
THE ENHANCEMENT OF COGNITIVE ABILITIES IN EARLY CHILDHOOD THROUGH PICTURE CARD GAME

Ratna Lina Marlina¹, Heris Hendriana², M. Afrilianto³

^{1,2,3} IKIP Siliwangi, Cimahi, Jawa Barat, Indonesia

¹ratnalina03@gmail.com, ²herishen@ikipsiliwangi.ac.id
³muhammadafrillianto1@gmail.com

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Abstract

The purpose of this study is to analyse the students' cognitive ability in the terms of reasoning which are relation to numbers and orders, and the application of learning that has not developed yet as what the teachers hope. This research is aimed to see how the early childhood can develop their cognitive ability by using picture card game. The type of this research is classroom action research (CAR) that has been done in three cycles. The subject of this research is early childhood as many as 16 students consisting of 8 male students and also 8 female students that age 4 to 5 years old. The researcher used observation, interview, and questionnaires as the instruments for data collection techniques. Then, the researcher analysed the data using qualitative method and it was also completed with quantitative analysis called as descriptive statistical analysis through percentage count. The finding of this research is there is a significant development of children's cognitive ability in the terms of reasoning and numeracy ability. The development of early childhood skill in every cycle becomes an indicator where the result of pre-cycle to the children in development stage is 31, 25%. In the first cycle, it developed into 37, 5%, the second cycle increased into 43, 75%, and for the third cycle it became 56, 25%. The result of those all activities are that the application of picture card game can develop cognitive ability to early childhood. The use of picture card media will be much better if it is implemented with a various variety of game.

Keywords: cognitive ability, early childhood, picture card

Abstrak

Latar belakang dilakukannya penelitian ini adalah kemampuan kognitif anak dalam hal daya nalar, mengenal angka atau urutan, serta pengaplikasian pembelajarannya belum berkembang sesuai harapan. Penelitian ini ditujukan untuk melihat bagaimana perkembangan kemampuan kognitif anak usia dini dengan menggunakan permainan kartu gambar. Penelitian ini merupakan jenis penelitian tindakan kelas (classroom action research), yang dilaksanakan dalam 3 siklus. Subjek penelitian adalah anak usia dini sebanyak 16 orang, yang terdiri dari 8 anak laki-laki dan 8 anak perempuan usia 4-5 tahun. Teknik pengumpulan data dan instrumennya menggunakan lembar observasi, wawancara, dan angket skala sikap. Data dianalisis secara kualitatif, dilengkapi dengan analisis kuantitatif yaitu analisis statistik deskriptif melalui hitungan persentase. Temuan dari penelitian adalah adanya peningkatan kemampuan kognitif anak dalam hal daya ingat atau daya nalar, dan kemampuan berhitung. Adanya peningkatan kemampuan anak di setiap siklus menjadi indikator, dimana pada pra siklus anak yang berada pada tahap berkembang sesuai harapan sebesar 31,25%, pada siklus pertama berkembang menjadi 37,5%, pada siklus ke-dua menjadi 43,75%, dan pada siklus ke-tiga meningkat menjadi 56,25%. Kesimpulan dari semua kegiatan tersebut bahwa permainan kartu gambar dapat meningkatkan kemampuan kognitif anak usia dini. Penggunaan media kartu bergambar akan lebih baik apabila diaplikasikan dengan berbagai variasi permainan.

Kata kunci: kemampuan kognitif, anak usia dini, kartu gambar

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INTRODUCTION

Children has a playtime and it is occurs before they are sent to school. Children spend almost all time to play. By playing, children can grow up and develop all aspects related to themselves even their talent can be seen when they play something. Therefore; the teacher of pre-school children need to know the reality and play meaning. Then, the teacher also must understand the appropriate game for children, various skills associated with games and children play.

In fact, kindergarten and similar institutions are the place for development of all children personality aspects at the age of 4 to 6 years. It must be prepared systematically and programmatically. This can be developed through an activity called as “playing while learning” or children can do it the other ways around “learning while playing”. It is to stimulate children intelligent. It must be done so that children can develop skills and abilities and also they can follow the next learning step well.

According to Nurmalina (Sari, 2017), knowledge and instruction to early childhood or pre-school children are needed to help increasing emotional children and how they think up. Something new for children or something interesting will cause the curiosity for them so that children feel curious and want to try for it. Here, the guidance is needed well by children from people surrounding them that have a responsibility and are able to guide them into positive way.

The development and growth aspects evolved early childhood education (PAUD) are religion and moral value aspect, motor physics, cognitive, language, emotional social, and art (Permendikbud, 2014). Cognitive aspect, intelligence, or thinking power is one of the development aspects which must be educated or implemented to early childhood. The cognitive development is required so that early childhood can open perception ability, thought, thinking, understanding to any symbol, also reasoning and solving problem in daily life. Regarding with this thing, the teacher must know all children’s characters by designing or planning and providing an interesting learning so that children have a very high enthusiasm to join learning in every meeting or moment. Because if the children have an enthusiasm or interest, they can focus more and they will understand all knowledge delivered by the teacher (Nonik et al., 2013).

Mohammad Suardi dan Syofrianisda (2018) also mention cognitive understanding. The terms of cognitive comes from the word “cognition” which means knowing. The meaning of cognition extensively is acquirement, processing, and application of knowledge that have been acquired. Next, Pudjiati and Maskouri (Khadijah, 2016) says the meaning of cognition is body ability, intelligence, and be able to use memory and solve the problem or simple questions.

This perception is in line with Tedja Saputra (Sujiono, 2007). He says that cognition is related to wide knowledge, reasoning power, creativity, language ability, and memory. He also mentions intelligence and cognition have relationship and differences. Cognitive characterises passive and it is a power in knowing and understanding something while intelligence is more active than cognitive. It is relation to behaviour from the embodiment of that power.

Next statement is also coming from Marhiyanto (2014) in Indonesia dictionary. He mentions cognitive is meant as something related to or involves a cognition based on factual and

empirical knowledge. Asmariansi (2016) says that the stimuli of early childhood is very important because 80% brain growth develops to early childhood until 8 years old, and 20 % for the rest of their life. It occurs after going through childhood.

This statement is in line with Piaget (Khadijah, 2016). Early childhood or it is used to being called as pre-school age is in stage of pre operational where children have an ability to remember many things from their environment such as the way of imaginative thinking behaviour, showing the interest to know anything, language development starts rapidly, start playing, and learn symbolically.

Bloom (Mulyani, 2020) says that thinking ability is the first foundation or pillar from the development of cognitive area or the process of thinking which is supposed to be mastered in order to be able to apply the theory into an action. The shape of stimulation given to children must be practiced with the right way that is appropriate with their age so that children can recognize and remember the important data about themselves and the knowledge gained from daily life – school, home, and environments – which support children’ activity for everyday life.

In accord with Fiani (Tasliyah et al., 2020), when learning approach uses logical mathematical intelligence, it often uses general worksheets or magazines and also uses speech method. This method absolutely feels so stiff for children or it will make children feel bored with this method because it is not interesting to them. This method cannot measure children ability. Children just sit down and listen to the teacher’s explanation. They are not given a chance to deliver their idea to show how far they understand the lesson. The logical mathematical intelligence is well-known statement. This intelligence is called as someone ability in recognizing shape, colour, symbol, number, letter, and the ability to use mind or common sense.

Based on the statement above, it can be concluded that the cognitive ability is the ability or study skill, thinking, designing, perception, concentration, memory, the understanding of symbols, logical reasoning, creativity, language skill, and solving problem encountered. This consists of problem solving, logical thinking, and symbolic thinking. Cognitive ability can be stimulated through various ways. One of them can be solved by using learning media.

One of learning media that can be used to stimulate the cognitive ability for early childhood is picture card. In Maryanto (2014), he says card can be meant as thick rectangular paper that can be used as needed. Picture card can be made by teachers or students from any various paper which can be inserted like numbers, letters, pictures, or other writings. Picture card making can be adjusted to learning materials that can be taught to the children including the objects, natural events, human, animals, or other elements in daily life such as the type of foods, vegetables, fruits, and so on.

The next statement comes from Arsyad (Hardia, 2018). He says that picture card is the card contains pictures, symbols, or other writings which can represent the original image so that children can be able to remember and understand the things related to those pictures. The picture on the card can be filled with hand image, print image, or pasted photo. Whereas the size of picture can be adjusted with classroom situation.

The conclusion taken from above interpretation is that picture card is a visual learning media which contains images, numbers, letters, symbols, or other things where the size, picture,

material, and the type of manufacture can be adjusted to learning need. Ulifah dan Khotimah (2014) mention children ability in knowing number concept develops more and more. It changes after the children learn using picture card. They look enthusiastic and they feel interested in joining learning activity. Teachers and children can learn together in the classroom actively. This makes learning activity to be more effective and makes children know the concept of development well.

The next statement comes from Yuli (2016), she says there is a significant enhancement in number concept group B1 after applying the visual, auditory, and kinaesthetic learning methods as big as 7,34%. The educators are suggested to be able to keep developing creativities and innovations in learning especially in using activities needing sight, view, and movement that become a capital for learning. The use of learning media such as picture card can help teacher to deliver the learning material easily. The same opinion is also mentioned by Fatimah (2017). From her research, it has been found that the logical mathematical ability of children can develop well by using picture number card game. The implementation of playing card must have a variety, measurable delivery, and routine evaluation.

This is supported by Sari (2017), it has been found on her research that the ability to know the number symbol for children can be developed with a picture number card game. The implementation of picture number card game with variation can be done as an alternative way in the learning process. In line with Yuliani dan Fahrurrozi (2019) mentions that the implication of using picture number card game or picture card is there is an increase in the percentage of children' abilities in recognizing objects, and colours surrounding them in every research cycle.

This statement is also espoused by Hidayah (2019). She found on her research children creativities and abilities in the age of 5 to 6 years old in recognizing the objects in the environment are increasing in every research cycle. Children who are in unfinished categories become finished categories. Maryam (2019) says that the implementation of picture number card game can develop numeracy skill, and learning creativities in group from not being able to count yet become being able to count.

The next is Destrianda dan Fauzia (2019), they say that the picture number card game can motivate and stimulate children in learning to recognize and short the numbers, clarify the materials, and make the learning process easily. This statement is strengthened by Amelia et al (2020). On the research there is a significant increase to children after they learned using picture number card game. It happens to group A after using that game.

Another statement comes from Kurniasih (2020). She mentions the use of lettering picture card media can serve and deliver short messages attractively so that it can make classroom situation relax and the new process of learning to read can be done well and happily. According to Rukmini (2021), the use of picture card can stimulate children ability in memory. Parents can accompany children playing this picture card to fill out the rest time at home during this covid-19 pandemic. The simple and easy use might be played repeatedly.

From the explanation above, it can be interpreted that picture card game is one of the methods and learning media which can be used to increase cognitive ability and early childhood memory. Meanwhile, the result of observation has been done to children in the age of 4 o 5 years old at TKQ Mutiara Qolbu about food consisting of eating and drinking etiquette by using

the learning visual model, auditory, and kinaesthetic. It is found that still quite a lot of children lack of memory and logical mathematical intelligence optimally. Children do not recognize the symbols of number from example 1 to 10, cannot still differentiate among 6, 9, 5, and 7, do not remember eating and drinking etiquette yet, do not address number concept, and cannot apply eating and drinking etiquette in daily life. This happens because teacher cannot provide the learning techniques well and it lacks of interesting for children even there is no learning media to support the materials so that they do not have high spirit and feel bored quickly.

It can be seen from what have just been explained above. Children ability in recognizing number, order, memory, understanding, and the implementation of eating and drinking etiquette is not optimal yet. It needs an appropriate method and other ways which are more creative through the activities of remembering, analysing, understanding, scoring, reasoning, imaging, and speaking. It must be done so as they can grow up and develop optimally and happily.

Based on this consideration, the researcher is interested to conducting a research under the title *The Enhancement of Cognitive Abilities in Early Childhood through Picture Card Game*. From the result of this research, the researcher hopes that it can be gained the studies about the use of picture card which is more effective for early childhood learning. It corresponds to basic competence and development indicator that must be achieved. Hence, this can be developed again to get better study.

METHODS

The method of this research used classroom action research by using model taken from Stephen Kemmis and Robin Mc Taggart, where this research was carried out on cyclical basis. According to Suyatno Hendriana (2017) classroom action research can be called as the implementation of practical action which is arranged systematically by personal teacher or group. It is done to fix educational problem and then give a reflection. After that, again it is done an action so it achieves the target determined.

This research began with pre-cycle, then it was continued with firs cycle, and next until the expected data were achieved. Every cycle step or meeting consists of planning, action, observation, and reflection. In every meeting, children were given a new learning method or a new learning strategy. Then, it was observed to see whether there was an effect from that action to cognitive, affective, and psychomotor development. The same activity was done in the next cycle so it gained the same result.

This research was conducted in TKQ Mutiara Qolbu which located at Cihampelas street, No. 167, Cihampelas district, west Bandung regency for academic year 2020/2021. The subject of this research is early childhood that consists of 16 children – 8 male and 8 female – with the age of 4 to 5 years old. The data collection techniques and instrument used observation sheet, interview, and questionnaire. Then, the researcher analysed the data using qualitative method and it was also completed with quantitative analysis called as descriptive statistical analysis. The data collection techniques began with compiling observation sheets and interviews, determining research place or location, asking permission from the school, delivering research purpose, choosing subject of the research, determining research time, collecting data, analysing data, and drawing conclusion.

The indicator of observation assessment is based on child achievement level standard or in Indonesia it called as Standar Tingkat Pencapaian Anak (STTPA). It consists of: 1) learning and problem solving, namely understanding little/few and much/many concept, observing objects and symptoms with curiosity, 2) logical thinking, it consists of: grouping objects into similar group, can remember and mention six eating and drinking etiquettes as what were displayed on the picture, 3) symbolic thinking, it consists of: can count the sign of numbers from 1-10, recognize the sign of numbers. The last was whether children could apply eating and drinking etiquette in daily life either at home or at the school.

RESULTS AND DISCUSSION

Results

From the initial observation of the research, it was found that children cognitive development was still in developing stage. This can be seen from the result of observation done in pre research from group A at TKQ Mutiara Qolbu where it could still be seen that so many children needed to be helped by the teacher to mention number 1 to 20 systematically or randomly either on the white board or orally. Children also looked they could not be able to recognize number 1 to 20, they also could not know little/few and much/many concept, they could also not group the objects from the size, colour, or shape into the similar group, the could not observe objects and symptoms with curiosity, and they could not address the symptoms of cause and effect for themselves in eating and drinking etiquette. Children often forgot materials and they have not implemented in daily life yet.

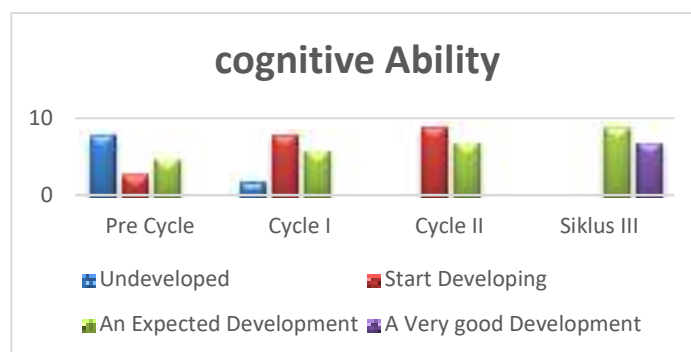
This is because teacher did not give an interesting material to the children especially for eating and drinking etiquette. Teacher usually used worksheet only, and demonstrated the motor movement to begin the process of learning and teacher seldom used props or learning media. This was what made the researcher get interested in conducting this research using picture card game to increase children cognitive development especially in recognizing number, and memory in the materials of eating and drinking etiquette. From this activity, the researcher hopes children will feel happy and get spirit in the process of learning.

The result of each cycle showed that there was a significant cognitive development to children from pre research which was generally still developing. Then, the research was continued to cycle I. in cycle I, it could not still get minimum criteria yet. It needed to be continued to cycle II and cycle III. The increase of children cognitive development was characterized by an increase of children cognitive abilities in mentioning numbers 1 to 10 systematically or randomly either on the whiteboard or orally. Children also recognized numbers 1 to 10. They also knew 'little/few' and 'much/many' concept. They were also able to group objects based on color, shape, or size. Children were able to know at least 6 colors, geometry shape, observe object and symptom with curiosity, and recognize the symptom of cause and effect related to themselves in the term of eating and drinking etiquette. They also began to remember eating and drinking etiquette, and began to apply it in daily activity.

Table 1. The Category of Children Cognitive Abilities Cycle

Category	Pre Cycle		Cycle I		Cycle II		Cycle III	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
A Very Good Development	0	0%	0	0%	0	0%	7	43,75%
An Expected Development	5	31,25%	6	37,5%	7	43,75%	9	56,25%
Start Developing	3	18,75%	8	50%	9	56,25%	0	0%
Undeveloped	8	50%	2	12,5%	0	0%	0	0%
Total	16	100%	100%	100%	100%	100%	100%	100%

Based on the table above, the first condition was 50 %. It occurred because the teacher had not given the treatment or an action to the children yet in pre research. After giving a treatment, the cycle increased to 18,75 % for start developing and 31,25 % for an expected development. In this pre cycle, most of children cognitive ability were in undeveloped stage yet. Then in cycle I, children cognitive ability started developing where children who were in undeveloped stage yet were 12,5 %, children who started developing were 50%, and an expected development of children was 37,5%. After that, the researcher continued the research into cycle II. There was an increase again for this cycle. Children who were in start developing stage became 56,25% and an expected development became 43,75%. The researcher saw the result of cycle I and cycle II and she was not satisfied yet with the result, so the researcher continued to cycle III. In cycle III, the researcher got a significant result. Children cognitive ability with an expected development was 56,25% and a very good development was 43,75%. The result of this percentage exceeded the minimum limit that has been determined by the researcher. An expected development was 50 % and a very good development was 40%.



Picture 1. Children Cognitive Development

The Result of Interview

The researcher met the result of interview conducting to the teacher of group A at TKQ Mutiara Qolbu. It has been found that the learning material of eating and drinking etiquette with the help of motion picture card could help the process learning very well. Children looked enthusiastic and interested in joining picture card game. It was done with creative ways. Picture card game could be delivered with any kind of game techniques. This needed teacher creativity in the classroom, so the game could be more interesting and did not make children feel bored.

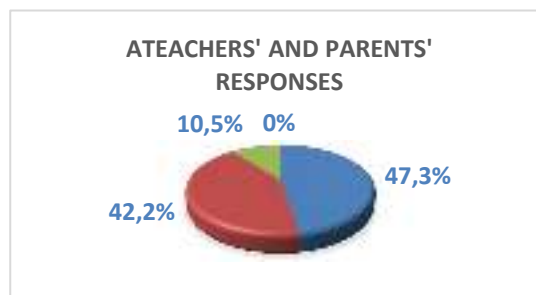
Basically, the learning of eating and drinking etiquette was done classically by using motion media only. Here the teacher demonstrated movement and speech, then children followed the teacher without using any prop or other learning media. Children got the cognitive ability through that activity, principally in remembering, ordering, imitating, mentioning, and applying material, and this was not optimal yet.

With picture card media, the lesson of eating and drinking etiquette which was implemented in the various game. Children became enthusiastic, and they were interested in joining the process of learning with high spirit, so children could focus, learning while playing, and there was a development for children cognitive ability.

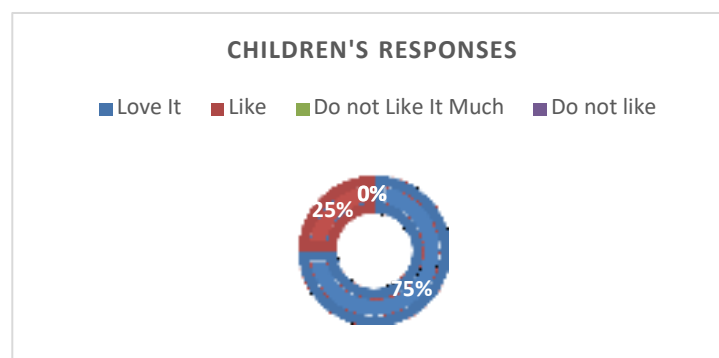
These were expressed by parents. They said that children were more discipline in the term of eating and drinking etiquette after this research was conducted. Children became independent as long as they stayed at home even several children could remind other family members to implement eating and drinking etiquette in daily life. Children memory and the ability to recognize and short number 1 to 10 have increased, but for some unfamiliar etiquette of eating and drinking, parents still have to remind children.

The Result of Questionnaires

The result of questionnaires showed that there were three teachers of group A who joined collaboration with the researcher and 16 parents to the development of children cognitive ability in applying eating and drinking etiquette in daily life with the help of picture card game. The data were explained as follow:



Picture 2. Teachers' and Parents' Responses



Picture 3. Children's Responses

Discussion

The process of lettering and number picture card game in the learning process for group A at TKQ Mutiara Qolbu, Cihampelas runs well. It is because of good cooperation between researcher and teachers especially to prepare for the activities to be carried out in daily learning program plan or in Indonesia it is called as Rencana Program Pembelajaran Harian (RPPH), game method, and classroom setting during the learning process. After the research has been conducted, teachers and researcher did an evaluation, then designed again the program that could be done for next day. It was done to correct the drawbacks that occurred on that day. Children cognitive development in the lesson of eating and drinking etiquette was growing faster by using the learning media of picture card.

There are several things which consider lacking such as paying attention to the children optimally, classroom management, and teacher's ability in preparing for class activity in every meeting. It should be prepared to increase the learning process in the class. The use of picture number card with various games can make children have a new experience. Children will not feel bored, and they will get interested in following learning process. It forced teacher to be creative because teacher must find out various games to make students happy in every learning process.

Picture card games for eating and drinking etiquette consist of character picture, number, letter, and colour. This process should be stimulated to the children so that the development of children cognitive ability can increase even though children only see the picture. Various games which are collaborated with that card must be connected to children development which is appropriate to the stage in order to increase children cognitive ability.

This result is the same as what Rahmatika (2019) found on her research. She says picture card game is suitable for children. This is similar to the principle of learning for the children where children must be learning while playing or vice versa. Playing activity is one of the ways to increase children cognitive ability. Through playing, children can get information, learn something new, and practice existing skills.

The similar statement is also said by Nufaisah et al. (2019), she shares the result of the research. She compared between two games practicing to the children – puzzle and picture card. On the research, it has been found that picture card game is more appropriate for the children to develop cognitive ability. It proves that children would rather like picture card game rather than other games such as puzzle and so on.

This finding is supported by Amelia et al. (2020), it is stated that children can recognize the concept of numbers well after they are given picture card game. It was also found that children develop rapidly after they learn using picture card. This ability consists of being able to count very well. Tubaus (2020) has the same opinion with Amalia. On the research, it is said that the use of picture card game for numbers to increase children cognitive development in the term of remembering and counting is very effective and precise to be implemented for early childhood.

The result of this research shows that 75 % of children mentions the use of learning number card media is appropriate and interesting. This result is in line with the research conducted by

Tai et al (2021). It was mentioned that the response of children to picture card game is very good, hence it can make early childhood cognitive development easily.

Based on the findings in this study, the cooperation of parents are needed so much. Parents who always give examples to children by practicing eating and drinking etiquette in daily activity tend to have children who learn faster than other children because they can see and hear etiquette every day, then they keep following what their parents do. If it has become a habit, children will always implement it either at home or in the school. This is similar to the research result conducted by Windawati (2021). On her research, she said that it has been found a significant development of children cognitive ability in group A1 at TK Widiatmika after she taught children using picture card game. Parents' assistance can be able to motivate children learn very well, so children cognitive ability can be developed optimally.

CONCLUSION

It has been found on the research result that was conducted at TKQ Mutiara Qolbu. The research can be concluded that children cognitive ability of group A in remembering, shorting, and implementing the material of eating and drinking etiquette is not acquired as what the researcher expected. It can be seen from observation result done in pre research cycle where there are still many children who are in the stage of developing and undeveloped children. By implementing the learning process using picture number card games which are adjusted to eating and drinking etiquette, children ability in the term of cognitive developing is very good. It can be seen from the final result of the research where children who are in the undeveloped stage and started developing stage increase their cognitive ability into the stage of expected development and a very good development.

The use of picture number card will be much better if it is varied with various games which correspond to the developing need of what will be achieved. Parents' role is needed to help children cognitive development especially in the lesson of eating and drinking etiquette. Parents must become a good role model for children because the lesson of eating and drinking etiquette can be understood by children if teachers and parents become a good role model, and it can make children easy in implementing that material without any burden.

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