

The Development of Carrom Learning Media to Improve the Ability of Mild Mentally Retarded Children to Read Words in SLB Negeri 1 Makassar

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Abstract. *This study aims to produce carrom media to improve the ability to read words of mild mentally retarded children. The study implemented the research and development design based on the research stages of Borg & Gall. Data collection techniques used in this study were interviews, observations, and questionnaires. The data were analyzed through qualitative and quantitative analysis techniques. The object of this research is the modified Carrom learning media, with the research stages covering; 1) the information gathering stage; 2) the planning stage; 3) the product development stage, and 4) the design validation and revision stages. The results of this study are; needs analysis of grade 3 mentally retarded students at SLB Negeri 1 Makassar showed that teachers and students needed modified carrom as learning media, carrom media design/prototypes were modified starting from planning, product development, expert validation, and validity testing stages and the validation from the material experts showed that the media was considered valid and the validity level was in the very good category so that the modified carrom media deserved to be tested and resulted in a very good category.*

Keywords: *media; carom; read the word; mild mental retardation*

Abstrak. Penelitian ini bertujuan untuk menghasilkan media carrom untuk meningkatkan kemampuan membaca kata anak tunagrahita ringan. Metode penelitian yang digunakan merupakan penelitian dan pengembangan (*Research and development*) dengan menggunakan tahapan penelitian dari Borg & Gall. Teknik pengumpulan data yang digunakan dalam penelitian ini adalah wawancara, observasi dan angket. Adapun teknik analisis yang digunakan dalam penelitian ini adalah teknik analisis kualitatif dan teknik analisis kuantitatif. Obyek penelitian ini adalah media pembelajaran Carrom modifikasi, dengan tahap penelitian meliputi; 1) tahap pengumpulan informasi; 2) tahap perencanaan; 3) tahap pengembangan produk; dan 4) tahap validasi dan revisi desain. Hasil penelitian ini adalah; analisis kebutuhan pada murid tunagrahita kelas III di SLB Negeri 1 Makassar menunjukkan bahwa guru dan siswa membutuhkan media pembelajaran carrom modifikasi, desain/prototype media carrom modifikasi yang diawali dengan perencanaan, pengembangan produk, validasi ahli, dan uji kevalidan serta analisis validasi ahli materi memiliki tingkat kelayakan yang baik dan untuk validasi ahli media memiliki tingkat kevalidan sangat baik sehingga media carrom modifikasi layak untuk diujicobakan dengan kategori sangat baik.

Kata Kunci: media; pembelajaran carrom; membaca kata; tunagrahita ringan

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INTRODUCTION

Children with special needs have various disturbances, including physical, psychological, emotional and social aspects (Rofisian, 2018; Nida, F. L. K, 2018). One type of child with special needs is mentally retarded children. They have some categorizations like educable, trainable, and custodial. Educable children are still possible to be equivalent to fifth-grade children in general. The trainable children still have the ability to manage, care for, and defend themselves and have social adaptability (Sormin, D., & Kumalasari, 2019); Putri, T. U, 2021). They have limited ability to get an education. Custodial children need continuous special training in basic ways to help themselves and to train their communicative skills (Purbasari, D, 2020) Mild mentally retarded students have an average intellectual ability below the normal level and low adaptive skills, and their development is disturbed. However, they can be educated in academic sectors like reading, writing, and to calculate and can be trained with social and working skills. While their cognitive abilities in terms of perception, memorization, idea development, assessment, and reasoning are low (Widiastuti, N. L. G. K., 2019; Winaya, I. M. A, 2019).

According to (Sari, Binahayati, & Taftazani, 2017) mentally retarded students have an intellectual level below the ability of normal children, and they cannot adapt their behavior occurring during their developmental stage. He also stated that mentally retarded children have disturbances in their academic development, so the learning provided to them should have its curriculum modified based on their special needs.

Ultimately, the inability to read words experienced by mentally retarded children will influence the while learning activities at school. Besides that, in the end, they will experience boredom when there is no media or innovation available to help them follow the learning activities (Liswana, S., & Rahmawati, I, 2018; Sahronih, S., Ismuwardani, Z., Suanto, A., & Shofari, M. R, 2022). One of the media that can be used is games. Playing can help disabled children to improve and develop their ability to interact or socialize with others. Also their cognitive and physical abilities will also improve as they do physical movements through the games (Tameon, 2018; Mu'min & Yultas, 2020). Considering this critical condition, media is very important in the

learning process because the availability of media can create fun and high-quality learning process (Rahma, 2019; Arijumiati, Istiningsih & Setiawan, 2021).

Media and learning are two different words, but they are correlated and supporting to each other. There are two forms of media (specific and general forms). In general, media can be defined as activities containing new attitude, knowledge, and skills that can be acquired by the students to create a new condition Purwani, A., Fridani, L., & Fahrurrozi, F. (2019; Mahyuni, A., AB, J. S., & Kirana, A. R. (2022). There are many types of games that can be utilized and innovated as learning media, including the carrom that is believed to improve the students' ability to read words.

One of the bases for using carrom as a learning media adjusted to the curriculum goals is that playing can improve the competence and ability of students who basically like to play . it is in line with the study of Susialwaty (2022) that the use of carrom can improve the mentally retarded students' ability to count.

Carrom game can sharpen the brain as it challenges the dexterity to aim the target (Eni, U. A., Wijayanti, A., & Ardiyanto, A. (2020). The team should be compact to build strategies. The game needs analysis, intuition, strategies, and patience so that it can train the focus, brain and postpone senility. 3) as an entertainment. Besides as a medium for social interaction, it also functions as entertainment. Players will have better interpersonal relationships and they can understand each other well (Miftachul'Ilmi et al., 2021).

This game does not require any special strategies or techniques and is popular among the people (Atmaja, B.T., Jonemaro, E.M.A., & Arwani, 2017). Carrom is played only with hands and no special equipment. Boards and discs can be made from simple materials such as coins or bottles. Carrom is mostly played in India but is gaining popularity in the West (Hendrawan et al., 2020).

According to Filasofa, L. M. K., & Miswati, M. (2021), reading is a skill that is not easy to train, in reading, you should not use your fingers but it is recommended to spell the symbols slowly. Specifically, according to (Lestari & Zulmiyetri, 2019) reading is essentially reciting or matching various letters

as symbols of written language". In line with that, (Gading et al., 2019) argued that reading is the activity of understanding various meanings or senses in written language or a series of processes of reasoning or thinking. A word is a series of letters that are separated by two spaces and have meaning, in this case, a word is an element of language that generally consists of various units or groups of several letters which have meaning and can form clauses, phrases, and sentences (Mandia, I. N. (2017; Gumelar, N. A., Putri, R. K., Aryanti, S. N. N., & Ulya, C. (2021).

Data obtained from observation carried out from 1 to 2 of August 2019 in SLB Negeri 1 Makassar, especially in the 3rd grade of SDLB showed that there were various barriers and problems occurring in the learning process, and they had been reviewed by the researchers through interviews and observation. They had a very low ability compared to the second or the first-grade students in the regular schools who had been able to read and arrange letters into words or sentences. Based on the observation and information we obtained from the interviews, the mild mentally retarded students in the 3rd grade of SLB Negeri 1 Makassar experienced difficulties in a reading letters which implied their inability to read words.

Based on these conditions, we developed an alternative media to help mentally retarded students improve their ability to read. The difference between this study and that conducted by Susilawati, e. (2022) is the older study analyzes the ability to play carrom to improve the numeracy skills of mentally retarded children, while this study focuses on improving students' reading abilities.

RESEARCH METHOD

The study employed Research and Development (R & D) model to improve the reading ability of mild mentally retarded students. The current study referred to some earlier research, including (Novitasari, D. (2017).) which also carried out a small-scale study with particular stages.

Steps followed in this study include the collection of information, planning, product development/design, and validation of the product design. We carried out the present study on the second semester of the academic year of 2020-2021, which was from January to June 2021. The research site was SLB Negeri 1 Makassar, situated in Jl. Dg. Tata

Parangtambung, Makassar city. Data were collected using interviews, observation, and questionnaires.

There were two techniques implemented to analyze data, including the practicality and the effectiveness of the product. Qualitative and quantitative analysis techniques were used in this study.

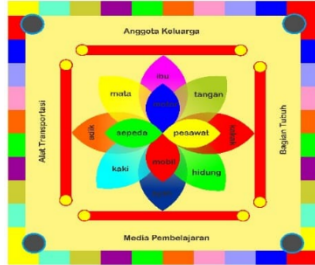
Data validity analysis techniques were carried out by material experts and media experts, and practicality analysis techniques were carried out using the formula for the average percentage of each statement component in the teacher and student response questionnaire. Decisions about the practicality of media are developed using the assessment qualification criteria.

FINDINGS AND DISCUSSION

The use of carrom to improve the reading ability was based on the need analysis performed through initial observation carried out from 1 to 2 August 2020. The learning media used to improve the reading ability of students with light mental retardation was limited to reading words on the whiteboard. Although there were seven learning media used, we only showed the very simple letter cards to students. Learning media that had been designed and implemented by teachers in teaching reading to mild mentally retarded students were not really effective or efficient, especially in teaching students to read words.

The result of this research and development is the modification of carrom as a learning media to study to read words in the subject of Bahasa Indonesia. There were some problems triggering the importance of developing the media like a) the production and the use of learning media in schools is not yet optimal, and the implementation of the strategy is still limited to certain subjects; b) the lack of ability and willingness of teachers in developing learning media, especially the ones that attracts students' interest and motivation; c) the use of media in learning activities has not varied, and d) the unavailability of learning media that can attract students' interest and motivation and attention in learning to read words that meets eligibility for use in learning. Carrom board which functions as a learning medium for reading words, has carrom seeds as a tool to train children's motor skills in aiming as well as training to distinguish colors.

The carrom board contains pictures and conceptual writing, letters, words, and themes related to reading material in Bahasa Indonesia subject. The board is made colorful



and completed with other media such as face grids, balls, and word cards to attract students' interest in reading words to support the improvement of reading skills.



At this stage, we made; learning media by modifying the carrom based on the following steps: 1) preparing the carrom board so that the board has a good, beautiful, and attractive appearance, 2) the color of the board and the coin launcher are modified. 4) the researcher wrote only the numbers 1 and 2 on the coin launcher, which was round and flat, 5) we prepared material for reading words on certain media, which consisted of; Tracing words on colorful balls to attract students' attention, we wrote words according to the material being taught, and we made a guessing game on the pace shield by attaching words to the ends of the carry. 6) we made a game manual for the modified carrom.

It confirms (Febrita & Ulfah, 2019) stating that one of the strategies to improve the

learning motivation and interest of students is the use of interesting and proper learning media. The use of media in learning activities can stimulate new interest and willingness, build motivation, and stimulation to learn, and it can even psychologically influence the learning process. It is also in line with the study (Susilawati, 2022), which found an increase on numeracy skills after the implementation of the carrom game.

Validation performed by the experts of materials aimed to get information, critique, and suggestions to improve the quality of the learning media modified from the carrom game in terms of material, learning, and language aspects. The results of the validation can be seen in table 1.

Table 1. Results of Validation Performed by Experts of Material on the Development of A Learning Media Modified from Carrom for Students with Mild Mental Retardation on the 3rd grade class of SLB Negeri 1 Makassar

ASPECTS	NO	INDICATORS	SCORES
Relevance	1	The materials are relevants with the competencies that should be mastered by students.	5
	2	The carrom media is relevant with the competencies that should be mastered	4
	3	The materials are based on the student's development stage	4
	4	The materials fulfill the curriculum demands.	5
	5	The illustration of media is appropriate for the students' development stage.	4
Accuracy	6	Materials presented in the media are scientifically true.	4
	7	Materials presented in the media are based on the latest development	5
	8	Materials presented in the media are based on daily realities.	4
	9	The materials are packed based on the relevant scientific approach.	3
Learning	10	The suitability of the material with basic competence	5
	11	The suitability of the material with indicators	5

12	The suitability of the material with the learning objectives	5
13	The interactivity of students with the media	2
14	The ability to grow the motivation to learn	4
15	The actuality of the material presented	5
16	Sufficiency of the number of vocabulary	4
17	Completeness of vocabulary coverage	3
18	Vocabulary difficulty level according to the material	4
19	Depth of vocabulary according to the material	4
20	Ease of understanding the learning	3
21	Easy-to-understand vocabulary	4
22	Clarity of study instructions	2
23	Accuracy of vocabulary according to theory and concepts	4
24	The accuracy of the vocabulary used	4
25	Feedback for the evaluation results	3
Total		99
Percentages		79%
Score range		78,20 < X ≤ 96,59
Average score		3,96

Based on table 4.1. above, the validation carried out by material experts shows a score of 99 with a percentage of 79%, and an average score of 3.96 in the "good" category. Because it had been categorized as good, researchers no longer needed to propose a second validation to material experts. In other words, the instrument was feasible to use. Researchers only revised some points in the instrument based on corrections and suggestions from material experts. Based on the calculation above, the score from the validation by material experts

was converted into very good, good, medium, low, and very low categories.

The validation carried out by media experts aimed to obtain information, criticism, and suggestions to improve the quality of learning media modified from carrom in terms of general and specific appearance and quality of data presentation. The results of validation by media experts can be seen in table 4.2. The maximum score for each statement in the validation sheet is 5, while the minimum score is 1.

Table 2. Results of Validation from the Media Experts of the Media Modified from Carrom for Students with Light Mental Retardation in 3rd Grade of SLB Negeri 1 Makassar

ASPECTS	NO	INDICATORS	SCORES
General Appearance	1	The carrom media design is based on the materials of reading words	5
	2	Carrom media design is based on the concept of the materials of reading words	4
	3	The display of carrom media corresponds to the integration of Indonesian material with the concept of reading words	5
	4	The design of the carrom media can catch the pupils' attention	5
	5	The design of the carrom media presents a real example of the materials for reading words	4
	6	The design of the carrom media presents the use of games as a medium for learning to read words in Bahasa Indonesia subject	4
Specific Appearance	7	Color selection in carrom media	4
	8	The media selected by carrom is unique	5

Data Presentation	9	Carrom media contains educational values	5
	10	Carrom media is attractive to pupils	4
	11	Carrom media visualizes material and text of learning messages so that children can see directly and think concretely about the material presented.	5
	12	The selection of font type and size is based on the children's characteristics to make it more interesting and motivate them to play.	5
	13	Carrom media is named / completed with information about the media	5
	14	The presentation of carrom media can stimulate students to be active in learning activities.	5
	15	A guide for media use and maintenance is available	4
	16	The media presentation can improve students' learning interests.	5
	17	Carrom media can identify students who have and have not understood the material so that teachers can guide the students again.	5
	18	The presentation of information in the carrom media is repetitive to improve the learning process.	5
Total			84
Percentages			93%
Score range			67, 98 < X ≤ 83,
Average score			4,66

Based on table 4.2 above, validation performed by the media experts shows a score of 84 with a percentage of 93, and an average score of 4.66, categorized as "Very Good". Similarly to the validation carried out by the material experts, validation by media experts also showed very good results. Thus, we did not need to propose the second validation to the experts. In other words, the instruments have been feasible to be applied. We only revised

some parts based on the suggestions and corrections from the validators.

Based on the validations carried out by the experts of media and material, we concluded that the learning media modified from carrom is in the good and very good categories. Thus, in terms of media and material aspects, the learning instrument developed in this study was feasible to apply or try.

Table 3. Table of Practicality Test

NO	POINTS OF MODIFIED CARROM MEDIA ASSESSMENT	ASSESSMENT RESULTS		
		Teacher 1	Teacher 2	Teacher 3 c
1	The learning activities at school became interesting after the use of carrom media.	5	5	4
2	The learning goals are relevant to the basic competencies	5	5	4
3	The material of learning to read words using carrom media is based on the learning goals.	5	5	5
4	The carrom learning media is completed with the use guide	5	5	5
5	The user guide of the carrom media is easy to understand	5	5	4
6	The carrom learning media is systematically arranged	5	4	5
7	The carrom media helps students to improve their ability to read	5	4	5

8	The language used in carrom media and the user guide is simple, easy to understand, and based on the Indonesian grammar rule.	5	5	4
9	The text on the carrom board is clear	5	5	5
10	The use of carrom media is easy	5	5	5
11	Figures and texts are proportional	5	5	4
12	The contrast of background and figures	5	5	5
13	Figures are clear and do not blur	5	5	5
14	figures are easy to understand and interesting	5	5	5
Total Scores		70	68	65
Averages		5	4,8	4,6
F (total scores)			4,8	

Based on the table above, the total score obtained from three validators is 4.8 with the scoring criteria: 1 (the lowest score), and 5 (the highest score). After being converted, the assessment got a percentage of 97 (categorized in the range of 81% - 100 % with a p-value (score percentage) of 93 %, categorized as very practical. In other words, the learning media modified from carrom is feasible to be applied in teaching to read words.

CONCLUSIONS AND SUGGESTIONS

Based on the findings and discussion about the modification of carrom as a media to teach 3rd-grade students with mild mental retardation to read words in SLB Negeri 1 Makassar, we concluded that teachers and students needed to be modified carrom as a learning media, design/prototype of media from the modification of carrom started from planning, product development, expert validation, and validity test, and expert validation analysis showed that it has very good feasibility and ready to be trialed. Validity and practicality of learning media from modified carrom can improve the reading ability of 3rd-grade students with mental retardation. The score obtained from the material expert was 99, with a percentage of 79 and an average of 3.96 (in the range of $78,20 < X \leq 96,59$, categorized as good). Media experts gave a score of 84, a percentage of 93, and an average score of 4.66 with the very good category.

The media produced in this study should be developed further in terms of other aspects not involved in the present study so that the carrom media can be more interesting, practical, and meaningful for children with special needs, especially mentally retarded children. Further researchers should develop the media on a bigger scale so that it can reach wider aspects of

material and media so that it will have higher validity and values for disabled students.

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