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# The Development of V2 Playmat Game to Increase Movement Skill Children with Intellectual Disability (Id)

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**Abstract**

Children with mild ID are also referred to as debilitating or able to educate. Children with a mild ID can receive education like other normal children. Most of the Children with mild ID experience delays in physical development that have an impact on basic movement skills problems such as locomotor movements of running, jumping and jumping, as well as manipulative throwing and catching an object. The purpose of this study is to develop a learning model through V2 playmat games which are designed and developed to stimulate basic movement skills in children with mild ID in the Adaptive Physical Education learning process. The subjects of this study were children with mild ID aged 8-12 years totaling 10 people in the narrow-scale trial and 25 people in the wide-scale trial. Involving 3 experts consisting of learning media experts, learning material experts and Physical Education practitioners. The method used in this research is the Lee and Owens Analysis, Design, Development Implementation, and Evaluation (ADDIE) research and development method. The results of the validation test by experts using the Content Validity Index (CVI) and Content Validity Ratio (CVR) tests which show an average CVR value of 0.27 in other words the Playmatt game model developed is appropriate or relevant, or good and also has high content validity. in improving basic movement skills, cognitive, and mild ATG pleasure.

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## INTRODUCTION

Intellectual disability is a type of mental disorder experienced by a person where the level of intelligence is below average. ID is usually heard with the term mental retardation or mental retardation. In Indonesia, the number of people with mental retardation is quite a lot. Children with mental retardation in general have a level of intellectual ability below the average (Delphie, 2006). Mentally retarded (mentally retarded) are children who actually experience obstacles and intellectual mental retardation far below the average in such a way that they experience difficulties in academic, communication and social tasks, therefore requiring special education services (Setiawan et al., 2019). Caring for people with ID can be done by understanding what ID is and how therapy can be given, because the characteristics of ATG are different from normal children in general.The DSM-5 (APA, 2013) presents three main criteria for a diagnosis of IDD, as follows: (1) Deficits in intellectual functioning (reasoning, problem solving, learning, etc.) that have been verified by clinical observations and individual assessments; (2) Deficits in adaptive functioning resulting in an inability to meet developmental expectations in areas required for independent living and social functioning; (3) Deficits in the preceding areas have onset before the age of 18.According to the DSM, subnormal intellectual functioning is an IQ of approximately 70 or less obtained on a standard and well-recognized instrument that has been developed specifically to assess intelligence (e.g., Wechsler Intelligence Scale for Children: WISC-V; Stanford–Binet 5th Edition) (Wilmshurst, 2017). Sections of IDEA (2004) that are concerned with early identification of children at the begin- ning of the process (infants and toddlers) are covered under Part C). In Part C, Section 635, IDEA (2004) defines developmental delay as a delay of 35% or more in one of the developmental areas or 25% or more delayed in two or more of the developmental areas. There are five global areas of potential delay outlined in IDEA (2004, Sec. 632): (1) Cognitive development, (2) Motor skills, (3) Communication skills, (4) Social or emotional development, (5) Adaptive functioning. Encouraging physical activity in people with ID has been found beneficial to health and a way to improve overall quality of life (Carmeli et al., 2009) (McKeon et al., 2013). Despite the barriers faced by people with ID to physical activity, several studies have identified ways to improve and increase physical activity.

SDLB C is a place to serve children with ID. Children with ID are also part of a generation that must have the opportunity to develop themselves according to their potential as well as normal children in general. Adaptive physical education is a learning process physical education adapted and modified to be easily accepted by children with special needs (Sari, 2016). Adaptive physical education is physical education that is specifically for special needs children with the aim of increasing self-confidence, developing cognitive skills, and increasing the spirit of tolerance(Nopiyanto et al., 2022).

Children with ID requires maintenance, coaching in improving motor movement abilities, because motor skills have a very close relationship to the development of body movement control through coordinated activities between the nervous system, muscles and spinal cord. Motor itself is divided into two, namely gross motor and fine motor. The results of observations made by researchers (2020) at SDLB C Pembina

and Karya Ibu Palembang, most of the children with ID when carrying out sports activities cannot make movements according to what is instructed, some are busy with their own world, some are silent. which imitates the exemplified movement even though it is not quite right. Meanwhile, to perform the movement of jumping or jumping, some can do it and some cannot do it. This is due to some physical delays in children with ID which causes problems in basic movement skills such as running, jumping, jumping and also still having difficulty in manipulating objects (throwing and catching). Children with mild ID requires learning specifically tailored to the needs and characteristics, not only curriculum oriented, through physical education learning, sports and health, it is hoped that there will be an increase in movement in children with mild ID which will later reduce children with mild ID dependence with others. Therefore, motion learning for children with mild ID needs to be specially designed with a special approach, one of which is the play activity model (Martinus & Kesumawati, 2020).

Play theorist Brian Sutton-Smith believes that the human child is born with a huge neuronal over-capacity, which if not used will die. 'Not only are children developing the neurological foundations that will enable problem solving, language and creativity, they are also learning while they are playing. They are learning how to relate to others, how to calibrate their muscles and bodies and how to think in abstract terms. Through their play children learn how to learn. What is acquired through play is not specific information but a general mindset towards solving problems that includes both abstraction and combinatorial flexibility where children string bits of behavior together to form novel solutions to problems requiring the restructuring of thought or action (Goldstein, 2012). Playing is an activity that is liked by children, including children with special needs. Play is considered a central component of healthy growth through which children develop cognition, language, social competence, self-regulation, and self-esteem (Frost & Smith, 2010) (S. A. A. Kesumawati et al., 2020).The FMS of mentally retarded children with ID potential to the fullest (S. A. Kesumawati et al., 2019). In youth with typical development, motor skill interventions have been recognised as an efficient means to improve FMS (Maïano et al., 2019). Children with ID experience cognitive limitations and challenges in adaptive behaviors that affect their emotional and social development. Play therapy has been suggested for several decades as an intervention to help children with IDs strengthen adaptive behaviors and develop stronger social relationships (Astramovich et al., 2015). So the researchers conducted research and development of a V2 playmat game model that was designed according to the needs and characteristics of children with mild ID with the aim of improving basic movement skills, cognitive, and fun.

## The V2 Playmat Game

The game model developed is a game model designed for children with mild ID, the media tools and materials used in the form of a 170 cm x 130 cm carpet made of foam covered with a layer of fine synthetic grass, colorful pebbles, colored ribbons shaped be a game that is safe to use for children with mild ID, can stimulate gross, fine motoric, focus of attention and pleasure for, consists of 3 playmats, where each playmat has different games that are safe and interesting for use by children with mild ID. This game requires the guidance of parents and teachers, the instructions

must be clear so that it is easy to understand and in accordance with the needs of children with mild ID. Before starting the game, students will be asked to choose one of the cards containing the game number that will determine where they play and the questions or questions they will solve. Next, students will line up behind the game number they have got.

Post 1 of V2 Playmat Game

This game aims to improve basic movement skills of running, jumping, and recognizing colors. The equipment used in this game is as follows; (1) rugs measuring 190 x 117 cm were modified on top by giving 12 rectangular shapes, each measuring 30 x 35 cm., (2) 9 pieces of fine synthetic grass measuring 30 x 35 cm, (3) pictures 9 frogs, (4) pebbles, (5) 3 red flags, (6) color ribbon, and (7) whistle

Game Procedure

1. Students standing behind the finish line take the prefix to run
2. After hearing the signal, students run to the carpet that is in the shape of the foot on the floor
3. After that, students take the prefix to do word jump movements, do word jump movements to
4. the end line where there is a flag.
5. Students are asked to raise the flag and state the flag that was raised.

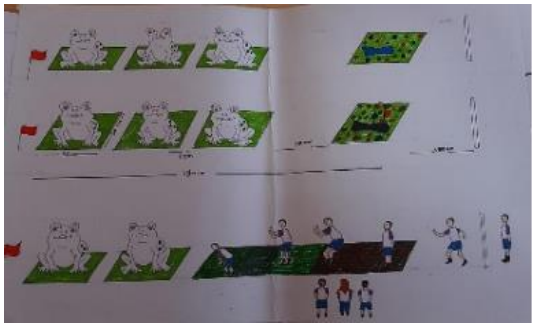

**Figure 1.** Post 1 of V2 Playmat Game

Post 2 of V2 Playmat Game

This game aims to improve the basic movement skills of walking straight ahead following patterns, tactile stimuli and recognizing colors. The equipment used in this game is as follows; (1) Carpet measuring 190 x 117 cm, modified on top by giving the shape of a circular path using colored ribbon, then along the road with bottle caps, pebbles, beads and fine synthetic grass, (2) 3 small baskets as markers for each each red, yellow and green, (3) sticks that have been affixed with beads, each with red, yellow, and green colored sticks.

Game Procedure

1. Students stand behind the starting line
2. After hearing the signal, students walk towards the carpet with the shape of a way of life with both hands outstretched, one hand holding the stick to the finish line.
3. Name and place the sticks into the basket on the table based on the color of the sticks they are holding.

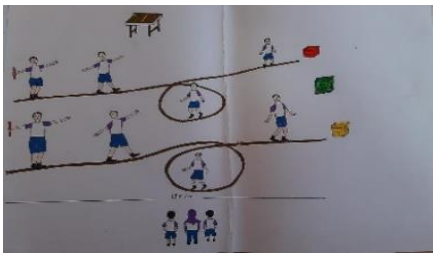

**Figure 2.** Post 2 of V2 Playmat Game

Post 3 of V2 Playmat Game

This game aims to improve basic movement skills of stepping forward, counting, recognizing colors and numbers. The equipment used in this game is as follows; (1) a rug measuring 190 x 117 cm, modified on top with a ladder made of colored ribbon, fine synthetic grass, beads and pebbles, (2) 3 small bottles, each bottle is red, yellow, and green.

Game Procedure

1. Students stand behind the starting line.
2. After hearing the signal, the child steps onto the carpet that has the shape of a ladder.
3. Students step from one rung to the next while counting each number they pass to the finish line.
4. Then the student mentions and lifts one of the bottles on the table according to the color of the stairs that are passed.

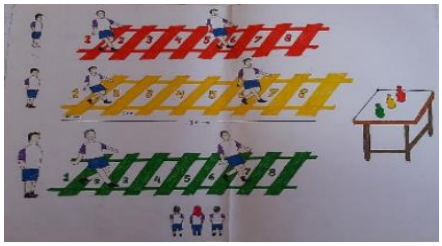

**Figure 3.** Post 3 of V2 Playmat Game

## METHODS

The research and development model used is the ADDIE (Analysis, Design, Development, Implementation and Evaluations) (Branch, 2009) (Akbar, 2016). The ADDIE model used was adapted from Lee & Owens in The stages carried out in the ADDIE method are: (1) Analysis is carried out through problem identification, formulating goals, analyzing learning needs, analyzing student characteristics, planning and compiling playmats, (2) Design is done through three stages. First, designing play mat includes physical design, function design, and logic design. Second, develop images to visualize the product workflow from start to finish. Third, collect materials (collecting materials) needed for the manufacture of products such as basic materials and supporting aspects such as animated images, graphics, etc, (3) Development and implementation is an activity to make playmatt playing media to improve skills for mild mentally retarded children in SDLB according to the design that has been made and then validated the game media made to experts so that the media made meets the requirements for use in teaching and learning activities, (4) Evaluation is an activity to see how far the products made can achieve the goals and objectives. The test was carried out twice. The first test is a limited test or small group, which is carried out on a small group as users of the product. The second test is field testing or large groups.The subjects of this study were children with mildID aged 8-12 years totaling 10 people in the narrow-scale trial and 25 people in the wide-scale trial.

The Data Collection Technique

The Game V2 Playmat that had been designed by the researcher were evaluated by 3 experts, consisting of;1 material PE adaptive expert, 1 learning media expert, and 1 Teacher PE special ID, The activities at this stage evaluate and revise the product if necessary. Data collection techniques assessment by experts uses a rating scale. The value scale used is guided by a predetermined grid by adjusting to the research objectives.

**Table 1**. Instructional Rating scale for Expert

| Scale | Assessment description |
|---|---|
| 1 | very inappropriate/very imprecise/very unsafe/very not easy/very unsafe |
| 2 | inappropriate/ inappropriate/unsafe/not easy/impractical/unable to optimize |
| 3 | appropriate/precise/safe/easy/practical/can optimize |
| 4 | very suitable/very precise/very safe/very easy/very practical/highly optimizing |

After getting an assessment from the 3 experts, the next step is to analyzed the data that have been obtained to

determine the level of validity of the game V2 Playmat" using the Content Validation Index (CVI) and Content Validity Ratio (CVR), table 2.

**Table 2.** Instrument of Assessment Expert Validation

| No | Aspect of Assess | Rating Scale | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| 1. | The suitability of the game model develops with competency standards and basic competencies and indicators. | | | | |
| 2. | The suitability between indicators and subject matters and assessments. | | | | |
| 3. | The accuracy of the contents of the FMS learning model developed for SLB students with intellectual disabilities. | | | | |
| 4. | The accuracy of the contents of the FMS learning model develop with the characteristics of the SLB students with intellectual disabilities. | | | | |
| 5. | The safety of the FMS learning model develop | | | | |
| 6. | Ease of the develop FMS learning model. | | | | |
| 7. | Practicality of developing FMS learning model. | | | | |
| 8. | The FMS learning model can increase the activeness of children with ID in SLB. | | | | |
| 9. | The FMS learning model can optimize the (cognitive) knowledge of children with ID in SLB. | | | | |
| 10. | The FMS learning model can optimize the FMS of children with ID in SLB. | | | | |

Testing the validity of the learning model activity in the morning was carried out by correlating the scores of the items observed with the total scores. A trial was conducted to find the value of the relationship and the direction of the relationship. Values range from 0 to 1 or 0 to -1. The positive and negative signs indicate the direction of the relationship.

## RESULT AND DISCUSSION

This study used a rating scale instrument to assess the feasibility of the draft the development of V2 playmat game to increase movement skill children with mild ID**.** The assessment was carried out by experts (2 person experts) and 1 person practitioners (teachers who implement). The results of the expert validation test were to determine the validity level of the V2 Game Playmat by 3 experts, and the results of the expert's assessment and the results of data analysis using CVR were as follows:

**Table 3.** CVR Test Result of V2 Game Playmat

| No. | E1 | E2 | E3 | ne | N | N/2 | ne-(N/2) | CVR | Criteria |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 4 | 4 | 3 | 2 | 3 | 1.5 | 0.5 | 0.3 | Valid |
| 2 | 4 | 3 | 4 | 2 | 3 | 1.5 | 0.5 | 0.3 | Valid |
| 3 | 3 | 4 | 3 | 1 | 3 | 1 | 0 | 0 | Valid |
| 4 | 4 | 3 | 4 | 2 | 3 | 1.5 | 0.5 | 0.3 | Valid |
| 5 | 3 | 4 | 4 | 2 | 3 | 1.5 | 0.5 | 0.3 | Valid |
| 6 | 4 | 4 | 3 | 2 | 3 | 1.5 | 0.5 | 0.3 | Valid |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7 | 4 | 3 | 4 | 2 | 3 | 1.5 | 0.5 | 0.3 | Valid |
| 8 | 4 | 4 | 3 | 2 | 3 | 1.5 | 0.5 | 0.3 | Valid |
| 9 | 3 | 4 | 4 | 2 | 3 | 1.5 | 0.5 | 0.3 | Valid |
| 10 | 4 | 4 | 3 | 2 | 3 | 1.5 | 0.5 | 0.3 | Valid |
| Total | 37 | 37 | 37 | Total | | | | 2.7 | |
| Average | 3.7 | 3.7 | 3.7 | Average | | | | 0.27 | Valid |

CVR scores on each item ranged 1 to -1
Information :
NE: Total Essential Subject Matter Expert (SME)
N : Total ofSubjectMatterExpert
V : Valid

The results of the CVR analysis of the V2 Playmat game (table 3) show a value of 0.27, which means that the contents of the V2 Playmat game are appropriate or relevant or good, and also have high content validity, so that it can be continued to be tested for empirical validation. V2 Playmat Game can be continued in empirical validation or field trials.

## CONCLUSSION

The playmatt the game is recommended for learning basic movements for children with mild ID, both implemented at school by teachers and at home by parents to increased basic movement skills, cognitive, and pleasure children with mild ID.

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