paper in your session. The time allocated to a paper may be different in different sessions, due to uneven distributions of papers in different areas (the number to the left of a session in the "Conference Program" next page shows the number of papers allocated to this session) and a small number of absentees due to visa and other reasons.
2. Arrive at the room of the session five minutes before the session starts and identify each of the speakers for the session.
3. Do not allow presentations or the subsequent discussions to run beyond the starting time of the next presentation.
4. If the presenter of a paper is absent ("no-show"), please continue to the next presentation. Please check again at the end of the last presentation whether the "no-show" turns up. Best efforts have been made to reduce the number of no-shows; however, they may not be eliminated.
5. Each oral presentation room is equipped with an LCD projector. If something is not working properly, please contact conference staff.

Keynote Speaker

Medical Imaging Perspectives: Analysis and Computer-Aided Diagnosis

Prof. Dr. Rajasvaran Logeswaran, SMIEEE
*Asia Pacific University of Technology and Innovation (APU),
Technology Park Malaysia, Kuala Lumpur, Malaysia*

Abstract:

Medical imaging is the most common method employed in the medical world for non- or minimally-invasive diagnosis. There is heavy reliance of medical imaging, and also a vast amount of work has been done to automate the preliminary processing and screening of the large volume of data generated through these techniques. This talk covers a sample of research work undertaken to develop computer-aided diagnosis systems for different diseases, with a view of the algorithms and results obtained. A range of techniques are employed at the various stages of the development, ranging from image preparation and pre-processing to detection, classification and final diagnosis. Additionally, work conducted to evaluate medical practitioners' visual diagnosis paradigms and confidence in the diagnosis of medical images is discussed. Evidence is presented that confidence levels can be increased through controlled lossy processing, despite initial blanket rejection of lossy techniques by the practitioners, as the processing can result in better diagnosis of the medical images.

Biodata:



Professor Dr. R. Logeswaran is an academic with 20 years of lecturing experience in a number of institutions both locally and abroad. He studied his B.Eng (Hons) Computing at Imperial College London, United Kingdom, and completed his Master of Engineering Science (M.Eng.Sc.) as well as Ph.D. (Engineering) at Multimedia University, Malaysia. He is a Novell Certified Linux Professional, and also a certified IC Digital Citizen and trainer. His areas of interests are mainly in multimedia data processing, data compression, neural networks, natural user interfaces and big data / data science, with over 130 publications in books, peer-reviewed journals and international conference proceedings. He enjoys supervising student projects at various levels from undergraduate to Masters and PhD, ensuring that proper research methodology and good teaching & learning practices are gained.

Prof. Loges is a full Professor with the Faculty of Computing, Engineering and technology, as well as the Chairman of the Centre for Edutainment and Educational Technologies (CEET) and a core member of the Asia Pacific

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Centre for Analytics (APCA) at the Asia Pacific University of Technology and Innovation (APU), where he also served as the Dean of Graduate Studies. Prior to that, he was the Dean of Engineering, Science and Technology at Nilai University and before that, the Acting Dean of Engineering and Deputy Dean of Postgraduate Studies at Multimedia University, where he is now an Adjunct Professor. A recipient of several scholarships, including Telekom Malaysia, he was recognized as the JCS 75th Anniversary Scholar for his Masters achievements and later went on to do his post-doctoral research in Seoul, Korea under the Brain Gain Malaysia international fellowship & post-doctoral programme as well as a Brain Korea21 post-doctoral scholar. A Senior Member of the Institute of Electrical and Electronics Engineers (IEEE), he is actively involved as the Vice Chair of the IEEE Signal Processing Society Malaysia chapter and is a reviewer of numerous journals and conferences. His efforts in the voluntary services over the past 19 years has also gained him a medal for long and commendable service from the Malaysian government. Prof. Loges has been a Keynote speaker, Guest of Honour and Invited Speaker to a number of international conferences.

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The 2nd Congress on Industrial and Applied Life Sciences & Mathematics 2017 (The Nature-Math 2017)

Program Schedule

Notes/Session ID

Day 1: 26 August 2017		
08:30 - 09:00	Registration - Fuction Room	
09:00 - 09:10	Opening & Welcoming Speech by General & Conference Chair	
09:10 - 09:20	Welcome Dance : Traditional Dance	
09:20- 10:30	Keynote Talk : Prof. Dr. Rajasvaran Logeswaran, SMIEEE- Medical Imaging Perspectives: Analysis and Computer-Aided Diagnosis	
10:30 - 10:45	Photo Session & Coffee Break	
10:45 - 12:00	Sessions: Science & Nature : Session Chair :	
Fuction Room	Graph 101	Interactive Game on The Cultural Heritage of Selarong Soldier Story for Culture Department of Yogyakarta
	Graph 103	Introducing Cultural Heritages of Yogyakarta through 10-in-1 Game
	Nature 105	Electrical treatment by potential different on ionic and geometry in palm tree component
	Nature 115	Brain Gym Development for Kindergarten Child
12:00 - 13:00	Lunch Break - Feast Restaurant	
13:00 - 16:00	Sessions: BioMedPub : Session Chair :	
Fuction Room	Bio 101	Stochastic Mathematical Models in Epidemiology: A Survey
	Bio 102	Can Gait Deviation Index (GDI) be an Early Indicator for Children with Autistic Spectrum Disorder (ASD)?
	Bio 103	Bioinformatics study of mutations of resistance to antivirals in the NS5A gen of HCV
	Bio 105	Comfortable Pillow Design Based on Individual Basis
	Bio 106	Analyses of Characteristics of the Changes in Cerebral Activation State Based on Sasang-constitution
	Bio 107	Expert system for biocoenosis diagnosis based on Bayesian data analysis and fuzzy production rule system
	Bio 109	Innovation Oriented Education Model as a Solution for Undergraduate Unemployment Prepared for Biomedical Engineering Study program
	Bio 110	The Effect of Pesticide on the vector of Rice Tungro Disease:Insight from a mathematical model
	Cyber 101	Evaluation of a Medical Alert Communication Infrastructure Based on Fuzzy Logic and IoT Devices

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	Cyber 102	The Causal Relationship between the Human Evaluation Model (HEM) and Self-regulation
	Cyber 105	An Unmanned Aerial Vehicle System for Detecting and Tracking Moving Objects
	Cyber 106	Setting objective in education and training process management with using the situational simulator (for professional training)
	Cyber 107	Proposal of an offline data-processing network model for flood analysis
	Cyber 108	Rubric Validation for the Review of Didactic Planning in Initial Teaching Training
	Cyber 109	The Administrative Process in the Implementation of the Medicine Curriculum in the Knowledge Society
	Cyber 110	COMPLEX THOUGHT AND QUALITY ACCREDITATION OF CURRICULUM IN ONLINE HIGHER EDUCATION
	Cyber 111	Content validity of a scale to assess the curriculum in the certification of university programs of study
	Cyber 112	d-level (n, n) Quantum Secret Sharing Protocol
16:00 - 16:30	Closing - Best Paper Award	
18:45 - 20:00	Gala Dinner - Feast Restaurant	

Day 2: 27 August 2017

08:30 - 12:00	Networking Time
12:00 - 13:00	Lunch - Feast Restaurant
13:00 - 18:45	Networking Time
18:45 - 20:00	Dinner - Feast Restaurant

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Brain Gym Development for Kindergarten Child

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Abstract. Brain Gym can be utilized as well as a program that can improve achievement and creation in teaching and learning process. This R&D research is devoted to the development of Brain Gym, where previously many researchers who made a series of motion brain gym and not yet raw. The research was conducted in Tunas Muda Kindergarten Jambi which is the first child of the class of 2 classes. The book products as well as in the design of an array may suit the age of the early child.

Key Words: Brain Gym, Kindergarten Child, R&D

1. Introduction

Gymnastics is a physical activity that is recreational, relaxation, or calming the mind which it involves all the activities of the body and the implementation there are doing it at home, in the gym, in the gymnasium and at school. Gymnastics there are various kinds, including gymnastics floor, pregnancy exercise, aerobic gymnastics, scout gymnastics, physical fitness (SKJ), Jambi Gymnastics, Jambi Emas Gymnastics (SJE), etc. Usually in elementary schools, teachers teach students easy-to-digest exercises, such as SKJ, scouts, and SJE.

Brain gym is a series of simple motion exercises to facilitate learning activities and adjustments with daily demands aimed at uniting mind and body (Sularyo and Handryastuti, 2002). Brain Gym has 26 movements covering three dimensions of the brain that is lateralis, focusing, and concentration. The lateral dimension for the left and right hemispheres aimed at training left-right body coordination, the focusing dimension for the back of the brain, the brainstem with the front of the brain. While the focusing dimension to balance the front and back position (limbic system) and large brain for upper and lower body coordination (Dennison, Brain Gym and I, 2008).

In addition to improving learning ability, Brain Gym can provide benefits in the form of: (a) The relationship between humans and learning / work atmosphere more relaxed and fun, (b) less emotional stress decreased the mind becomes more clear, (c) language skills and memory increased, (D) Be more

energetic, more creative and efficient, (c) Feel healthier due to reduced stress, (f) Achievement learn and work increase (Ayyinosa, 2009).

There are many researches that have been done in brain gym theme. Diana (2017) found that Brain Gym, if it is done regularly, it will give stimulation to the brain thus improving hand-eye coordination to improve fine motor development and rough in children aged 4-6 years. Meanwhile from Astuti's result paper, traditional dances could be one of the things in optimalizing brain before doing the study. "To develop children's creative potencies is needed to introduce and practice Brain Gym movements early. Then, the next step is to build as sense of fond of traditional dances because in every single motion of traditional dances does not only develop the brain, but also form dynamic behavior in children's body and mind early as a capital to be creative and dynamic children. Brain is a window to think and work that is necessary in one's life journey". Spielman also found another benefit from brain gym.

Students can use these simple, enjoyable movements to enhance their experience of whole-brain learning in their homes as well as during informal play. The researcher of this study found that when a variety of movement activities were provided in which the students were interested in and could relate their thinking to their daily lives, the students were stimulated to think beyond rote answers and make connections to their everyday lives.

Based on the observations made by the authors, every school especially in kindergarten and elementary school is always doing regular gymnastics activities either once a week or every day. Which it aim to relax the brain before students carry out the teaching and learning process in a material, and coercive manner. Especially in Tunas Muda Kindergarten Jambi, there is no gym activity. Children only do gymnastic activities once a week led by one of the teachers who are quite capable in inviting and bringing children in a happy atmosphere of motion and music. Through the brain gym, children can be better prepared to receive new learning materials, improve short-term memory, concentration, improve communication skills and control emotions, Oriza in (Kiki, 2006)

Problems in the background above, the authors conclude that it is necessary development of brain gym that can provide new motivation and creations that can be useful in the development of learning and can be applied every morning before carrying out the process of Teaching and Learning Activities and become one of the programs in Tunas Muda Kindergarten Jambi.

Departing from the background and the reasons that have been described above, then the problem in this research is a form of gym gymnastics development for early childhood that will become a product output in the form of CD and manual gymnastics, and the author only examines the early childhood in Tunas Muda Kindergarten Jambi.

The aims of this research are to know the development of Brain Gym for early childhood is able to make the child's attraction so fun and to know the response of material experts and early childhood Tunas Muda Kindergarten Jambi about the presented product .

2. Materials and Method

2.1. Research Method

This research uses Research & Development (R & D) method to develop and validate the product in the form of a series of brain gym for children ages. According Sugiyono research and development is a research model used to produce a particular product.

2.2. Collecting the Data

The research was conducted before the activities of learning activities (KBM) Tunas Muda Kindergarten Jambi. The research was conducted during April 2017. The research was conducted in Tunas Muda Kindergarten field Jambi City. The population used in this study is early childhood in Tunas Muda Kindergarten Jambi, with the number of 2 classes.

2.3. Sampling Procedure

This research through 11 stages by adapting research and development of Sugiyono model as follows: requirement analysis, product development analysis, product design gym, validate product, revise product, product manufacture, product trial, revise product 1, trial use, product revision 2, And lastly become a mass product. This needs analysis focuses on the child's excitement. The results of this study are used as the basis for designing the model of exercises to be developed. Activities undertaken at this stage are as follows;

1. Conduct observations and interviews with early childhood in Tunas Muda Kindergarten Jambi before teaching and learning process without doing gymnastics activities.
2. Analyze the model of exercise that has been applied
3. Conduct discussions with children of the early age of any obstacle or difficulty in doing gym activity
4. Analyze the movements made early childhood in doing brain gym techniques and expression of children when doing a gym activity

2.4. Technique of Data Analysis

The results of field studies are then analyzed to focus on the aspects underlying the development. Development is focused on the excitement level of children when and after a brain gym. Data analysis techniques used in this research is qualitative and quantitative descriptive data analysis techniques. The formula for calculating the validation results by experts for all the developed products is as follows:

$$P = \frac{\sum x}{\sum xi} \times 100\%$$

Information:

P = Percentage of expert validation results

$\sum x$ = Total number of expert answers

$\sum xi$ = Maximum total score

100% = Constant

In accordance with the description above and the conclusion that has been achieved then set criteria as in the following table:

Table 3.9 Confederation of Evaluation Results by Expert Validation

PRESENTASE	DESCRIPTION	MEANING
80% - 100%	VALID	USED
60% - 79%	VALID	USED
50% - 59%	NOT VALID	REPLACED
< 50%	NOT VALID	REPLACED

(Source: Book of Research Procedures an Arikunto Practice Approach 2010)

3. Results and Discussion

3.1. Results of the Product

The results of the development of gymnastics gym gymnastics products tested in early childhood in kindergarten Tunas Muda City Jambi written in the form of manual model exercise. The book presents a series of motions ranging from warming ups to cooling downs that are assembled as simple as possible using simple brain gym movements and children's music that can motivate a child to do the gym activity, served by involving the same movement with previously added products as well as in the design of an array may suit the age of the early child.

3.2. Results of the Evaluating Product

Result of early product evaluation in the form of gym activity for early age at Tunas Muda Kindergarten Jambi evaluated by 3 experts obtained result as follows:

1. In the aspect of the suitability of the training product with the ability of the child obtained score of 14 results from a maximum score of 15 or 93%, so the development of this model can be categorized valid and can be continued for the development of gym activitynastic for early childhood at Tunas Muda Kindergarten Jambi. The expert also provides feedback on: simplified motion variations.
2. In the clarity aspect of product instructions Brain Gym exercise obtained score of 15 results from a maximum score of 15 or 100%, so the development of this model can be categorized valid and can be continued for the development of gym gymnastics gym for early childhood at Tunas Muda Kindergarten Jambi. The expert also provides feedback on: naming restrictions on the guidebook.
3. On the aspect of the accuracy of the form of training products for children obtained score of 13 out of a maximum score of 15 or 87%, so the development of this model can be categorized valid and can be continued for the development of gym gymnastics gym for early childhood at Tunas Muda Kindergarten Jambi. Experts also provide feedback on: adjustment of songs and movements so as not to be rigid.
4. In the conformity aspect of tools and facilities used obtained score of 15 results from a maximum score of 15 or 100%, so the development of this model can be categorized valid and can be continued for the development of gym activitynastic for early childhood at Tunas Muda Kindergarten Jambi. Experts also provide feedback on: adjusting music to early childhood.
5. On the conformity aspects of the exercise product with the physical condition of the child obtained score of 11 results from a maximum score of 15 or 73%, so the development of this model can be categorized as valid and can be continued for the development of gym gymnastics gym for early childhood at Tunas Muda Kindergarten Jambi. Experts also provide feedback on: the movement should be more natural / not rigid because remembering active child early age.
6. In the aspect of the ease of the form of the product, the exercise is understood to be obtained by the score of 9 out of a maximum score of 15 or 60%, so the development of this model can be categorized as valid and can be continued for the development of gym gymnastics gym for early childhood at Tunas Muda Kindergarten Jambi. Experts also provide feedback on: the final product will be better used often because of so that children are familiar with the product.
7. In the aspect of product ease of training done by skilled and underachieved children obtained score of 12 out of a maximum score of 15 or 80%, so the development of this model can be categorized valid and can be continued for the development of gym gymnastics gym for early childhood in Tunas Muda Kindergarten Jambi. Experts also provide feedback on: completeness and order in guidebooks and videos for readers or consumptive to be more understanding and easy to follow.
8. On the aspect of the product safe exercise to be done by the children obtained the score of 15 results from a maximum score of 15 or 100%, so the development of this model can be categorized valid and can be continued for the development of gym gymnastics gym for early childhood at Tunas Muda Kindergarten Jambi.

4. Acknowledgments

This research was supported by Tunas Muda Kindergarten Jambi and Faculty of Sport Science, University of Jambi.

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