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The Development of MONOTIKA (Monopoly Mathematics) Learning Media in Algebraic Material for Junior High School Students in Grade VII

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Abstract

This research aims to develop MONOTIKA learning media (Monopoly Mathematics) and test the feasibility of MONOTIKA learning media (Monopoly Mathematics) in algebraic materials for middle school students. The learning development model is the ADDIE design model. This study's sources of needs analysis are SMP Negeri 126 and SMP Negeri 209 east Jakarta area. Data collection techniques used are teacher interviews and polling stations. Validation of the development of this learning media between 2 validators is material experts and media experts and student response usage if MONOTIKA media is used in schools. This media trial was conducted on 41 students in grades 7 G and 7 H at SMP Negeri 209 Jakarta. This study showed that MONOTIKA (Monopoly Mathematics) obtained a total average score for all aspects of all is 4.50 material expert validity and 4.28 valid expert media, which is an average media that deserves good both as a learning medium. Student poll results showed an average score of 4.47, which the average student gave responsibility for positive MONOTIKA (Monopoly Mathematics). Thus, the results of the development of MONOTIKA (Monopoly Mathematics) learning media for junior high school students in grade VII are valid and eligible for use.

Keywords: Learning Media, Monopoly Mathematics, ADDIE Model

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INTRODUCTION

Skilled and superior human resources can advance a country (Ahmad & Schroeder, 2003; Coff, 1997; Bhakti et al., 2020; Becker & Gerhart, 1996. Improving the quality of education in the national education system is an effort in developing the quality of human resources to develop optimally and create intelligent people and be able to compete in the future (Jusuf, 2005; Boccanfuso, Larouche, & Trandafir, 2015; Sulisworo, 2016; Leonard & Nisa, 2020; Evi, 2011; Azizah, 2019; Oktarina, 2007). Education that can support future development is education that can develop students' potential so that students are expected to solve the problems of life (Ahniya, 2017; Lilawati, 2017).

The quality of education in Indonesia is still relatively low (Leonard & Wibawa, 2020); this can be seen from PISA 2018 data held by the OECD. PISA results in 2015 Indonesia reached reading, mathematics, and science skills having consecutive score scores of 397, 386, and 403. Compared to PISA data in 2018, scores for reading, mathematics,

and science in Indonesia decreased by 371, 379, and 396 in a row. From the data, mathematics and science decreased with a ranking of 72 out of 78 countries. Improving the quality of education in educational goals requires preparation that can support everyone's ability.

Mathematics is an essential science in life and is the parent of all sciences (Tseng, Chang, Lou, & Chen, 2013; Imswatama & Lukman, 2018; Koltai & Schieman, 2015; Razzouk & Shute, 2012. Mathematics learning aims to equip students to fulfill logical, analytical, systematic, critical, and creative thinking skills. Scientific learning should be used to implement the 2013 curriculum, which includes five learning activities: observing, asking, conducting experiments, or seeking information, conducting reasoning or associations to process information and develop networks or communicate investigative results. These learning characteristics are crucial to producing logical, analytical, systematic, critical, and creative thinking skills.

Based on the interviews conducted by several grade VII math teachers in SMPN 126 and SMPN 209 Jakarta, there are still teachers who use conventional learning in delivering mathematics materials. Some teachers have used a scientific approach with the Problem Based Learning (PBL) logging model by providing assignments and creating discussion groups. The learning is still less effective, and there are still students who answer the results of their group's work without understanding the answers they have. It makes students less motivated and considers Mathematics to be frightening and tedious. Therefore, innovation in mathematics learning is needed to be no longer seen as a scary and boring subject but rather as a fun subject. So many ways can be taken to improve the quality of learning, one of which is learning design. It is affirmed (Leonard, 2018) that learning is highly determined by the teacher's skills in designing learning. Competence and professional teacher will be measured from the extent to which he can design learning and teach it in a learning process in the classroom to get his students to achieve optimal learning outcomes (Bennett, Agostinho, & Lockyer, 2015; Darling-Hammond, 2014; Pyhältö, Pietarinen, & Soini, 2014).

Mathematics is a symbol, language, mindset that emphasizes the concept (Tymoczko, 1986, Ernest, 1991; Godino, 1953; Kuo, Hull, Gupta, and Elby, 2013; J. Behr et al., 2016; Deviana & Prihatnani, 2018; Rahaju & Hartono, 2017). Students' understanding of mathematics is relatively low. To deepen their understanding of concepts, teachers can give students question exercises. Continuous training methods can assist students in improving their understanding of mathematical concepts. According to (Ramadhani 2017; Clements, 2000; Nguyen & Kulm, 2005; Bassler, 2016), math learning, in general, concentrates more on problem training. The practice method of questioning can shape students' habits in accuracy, speed, and concentration, as well as problem-solving on the question (Erny et al., 2013; Juniata, 2017; 2016: 2016 The method of training questions carried out continuously with the same thing can harm students (Fitriyah & Khaerunisa, 2018; Ginanjar, Yusup, & Hermanu, 2015; Siadi, Mursiti, & Laelly, 2009). Therefore, teachers need innovation to anticipate the feeling of saturation in students when completing problem training.

One way to present exciting question exercises is to use the game media (Divjak & Tomić, 2011; W. Fatimah et al., 2009). Teachers need to be able to design learning models that contain activities with elements of the game. Using the game, students do not feel saturated at the time of the training question due to the challenges of a game (Kiili, 2005). Some game media have been developed for the practice process of one of them, namely monopoly. Monopoly games are board games that contain plots, and each pawn or player can buy land on the plot according to the price stated, which includes properties in the form of building and land assets (Suprapto, 2013; Trinovitasari, 2015). Monopoly games can also train students to manage finances. The development of monopoly learning media has

been widely done by researchers (Siskawati et al., 2016; Aransa Vikagustanti, Sudarmini, & Diah Pamelasari, 2014; 2015: 2015- 2015 Ramadani, Wahyuni, & Handayani, 2016; Isnaini & Rahmawati, 2016; Susanto & Prastiwi, 2012; Firdaus, Zubaidah, & Sunarmi, 2015). However, few develop mathematical material, especially algebra.

Based on the results of interviews in SMPN 126 and SMPN 209, Jakarta obtained information that the learning process of teaching mathematics subjects is still less integrated. Learning media that does not exist in math subjects, thus making students learn with monotonous learning and feel dull. As for the steps that need to be taken to help improve the quality of learning, researchers are encouraged to develop and modify a monopoly game into a medium of mathematical learning with educational value. The development research titled "The Development of Monotika Learning Media (Monopoly Mathematics) in Algebraic Material for Junior High School Students in Grade VII."

METHODS

This type of research is development research or Research and Development (R&D). Design a learning development model to develop mathematical learning design through mathematical monopoly learning media using the ADDIE design model. The ADDIE model is a reference because it corresponds to the media developed with its simple, systematic, easy-to-understand description, and its development involves expert assessment. This model was developed by Robert Maribe Branch which consists of 5 stages.

The first stage is the analysis stage. At this stage, researchers analyze the needs for media support components to be created. The necessary needs include needs analysis, curriculum analysis, and analysis of student characteristics. The second stage is the design stage. At this stage, researchers began to review materials, assessment instruments, and design media to be created according to the needs analysis results. The third stage, namely development. At this stage, researchers began to develop MONOTIKA (Monopoly Mathematics) media and validate the media on two assessment validators, namely material experts, and media experts. The fifth stage, which is the implementation stage. At this stage, researchers realize product results to achieve the desired targets of learning goals. This stage is done after the revision is completed, then only a limited trial is carried out; this step is done to find out if the product developed is already exciting and worth using. The last stage is the evaluation stage. This evaluation is the final stage of the learning process. Researchers made the latest revision to *Monotika* (Mathematics Monopoly) media based on input obtained from response polls or field notes on the Evaluation sheet.

The data collection technique used, i.e., using Likert scale assessment. All polls are categorized with assessment criteria divided into five, namely: 1) strongly disagree, 2) disagree, 3) hesitant, 4) agree, and 5) strongly agree. Quantitative value conversion guidelines 1 to 5 into qualitative categories to conclude how the feasibility of media is developed.

RESULTS & DISCUSSION

Results

This research uses the ADDIE development research model. Here is a breakdown of the stages of development:

1. Analyze

The analysis phase of this study is divided into 3, namely the needs analysis stage, student characteristic analysis, and curriculum analysis. Researchers conducted interviews with two 7th grade math teachers at SMPN 126 Jakarta and two mathematics teachers in grade 7 at SMPN 209 Jakarta at the analysis stage. The results of the interview showed problems in the learning process, namely media used only limited to projectors and power points, the absence of game-based learning media, abstract algebraic materials requiring innovation of learning media, learning methods used too monotonously, ways of practicing questions that did not vary, and assignments that tended to be boring. At the characteristic analysis stage, the researchers interviewed four teachers to find out the need to design media and materials that fit the character and emotional development of the student. The information obtained from the interview results, namely the 7th grader, is the transition period from elementary school to junior high school, so nature is still confusing. Students still like to play and joke with their friends during the learning. Some students are enthusiastic about receiving learning materials, especially in new ways. Students' thinking about mathematics is still abstract, so media is needed as a learning resource. At the curriculum analysis stage, researchers perform analysis of various applicable curriculum tools. This analysis aims to formulate indicators and learn objectives based on Core Competency (KI) and Basic Competency (KD). The curriculum used today is Curriculum 2013 Revision 2017. Based on the results of the analysis, there are 2 Basic Algebraic Competence with five indicator formulations, namely, (1) knowing the algebraic form of contextual problems; (2) Explains the meaning of variables, constants, tribes, and similar tribes; (3) observe the summation and reduction of algebraic forms; (4) observe the multiplication and division of algebraic forms, and (5)Apply a calculated operation on the algebraic form to solve the problem.

2. Design

At this stage, researchers began designing a medium of learning monopoly mathematics to be developed. There are four steps at this design stage, including the collection and selection of references, the design of prototype monopoly mathematics, the preparation of rules of play, questions, critical answers, and the preparation of mathematical monopoly assessment instruments. In the reference selection stage, researchers selected *freepik* and google sources for the necessary images on the media monopoly of mathematics and *Erlangga* curriculum books 2013 revised editions 2016 and 2017 and books from the Ministry of Education as a source of material in the media MONOTIKA (Monopoly Mathematics). At the preparation stage of the prototype, researchers made a prototype monopoly board with a size of 50 cm x 50 cm, prototype question cards, question cards, and building rights cards with a size of 6 cm x 8 cm, as well as a prototype monopoly money with a size of 9.51 cm x 5 cm. The next step is that researchers design a mathematical monopoly media assessment instrument in the form of evaluation sheets of media experts and materials experts and student response questionnaires. The instrument is used to obtain a media quality assessment of the mathematical monopoly.

3. *Development*

The development stage includes product creation, validation of product usability, and repair or revision. This stage aims to see the extent of the feasibility of the mathematical monopoly learning media that has been designed. After obtaining a feasibility assessment, the mathematical monopoly learning media was revised according to criticism and advice from validators. This mathematical monopoly media creation stage uses the Hp EliteBook 8470p laptop with an Intel (R) Core (TM) i5 processor. The mathematical monopoly media is designed using the Adobe Illustrator

CC 2017 and Adobe Photoshop CC 2017 apps for image editing. Microsoft Word 2007 and Microsoft Office PowerPoint 2007 to write questions and formulas before editing in design applications. The results of the mathematical monopoly creation stage can be seen in the figure 1.

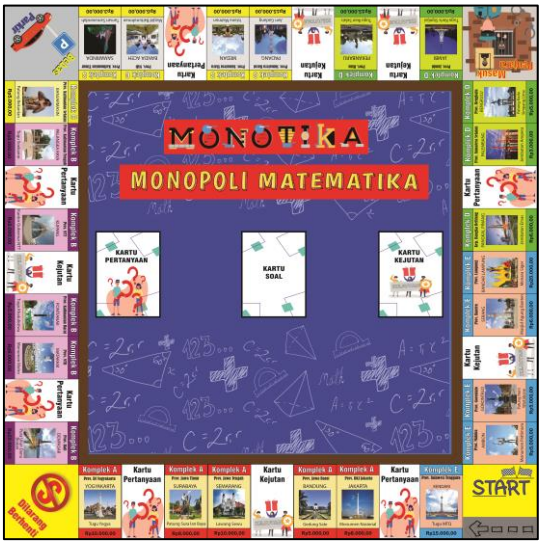

Figure 1. Mathematics Monopoly Board

In figure 1, there is a mathematical monopoly board consisting of 40 plots surrounding the question card box, question cards, and surprise cards in the middle position. There are four plots in 4 corners of the mathematical monopoly: one start tile for the beginning of the game, two plots are forbidden to stop, one parking-free tile, and one plot goes to prison. This mathematical monopoly board consists of 25 complex plots (A, B, C, D, and E) with the names of several provinces in Indonesia equipped with the name of the city and the name of the image icon listed on the tile, in addition, there is also a land sale price on the province. On this monopoly board, there are also 6 question cards and five plots of surprise cards. This mathematical monopoly board is made with a wood base material with a size of 53 cm x 53 cm x 7 cm and can be folded with 53 cm x 26.5 x 7 cm. The image of the mathematical monopoly board is printed with the primary material of Sticker Frontline paper measuring 50 cm x 50 cm.

In the medium of learning monopoly mathematics, there is 1 set of algebraic matter cards totaling 60 cards, 1 set of question cards and 1 set of surprise cards which each amount to 30 cards, 1 set of building rights cards totaling 25 cards, as well as monopoly money designed with images of mathematical scientists and information. Question cards, question cards, surprise cards, and building rights cards are made with a size of 6 cm x 8 cm and printed with 310-gram Art Paper base material, and for building rights cards printed with Art Carton base material 210 grams-260 grams of cardboard. On the front of the card, there are motivational words. On the back of the question card, there are questions and numbers in the upper left corner as a question code to check the answers in the mathematical monopoly manual. The shape of the question card can be seen in figure 3.

Figure 2. Front and Back View of Problem Cards

The question card on the mathematical monopoly contains basic questions from which it is easy to solve problems. On the back view of this card, there are questions, rewards, and question codes. The shape of the question card can be seen in figure 4.

Figure 3. Front and Back View of Question Cards

The surprise card contains surprises that students have to do. This card is a substitute for the opportunity card. The statement sentences in the surprise card are also some that contain educational elements. The shape of the surprise card can be seen in figure 4.

Figure 5. Front and Back View of Surprise Cards

Building rights cards are ownership of buildings in certain provinces. On the property card of the mathematical monopoly building, there is a breakdown of the cost

of buying a house and hotel. This card uses the provincial name and photo icon of the province. The shape of the building's proprietary card can be seen in figure 5.

Figure 5. Front and Back View of Building Property Card

Monopoly money consists of money worth Rp100.000.00, Rp50.000,00, Rp20.000,00, Rp10.000,00, Rp5.000,00, Rp2.000,00, Rp1.000,00, Rp500,00, Rp200,00, and Rp100,00. This monopoly money measures 9.5 cm x 5 cm and is printed with art paper base material 120 grams - 150 grams. The money monopoly of mathematics can be seen in figure 6.

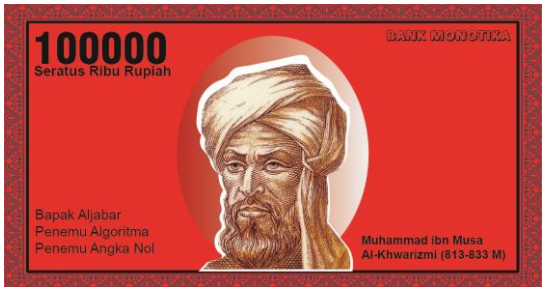

Figure 6. Mathematics Monopoly Money Display

This monopoly is equipped with a manual containing the procedure for using mathematical monopoly media, a brief description of the material, key answers, and discussions on question cards and question cards. Here is a cover of the mathematical monopoly manual in figure 7.

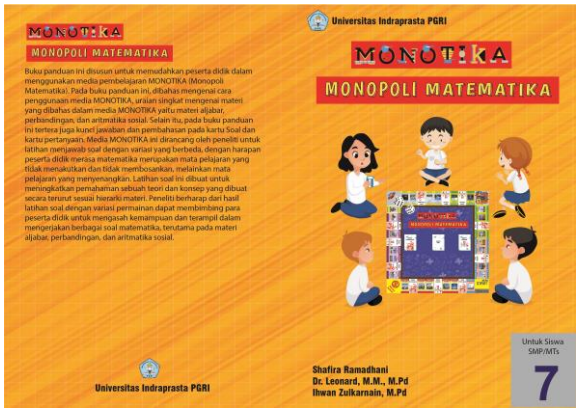

Figure 7. Monotika Guidebook Cover (Mathematical Monopoly)

This Mathematical Monopoly game is played by seven players, one of whom becomes a Bank official and a referee in the game. Each player is given rp150.000.00. The game starts with shaking the dice, the most dice he has ever had. Players who stop at a plot of land that another player does not already own will buy by answering the question on the question card and paying the price set on the building's proprietary card. Players who stop on a tile of a building owned by another player must pay the ground rent as the other player has. The game is 40 minutes long, 30 minutes of play, and 10 minutes counting each player's wealth.

The validation stage on the medium of mathematical monopoly learning is done online to disseminate evaluation sheet questionnaires through google forms. The media expert validator consists of 2 lecturers of the mathematics education study program of Indraprasta PGRI University. The results of media expert validation can be seen in table 1.

Table 1. Media Expert Validation Results

No.	Assessment Aspect	Total Value	Average Value	Criteria
1.	Media Engineering	67	4,19	Very Decent
2.	Visual Communication	131	4,37	Very Decent
	Total	198	4,28	Very Decent

The material expert validator consists of 4 validators, namely two lecturers of Indraprasta PGRI University, 2 grade VII math teachers from SMP Negeri 126 Jakarta, and SMP Negeri 209 Jakarta. Material expert validation results can be found in table 2.

Table 2. Material Expert Validation Results

No.	Assessment Aspect	Total Value	Average Value	Criteria
1.	Material	162	4,5	Very Decent
2.	Motivation	38	4,75	Very Decent
3.	Language	50	4,17	Decent
4.	Use	18	4,5	Very Decent
5.	Question	109	4,54	Very Decent
6.	Well Evaluation	73	4,56	Very Decent
	Total	450	4,5	Very Decent

Validation is implemented to get criticism and advice from validators. Criticism and suggestions of validators will be a reference to improve the media MONOTIKA (Monopoly Mathematics), as follows: 1) material validator one provides advice, sentence improvement on question cards and materials in the manual, 2) material validator 2 provides advice, to add KD and indicators in the manual section. 3) media validators 1 and 2 and material validators 3 and 4 states that the media is ready for use without revision.

4. Implementation

The implementation phase of the researchers conducted a limited test conducted on August 4, 2020, at SMP Negeri 209 Jakarta. Respondents are 41 students from two classes, namely 7G and 7H. The implementation stage is done online (online). Researchers presented one introductory video and instructions for using mathematical monopoly media that was 2 minutes 52 seconds long. After viewing the video, students are encouraged to fill out a questionnaire to determine the student's response if *Monotika* (Monopoly Mathematics) media is used as a learning medium. Limited trial results are presented in Table 3.

Table 3. Student Assessment Results

No.	Assessment Aspect	Total Value	Average Value	Criteria
1.	Content Quality	183	4,46	Very Decent
2.	Language	189	4,61	Very Decent
3.	Use	182	4,44	Very Decent
4.	Display	552	4,49	Very Decent
5.	Motivation	1223	4,26	Very Decent
6.	Interest	372	4,54	Very Decent
	Total	2701	4,47	Very Decent

5. Evaluation

This stage is a phase to know the feasibility of the resulting product, namely, MONOTIKA Learning Media (Monopoly Mathematics) junior high school level. Media validation and material validation results are included in the X> range of 4.2, with average values of 4.28 and 4.50 included in the "Very Feasible" criteria. Limited trial results have an average value of 4.47, which includes the criteria "Very Decent." The assessment of media experts, material experts, and student responses shows that monopoly learning media mathematics is well worth using as a learning medium.

Discussion

This research has successfully developed a learning medium in *Monotika* (Monopoly of Mathematics) on the algebraic meter. Monotika (Mathematics Monopoly) learning media was developed by adapting the ADDIE development research model. This research goes through various stages of validation of media, materials, and limited trials to find out the student's response. After going through various validation stages and limited trials, this MONOTIKA (Mathematics Monopoly) learning medium deserves to be used as a learning medium for students.

Monotika Media (Mathematical Monopoly) is the development of monopoly games. The instructions for use used in *Monotika* learning media (Mathematics Monopoly) are almost the same as a monopoly in general, but there are some modifications in it. This mathematical monopoly medium is flexible and can be used anywhere, not just in the classroom. The mathematical monopoly media is designed with a square board with a size of 53 cm x 53 cm x 7 cm and made of wood so that it is more robust, reusable, and not easily damaged. This mathematical monopoly board has exciting colors and images. This monopoly board display uses stickers that each complex tile introduces to students of several provinces in Indonesia with the city and icon of the chosen image of the province.

The selection of materials in *Monotika* learning media (Monopoly of Mathematics) is adjusted to the need assessment, i.e., algebraic material. This mathematical monopoly development has a set of problem cards containing 60 cards. The level of difficulty found on the question card varies, from easy to complex. This question card contains questions, but there are motivational words on the front of the question card as a generator of student learning spirit.

There are also question cards in this medium to practice basic math skills such as summing, subtraction, multiplication, and division with the type of short question to the question that requires logic in answering it. This mathematical monopoly media also has surprise cards in which there are some educational elements. Monopoly money in this medium also has educational information that introduces students to several scientists in mathematics. This learning medium is also equipped with *a Monotika* book (Monopoly of Mathematics) which contains a brief description of the material, how to use the media, and critical answers and discussion questions on question cards and question cards.

Monopoly learning media has been pretty much developed by researchers (O'halloran & Deale, 2010; Kuang, 2018; Ansoms & Geenen, 2012; Herdani et al., 2015; Fadlillah, 2016; Firmansyah & Indana, 2018; Deviana & Prihatnani, 2018; Firdaus et al., 2015; 2015: 2015- 2015 Isnaini & Rahmawati, 2016; Rahaju & Hartono, 2017; Ramadani et al., 2016; Siskawati et al., 2016; Suprapto, 2013; Susanto & Prastiwi, 2012; Ulfaeni et al., 2017; Vikagustanti et al., 2014; Zahro, 2015). Research results in a state that monopoly media is effectively used as a learning medium to practice the problem (Deviana & Prihatnani, 2018; Firdaus et al., 2015; 2015: 2015- 2015 N. Ramadhani et al., 2016). Learning using monopoly media positively influences students' thinking abilities (Vikagustanti et al., 2014; Kuang, 2018; Syalfi et al., 2019). Learning media in the form of monopoly games effectively improves students' learning motivation (Hidayat & Muhajir, 2015; Siskawati et al., 2016; Agustiya et al., 2017). In addition, monopoly learning media can improve students' learning outcomes (Hidayat & Muhajir, 2015; Agustiya et al., 2017), student learning achievement (Rahaju & Hartono, 2017), and student concept comprehension skills (Ulfaeni et al., 2017).

Based on the description of the previous research, there are several developments of monopoly media in IPA material (Firmansyah & Indana, 2018; Firdaus et al., 2015; Ramadani et al., 2016; Ulfaeni et al., 2017; Vikagustanti et al., 2014; Susanto & Prastiwi, 2012), geography (Siskawati et al., 2016), Javanese script (Zahro, 2015), batik arts (Hidayat & Muhajir, 2015), food (Suprapto, 2013), social sciences (Ashari & Purwanti, 2017), basic accounting concepts (Kuang, 2018; Tanner & Lindquist, 1998), hotel and lodging development concepts (O'halloran & Deale, 2010).

There are also several media developments of mathematical monopoly (Deviana & Prihatnani, 2018; Fadlillah, 2016; Prasetyo & Prihatnani, 2018), but only on opportunity materials at junior high school level (Deviana & Prihatnani, 2018), logic materials, and basic mathematics for early childhood (Fadlillah, 2016), and straight-line equations for middle school VIII students (Prasetyo & Prihatnani, 2018). No researcher has yet developed a media monopoly with the algebraic matter.

This monopoly board is designed with the look of several local icons in Indonesia, and the monopoly developed with (Deviana & Prihatnani, 2018), but there are some differences. The difference lies in the name of the city, the name of the city icon of the province, and the complex consisting of complexes A, B, C, D, and E. Here is a look at the swaths of monopoly boards developed by (Deviana & Prihatnani, 2018):

Figure 8. Mathematical Monopoly Tile View

This monopoly board consists of 40 plots that include education about provinces, cities, icons, and place names in several provinces in Indonesia to introduce Indonesia and teach love to the homeland to students. Monotika (Monopoly Mathematics) board design is flexible and can be used for other materials. The monopoly board developed by (Susanto & Prastiwi, 2012) consists of 28 plots with cell material information and is only centered on one material, so it is not flexible to use on other materials. Color design that is not full color and less attractive. There is no box to put question cards and general funds on board. Here is a look at how the MONOTIKA board compares to the developed monopoly (Susanto & Prastiwi, 2012):

Figure 9. Cell Structure Monopoly Board

Many researchers provide various forms of question cards in monopoly media (Deviana & Prihatnani, 2018; Firdaus et al., 2015; Prasetyo & Prihatnani, 2018; Zahro, 2015; Hidayat & Muhajir, 2015), but the number is minimal, the front view design is plain and less attractive, and there are no motivational words for students. Here is a look at some of the researchers' cards:

Figure 10. Plain and Less Attractive Problem Card Design

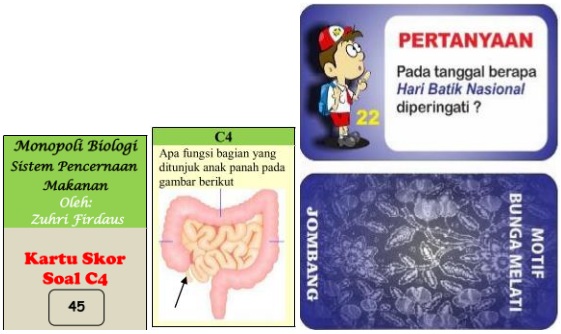

Figure 11. Question Card Design Hasn't Motivational Sentences

Research into the development of monopoly learning media equipped with guidebooks or how to use media instruction (Deviana & Prihatnani, 2018; Hidayat & Muhajir, 2015; In 2015, Zahro, 2015. This Presentation Book Guide is incomplete and contains only how to use it. Monotika Content Presentation Book Guide is different from other research. In the MONOTIKA manual, a way of using media that is displayed in detail and clearly can be described briefly with examples of questions, critical answers, and discussions of question cards and question cards.

Based on the description of previous research differences that have been presented, can be taken some advantages of the medium monopoly of mathematics developed, among others: 1) as a learning guide for students independently; 2) media organized by applying the concept of learning and playing, equipped with varied questions to know the level of material mastery and achievement of essential competencies; 3) the media monopoly of mathematics there is a math problem card according to the material on the need assessment that varies with a considerable number, namely 60 cards; 4) the media monopoly of mathematics there is a question card that is able to practice the logic of mathematics and primary mathematics students; 5) monopoly money that provides new educational information to students, because it contains information of scientists in the field of mathematics; 6) there is a MONOTIKA manual used as a guide in looking at the brief description of the material, the key to the answer, and the discussion; 7) the design of the front view of the question card can build motivation for students, because there are motivational words on each set of question cards; 8) mathematical monopoly media is a flexible visual medium that can be used anywhere and does not have to be in the classroom; 9) materials and questions in the media have been in accordance with the essential competencies that must be achieved by students; 10) the mathematical monopoly media has many game components/equipment so it trains the precision and order of the player to tidy up again after using it; 11) math monopoly games are made with attractive designs and colors so as not to bore students; 12) provide students with a new learning experience by using fun games.

CONCLUSION

The resulting MONOTIKA (Mathematics Monopoly) learning media has been developed with ADDIE models that include analysis, design, development, implementation, and evaluation. The quality assessment of MONOTIKA learning media (Monopoly Mathematics) is assessed through the validation instruments of media experts, materials experts, and limited trials conducted online through google forms. Based on the assessment of media experts, the quality of Monotika learning media (Monopoly Mathematics) is considered very feasible to be used as a learning medium without the need

to revise. However, some materials need to be revised in the material expert validation assessment to get to the limited trial stage. In the limited trial phase of student responses assessed through polls resulting in positive responses, students are happy and interested in learning media such as MONOTIKA (Monopoly Mathematics).

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