THE DEVELOPMENT OF *SNAKE AND LADDER MEDIA OF MATHEMATICS* IN THE TOPIC OF ADDITION AND SUBTRACTION FOR FIRST GRADE STUDENTS AT MI PERWANIDA BLITAR

THESIS

By:

Suhendrianto

09140103

INTERNATIONAL CLASS PROGRAM (ICP)

PRIMARY SCHOOL TEACHER EDUCATION DEPARTMENT

FACULTY OF TARBIYAH AND TEACHING SCIENCES

THE STATE ISLAMIC UNIVERSITY OF MAULANA MALIK IBRAHIM MALANG

July, 2013

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Presented to Faculty of Tarbiyah and Teaching Sciences, The State Islamic University of Maulana Malik Ibrahim Malang in Partial Fulfillment of the Requirement for Bachelor Degree of S-1

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APPROVAL SHEET

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THE DEVELOPMENT OF *SNAKE AND LADDER MEDIA OF MATHEMATICS* IN THE TOPIC OF ADDITION AND SUBTRACTION FOR FIRST GRADE STUDENTS AT MI PERWANIDA BLITAR

THESIS

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Suhendrianto (09140103)
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PASSED
And has been approved by the board of examiners as the requirement to earn an undergraduate Bachelor of Islamic Primary School Teacher Education (S.Pd.I)

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DEDICATION

This Thesis Dedicated to.....

My Beloved, Mother and Father, who always give spirit and pray

My Beloved, Brother, Sister and all of my big family...

Thanks to my Guardian, my lectures, and my teachers...

And all of my friends, where ever you are...

MOTTO

لِكُلِّ يَوْمٍ زِيَدَةً مِنَ الْعِلْمِ وَاسْبَحْ فِي بُحُوْرِ الْفَوَائِدِ

Every day always increase the knowledge and swim in the ocean of benefit

Mokhammad Yahya, M.A., Ph.D
The Lecturer of Tarbiyah and Teaching Sciences Faculty
State Islamic University Maulana Malik Ibrahim of Malang

ADVISOR OFFICIAL NOTE

Matter : Thesis of Suhendrianto Malang, July 2nd 2013
Appendixes : 4 Exemplars

The Excellency,
Dean of Tarbiyah and Teaching Sciences Faculty
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at
Malang

Assalamu'alaikum Wr. Wb.

After carrying out at several times for guidance, both in terms of content, language and writing technique, and after reading the following thesis:

Name : Suhendrianto
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Title of Thesis : The Development of *Snake and Ladder Media of Mathematics* in the Topic of Addition and Subtraction for First Grade Students at MI Perwanida Blitar

As the advisor, we argue that this thesis has been proposed and tested decent. Thus, please tolerate presence.

Wassamu'alaikum Wr. Wb.

Advisor,

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STATEMENT

I hereby declare that this thesis is no work that has presented to acquire a degree at a university and there is also never written, opinions of other, except that in writing referred in this manuscript and mentioned bibliography.

Malang, July 2nd 2013

Suhendrianto

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Praise be to Allah, The All Merciful and The All Compassionate. Thanks to Allah because of all blessing and guidance, so the author able to finish the thesis with under title "The Development of Mathematics Snake and Ladder Media in the Topic of Addition and Subtraction for First Grade Students at MI Perwanida Blitar". Shalawat and Salam are always for Prophet Muhammad SAW, who guided us the straight ways.

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The author realize about the defectiveness of this thesis. Therefore, the author needs constructed critical and suggestion from all parties and reader to the next perfect report arrangement. So I hope this thesis can be useful for us. Finally, may God bless us. Amin.

Malang, July 2nd 2013

Suhendrianto

TRANSLATION GUIDELINES OF ARAB LATIN

Translation of Arab Latin in this thesis utilize the translation guidelines based on the agreement between Religion Minister and Educational And Culture Minister of Indonesia number 158, 1987 and number 0543 b/U/1987. They are:

A. Huruf

ا = a	ز = z	ق = q
ب = b	س = s	ك = k
ت = t	ش = sy	ل = l
ث = ts	ص = sh	م = m
ج = j	ض = dl	ن = n
ح = h	ط = th	و = w
خ = kh	ظ = zh	ه = h
د = d	ع = ‘	ء = ,
ذ = dz	غ = gh	ي = y
ر = r	ف = f	

B. Vokal Panjang

Vokal (a) panjang = â

Vokal (i) panjang = î

Vokal (u) panjang = û

C. Vokal Diftong

و ا = aw

ي ا = ay

اِى = û

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ABSTRACT

Suhendrianto. 2013. *The Development of Snake and Ladder Media of Mathematics in the Topic of Addition and Subtraction for First Grade Students at MI Perwanida Blitar*. Thesis, Islamic Primary Teacher Education Department, Faculty of Tarbiyah and Teaching Sciences, The State Islamic University of Maulana Malik Ibrahim Malang. Mokhammad Yahya, M.A., Ph.D

Mathematics needs to be taught to all students since in the level of elementary school in order to flourish logical thinking, analytical thinking, systematical thinking, critical thinking, creative thinking, and cooperative skill. Those are skills which are definitely needed by them in societal life. Nevertheless, it is commonly perceived, that the mathematics is hated and frightened for most all students. It is probably also avoided by the students and there are many students had assumption that mathematics is very difficult to be mastered. Although in fact, it is not that hard to be learnt. Therefore, teachers need to apply fun teaching and interest learning media. But keep containing points of learning topic in class room, so that students are interested in learning mathematics. One of mathematics media which can be applied is *The Snake and Ladder Media of Mathematics*. This media is innovation of snake and ladder game which is already broadly known by society. Although, it's developed based on game, it keeps in containing principals of mathematic learning - in this case is the topic of addition and subtraction for first grade.

This research is using development model of Research and Development by Dick and Carey. This research has been done in first grade "Hud" at MI Perwanida Blitar which using experiment design *(before-after)*. Based on this research, there are some products that have been produced, namely; dice that using *icosahedron-shape*, board of media, pion (player), student worksheet, rule of play, teacher guide book, and CD of games draft. All of the products are covered by interesting media cover.

The mathematics snake and ladder media has effective can increase the student achievement. This is can be evidenced with analysis of paired t-test. From this t-test can be resulted that $t_{test} < t_{table} = -2.09628 < -2.039513$. So Ho is rejected and Ha is accepted. From this data can be concluded that there is differential of student achievement before and after using the mathematics snake and ladder media. In other hand, the mathematics snake and ladder media had been suitable as a learning media. This is related with the result of validation by some experts. From the validation result of mathematics content expert is 90 %.

Then, validation result of language expert toward mathematics snake and ladder media is 95%. There are points out that the learning media are very good or suitable and no revision. While, validation result of learning media design expert toward mathematics snake and ladder media is 80%. Later, validation result of mathematic teacher toward mathematics snake and ladder media is 84%. There are points out that the percentages are in good qualification, so that the media also do not need to be revised.

Keywords: Icosahedron-shape, Mathematics, and *Snake and Ladder Media*

ABSTRAK

Suhendrianto. 2013. *The Development of Snake and Ladder Media of Mathematics in the Topic of Addition and Subtraction for First Grade Students at MI Perwanida Blitar*. Skripsi, Jurusan Pendidikan Guru Madrasah Ibtidaiyah, Fakultas Ilmu Tarbiyah dan Keguruan, Universitas Islam Negeri Maulana Malik Ibrahim Malang. Mokhammad Yahya, M.A., Ph.D

Matematika perlu di ajarkan kepada semua siswa sejak berada di sekolah dasar, ini dimaksudkan untuk menumbuhkan berfikir logika, analitis, sistematik, kritis, kreatif, dan kemampuan bekerjasama. Semua kemampuan tersebut pasti dibutuhkan oleh mereka dalam kehidupan bermasyarakat. Meskipun demikian, secara umum dirasakan bahwa matematika adalah pelajaran yang dibenci dan ditakuti oleh kebanyakan siswa. Ini mungkin juga dijauhi oleh siswa dan banyak diantara siswa yang berasumsi bahwa matematika itu sangat sulit untuk dipahami. Meskipun faktanya matematika tidak sulit untuk dipelajari. Oleh karena itu, guru perlu mengaplikasikan pembelajaran yang menyenangkan dan media pempelajaran yang menarik. Tetapi tetap mengandung inti dari materi pembelajaran di kelas, sehingga para siswa tertarik dalam pembelajaran matematika. Salah satu media matematika yang dapat diaplikasikan adalah *Media Ular Tangga Matematika.* Media ini adalah inovasi dali permainan ular tangga yang sudah banyak dikenal oleh masyarakat. Meskipun dikembangkan berdasarkan permainan, tetapi media ini tetap mengandung perinsip-prinsip pembelajaran matematika - dalam hal ini adalah materi penjumlahan dan pengurangan untuk kelas satu.

Pada penelitian ini menggunakan model pengembangan Penelitian dan Pengembangan (R&D) dari Dick and Carey. Penelitian ini telah dilaksanakan di kelas satu "Hud" di MI Perwanida Blitar yang menggunakan desain eksperimen *(before-after)*. Berdasarkan penelitian ini ada beberapa produk yang telah dikembangkan, yaitu; dadu yang menggunakan bentuk *icosahedron*, papan media, pion (orang-orangan), Lembar Kerja Siswa, aturan permainan, buku pedoman guru, dan CD draf permainan. Semua produk dikemas dalam wadah yang menarik.

Media ular tangga matematika efektif dapat meningkatkan prestasi siswa. Hal ini dapat ditunjukkan dengan analisis T-test. Dari hasil analilis T-test dapat diperoleh bahwa $t_{test} < t_{table} = -2.09628 < -2.039513$. Sehingga Ho ditolak dan Ha diterima. Dari data ini dapat disimpulkan bahwa ada perbedaan prestasi siswa antara sebelum dan sesudah penggunaan media ular tangga matematika. Selain itu, media ini sudah cocok dijadikan media pembelajaran. Hal ini sesuai dengan hasil validasi dari beberapa ahli. Dari hasil validasi oleh ahli isi pembelajaran

matematika adalah 90%. Kemudian hasil validasi dari ahli bahasa adalah 95%. Hal ini menunjukkan bahwa media pembelajaran ini adalah sangat bagus atau cocok dan tidak perlu direvisi. Sedangkan hasil validasi dari ahli desain media pembelajaran terhadap media ular tangga matematika adalah 80%. Kemudian hasil validasi dari guru matematika terhadap media ular tangga matematika adalah 84%. Hal ini menunjukkan bahwa prosentase ini adalah dalam kualifikasi baik, sehingga juga tidak perlu direvisi kembali.

Kata Kunci: Bangun Icosahedron, Matematika, dan Media Ular Tangga

CHAPTER I

INTRODUCTION

A. Background of The Study

Mathematics is the science about numbers, the relationship of numbers, and operational procedure that is used to solve problem about numbers [1]. Etymologically, the word mathematics taken from Latin *manthanein* or *mathemata* that means to study or something that are learned[2].

Mathematics is the scientific tool that can't be separated in our life, especially for accounting in daily life. In Indonesian educational system, mathematics is one of the lessons or materials that have fundamental effect because mathematics is the language particular for the natural sciences. Due to the importance of mathematics, therefore it is taken as a primary subject in schools curriculum from elementary school (SD/MI) up to the senior high school. Thus mathematics is one of the lesson or materials that must be studied in school.

In the elementary school (SD/MI) mathematics has been learned from first up to sixth grade. In teaching mathematics, the teacher builds up the student mathematical ability, so that the students can learn the knowledge and skill of mathematics[3]. Nevertheless, it is commonly perceived, that the hated and difficult subject for most is not all students. Even was sometimes, mathematics become the most frightening subject for the students. Due to it is probably also avoided by the

[1] See Daryanto, *Kamus Bahasa Indonesia Lengkap*, (Surabaya: Apollo, 1997), p. 430
[2] Catur Supatmono, *Matematika Asyik*, (Jakarta: Grasindo, 2009), p.5
[3] Junaidi, Wawan, 2010, (http//pembelajaran-matematika.html on 30th June 2011)

students and there are many students had assumption that mathematics is very difficult to be mastered. **Susilo** pointed out a research on a number of high school students in Yogyakarta that showed the students considered mathematics as difficult, unpleasant, unattractive, boring, even frightening subject[4].

During my observation, I found the fact that mathematics is the lesson which may students afraid of, because the teacher of mathematics can't make the lesson an attractive subject for the students. The learning media of mathematics that has been used just using classical media and there is no other interesting media. So this makes the students' motivation decrease to study the mathematics. From this case, it can cause laziness, hate, and discourage for the subject.

We have known that learning in the first grade should use the realistic learning especially in mathematic learning. The students must know the real thing that is taught by the teacher. The important material in the first grade is addition and subtraction materials. Until now, there is a few learning media available on the topic of addition and subtraction. In line with my preliminary research in MI Perwanida Blitar, the teacher just used monotone media especially in first grade. The teacher just used minimum mathematic games, so that the students rarely study with games[5]. Therefore, we should make the interactive learning media that can be used for the topic of addition and subtraction. One way to solve this problem is that actually transform the traditional games to be interactive learning media with give some innovation.

[4] Sulilo, F. *Matematika Realistik.* BASIS No. 07-08, ED-53, July-August 2004
[5] Preliminary in MI Perwanida Blitar on March 2013

In this case, researcher tries to make an innovation from snake and ladder games to be transformed into an interactive learning media for addition and subtraction materials. Nowadays there are some educative innovations from snake and ladder game is a learning media. One them is the innovation of learning media by **Faizal Asmino Bakhtiar** from University of Muhammadiyah Surakarta with the title: "*Inovasi Media Pembelajaran Snake and Ladder (Ular Tangga) Berbasis IT sebagai Upaya Meningkatkan Keaktifan, Hasil Belajar, dan Ketrampilan Interaksi Sosial Siswa di SD Tunggulsari 1 Kleco Surakarta"*[6]. This research product is computer program that is able to be used in a student computer, so that the students can utilize the program every time and everywhere.

From that reality, we came up with the new innovation learning media with modified snake and ladder games. This media is actually similar to the common snake and ladder. Generally snake and ladder using *Square Box,* but in this media is using *Icosahedron Box.* This media is applied in the mathematic lesson for the topic of addition and subtraction.

Based on this crucial education fact, the researcher conducted the research and development with the title *"The Development of Snake and Ladder Media of Mathematics in the Topic of Addition and Subtraction for First Grade Students at MI Perwanida Blitar"***.** In this study, the researcher is may optimist knowing that it can help the student significantly in improve their own capability for master the addition and subtraction because this media is easy and fun.

[6] Faizal Asmio Bakhtiar, "*Inovasi Media Pembelajaran Snake and Ladder (Ular Tangga) Berbasis IT sebagai Upaya Meningkatkan Keaktifan, Hasil Belajar, dan Ketrampilan Interaksi Sosial Siswa di SD Tunggulsari 1 Kleco Surakarta"*, (PKMP DIKTI, 2012)

B. Statement of the Problems

Based on background of the study above, the problems of this research that is related with development of mathematics learning media for first grade about addition and subtraction materials with snake and ladder learning media are:

1. How is the product specification of the *snake and ladder media of mathematics* in the topic of addition and subtraction for first grade developed to meet the learning objective?
2. How can the product of *snake and ladder media of mathematics* increase the student achievement of first grade at MI Perwanida Blitar?
3. How is the *snake and ladder media of mathematics* suitable as a learning media?

C. Objectives of the Study

Based on statement of the problems above, the objectives of this research development are:

1. Describe the specification of the product of *snake and ladder media of mathematics* in the topic of addition and subtraction for first grade students.
2. Delineate that the *snake and ladder media of mathematics* in the topic of addition and subtraction can increase the student achievement of first grade at MI Perwanida Blitar.
3. Describe the suitable of *snake and ladder media of mathematics* in the topic of addition and subtraction for first grade students as a learning media by some experts of mathematics learning.

D. Significances of the Study

The significances of research and development of this *snake and ladder media of mathematics* in the topic of addition and subtraction are:

1. Give easily for the students to study with active and realistic. Because the students can account and see the things directly.
2. Make the students enthusiasm in mathematics learning, because the students can study by play games.
3. Make the students feel happy and enjoy in the mathematics learning especially in the topic of addition and subtraction.
4. Make the students have social soul and good communication with their friends, because they can interaction with other in this game.
5. Rich the learning resource for the teacher and the students.
6. As a suggestion for make and develop of mathematics learning media based on traditional games
7. This media may be used as a consideration of the school in determines the best mathematics learning media.
8. Can make other new research and development by the other researcher based on this product of *snake and ladder media of mathematics*.

E. Product Specification

The development product that be produced is mathematic learning media in the topic of addition and subtraction for first grade at Elementary School (SD/MI).

The products that have produced from developing this learning media are have some specification, which are:

1. The media that have developed just focus on the topic of addition and subtraction up to numbers 100 in first grade of elementary school.
2. The media focus on how to make student active and can make more interaction with other friends.
3. This interactive media is interesting because the media can be carried on by the students.
4. This *snake and ladder media of mathematics* composed of dice, snake and ladder board, player (puppet), student worksheet, the role of the games, and guide teacher book.
5. The dice is formed from icosahedron-shape which composed of 20 right-angled triangles. In this side of dice have two colors there are yellow and red. The yellow side is for the operation of addition, which means player has go several steps according to the numbers on the side. While the red side is for the operation of the subtraction, which means the player must step back a several steps according to the numbers on the side.
6. This *snake and ladder media of mathematics* is completed with teacher guide book. In this book there are some discussion about the snake and ladder games, the objective of snake and ladder games, the procedure of design media, the role of the games, and also the advantages and disadvantages of using this media.

F. The Assumption and Limited of Development

There are some assumption as the foundation research and development of mathematics learning media in the topic of addition and subtraction with snake and ladder media:

1. With this media the student can study mathematics funny and happily.
2. This media can make more active in the class environment.
3. With this media the student can make more understanding in the topic of addition and subtraction;
4. The research and development is just focus on the topic of addition and subtraction for first grade at Elementary School (SD/MI).
5. This research and development has been done in first grade 'Hud' at MI Perwanida Blitar.

G. Definition of Key Terms

For give more same understanding toward some terminology in this research and development, researcher should give some definitions of key terms, there are:

1. Development

   Development in this context is has close relationship with research and development. Research and development is a process that be used for develop and validation of education product. This research is following by some steps. The steps of this research or development process are study of innovation research product that be developed, develop the product based on this research, doing outdoor experiment which suitable with background of where

the product is used, and also make revision toward result of outdoor experiment[7].

The development in this case is developing the mathematics learning media that is adopted from snake and ladder traditional games. With give a few innovation in this snake and ladder traditional games, researcher was designed to be an interactive mathematics learning media which suitable with the topic of addition and subtraction especially for grade first in elementary school (SD/MI).

2. Learning Media

According to *Association for Educational and Communication Technology* (AECT), say the media are all of form that used for a process of transfer information. The using of media with creatively will make good for students learning and also can improve their performance suitable with their purpose[8].

This statement is different with statement from *National Educational Association* (NEA) that media are the forms of communication printed or audio visual and it tool. The media can be manipulated, listened, sawn, read, and spoken with instrument that be used in learning media and also can influence affectivity of learning programs[9].

Therefore, researcher can make conclusion that learning media is an instrument of transfer information printed or audio visual as a creativity of

[7] Punaji Setyosari. *Metode Penelitian Pendidikan dan Pengembangan* (Jakarta: Kencana Prenada Media Group, 2010), p.194
[8] Asnawir and Basyiruddin Usman. *Media Pembelajaran* (South Jakarta: Ciputat Pres, 2002), p.12
[9] Arif Sudirman and others, *Media Pendidikan Pengertian, Pengembangan, dan Pemanfaatannya* (Jakarta:PT Raja Grafindo, 2006), p.7

teacher for develop the student motivation. So the students can improve their achievement.

3. Addition and subtraction

According to SK and KD (Competence Standard and Basic Competence) the topic of addition and subtraction is focus in first grade of Elementary school (SD/MI). This topic is very important for the beginning of first grade, because this topic as a basic knowledge for more understanding of other knowledge. The topic of addition and subtraction is just focus in addition and subtraction up to 100, it is suitable with Competence Standard *"Melakukan penjumlahan dan pengurangan bilangan sampai dua angka dalam pemecahan masalah".*

4. Snake and ladder media

The snake and ladder game is common game for children which are played by two up to five children. Although, it's developed based on game, it keeps in containing principals of mathematic learning - in this case is the topic of addition and subtraction for first grade. The differences of this media with the origin snake and ladder is it used special designed snake and ladder board and dice. The dice which used in this game is formed from Icosahedron-shape dice.

H. Systematic of Writing

The systematic of writing in this thesis is arranged as five chapters which are chapter I up to chapter V, references and also appendix.

Chapter I is introduction, there are some sub chapters: a) background of the study, b) statement of the problems, c) objectives of the study, d) product specification, e) product specification, f) the assumption and limited of development, g) definition of key terms, and h) systematic of writing.

Chapter II is literature study, there are some sub chapters: a) the previous study b) the theory study. In this sub chapter there are some subs chapters: 1) learning media, 2) mathematics learning 3) education game, 4) addition and subtraction in Al-Qur'an and 5) the development of snake and ladder mathematics media in the topic of addition and subtraction.

Chapter III is research method, there are some sub chapters: a) development model, b) development procedure, c) product validation, and d) product trial. While, chapter IV is development result, there are some sub chapters: a) discussion and data analysis, b) revision of development result, and c) development result. And then Chapter V is closing. In this chapter will be explained about conclusion and also suggestion.

CHAPTER II

LITERATURES OF THE STUDY

A. The Previous Study

In the research and development of learning media especially in the development of snake and ladder games, there are some research and development that related with snake and ladder games:

The first innovation learning media by **Yusuf and Aulia** with the under title: *"Melejitkan Kemampuan Matematika & Bahasa Inggris Dengan Metode Ular Tangga"*[10]. This research product is some models of snake and ladder media. This research is focus on media that have function to make easy memorize the some mathematics formula and vocabularies of English learning.

The second is innovation learning media with IT (information technology) by **Faisal Azmio Bakhtiar** with title "*Inovasi Media Pembelajaran Snake and Ladder (Ular Tangga) Berbasis IT Sebagai Upaya Meningkatkan Keaktifan, Hasil Belajar, Dan Ketrampilan Interaksi Sosial Siswa di SD Negeri Tunggulsari 1 Kleco Surakarta"*[11]. This research product is computer program that able to be used in student computer, so the students can use the program every time and ever where.

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[10] Ummi A, and Yasin Y, *Sirkuit Pintar "Melejitkan Kemampuan Matematika & Bahasa Inggris Dengan Metode Ular Tangga"*, (Jakarta Selatan: Transmedia Pustaka, 2011)
[11] Faizal Asmio, *op.cit*

In other hand, the third is innovation snake and ladder for improve capability of English speaking by **Ivana Najmuddiya** with the title "*Upaya Meningkatkan Kecakapan Berbicara dalam Bahasa Inggris melalui Model Permainan Snake and Ladder di Kelas VII A SMP Negeri 5 Mempawah"*[12]. In this research and development, Ivana make model of snake and leader games for improve the capability of English speaking in secondary high school in seventh grade.

While, the last of previous research and development that be founded is snake and ladder for autism child by **Dea Hasna Isadora** with the title ""*Eco-Snake and Ladders" Sistematika Permainan untuk Mengakomodasi Kebutuhan Anak Autis"*[13]. This research and development just for autism child that have mission to help autism child for improve their active.

B. The Theory Study

1. Learning Media

a. The Definition of Learning Media

The word media comes from Latin *medius,* which literally means "middle", "intermediate" or "introduction". In Arabic, the media is the intermediary or introductory messages from the sender to the receiver of the message. **Gerlach and Elly** said that the media in big outline is the human, material, or evens that establish the conditions which enable the

[12] Ivana Najmuddiyah "*Upaya Meningkatkan Kecakapan Berbicara dalam Bahasa Inggris melalui Model Permainan Snake and Ladder di Kelas VII A SMP Negeri 5 Mempawah"*, (PKMP DIKTI ,2012)

[13] Dea Hasna Isadora ""*Eco-Snake and Ladders" Sistematika Permainan untuk Mengakomodasi Kebutuhan Anak Autis"*, (PKMM DIKTI, 2012)

learner to get the knowledge, skill, or attitude[14]. In this sense, teachers, textbooks, and school environment are a medium. More specially, the meaning of media in teaching and learning tends to be interpreted as graphical tools, photography, or electronically to capture, process, and reconstruct the visual or verbal information.

Media is sometimes that is delivering a message an can stimulated the thoughts, feelings, and the willingness of the audience (learner) so as to encourage the learning process in itself. Creatively to use of media will allow the learner to learn better and can improve the performance of them according with the objectives to be achieved[15].

According to Association of Education and Communication Technology (AECT) all forms of media and channels are used to distribute message or information. Meanwhile, according to **Heinich** when the media is linked with learning activities, the media can be interpreted as a communication tool used in the learning process in order to bring information from teacher to learners[16].

Based on the above definitions, it can be conduced that the media is a tool to convey information. While learning media is a tool or medium used in the learning process as a tool to facilitate teachers and students to understand the lessons. It will attract and motivate students to follow the learning.

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[14] See Azhar Arzyad, *Media Pembelajaran* (Jakarta:PT. Raja Grafindo Persada,2002), p.3
[15] Asnawir, and Basyirudin Usman, *Media Pembelajaran* (Jakarta: Ciputat Pers, 2002), p.11
[16] Uno B. Hamzah, *Profesi Kependidikan Prolema Solusi dan Reformasi Pendidikan di Indonesia* (Jakarta:Bumi Aksara, 2007), p.113

Today's, some teachers are using many learning medias for assistance in their teaching learning. Teacher frequently look upon media, not with the idea of why it should be used in teaching, but instead, how media can be used to do a more effective job in every area of the curriculum. Many teachers nowadays incorporate knowledge, techniques, and resources into their classroom activities. However, media is simply an extension of people. Media exist as an alternative means for communicating ideas[17].

Learning process occurs in formal schools with the aim of educating students to know and understand something. The learning media is highly influenced by some environmental factors such as teachers, friends, parents, subject matter, and other learning facilities. Associated with some of these factors, the teacher must be creative in asking questions for students so that the students can get enjoy the learning. Creative teacher who is the teacher intended to condition the learning activities both in terms of methods and in terms of the manufacture and use of instructional media. In this regard, teachers should have sufficient knowledge and understanding of the learning media[18].

1) Media as a communication tool in order to further effectively the learning process.
2) Function of the media in order to achieve educational goals.
3) The all of the process of learning.

[17] Richard Schifter and others. *Media and Instruction* (US: Maryland State Board of Education, 1976), p.5
[18] See Azhar Arzyad, *op.cit*., p.2

4) The relationship between teaching methods and learning media.
5) Values or benefits of learning media in teaching.
6) Selection and use of learning media.
7) Different types of tools and techniques of learning media.
8) Learning media in every subject or material.
9) Efforts of innovation in the learning media.

b. Characteristic of Learning Media

Each learning media have certain characteristics, associated or viewed from various aspects. For example, **Schramm** view media in terms of its economic characteristics, scope of targets that can be covered, and easy to control. Characteristics of the media can also be seen in its ability to generate excitement around the sensory organs. In this case, knowledge of the characteristics of learning media is very important for the clustering and selection of media[19].

Kemp suggested that the characteristics of media are basic for selection the media that are to specific learning situations. **Gerlach and Ely** suggests three characteristics of media based learning media usage learning is to anticipate the conditions of learning in which teachers are unable or less able to do so effectively. There are three characteristics of learning media, namely[20]:

[19] Arif Sudirman and others, *op.cit.*, p.28
[20] Adam. *Karakteristik Media Pembelajaran*. (http://mediabacaan.blogspot.com/2012/11/karakteristik-media-pembelajaran.html on may 9th 2013)

1) Fixative characteristics that describe the media's ability to record, store, preserve, and reconstruct an event or object.
2) Manipulative characteristic is media's ability to transform an object, event or process in addressing the problem of space and time. For example, as the larvae pupate and later became a butterfly can be served with a shorter time (or accelerated by the technique of time-lapse recording). Or conversely, an incident / event broadcast can be slowed in order to obtain a clear sequence of events / incidents.
3) Distributive characteristics that describe the ability of transporting media object or event through space, and simultaneously the incident served to a large number of students, in various places, with the same stimulus relative experience of the events.

c. Functions and Benefits of Learning Media

Availability of learning media is very influential on the achievement of learning indicators, because through learning media, the material can be more easily understood by students. This is consistent with the function of learning media. The media serves as an intermediary to convey information to students according to the learning objectives.

In the teaching and learning process, two very important elements of teaching methods and teaching media. Both aspects are interrelated. Selection of one particular teaching method will affect the type of medium of learning is appropriate, although there are many other aspects to

consider in choosing the media, among others, the purpose of teaching, the kinds of tasks and the expected response of the students mastered the teaching takes places. And then the learning context is including the characteristic of students[21].

At first, the media only serves as a tool in teaching and learning activities in the form of facilities that can provide a visual experience to students in order to encourage motivation to learn, clarify, and simplify the complex an abstract concept become more simple, concrete, and easy to understand. Thus the media can serve to enhance absorption and retention of learner to learning the materials[22].

Levie and Lents suggests that there are four functions of teaching and learning media, especially visual media, namely:[23]

1) Functions of visual media attention is at the core, that is interesting and directing students' attention to concentrate on content related to the learning of the displayed visual or text accompanying the subject matter.
2) Affective function of visual media can be seen from the level of student enjoyment when learning with a picture. Pictures or visual symbols can arouse emotions and attitudes of student, for example information concerning social or radical issues.
3) Cognitive function of visual media can be seen from research findings that reveal that the visual symbols or images to facilitate achievement

[21] See Arsyad Azhar, *op.cit*., p.15
[22] Aswanir, *op.cit.*, p 21-22
[23] Arsyad Azhar, *op.cit*., p.17

of the objectives to understand and recall information or messages contained in images.

4) Compensatory function of teaching can be seen from the findings that the visual media which provide the context for understanding the text help students who are weak in reading for organizing information in the text and recall. In other hand, the medium of learning serves to accommodate students who are weak and slow to accept and understand the contents of the lesson are presented with text or presented verbally.

In learning process, media have function as an information sender from resource (teacher) to receiver (students). And than method is procedure for help the students in receive and processing of information to get the aim of learning. The function of learning media in learning process can be figured in this figure bellow[24]:

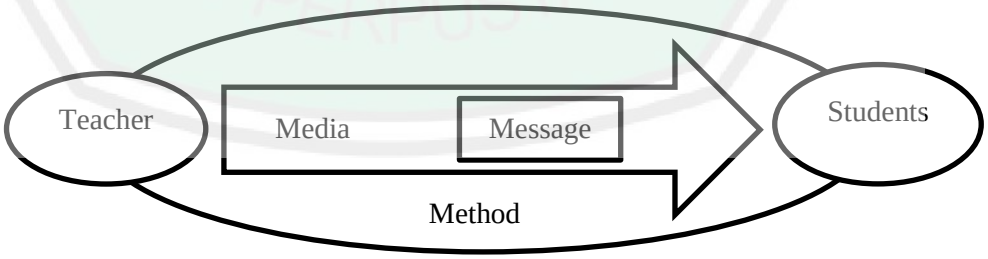


Figure 2.1 (the function of learning media)

[24] I Wayan. *Landasan Konseptual Media Pembelajaran*, (paper was given in Workshop of Instruction Media for Teachers of SMA Negeri Banjar Angkan at 10 January 2007), p.4

In other hand, the learning media have some practical benefits. The practical benefits of the use of learning media are as follow[25]:

1) Learning media can clarify the presentation of messages and information so as to facilitate and improve the process and learning outcome.
2) Learning media can enhance and direct the child's attention so that it can lead to motivation to learn, more direct interaction between students and their environment, and the possibility of students to learn on their own according to their ability and interest.
3) Learning media can overcome the limitations of the senses, space, and time. For example, objects that are too large and rare events that happened in the past can be displayed directly to the picture or video, objects that are too small to be observed with a microscope or an image that has been enlarged, and others.
4) Learning media can provide a common experience of learning to students about events in their environment, and allows for direct interaction.

The learning media that appropriate for elementary school age children is learning media that contains elements of the game, this is caused by the characteristics of children ages 6-12 were the days play.

[25] Cecep K.and Bambang S. *Media Pembelajaran Manual dan Digital* (Bogor: Ghalia Indonesia, 2011), pp.23-24

Thus, in the selection of learning media should appropriate to the needs of students so they can follow the learning with fun and enjoy.

d. Classification of Learning Media

Rudi Bertz was classify the learning media into three groups, there are audio, visual, and motion. Visual media differentiated into three forms, namely visual images, line *(liner graphic)* and symbol. In addition, he distinguishes ray media *(transmission)* and the recording media *(recording)*, so there are 8 classification of learning media, namely[26]:

1) Media of audio visual motion.
2) Media of audio visual motionless.
3) Media of audio semi motion.
4) Media of visual motion.
5) Media of visual motionless.
6) Media of visual semi motion.
7) Audio media, and
8) Print media.

According **Oemar Hamalik** there are four classifications of learning media, namely[27]:

[26] Asnawir and Basyirudin Usman, *op.cit.,*. p.28
[27] Asnawir. *Ibid.,*. p.29

1) Visual tools which can be seen, for example, filmstrip, transparency, micro-projection, whiteboard, bulletin board, drawings, illustrations, charts, graphs, posters, maps and globes.
2) Audio tool or can only be heard for example phonograph records, transcription Electric have, radio, recording on a tape recorder.
3) Audio visual tool or tools that can be heard and seen for example, films and television, three-dimensional objects that are usually performed.
4) Dramatization, role playing, socio dramatic, puppet shows, and so on.

e. Criteria for Selection of Learning Media

Some things that consider in choosing or selecting the learning media are; learning objectives to be achieved, efficiency, condition of students, availability of hardware and software, quality, technical, and cost. So some considerations that must be noted are[28]:

1) Media which selected should be consistent and support the learning objectives that have been set.
2) The suitable of material in accordance with the learning media which will be used.
3) Conditions for students which includes factors age, intelligence, educational background, culture, and environment of children a point of concern and consideration in choosing learning media.

[28] Asnawir. *Ibid*., p.15

4) The availability of learning media at the school or allow teachers to design in their own.
5) The learning media which is selected should be able to explain what will be delivered to students in appropriate and effective.
6) The costs in the use of learning media should be balance with the results to be achieved.

In other hand, **Dick and Carey** say that in selecting learning media there some criteria that should be considered, namely[29]:

1) Availability of resources, meaning that if the media are not learning at existing sources that must be purchased or created its own.
2) Availability of funds, personnel and facilities.
3) The factors that related to flexibility, practicality, and durability learning media used in a long time.
4) Effectiveness and cost efficiency in the long term though may seem expensive but it is cheaper when compared to other media that can only be used once.

2. Mathematics Learning

a. The Definition of Mathematics Learning

According **Ruseffendi**[30]**,** mathematics is the language of symbols; deductive science *(process of thinking starts from the formulation of*

[29] Asnawir. *Ibid.,* p.126

general conclusions toward things particular) who do not receive proof inductively *(starting thinking process of the things that are special to conclusions or general definition)*; science about pattern regularity, and organized structure. While the nature of mathematics according **Soedjadi**[31]**,** is have an object of abstract and rests on the agreement and the deductive patterns.

Mathematics is a universal science that underlies the development of modern technology. It has an important role in various disciplines and advances the human intellect. The rapid development in information technology and communication today is based on the development of mathematics in the field of number theory, algebra, analysis, discrete mathematics and theoretical opportunities. To master and create the future of technology in mathematics mastery needed strong early on.

Mathematics needs to be given to all students ranging from elementary school to equip students with the ability to think logically, analytical, systematic, critical, and creative, as well as the ability to cooperate. The competencies required so that learners can have the ability to acquire, manage, and use information to survive in a state of ever-changing, uncertain, and competitive.

[30] Heruman, *Model Pembelajaran Matematika di SD* : 2007, p. 1
[31] Heruman., *Ibid*., p.2

b. The Characteristic of Mathematics Learning

According **Soedjadi**, although there are differences opinions about the mathematics, but still can be drawn traits or the same characteristics, there are[32]:

1) Has an abstract object of study,
2) Rests on the agreement,
3) Deductive thinking patterns,
4) Have an empty symbol of meaning,
5) Attention to the universe of discourse,
6) Consistent in his system.

In other hand, characteristics of learning mathematics in school are as follows[33].

1) Mathematics learning is gradual.
2) Mathematics learning follows the spiral method.
3) Mathematics learning emphasizes deductive mindset.
4) Mathematics learning consistently adheres to the truth.

c. The Objective of Mathematics Learning

According to (Permendiknas 2006), the objective of learning mathematics to the learners should have the following capabilities, as follow:

[32]Hardika Saputra. *Karakteristik Pembelajaran Matematika.* (http://hardymath.blogspot.com/ 2012/03/karakteristik-pembelajaran-matematika.html on May 9th 2013)
[33] Karso, *Pendidikan Matematika 1* (Jakarta: Depdikbud, 1998), p. 137

1) Understand mathematical concepts, explains the relationship between concepts and apply concepts or algorithms, flexibly, accurately, efficiently, and appropriately, in solving the problem.
2) Using the pattern and nature of reasoning, doing mathematical manipulation in making generalizations, compile evidence, or explain mathematical ideas and statements.
3) Solve problems that include the ability to understand the problem, devised a mathematical model, solve the model and interpret the obtained solution.
4) Communicate ideas with symbols, tables, diagrams, or other media to clarify the situation or problem.
5) Have respect for the usefulness of mathematics in life, which is curious, attention, and interest in studying mathematics, as well as a tenacious attitude and confidence in solving problems.

Mathematics learning in elementary school includes the following aspects; 1) Numbers, 2) Geometry and measurement, and 3) Data processing. So that, the purpose of mathematics learning at the elementary school are giving emphasis on the structuring and formation of student attitudes reasoning. The overall objective is to give emphasis on skills in the application of mathematics, both in everyday life and in helping others to learn science[34].

[34] Suherman Erman, and others. *Strategi Pembelajaran Matematika Kontemporer* (Bandung: Universitas Pendidikan Indonesia, 2003), p. 19

3. Education Game

According to Arief Sadiman, game is: *"Permainan adalah setiap kontes antara beberapa pemain yang mempunyai interaksi satu dengan yang lainnya dengan aturan tertentu untuk mencapai suatu tujuan"*[35]. Game is an every contest between players who have interaction each other with follows by some roles to achieve a purpose. So games is the manner with follow some certainly roles that can be played by individually or group to achieve a purpose. Game tool is all of tool of games that can be used for students to play that game and have some characteristics like classification, arrange, making some things and many others.

According to **Mayke Tedjasaputro** say that study with play game can give opportunity for the students to manipulation, practice, and get some concept[36].

There are some principles of games:

1) The game is played by two people or more with interactively.
2) Have some certainly purpose
3) There is a winner in every game

According to **Sadiman** say that every game must have four principle components, there are[37]:

1) There is a players, usually more than two people;

[35] Arif S. *op.cit*., p.75
[36] Anggani Sudono. *Sumber Belajar dan Alat Permainan Untuk Anak Usia Dini* (Jakarta: PT Grafindo, 2000), p.15
[37] Arif, *op.cit*., p.76

2) There is a environment where the players make interaction each other;
3) There are some roles;
4) There is a certainly purpose that will be achieved.

The characteristic a game can be seen from color, design form, and how to play the game. In addition game has advantages and disadvantages. There are some advantages and disadvantages[38]:

1) The game is a something funny and entertain;
2) Game can make active participation of students to study;
3) Game can give direct advantages;
4) Game can make application of many concepts or participations in really situation of society;
5) Game is flexible;
6) The game is easy to make and duplicate.

Then, according to **Sadiman,** the game also have some disadvantages, there are:

1) It is difficult to play the game is we haven't understanding about the role of game;

[38] Arif, *ibid*., p.78

2) Generally, game is just followed by some students, actually the case is interaction all of students is very important because it can make the learning activity more effectively and efficiently;
3) It simpler to manage the game in social situation so can get wrong concept[39].

According to **Mayke Tedjasaputro** there are some kinds of game which have some certain roles and purpose[40]:

1) Individual game

   With this game the student can play and examine the own capability because this game is done by himself. The student plays the game by himself without focus with other student in his environment. For example are arrange puzzle, arrange beam, and many others.

2) Group game

   This group game have some roles that be given before play game. The roles must be understood by all players who play the game.

3) Cooperative game

   In cooperative game there are some cooperation or job classification and character classification between the students who play the game to achieve a certain purpose.

[39] Arif, *ibid*., p.81
[40] Mayke Tedjasaputro. *Bermain, Main dan Permainan.* (Jakarta: PT Grasindo, 2003), p.10

4) Social game

Social game is playing activity of students with their friend. In this game the students make participation with other friend in their self character. The examples of this game are police and robber game, rubber jump game, and others.

5) Game which have some4 role

This game can be pointed with there are some certain roles. In this game have achievement that the students can play game sportively. There are foot ball, snake and ladder game, monopoly, gobak sodor, and the others.

4. Addition and Subtraction In Al-Qur'an

Truly, in Al-Qur'an there are some verses that were explained about addition and subtraction of number. There are:

a. The verses about addition of number

Allah was said in Al-A'raf – 142 about the operation of addition:

۞ وَوَٰعَدۡنَا مُوسَىٰ ثَلَٰثِينَ لَيۡلَةٗ وَأَتۡمَمۡنَٰهَا بِعَشۡرٖ فَتَمَّ مِيقَٰتُ رَبِّهِۦٓ

أَرۡبَعِينَ لَيۡلَةٗۚ وَقَالَ مُوسَىٰ لِأَخِيهِ هَٰرُونَ ٱخۡلُفۡنِي فِي قَوۡمِي وَأَصۡلِحۡ وَلَا

تَتَّبِعۡ سَبِيلَ ٱلۡمُفۡسِدِينَ ١٤٢

Dan Telah kami janjikan kepada Musa (memberikan Taurat) sesudah berlalu waktu tiga puluh malam, dan kami sempurnakan jumlah malam itu dengan sepuluh (malam lagi), Maka sempurnalah waktu yang Telah ditentukan Tuhannya empat puluh malam. dan Berkata Musa kepada saudaranya yaitu Harun: "Gantikanlah Aku dalam (memimpin) kaumku, dan perbaikilah dan janganlah kamu mengikuti jalan orang-orang yang membuat kerusakan".

And We made an appointment with Moses for thirty nights and perfected them by [the addition of] ten; so the term of his Lord was completed as forty nights. And Moses said to his brother Aaron, "Take my place among my people, do right [by them], and do not follow the way of the corrupters."[41]

From this Letter, was pointed about operation of addition number and also with the result: 30 + 10 = 40

In other hand, Allah also was said about the operation of addition in Al-Baqarah – 196:

... فَإِذَآ أَمِنتُمۡ فَمَن تَمَتَّعَ بِٱلۡعُمۡرَةِ إِلَى ٱلۡحَجِّ فَمَا ٱسۡتَيۡسَرَ مِنَ ٱلۡهَدۡيِۚ فَمَن لَّمۡ

يَجِدۡ فَصِيَامُ ثَلَٰثَةِ أَيَّامٖ فِي ٱلۡحَجِّ وَسَبۡعَةٍ إِذَا رَجَعۡتُمۡۗ تِلۡكَ عَشَرَةٞ كَامِلَةٞۗ ...

[41] http://quran.com/ (on May 29th 2013 at 11.30 WIB)

Apabila kamu Telah (merasa) aman, maka bagi siapa yang ingin mengerjakan 'umrah sebelum haji (di dalam bulan haji), (wajiblah ia menyembelih) korban yang mudah didapat. tetapi jika ia tidak menemukan (binatang korban atau tidak mampu), Maka wajib berpuasa tiga hari dalam masa haji dan tujuh hari (lagi) apabila kamu Telah pulang kembali. Itulah sepuluh (hari) yang sempurna.

And when you are secure, then whoever performs 'umrah [during the Hajj months] followed by Hajj [offers] what can be obtained with ease of sacrificial animals. And whoever cannot find [or afford such an animal] - then a fast of three days during Hajj and of seven when you have returned [home]. Those are ten complete [days][42].

So that, from in this Letter, we can know about addition operation of number: 3 + 7 = 10

b. The verse about subtraction of number

Allah was said in Al-Ankabut – 14 about the operation of subtraction:

وَلَقَدۡ أَرۡسَلۡنَا نُوحًا إِلَىٰ قَوۡمِهِۦ فَلَبِثَ فِيهِمۡ أَلۡفَ سَنَةٍ إِلَّا خَمۡسِينَ عَامٗا

فَأَخَذَهُمُ ٱلطُّوفَانُ وَهُمۡ ظَٰلِمُونَ ١٤

Dan Sesungguhnya kami Telah mengutus Nuh kepada kaumnya, Maka ia tinggal di antara mereka seribu tahun kurang lima puluh tahun.

[42] *Ibid.,*

Maka mereka ditimpa banjir besar, dan mereka adalah orang-orang yang zalim.

And We certainly sent Noah to his people, and he remained among them a thousand years minus fifty years, and the flood seized them while they were wrongdoers.[43]

In this Letter (Al-Ankabut – 14), was showed about the subtraction of number: 1000 - 50

5. The Development of Snake and Ladder Mathematics Media in the Topic of Addition and Subtraction

The snake and ladder game is board game for child which be played by two child or more than two. The board of snake and ladder are divided by some small squares and some square that be drawn by snake and ladder and have relationship with other squares. This is created in 1870. In this game there are some standard, so every people can make snake and ladder based on him self.

In this research and development author will make innovation from snake and ladder to be a mathematics media which suitable with learning in first grade. Author make this innovation because some factor, there are 1). Study with play game is funny and meaningful for the students, 2). The game can make group learning 3). With the game we can make an educational system actively and creatively.

[43] *Ibid.,*

The *snake and ladder media of mathematics* is one of learning media in the topic of addition and subtraction for first grade student. This media is almost like snake and ladder game generally. But this media have some differences. This media was designed and modified to be games which have some values, like educative, productive, competitive and fun. The *snake and ladder media of mathematics* is designed focus on the topic of addition and subtraction up to 100.

This media is hoped become alternative media of mathematics, because have value educative. In other hand, also have value productive because with this media, the learner can gets knowledge and try to fast count about addition and subtraction up to 100.

With this media, the learner also can compete with their friends in their group, because this media have value competitive. And then, the learner can feel fun, because mathematics learning, that usually just count and memorize, but now can be done with play games and study with enjoy.

In this *snake and ladder media of mathematics* have some components, bellow there are some component of *snake and ladder media of mathematics*:

a. Dice

The dice on a game of snakes and ladder is an important component. These dice are used to determine how we move forward or step on snakes and ladders board. We can do this by rolling the dice,

and then the numbers located above is a number that indicates how many steps we are going.

Later, in the game of snakes and ladders in general use cube-shape dice, which consists of 6 sides. Then the numbers on the dice are written using the point. Well, unlike the dice in this game of mathematics snakes and ladders. Dice in this games using icosahedron-shape dice which composed of 20 right-angled triangles.

The next difference lies in the color of the dice. In the dice game of mathematics snakes and ladders has two colors, namely yellow and red. The yellow side is for the operation of addition, which means player has go several steps according to the numbers on the side. While the red side is for the operation of the subtraction, which means the player must step back a few steps according to the numbers on the side.

b. Board of mathematics snake and ladder games

In the game of mathematics snakes and ladders uses a different board with snakes and ladders board in generally. First, the game is using the existing board his number 0. Number 0 on this game used for the start or beginning of the game. Moreover, with the addition of the 0, students will know the sequence number actually.

The second difference lies in its design. Snakes and ladders board design is adapted to the character of the kids were very full color. With

a design like this, will attract the attention of students and students are expected to play and learn with enthusiasm.

c. Pion (player)

In this game of mathematics snakes and ladders, there is usually the puppets are used to indicate the position or the position we are currently playing. Pion (player) on the mathematics snakes and ladder game is same a normal snakes and ladders game.

d. Student Worksheet

The mathematics snake and ladder game is different from the game of snakes in generally. In this game is also equipped with student worksheet. This student worksheet is used to record the operations of addition and subtraction when playing on the stairs takes place.

This student worksheet is used to check or observe the work of students, are the operation of addition and subtraction done correctly? In addition, the student worksheet can also be used as an evaluation of comprehension and mastery of the material student addition and subtraction.

e. Role of Play

The role of play used to give understanding about the role of games to the student. It is very important, because with out understanding the role of games, the student can't play the games correctly.

f. CD of Games Draft

The CD of games draft there are some files about the games. Such as file of student worksheet, playing role, board of media, teacher guide book, and design of cover media. So with this file, the teacher of someone who has this file can made the *snake and ladder media of mathematics* by himself.

g. Guide Book of Teacher

The guide book of teacher is designed to give information about the mathematics snake and ladder for the teacher. In this book there are some information that can be obtained, like explanation about the mathematics snake and ladder games, how to produce the games, how to apply this games to the learner and many other. With this book, we hope the teacher can enjoy and easy apply the *snake and ladder media of mathematics* to the learner.

CHAPTER III

DEVELOPMENT METHOD

A. The Development Model

The method that use in this research is research and development method. According to Borg and Gall, *educational research and development is a process used to develop and validate educational product*[44]. The result of research and development is not only developing the last product but also for find the knowledge or the answer of practice problem. According to Sugiyono: *"Metode penelitian dan pengembangan juga didefinisikan sebagai suatu metode penelitian yang digunakan untuk menghasilkan produk tertentu, dan menguji keefektifan produk tersebut"*[45].

Afterwards, Borg and Gall explain there are four basic characteristics in research and development:

1) Studying the previous research which have pertinent toward the product that will be developed;
2) Developing the product base on these findings;
3) Field testing it in the setting where it will be used eventually;
4) Revising it to correct the deficiencies found in the field-testing stage[46].

[44]Borg, W.R. & Gall, M.D. Gall, *Educational Research: An Introduction, Fifth Edition* (New York: Longman, 1989), p.624
[45] Sugiyono, *Metode Penelitian Kuantitatif Kualitatif dan R&D (*Bandung: Alfabeta, 2011), p.294
[46] Borg, *op.cit.*, p.330

This research will use research and development model from Walter Dick and Lou Carey. In the Dick and Carey model there are 10 steps of instructional design, but the research and development in this research will use only 9 steps. This is done with the consideration that the development of the learning is done only limited testing on prototype product. The tenth step *(summative evaluation)* is not done because it is outside the learning system, resulting in the development is not used. Bellow the ten steps research and development model of Walter Dick and Lou Carey[47].

a. Identifying Instructional Goal

   Doing needs assessment for determine the aim product or the product that will be developed.

b. Conducting Instructional Analysis

   Doing instruction analysis that focus on skills, knowledge, and attitudes, known as *entry behaviors,* are required of learners to able to begin the instruction.

c. Analyze Learners and Contexts

   In addition to analyzing the instructional goals, there is parallel analysis of learners, the context in which they will learn the skills, and the context in which they will use them. Learners' current skills, preferences, and attitudes are determined along with the characteristics of the instructional setting and the setting in which the skills will eventually be used.

d. Writing Performance Objective

[47]Walter Dick, Lou Carey, and James O. Carey. *The Systematic Design of Instruction* (e-book), p.6-8

Outlining general goals into more specific objectives that form the formulation of performance objectives, or operational, which is a special purpose of program or product.

e. Developing Criterion Referenced Test

Develop assessment instrument that be related to operational objective or specific objective.

f. Developing Instructional Strategy

Develop the instructional strategy that help student to achieve specific objective. This step should develop based on introduction learning, core learning, close learning, and assessment.

g. Developing and Selection Instruction

Develop and select the instruction media that will be use for the instruction. In this step we should consider to specific objective of this instruction, so the student can achieve the instruction objective effectively.

h. Designing and Conducting Formative Evaluation

It is conducted by the developer during the process, procedures, programs or products that are developed. Alternatively carried out during the learning process with a view to support the process of improve the effectiveness.

i. Revising Instruction

It is conducted on the seven steps. There are, overview of learning, learning analytics, early behavioral performance or performance, test items, learning strategies and learning materials.

j. Designing and Conducting Summative Evaluation

To improve the effectiveness of the overall program compared to other programs.

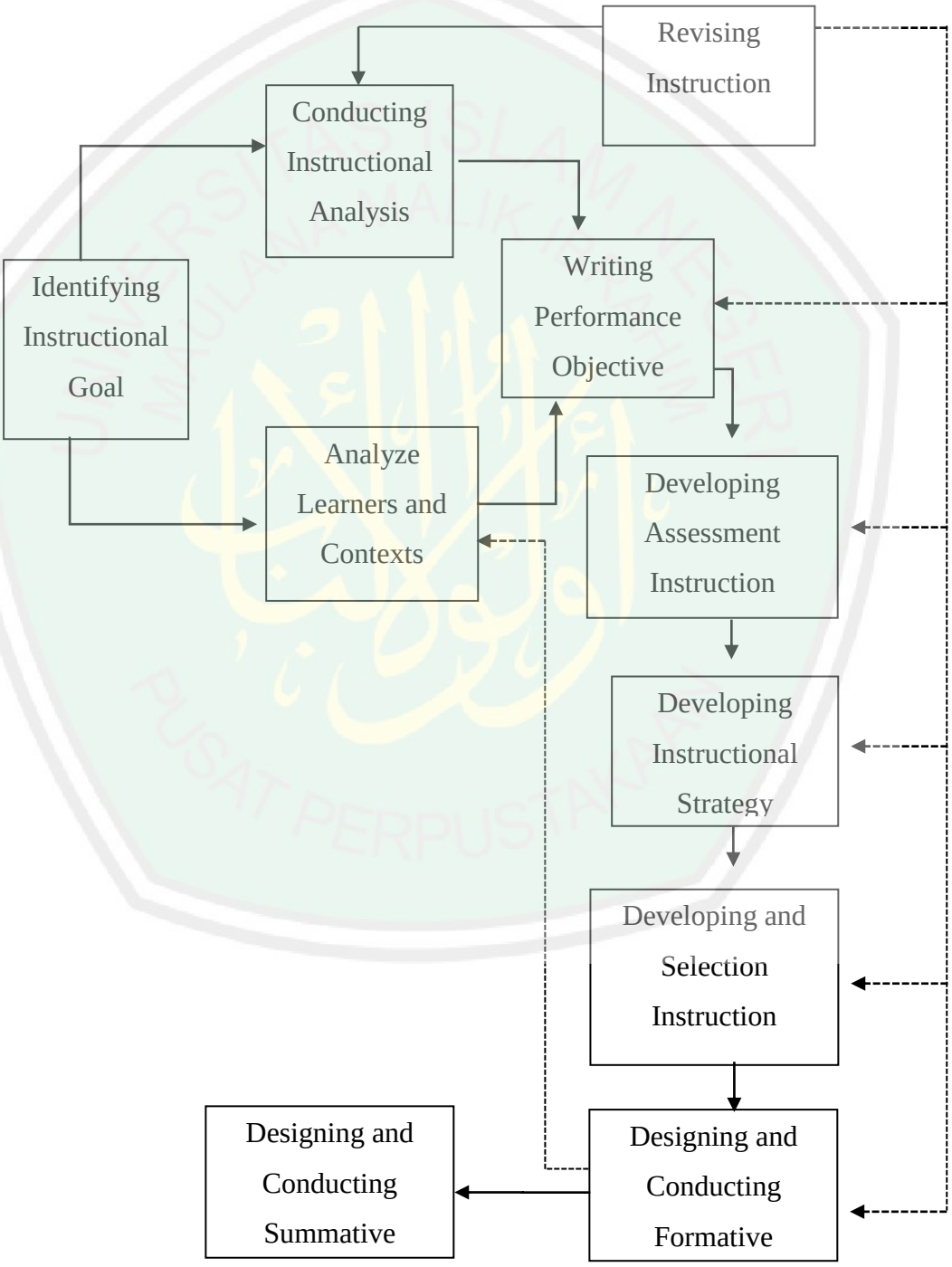


Figure 3.1 The Draft Learning Model Dick and Carey

B. The Development Procedures

Based on the model of Dick and Carey as mentioned above, so the development procedures in the research development are:

1. Identifying Instructional Goal

The first step will identify the common goal of mathematics learning by doing needs analysis to determine the goals. This step is meant to determine what will wants to be done after the students participated in the mathematics learning. The general objectives are a statement that describes what capabilities should be owned by the student after completion follows the learning. Common goals were identified based on the results of the needs analysis, curriculum subject areas, input from expert field of study.

The next steps of the researchers is describe the expected capabilities and owned by learners after attending a material addition and subtraction with the mathematics snakes and ladders media for first grade . This is done by reviewing the mathematics curriculum which refers to Permendiknas No. 22 2006 about Competency Standard and Basic Competency.

a. The aims of Mathematics learning in SD / MI in order to learners have the following capabilities:

1) Understand mathematical concepts, explains the relationship between concepts and apply concepts or algorithms, flexibly, accurately, efficiently, and appropriately, in solving the problem,

2) Using the pattern and nature of reasoning, doing mathematical manipulation in making generalizations, compile evidence, or explain mathematical ideas and statements,
3) Solve problems that include the ability to understand the problem, devised a mathematical model, solve the model and interpret the obtained solution,
4) Communicate ideas with symbols, tables, diagrams, or other media to clarify the situation or problem,
5) Have respect for the usefulness of mathematics in life, which is curious, attention and interest in studying mathematics, as well as a tenacious attitude and confidence in solving problems.

b. Identify the common goals of mathematics learning in the topic of addition and subtraction for first grade. So, bellow the figure of common goals:

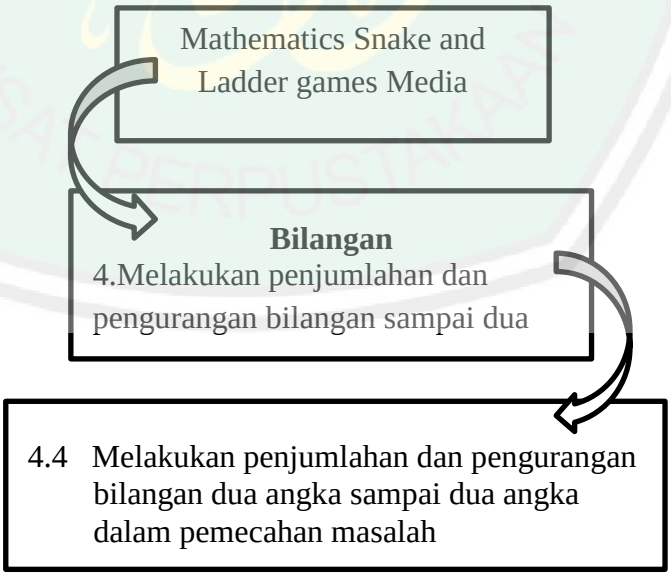


Figure 3.2 Common Goals of Mathematics Learning in the Topic of Addition and Subtraction for First Grade

c. Analysis of Competency Standard, Basic Competency and elaboration of indicators.

According to SK and KD of Permendiknas No. 22 2006 on the national curriculum, identified the formulation of standards and basic competencies are further developed as an indicator of mathematics learning in the topic of addition and subtraction for first grade.

Table 3.1 Competence Standard, Basic Competence, and Indicators

Standar Kompetensi	Melakukan penjumlahan dan pengurangan bilangan sampai dua angka dalam pemecahan masalah
Kompetensi Dasar	4.4 Melakukan penjumlahan dan pengurangan bilangan dua angka
Indikator	a. Siswa melakukan penjumlahan bilangan dua angka dengan cepat dan tepat b. Siswa melakukan pengurangan bilangan dua angka dengan cepat dan tepat

2. Conducting Instructional Analysis

After identifying learning goal, the next step is to conduct analyzes and identify the innate skills that student must learn in order to achieve specific learning goals.

Common goal of mathematics learning is identified, and then analyzed to identify the innate skills *(skill subordinate)* as mapped in the following figure:

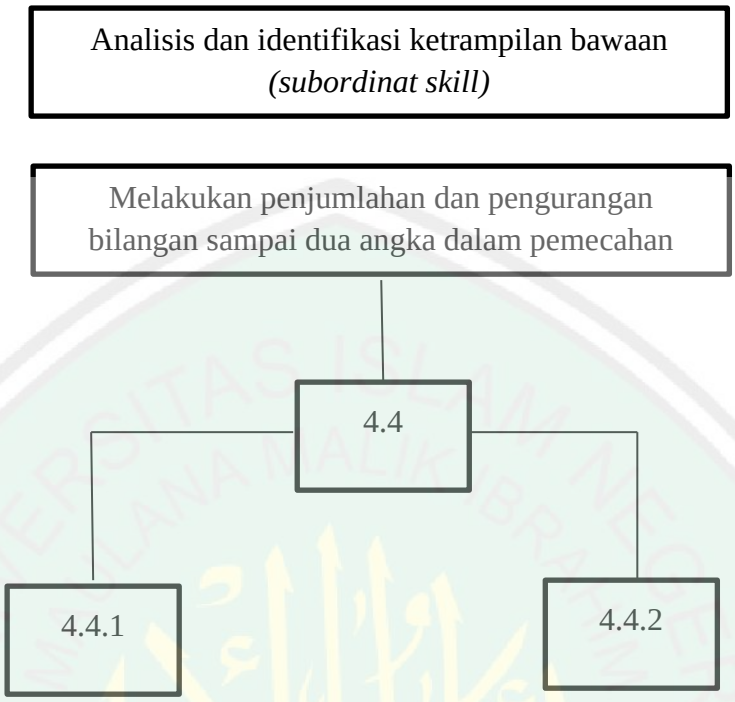


Figure 3.3 Identify Analysis Skill Subordinate

So, below the result of indicators and basic competence analysis of mathematics snake and ladder media in the topic of addition and subtraction for first grade students in second semester:

Table 3.2 the Result of Indicators and Basic Competence Analysis

Standar Kompetensi	Kompetensi Dasar	Indicator
Melakukan penjumlahan dan pengurangan bilangan sampai dua angka dalam pemecahan masalah	4.4 Melakukan penjumlahan dan pengurangan bilangan dua angka	4.4.1 Siswa melakukan penjumlahan bilangan dua angka dengan cepat dan tepat 4.4.2 Siswa melakukan pengurangan bilangan dua angka dengan cepat dan tepat

3. Analyze Learners and Contexts

In identifying the content that will be included in the study is the identification requires specific skills, attitude, and knowledge. That is must be possessed by the early learners to be ready to enter the learning and use of the *snake and ladder media of mathematics*. Thus the general characteristics of learners are very important to note in designing learning.

The subjects of the *snake and ladder media of mathematics* are student in the first grade at elementary school. The students of elementary school are till in 7-11 years old. According to **Piaget**, the students are still in *Operational concert* and have some characteristics namely[48]:

a. All things understood by the individual as a reality
b. Child's way of thinking has not yet reached the abstract thinking
c. In understand the concept, deeply tied to the individual's own experience. That is, individuals will easily understand the concept when observed or do something related to the concept.

So, if the student still in the *Operational concert* means that in learning of understand the concept, the student still needs help concrete objects. Therefore it is appropriate to use mathematics media in learning as a medium to explain things that are abstract to the concrete.

4. Writing Performance Objective

The specific learning objectives are a statement about the ability or behavior that is expected to be held by the students after participating in

[48] Asrori mohammad, *Psikologi pembelajaran* (Bandung: CV wacana prima, 2007), p.50

the particular of learning activities. Ability or behavior must be specifically formulated and operational so that it can be observed and measured. Thus, the level of student achievement in the existing behavior in specific learning objectives can be measured by tests or other measuring device. Writing specific learning objectives is used as a basis for developing learning strategies and develop learning test grating.

Based on analysis of common objective, competency standard, basic competence, indicators, and characteristic of student in the topic of addition and subtraction, thus the researcher makes some the specific objectives. There are:

a. *Agar siswa kelas 1 dapat melakukan operasi penjumlahan bilangan dua angka dengan cepat dan tepat*
b. *Agar siswa kelas 1 dapat melakukan operasi pengurangan bilangan dua angka dengan cepat dan tepat*

5. Developing Assessment Instrument

Instrument assessment tests can be formulated based on the formulation of specific learning objectives that had been set. This instrument is directly related to the specific purpose.

Before the students received material about the addition and subtraction given tests related to the topic. It is to assessment the students' knowledge before using the mathematics snake and ladder media. After using the media the student also has been given test about addition and

subtraction. All tests are used to see the differential before and using the media. In this case the pre-test and post-test consisted of ten questions. In the assessment can be done with the following description:

Table 3.3 Assessment Table

No.	Nama siswa	Nomor soal										Jumlah benar (a)	Bobot per item (b)	Skor perolehan (a)x(b)
		1	2	3	4	5	6	7	8	9	10			
1.	A												2	
2.	B												2	
3.	C												2	
4.	D												2	
5.	E												2	

6. Developing Instructional Strategy

In this step we should develop the instructional strategy that help student to achieve specific objective. This step should develop based on introduction learning, core learning, close learning, and assessment. There are some basic strategies of learning:

1. Introduction of the learning, that are make good condition and ready to study. In this step, the teacher should give some ice breakings or sings a song.
2. Content of the learning. In this step, the student gets some introduction material which related with the content of material. Then, the teacher gives learning media to the student. It is make student interact with other in this mathematics learning. The last teacher gives some

feedbacks about the material. So the student can get summarize what have been learned.

3. Closing of the learning. In the last of the learning, teacher gives some conclusions and evaluation about the material.

7. Developing and Selection Instruction

In this seven steps, the researcher has developed the education traditional games as the method of learning then selected the mathematics snake and ladder media in the topic of addition and subtraction. The media consist of some components there are dice, board of media, pion (player), student worksheet, role playing, teacher guide book, and cd of games draft. This media had selected in order to make student feel fun and enjoy in the mathematics learning.

8. Designing and Conducting Formative Evaluation

After developing and selecting the instruction media, then the researcher have done the formative evaluation. The formative evaluation has function in order to get data for revising the mathematics snake and ladder media to be more effectively. This evaluation has done in two groups, namely evaluation from some experts and evaluation the using of learning media for the student. The evaluation from experts include of expert of mathematics content, expert of learning media design, expert of language, and mathematics teacher. This evaluation has been done in order

to get validity of the learning media. Then, the student evaluation has been done for product trial.

9. Revising Instruction

The last step is revising the mathematics snake and ladder media. The data of formative evaluation should be collected and be interpreted to solve the student problems for achieve learning objective. In other hand it is to revision of learning to more effective.

C. Product Validation

1. Validation Design

The validation design that be used in this research and development are from validator of mathematics content expert, learning media design expert, language expert, and mathematics teacher of first grade "Hud" at MI Perwanida Blitar. Those validations are having functions to get assessment, comment, and suggestion from Validator. So that can be known the suitable of mathematics snake and ladder media as a learning media.

2. Validation Subject

The validation subject of mathematics snake and ladder media are 3 lectures and 1 teacher of mathematics learning in first grade at MI Perwanida Blitar. The criteria of validator are:

a. Expert of Mathematics Content

1) Have minimal qualification of Magister (S2)
2) The lecture of PGMI who have competent in the learning mathematics of elementary school,
3) Understood about the curricula of mathematics in elementary school,
4) Understood about the content of mathematics in elementary school,
5) The validator has written the book of mathematics or another.

b. **Expert of Learning Media**

1) Have minimal qualification of Magister (S2)
2) The lecture of PGMI who have lectures about the development of learning media,
3) The validator must competent in the design of the media
4) The validator has written the book of media or another.

c. Expert of Language

1) Have minimal qualification of Magister (S2)
2) The lecture of PGMI who have lectures about Indonesian language
3) The validator must competent in language of learning

d. Mathematics Teacher

1) The teacher who have good experiences in the teach mathematics learning
2) Understood about the curricula of mathematics in elementary school,

3. Data Type

There are two data type which be gotten from the result of validation toward mathematics snake and ladder media. Firstly is quantitative data that be gotten from the percentage of questionaries' validator. It is used to know the suitable and validation of the media. Secondly is qualitative data that be gotten from comment and suggestion of validator.

4. Data Collection Instrument

Instrument used to obtain the expert amount of data will be used as an instrument of data collection in the form of questionnaires. The questionnaire used to collect data on the accuracy of learning media component, suitable of learning media design, accuracy of learning media content, effectiveness of learning media and others. Natures, the question in the questionnaire are includes two kinds, namely the closed question and open question. The closed questions are directed to obtain the quantitative data, while the open questions are used to obtain the qualitative data. There are some questionnaires that are used in this research and development, namely:

a. Questionnaire of expert of mathematics content
b. Questionnaire of expert of learning media
c. Questionnaire of expert of language
d. Questionnaire of mathematics teacher

5. Data Analysis Technic

The result of this descriptive analysis is used to determine the grade of accuracy, effective, and the interesting of product development of snake and ladder mathematics media in the topic of addition and subtraction for first grade student.

As an explanation in above, the data is can be classified according to the type of data. The quantitative data or numbers data will be analyzed with percentage descriptive, with formula:

$$P = \frac{\sum x}{\sum x_i} x\ 100\ \%$$

Explanation:

P = the suitability

$\sum x$ = total of point

$\sum x_i$ = total of maximum point[49]

In addition, to give meaning and determine the decision in grade of accuracy, effective and interesting of media, so we can use table of achievement grade scale, there are[50]:

[49] Suharsimi Arikunto. *Dasar–Dasar Evaluasi Pendidikan (Edisi Revisi)*. (Jakarta: Bumi Aksara.1999), p. 112

[50] Sugiyono, *op.cit.*, p.135

Table 3.4 Scale of Achievement Grade

Grade Achievement	Qualification	Information
90 – 100%	Very good	No Revision
75 – 89%	Good	No Revision
65 – 74%	Enough	Revision
55 – 64%	Less	Revision
0 – 54%	Lesser	Revision

D. Product Trial

1. Trial Design

In education, the product design like learning media can be trialed after validating and revising. The first trial has been done with simulation of using the learning media. Then, the learning media can be trialed in limited group. This product trial has function to get information about the learning media. Is the learning media more effective and efficient than other learning media?[51]

In this product trial of mathematics snake and ladder media has been done with compere before and after using the learning media *(before-after).*[52]

$$O_1 \quad X \quad O_2$$

Figure 3.4 Experiment Design *(before-after)*

[51] Sugiyono. *Metode Penelitian Pendidikan*. (Bandung: CV. ALFABETA, 2009), p. 414
[52] *Ibid*., p.303

Information:

X : the learning using learning media

O_1 : pre-test

O_2 : post-test

2. Trial Subject

The trial subject in this research and development are all of student in the first grade "Hud" at MI Perwanida Blitar. The total of trial subjects are 32 students. The researcher have done compere the student achievement before treatment and after treatment using the mathematics snake and ladder media.

3. Data Type

The data type in this research and development is using quantitative data. This data can be gotten by using pre-test and post-test in the mathematics learning.

4. Data Collection Instrument

The instrument that be used in this research and development are pre-test and post-test. Those tests are used to obtain the data that show the differential or may be improvement of achievement between before treatment and after treatment.

5. Data Analysis Technic

Data test before treatment and data test after treatment are analyzed using paired t-test. This analysis has function to describe the significant of differential class between before using and after using the learning media. This formula paired t-test using signification 0.05 as follow[53]:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{{S_1}^2}{n_1} + \frac{{S_2}^2}{n_2} - 2.r\left(\frac{s_1}{\sqrt{n_1}}\right)\left(\frac{s_2}{\sqrt{n_2}}\right)}}$$

Information:

$\bar{X}_1$ = average of first sample

$\bar{X}_2$ = average of second sample

s_1 = Standard Deviation of first sample

s_2 = Standard Deviation of second sample

${S_1}^2$ = Variant first sample

${S_2}^2$ = Variant second sample

r = correlation between x_1 and x_2

n = total sample

t = t- test value

[53] Sugiyono. *op.cit.*, 424

CHAPTER IV

DEVELOPMENT RESULTS

A. Discussion and Data Analysis

This sub chapter provides data of validations from the experts (mathematicians) and the data from the research site in applying the media. This data is used for validating the snake and ladder media of mathematics in the topic of addition and subtraction for first grade students at MI Perwanida Blitar.

1. The Validation Result from the Expert and Field Experiment

a. Validation Result of Mathematical Content's Expert

The mathematical content of this product has been validated by a mathematician of UIN Maulana Malik Ibrahim Malang, Yeni Tri Asmaningtias, M.Pd. Here is the result of validity evaluation by mathematical content's expert towards the snake and ladder media of mathematics:

Table 4.1 The Validation Result of Mathematical Content's Expert

No	Aspects of Validation	Point
1	The suitability of snake and ladder media of mathematics with Standard of competence in the first grade of SD/MI	4
2	The suitability of snake and ladder media of mathematics with Basic Competence in the first grade of SD/MI	4
3	The accuracy of learning objectives with snake and ladder media of mathematics	4
4	The quality of games technique in the snake and ladder media	5

	of mathematics	
5	The suitability of components of snake and ladder media as a learning media of mathematics	5
6	The width and deep of content of snake and ladder media of mathematics	4
7	The suitability of learning strategy in the snake and ladder media of mathematics	5
8	The consistency of content of snake and ladder media of mathematics	5
9	The appropriateness of Student Worksheet in the snake and ladder media of mathematics	4
10	The suitability of evaluation of snake and ladder media of mathematics	5
Total		45

Based on table above, the percentage of validation result of mathematical content's expert toward the snake and ladder media of mathematics is:

$$P = \frac{\sum x}{\sum x_i} x\ 100$$

$$= \frac{45}{50} x\ 100$$

$$= 90\ \%$$

Based on this data, the percentage of validation result of mathematical content's expert toward snake and ladder media of mathematics is 90%. It means that the percentage of achievement 90% is very good qualification, so that the media does not need to be revised.

However, the mathematical content's expert also gave comments and suggestions regarding the snake and ladder media as follows:

Table 4.2 Comment and Suggestion of Mathematics Content's Expert

Component	Comment	Suggestion
Student Worksheet	don't use only black and white color student worksheet	The student worksheet should be colorful
Rule of Play		The Rule of Play also should be colorful

Comments and suggestions from that validator are actually a very important critique so that it needs to be considered by the researcher to improve the product of snake and ladder media of mathematics.

b. Validation Result of Learning Media Design Expert

The product validation of learning media design expert has been validated by Fachrur Rozi, M.Si. Here is the result of validity evaluation by learning media design expert toward the snake and ladder media of mathematics:

Table 4.3 the First Validation Result of Learning Media Design Expert

No	Aspects of Validation	Point
1	The interest of the packing design in the snake and ladder media of mathematics	4
2	The suitability of picture in the snake and ladder media	3
3	The interest of board design in the snake and ladder media of mathematics	3
4	The interest of teacher guide book design in the snake and ladder media of mathematics	4

5	The interest of dice form design in the snake and ladder media of mathematics	4
6	The suitability of font used in the snake and ladder media of mathematics	4
7	The interest of color combination in the teacher guide book and snake and ladder media of mathematics	4
8	The consistency of using font, picture, space, writing in the teacher guide book and snake and ladder media of mathematics	3
9	The accuracy of picture location in the board of snake and ladder media of mathematics	3
10	The suitability of color combination used in the snake and ladder media of mathematics	2
Total		34

Based on table above, the percentage of validation result of learning media design expert toward snake and ladder media of mathematics is:

$$P = \frac{\sum x}{\sum x_i} \text{ x } 100$$

$$= \frac{34}{50} \text{ x } 100$$

$$= 68\ \%$$

Based on data above, the percentage of validation result of learning media design expert toward snake and ladder media of mathematics is 68%. It pointes out that the percentage of achievement 68% is an enough qualification, therefore consequently the media needs to be revision.

In other hand, the validator of learning media design also gives comments and suggestions on the snake and ladder media as follows:

Table 4.4 Comment and Suggestion of Learning Media Design Expert

Component	Comment	Suggestion
Teacher guide book	The consistency of writing and coloring the font	The consistency of writing and coloring of font should be considered
Role Plying		The Rule of Play should be designed elegantly
Dice		Should be considered about the strength of the dice
Board	- The accuracy of the picture - The color combination should be considered - The choosing of picture is considered with children theme	Should be given the name of media
Pion (player)		The Pion (player) should be suitable with the children theme

Based on first validation, we know that the snake and ladder media need to be revised. So that researcher revised the media according to the comment and suggestion of the validator. After revising, the researcher did the second validation according to the suggestion given by the expert of learning media design. Here is the result of second validation of learning media design expert:

Table 4.5 the Second Validation Result of Learning Media Design Expert

No	Aspects of Validation	Point
1	The interest of the packing design in the snake and ladder media	5
2	The suitability of the picture in the snake and ladder media	4
3	The interest of the board design in the snake and ladder media	4
4	The interest of the teacher guide book design in the snake and ladder media	4
5	The interest of the dice form design in the snake and ladder media	5
6	The suitability of font used in the snake and ladder media	4
7	The interest of the color combination in the teacher guide book and the snake and ladder media	4
8	The consistency of using font, picture, space, writing in the teacher guide book and snake and ladder media	3
9	The accuracy of picture location in the board of snake and ladder media	3
10	The suitability of color combination used in the snake and ladder media	4
Total		40

Based on table above, the percentage of validation result of learning media design expert toward snake and ladder media of mathematics .is:

$$P = \frac{\sum x}{\sum x_i} \text{ x } 100$$

$$= \frac{40}{50} \text{ x } 100$$

$$= 80\%$$

Based on data above, the percentage of validation result of learning media design expert toward snake and ladder media of mathematics is 80%. It pointed out that the percentage of achievement 80% is a very good qualification, so that the media did not need to be revised.

Table 4.6 Comment and Suggestion of Learning Media Design Expert

Component	Comment	Suggestion
Media Board	Should consider the strength of media board	

Comment from the validator above is very critical so that it needed to be considered by the researcher to improve the product of snake and ladder media of mathematics.

c. Validation Result of Language Expert

The product validation of language expert has been validated by Dra. Hj. Siti Annijat Maimunah, M.Pd. The result of validity evaluation by language expert toward the snake and ladder media of mathematics is as follows:

Table 4.7 the Validation Result of Language Expert

No	Aspects of Validation	Point
1	The suitability of sentences or languages in the packing cover of snake and ladder media of mathematics	5
2	The suitability of sentences or languages in the teacher guide	5

	book cover of snake and ladder media of mathematics	
3	The suitability of sentences in the board of snake and ladder media of mathematics	5
4	The suitability of languages in the teacher guide book of snake and ladder media of mathematics	4
5	The suitability of languages in the board of snake and ladder media of mathematics	5
6	The easiness of languages in the teacher guide book of snake and ladder media of mathematics	5
7	The easiness of languages in the games roles of snake and ladder media of mathematics	5
8	The appropriateness of languages in the games roles of snake and ladder media of mathematics	5
9	The appropriateness of languages in the teacher guide book of snake and ladder media of mathematics	4
Total		43

The percentage of validation result of language expert toward snake and ladder media is:

$$P = \frac{\sum x}{\sum x_i} x\ 100$$

$$= \frac{43}{45} x\ 100$$

$$= 95\ \%$$

Based on data above, the percentage of validation result of language expert toward snake and ladder media of mathematics is 95%. It pointed out that the percentage of achievement 95% is a very good qualification, so that the media did not need to be revised.

In addition, the validator of language expert also gives comments and suggestions all of about the snake and ladder media as follows:

Table 4.8 Comment and Suggestion of Language Expert

Component	Comment	Suggestion
Teacher guide book	Reducing the using of foreign words.	
Student Worksheet		The student worksheet should be given the line, because the first grade student needs more guidance

Comments and suggestions from the validator need to be considered by the researcher to improve the product of snake and ladder media.

d. Validation Result of Mathematics Teacher

The product validation of mathematics teacher has been validated by Indah Septriani, S.Pd. She is a mathematics teacher in first grade "Hud" at MI Perwanida Blitar. Here is the result of validity evaluation by mathematics teacher toward the mathematics snake and ladder media:

Table 4.9 the Validation Result of Language Expert

No	Aspects of Validation	Point
1	Making easy for teacher in the learning mathematics	4
2	Making student more active	5
3	The suitability of snake and ladder media with the standard of competency	4
4	The suitability of snake and ladder media with basic competency	4
5	The size and font style are easy to read and understand	5
6	The clarity of playing role of snake and ladder media	5
7	The suitable picture with the topic of snake and ladder media	5
8	Student can be stimulated to follow mathematics learning	4
9	The snake and ladder media can be involved in mathematics learning	3
10	The snake and ladder media can make easy to convey the topic or material	4
11	The topic or material of snake and ladder media can be understood	3
12	The snake and ladder media have completed qualification as a learning media	4
13	Easy to use (based on size and clarity of media)	5
Total		55

The percentage of validation result of language expert toward snake and ladder media is:

$$P = \frac{\sum x}{\sum x_i} x\ 100$$

$= \frac{55}{65} \times 100$

$= 84\ \%$

Based on data above, the percentage of validation result of mathematic teacher toward mathematics snake and ladder media is 84%. It points out that the percentage of achievement 84% is in good qualification, so that the media does not need to be revised.

In addition, the mathematics teacher also gave comments and suggestions to the snake and ladder media as follows:

Table 4.10 Comment and Suggestion of Language Expert

Component	Comment	Suggestion
Dice	The form of dice is not quite simple	The dice should be made in two models. *(puluhan dan satuan)*

Comments and suggestions from validator need to be considered by researcher to improve the product of snake and ladder media of mathematics.

2. The Result of Product Experiment

The product experiment has been done in the first grade class "Hud" at MI Perwanida Blitar. The researcher has been done pre-test (*before treatment test)* and post-test *(after treatment test)*. Bellow is the result of product trial (experiment):

Table 4.11 the Result of Pre-Test and Post-Test

No	Name	Pre-test	Post-test
1	Aidah Fitri Nur Fauziah	70	80
2	Afifah Nuruh Hidayah	80	90
3	Ahmad Fauqi Kafabillah Majid	60	70
4	Ahmad Mukhibah Irfan Ula B	100	100
5	Aji Putra Afifi	90	90
6	Amara Salsabila Yuda Triana	70	80
7	Mohammad Bintang	70	80
8	Ardinata Surya Wardani	90	90
9	Aulia Zahrina Saraya	90	90
10	Auliyaa Rahmanda Zahrawani	70	90
11	Azza kamila al-haq	60	70
12	Berliano Putra Kukuh Wibowo	0	80
13	Daffa' Zidan Arrosyid	90	100
14	Dayang Namira Salsabila	90	70
15	Dimas Permadi	50	80
16	Evan Dwi Cahya Putra	100	80
17	Fatsa Firdaus Hazola Dzaka	100	100
18	Haidar Wicaksono	100	100
19	Liu Elva Chintani	80	100
20	Mirataz Zamani	90	70
21	Mohammad Farhan Rusyansyah	80	70
22	Mutia Ulya Millati Shafana	90	100
23	Naila Khanifa Salmaa	80	70
24	Nakesha Jagad Ashqar R	90	90
25	Naufal Fadiazmara	50	70
26	Pasha Hanum Adhwa'ul Najma	80	90
27	Putri Baduri Malwa	70	70
28	Rea Fanesa Umrona Towil	90	100
29	Rizka Tribuanan Purbaningrum	70	80
30	Sanny Rafael Sanjaya Putra	90	100

31	Syafaro Ahsan Pratama	70	70
32	Wina Amrina Rosyada	90	90
Total		**2500**	**2710**
Average		**78.12**	**84.69**

Based on data above, the researcher analyzes the data using paired sample test with SPSS 16 computer program. In this test the researcher using (α) signification level 0.05 and if sign $\leq \alpha$, so Ho is rejected and very significant. Thus, from the result of paired sample test showed that the significance (2-tailed) is 0.044, so; sign $\leq \alpha$ = 0.044 $\leq$ 0.05. It means that Ho is rejected. It can be concluded therefore, that there is a difference between before using snake and ladder media *(before treatment)* and after using snake and ladder media *(after treatment)*.For the complete data, please look at the appendix.

In other hand, researcher was also using manual t-test. In this analysis researcher was using formula of t-test with degree of trust 95%. Below is the process of analysis using manual t-test:

Ho : $\mu_a \leq \mu_b$

Ha : $\mu_a > \mu_b$

Average : $\bar{x}_1$ =78.12 $\bar{x}_2$ = 84.69

Correlation : r = 0.47

Standard deviation : s_1 = 19.909 s_2 = 11.635

Variant : $s_1{}^2$ = 396.371 $s_2{}^2$ = 135.383

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{{S_1}^2}{n_1} + \frac{{S_2}^2}{n_2} - 2.r\left(\frac{s_1}{\sqrt{n_1}}\right)\left(\frac{s_2}{\sqrt{n_2}}\right)}}$$

$$= \frac{78.12 - 84.69}{\sqrt{\frac{396.371}{32} + \frac{135.383}{32} - 2(0.47)\left(\frac{19.909}{\sqrt{32}}\right)\left(\frac{11.635}{\sqrt{32}}\right)}}$$

$$= -2.09628$$

Based on result of analysis t-test, we can find Ho with the analysis as follow:

- Signification (α) = 0.05
- db = $n_1 - 1 = 32 - 1 = 31$, so that $t_{table} = 2.039513$
- Qualification of analysis

  If: $t_{test} \leq t_{table}$, so Ho is accepted and Ha is rejected

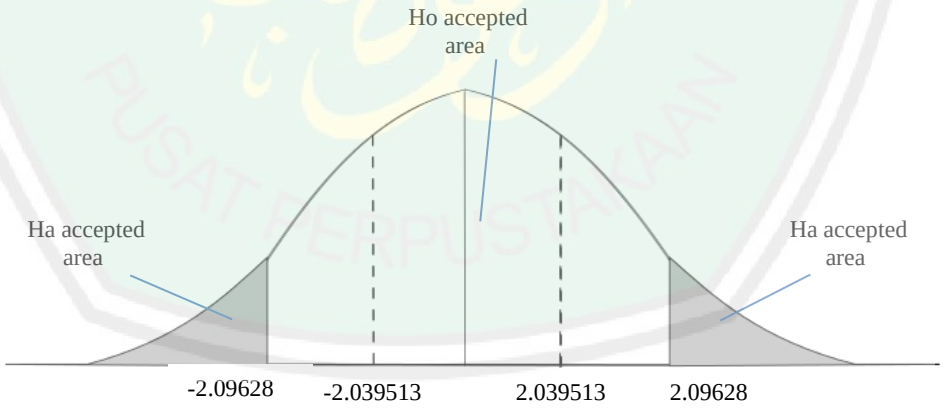


Figure 4.1 Analysis of Hypothesis

- Compare t_{test} with t_{table}

  Based on the figure, can be conclusion that:

  $t_{test} < t_{table} = -2.09628 < -2.039513$

Based on analysis above, the researcher can make conclusion that Ho which has statement "there is no significant difference between before using snake and ladder media and after using snake and ladder media in first grade class Hud" is rejected.

Meanwhile, Ha which has statement "there is significant difference between before using snake and ladder media and after using snake and ladder media in first grade class Hud" is accepted. It is related with the beginning data that the average data of after treatment (84.69) is more than the average data of before treatment (78.12).

B. Revision of Development Result

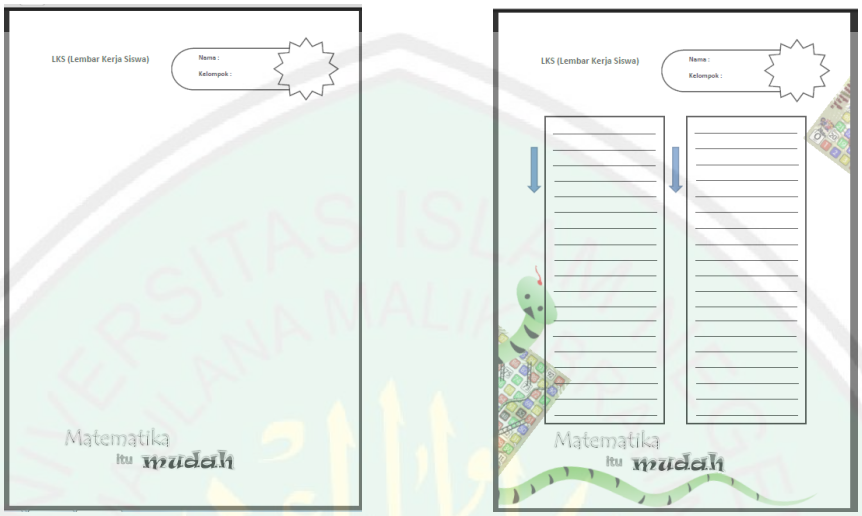
According to the result from the experts (validators), the media got the suitable qualification to be a mathematics learning media. However there are still some comments and suggestions from validators of mathematical content's expert, learning media design expert, language expert, and mathematics teacher. The researcher tries to respond to the comments and suggestions from those validators. Here are some revisions of snake and ladder media of mathematics based on comments and suggestions from validators:

1. Revision From Expert of Mathematics Content

a. Student Worksheet

The expert of mathematics content said that the student worksheet should use colorful design. So the researcher tried to revise the student

worksheet. Below the figure of student worksheet before and after revision:

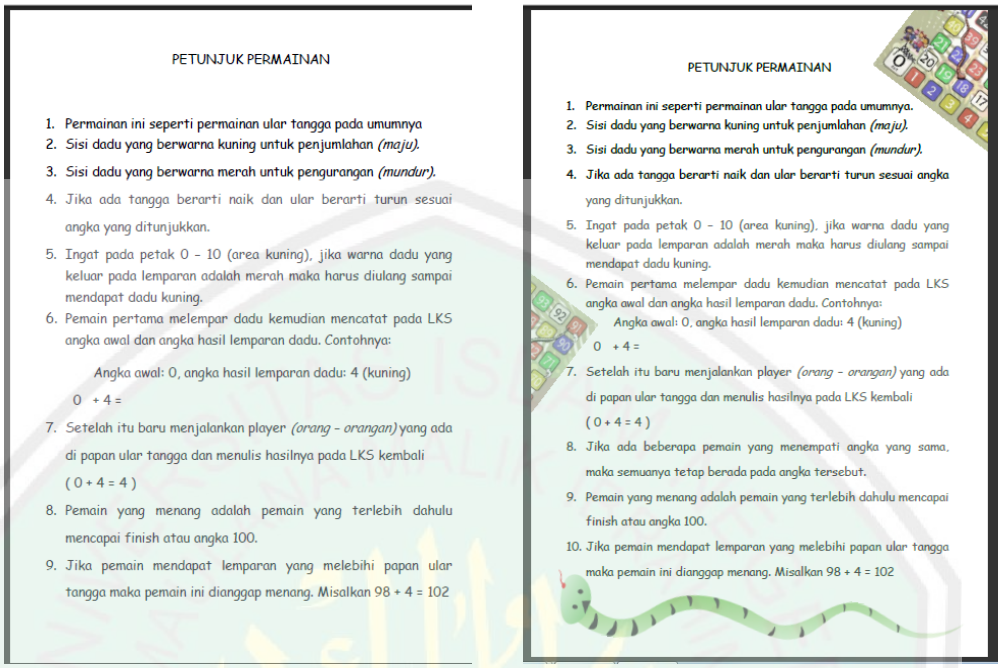


Before revision After revision

Figure 4.2 Revision of Student Worksheet

b. Rule of Play

In response to the comment and suggestion of the expert, the researcher also makes revision design and content of the rule of play. Below is the figure of rule of play before and after revision:



Before revision After revision

Figure 4.3 Revision of Rule of Play

In the revision of content, the researcher was adding one rule of play as follow:

Jika ada beberapa pemain yang menempati angka yang sama, maka semuanya tetap berada pada angka tersebut.

2. Revision From Expert of Learning Media Design

According to the comments and suggestions of the expert of learning media design, the researcher makes some revisions in the snake and ladder media of mathematics for first grade students as follow:

a. Teacher Guide Book

The expert of learning media design pointed out to the book that the consistency of writing and coloring of font should be considered. The color of number is different with the font color, so should make same color to be good looking and design. The figure below is just the sample of revision of teacher guide book design. There are some revisions of color design in other page of the book. Below is the difference of teacher guide book before and after revision:

Before revision after revision

Figure 4.4 Revision of Teacher Guide Book Design

b. Dice

In this dice design, the expert of learning media design suggested that the strength of the dice should be considered. Before making the revision the researcher just made the dice using *linen paper* and therefore it is not strong enough and also will not last long. Therefore in this revision, the researcher made dice from *carton paper* and cover the dice using dice design with fully colorful.

c. Board of Media

According to the validator, the board of *the snake and ladder media of mathematics* should be given the name. So the researcher makes new design for the board of the media. Bellow the difference of the media board before and after revision:

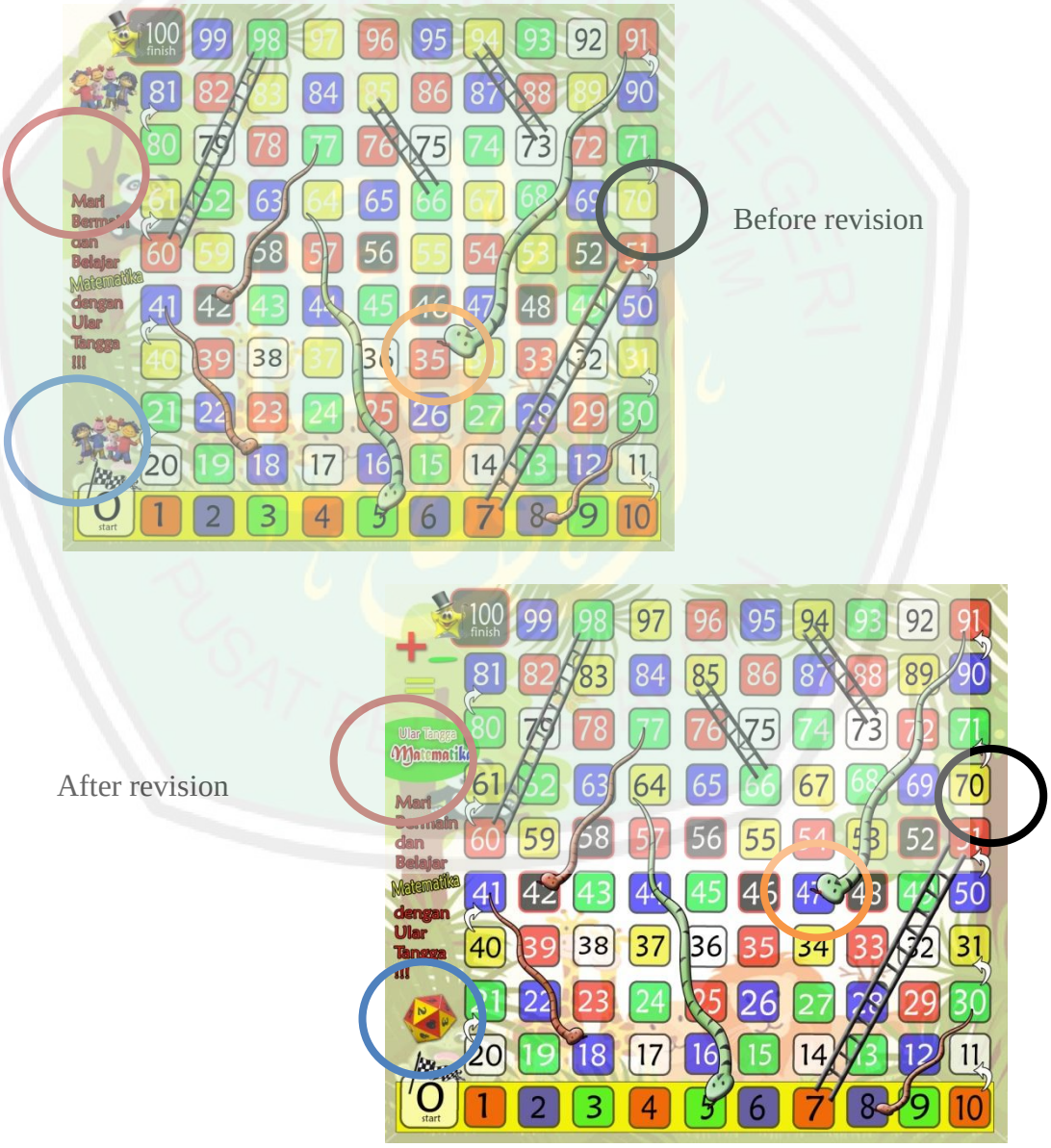


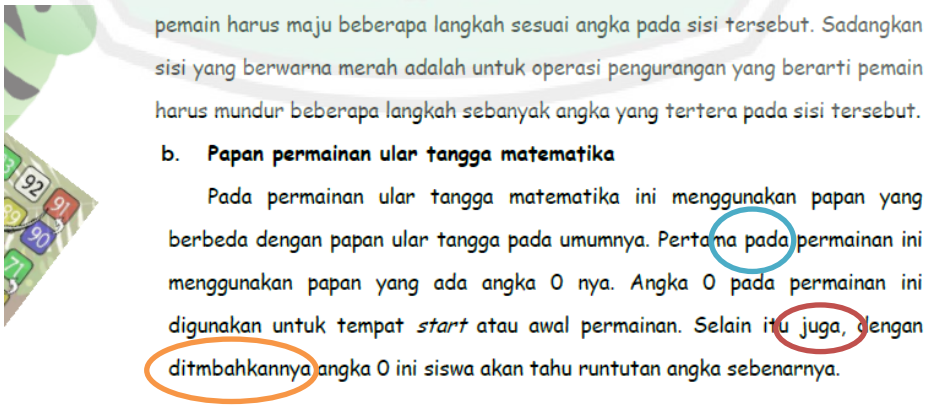
Figure 4.5 Revision of the Board of Media

In addition, the researcher also makes revision in the picture of the board. Before revision, the picture that was used in the board using children picture, and researcher change the picture with dice picture. Because, according to validator the picture is not suitable with mathematic theme. While, based on the picture above, the researcher also makes revision in the snake position. Because the snake position is not accurate, so it may confuse the player.

The last revision is in the color of number. The color combination between yellow as the background and the white as the color of the number did not give clear look therefore the color of the number finally was changed into black color and it looked clear and more transparent as it is seen in the dice number 70.

3. Revision from of language expert

The expert of language gives some comments that should caution in the writing and decrease the using of foreign words. There are some examples of revision of language in the teacher guide book:

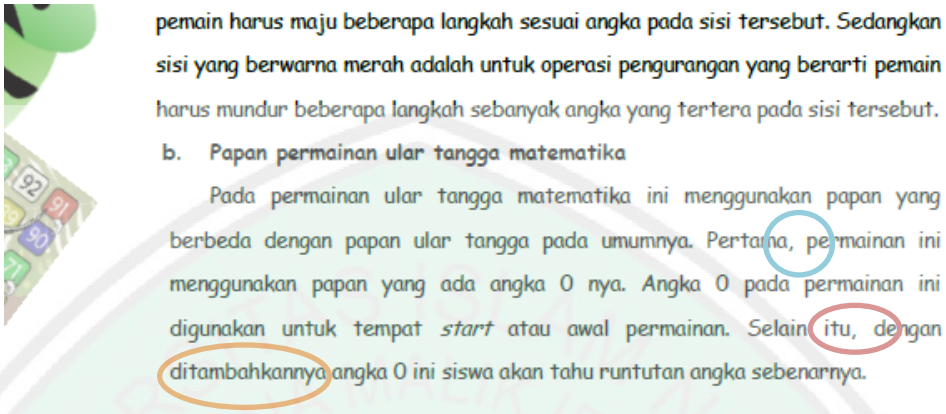


pemain harus maju beberapa langkah sesuai angka pada sisi tersebut. Sadangkan sisi yang berwarna merah adalah untuk operasi pengurangan yang berarti pemain harus mundur beberapa langkah sebanyak angka yang tertera pada sisi tersebut.

b. **Papan permainan ular tangga matematika**

Pada permainan ular tangga matematika ini menggunakan papan yang berbeda dengan papan ular tangga pada umumnya. Pertama pada permainan ini menggunakan papan yang ada angka 0 nya. Angka 0 pada permainan ini digunakan untuk tempat *start* atau awal permainan. Selain itu juga, dengan ditmbahkannya angka 0 ini siswa akan tahu runtutan angka sebenarnya.

Before revision


pemain harus maju beberapa langkah sesuai angka pada sisi tersebut. Sedangkan sisi yang berwarna merah adalah untuk operasi pengurangan yang berarti pemain harus mundur beberapa langkah sebanyak angka yang tertera pada sisi tersebut.

b. Papan permainan ular tangga matematika

Pada permainan ular tangga matematika ini menggunakan papan yang berbeda dengan papan ular tangga pada umumnya. Pertama, permainan ini menggunakan papan yang ada angka 0 nya. Angka 0 pada permainan ini digunakan untuk tempat *start* atau awal permainan. Selain itu, dengan ditambahkannya angka 0 ini siswa akan tahu runtutan angka sebenarnya.

After revision

Figure 4.6 Revision of Teacher Guide Book about the Language

4. Revision From of Mathematics Teacher

According to the suggestion of mathematics teacher, the dice should be made in to two kinds *(puluhan dan satuan)*. This suggestion is used to consider the next research and development of snake and ladder media of mathematics.

C. Development Results

In this research and development, it developed some component of snake and ladder media of mathematics in the topic of addition and subtraction for the first grade students. Here are some components that have been developed:

1. Dice

The dice in this game of mathematics snakes and ladders using icosahedron-shape dice which composed of 20 right-angled triangles. In

the dice game of mathematics snakes and ladders has two colors, namely yellow and red. The yellow side is for the operation of addition, which means player must go several steps based on the numbers on the side. While the red side is for the operation of the subtraction, which means the player must step back a few steps based on the numbers on the side.

Figure 4.7 Icosahedron dice web

Figure 4.8 Icosahedron dice

2. The Board of Media

In this board of media, there are some differences with others. First, the board of media uses number 0. Number 0 on this game is used

to the start place or beginning of the game. Moreover, with the additional of the 0, students will actually know the sequence number. The second difference lies in its design. Snakes and ladders board design is adapted to be more suitable with the kids' preference i.e it is made more colorful. With this design, it will attract the attention of students. And the students are expected to play and learn with enthusiasm.

Figure 4.9 Design of the Board of Media

3. Pion (player)

In the game of mathematics snakes and ladders, there is the pion. The pion is used to indicate the position or the position we are currently playing. Pion (player) on the mathematics snakes and ladders game is similar with the common of snakes and ladders game.

Figure 4.10 the Pion (player)

4. Student Worksheet

The *mathematics snake and ladder game* is different from the game of snakes in the original form. In this game, it is also equipped with student worksheet. This student worksheet is used to record the operations of addition and subtraction when playing on the stairs of the game.

This student worksheet also is used to check or observe the work of students of whether the operation of addition and subtraction were done correctly or not. In other hand, the student worksheet can also be used as an evaluation of comprehension and mastery of the material of student addition and subtraction.

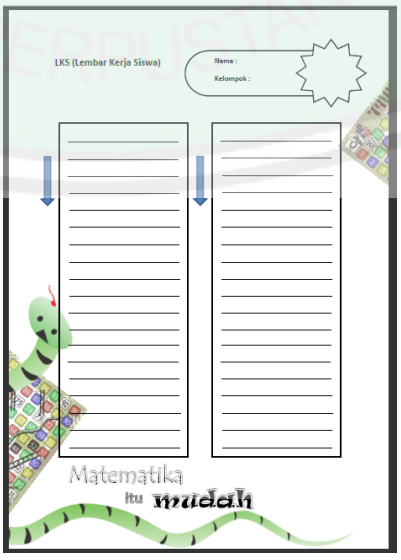


Figure 4.11 Design of Student worksheet

5. Rule of Play

This rule of mathematics snake and ladder games was aimed to facilitate students in conducting the game. And it also can make student better understand about the rule of games. Bellow is the rule in *the snake and ladder media of mathematics* in the topic of addition subtraction for first grade are:

1) Permainan ini seperti permainan ular tangga pada umumnya
2) Sisi dadu yang berwarna kuning untuk penjumlahan *(maju).*
3) Sisi dadu yang berwarna merah untuk pengurangan *(mundur).*
4) Jika ada tangga berarti naik dan ular berarti turun sesuai angka yang ditunjukkan.
5) Ingat pada petak 0 – 10 (area kuning), jika warna dadu yang keluar pada lemparan adalah merah maka harus diulang sampai mendapat dadu kuning.
6) Pemain pertama melempar dadu kemudian mencatat pada LKS angka awal dan angka hasil lemparan dadu. Contohnya:

   Angka awal: 0, angka hasil lemparan dadu: 4 (kuning)

   0 + 4 = …
7) Setelah itu baru menjalankan player *(orang – orangan)* yang ada di papan ular tangga dan menulis hasilnya pada LKS kembali

   (0 + 4 = 4)
8) Jika ada beberapa pemain yang menempati angka yang sama, maka semuanya tetap berada pada angka tersebut.

9) Pemain yang menang adalah pemain yang terlebih dahulu mencapai finish atau angka 100.

10) Jika pemain mendapat lemparan yang melebihi papan ular tangga maka pemain ini dianggap menang. Misalkan 98 + 4 = 102

6. Teacher Guide Book

The guide book of teacher was designed to give information about the *snake and ladder media of mathematics* to the teacher. In this book there are some information that can be obtained, like explanation about the mathematics snake and ladder games, how to produce the games, how to apply this games to the learner and many others. With this book, we hope the teacher can enjoy and easily apply the *snake and ladder media of mathematics* to the students.

Figure 4.12 Front Cover Design of Teacher Guide Book

Figure 4.13 Content Design of Teacher Guide Book

Figure 4.14 Back Cover Design of Teacher Guide Book

7. CD of Games Draft

In the CD of games draft there are some files about the games. Such as file of student worksheet, rule of play, board of media, teacher guide book, and design of cover media. So with this file, the teacher of someone who has this file will be able to create *the snake and ladder media of mathematics* by himself.

Figure 4.15 Design of Games Draft CD

8. Cover of the Media

The media cover served to wrap or pack all equipments of *snakes and ladders media of mathematics*. This design was later made into a box and then used to cover the cube.

Figure 4.16 the Design Media Cover

CHAPTER V

CLOSING

A. Conclusion

The conclusions from the product of research and development that has been revised according the result of some validator are as follow:

1. The *snake and ladder media of mathematics* are have some component or specification namely; dice that using *icosahedron-shape*, board of media, pion or player, student worksheet, role playing, teacher guide book, and CD of games draft. All of the components have been covered using small box which have interested picture and color design.
2. The *snake and ladder media of mathematics* has effective can increase the student achievement of addition and subtraction topic in first grade "Hud" at MI Perwanida Blitar. This is can be evidenced with analysis of paired t-test using SPSS.16. In this test the researcher using (α) signification level 0.05 and if sign $\leq \alpha$, so Ho is rejected and very significantly. Thus, from the result of paired sample test showed that the signification (2-tailed) is 0.044, so; sign $\leq \alpha$ = 0.044 $\leq$ 0.05. It's mean that Ho is rejected. In other hand researcher also using manual t-test. From this t-test can be resulted that $t_{test} < t_{table}$ = -2.09628 < -2.039513. So Ho is rejected and Ha is accepted. From this data can be concluded

that there is differential of student achievement before and after using the mathematics snake and ladder media.

3. The *snake and ladder media of mathematics* had been suitable as a learning media. This is related with the result of validation by some experts. From the validation result of mathematics content expert is 90 %. Then, validation result of language expert toward *snake and ladder media of mathematics* is 95%. There are points out that the learning media are very good or suitable and no revision. While, validation result of learning media design expert toward *snake and ladder media of mathematics* is 80%. Later, validation result of mathematic teacher toward *snake and ladder media of mathematics* is 84%. There are points out that the percentages are in good qualification, so that the media do not need to be revised. But, the *snake and ladder media of mathematics* also revised by some comments and suggestions from every expert.

B. Suggestion

The *snake and ladder media of mathematics* that has been developed, may be can be used for alternative as learning media in the topic of addition and subtraction for first grade student in second semester. There are some suggestions that related with this developing mathematics snake and ladder media:

1. The teacher who will use this media should explain the material and the role of mathematics snake and ladder media. Then give the components

of the learning media. This is can make more effectively because the students have known and understand with the material.

2. This *snake and ladder media of mathematics* also have some limited, therefore in using of this media should be supported with other relevant learning resource.
3. The product of *snake and ladder media of mathematics* should be developed with other topics that have relevant with mathematics learning or other subject learning.

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Appendix 1

KEMENTERIAN AGAMA
UNIVERSITAS ISLAM NEGERI MAULANA MALIK IBRAHIM MALANG
FAKULTAS TARBIYAH
Jalan Gajayana Nomor 50 Telepon (0341) 552398 Faksimile (0341) 552398
Website: www.tarbiyah.uin-malang.ac.id

Nomor : Un.3.1/TL.00/5616/2013 06 Mei 2013
Lampiran : 1 (satu) berkas proposal skripsi
Perihal : **Penelitian**

Kepada:
Yth. Kepala Madrasah Ibtidaiyah Perwanida
di
Blitar

Assalamu'alaikum Wr. Wb.

Kami mengharap dengan hormat agar mahasiswa di bawah ini:

Nama	:	Sobirahmanto
NIM	:	09140103
Fakultas/Jurusan	:	Tarbiyah/Pendidikan Guru Madrasah Ibtidaiyah
Semester/ Th. Ak	:	Genap, 2012/2013
Judul Penelitian	:	**The Development of Mathematics Snake and Ladder Media in The Topic of Addition and Subtraction for First Grade Student at MI Perwanida Blitar**

dalam rangka menyelesaikan tugas akhir/menyusun skripsi yang berangkutan mohon diberikan izin/kesempatan untuk mengadakan penelitian di lembaga/instansi yang menjadi wewenang Bapak/Ibu.

Demikian atas perkenan dan kerjasama Bapak/Ibu disampaikan terima kasih.

Wassalamu'alaikum Wr. Wb.

Dekan,

Dr. H. Zainuddin, MA
NIP. 19620607 199503 1 001

Tembusan :
1. Yth. Kajur PGMI
2. Arsip

Appendix 2

المدرسة الإبتدائية "فروانيدا"
حالان سلطان اغونغ 92 بليتار

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SURAT KETERANGAN
Nomor : 173/K/MI/422.111.8/V/2013

Yang bertanda tangan di bawah ini

Nama	:	H. Ni'mad Arifa, M. Pd. I.
NIMIDA	:	47.10.2005
Jabatan	:	Kepala Madrasah,
Unit kerja	:	MI "Purwanida" Blitar,

menerangkan dengan sesungguhnya bahwa

Nama	:	**Suhendriarto,**
NIM	:	09140103,
Program studi	:	Pendidikan Guru Madrasah Ibtidaiyah (PGMI),
Fakultas	:	Tarbiyah,
Perguruan Tinggi	:	UIN Maulana Malik Ibrahim Malang.

adalah benar-benar telah mengadakan penelitian di MI "Purwanida" Blitar dalam rangka menyusun Skripsi dengan judul " The Development of Mathematics Snake and Ladder Media in The Topic of Addition and Subtraction for First Grade Students at MI Purwanida Blitar" dari tanggal 15 April sampai dengan 15 Mei 2013.

Demikian surat keterangan ini dibuat, untuk dapat dipergunakan sebagaimana mestinya.

Blitar, 15 Mei 2013

H. Ni'mad Arifa, M. Pd. I.
NIMIDA : 47.10.2005

Appendix 3

INSTRUMEN PENILAIAN

AHLI ISI MATA PELAJARAN MATEMATIKA

"MEDIA PEMBELAJARAN ULAR TANGGA MATEMATIKA UNTUK KELAS 1 SD/MI SEMESTER GENAB"

A. PENGANTAR

Berkaitan dengan pelaksanaan pengembangan Media Pembelajaran Ular Tangga Matematika Untuk Kelas 1 SD/MI Semester Genap, maka peneliti bermaksud mengadakan validasi media pembelajaran yang yang telah diproduksi sebagai salah satu bahan pembelajaran. Oleh sebab itu, peneliti mohon kesediaan Bapak/Ibu untuk mengisi angket di bawah ini. Tujuan dari pengisisan angket adalah untuk mengetahui kesesuaian pemanfaatan bahan ajar ini sebagaimana yang telah dirancang berdasarkan disiplin ilmu matematika. Hasil dari pengukuran melalui angket ini akan digunakan untuk penyempurnaan bahan ajar agar dapat dimanfaatkan dalam proses pembelajaran. Sebelumnya saya sampaikan terima kasih atas kesediaan Bapak/Ibu sebagai ahli isi mata pelajaran matematika.

Nama : YENI TRI ASMANINGTIAS

NIP : 198002252008012012

Instansi : UIN MAULANA MALIK IBRAHIM MALANG

Pendidikan : S2 PENDIDIKAN MATEMATIKA

Alamat : JL. L.A. SUCIPTO NO. 74 BLIMBING - MALANG

B. PETUNJUK PENILAIAN:

1. Jawablah pertanyaan di bawah ini dengan memberi tanda centang (√) pada alternatif jawaban yang dianggap paling sesuai.
2. Jika diperlukan kritik dan saran Bapak/Ibu dapat dituliskan pada lembar yang telah disediakan.

C. KETERANGAN:

Skala penilaian/tanggapan				
1	2	3	4	5
Sangat tidak baik	Kurang baik	Cukup baik	Baik	Sangat baik

D. LEMBAR PENILAIAN

No.	Butir Pertanyaan	Nilai				
		1	2	3	4	5
1	Bagaimana kesesuaian media pembelajaran ular tangga matematika dengan Standar Kompetensi Matematika kelas 1 MI/SD?				✓	
2	Bagaimana kesesuaian media pembelajaran ular tangga matematika dengan Kompetensi Dasar Matematika kelas 1 MI/SD?				✓	
3	Bagaimana ketepatan tujuan pembelajaran dengan menggunakan media pembelajaran ular tangga matematika?				✓	
4	Bagaimana kualitas teknis media pembelajaran ular tangga matematika?					✓
5	Apakah komponen isi media ular tangga matematika sudah memadai sebagai media pembelajaran matematika?					✓
6	Bagaimana keluasan dan kedalaman isi media pembelajaran ular tangga matematika?				✓	
7	Bagaimana kesesuaian strategi yang digunakan dalam media pembelajaran ular tangga matematika?					✓
8	Bagaimana konsistensi isi media pembelajaran ular tangga matematika?					✓
9	Bagaimana ketepatan penggunaan LKS pada permainan ular tangga ini?				✓	
10	Bagaimana kesesuaian evaluasi media pembelajaran ualr tangga matematika yang digunakan?					✓

E. KRITIK

LK5 dan petunjuk permainan kalo bisa jangan hitam putih.

F. SARAN

1. Petunjuk permainan kalo bisa diwarnai, seperti pada buku panduan.
2. LK5 juga diwarnai biar kelihatan sempurna.

Malang, 6 MEI 2013

YENI TRI ASMANINGTIAS

Nip. 198002252008012012

Appendix 4

INSTRUMEN PENILAIAN
AHLI DESAIN MEDIA PELAJARAN MATEMATIKA
"MEDIA PEMBELAJARAN ULAR TANGGA MATEMATIKA UNTUK KELAS 1 SD/MI SEMESTER GENAB"

A. PENGANTAR

Berkaitan dengan pelaksanaan pengembangan Media Pembelajaran Ular Tangga Matematika Untuk Kelas 1 SD/MI Semester Genap, maka peneliti bermaksud mengadakan validasi media pembelajaran yang yang telah diproduksi sebagai salah satu bahan pembelajaran. Oleh sebab itu, peneliti mohon kesediaan Bapak/Ibu untuk mengisi angket di bawah ini. Tujuan dari pengisisan angket adalah untuk mengetahui kesesuaian pemanfaatan bahan ajar ini sebagaimana yang telah dirancang berdasarkan disiplin ilmu matematika. Hasil dari pengukuran melalui angket ini akan digunakan untuk penyempurnaan bahan ajar agar dapat dimanfaatkan dalam proses pembelajaran. Sebelumnya saya sampaikan terima kasih atas kesediaan Bapak/Ibu sebagai ahli desain media pelajaran matematika.

Nama : FACHRUR ROZI, M.Si
NIP : 19800527 200801 1012
Instansi : MATEMATIKA UIN MALIKI MALANG
Pendidikan : S2 - MATEMATIKA
Alamat :

B. PETUNJUK PENILAIAN:

1. Jawablah pertanyaan di bawah ini dengan memberi tanda centang (√) pada alternatif jawaban yang dianggap paling sesuai.
2. Jika diperlukan kritik dan saran Bapak/Ibu dapat dituliskan pada lembar yang telah disediakan.

C. KETERANGAN:

Skala penilaian/tanggapan				
1	2	3	4	5
Sangat tidak baik	Kurang baik	Cukup baik	Baik	Sangat baik

D. LEMBAR PENILAIAN

No.	Butir Pertanyaan	Nilai				
		1	2	3	4	5
1	Bagaimana ketertarikan pengemasan desain media pembelajaran ular tangga matematika?				✓	
2	Bagaimana kesesuaian gambar pada media pembelajaran ular tangga matematika?			✓		
3	Bagaimana dengan ketertarikan desain papan permainan ular tangga matematika?			✓		
4	Bagaimana dengan ketertarikan desain Buku panduan guru pada permainan ular tangga matematika?				✓	
5	Bagaimana dengan ketertarikan desain pada bentuk dadu?				✓	
6	Bagaimana dengan kesesuaian pemakaian jenis huruf yang digunakan pada media pembelajaran ular tangga matematika?				✓	
7	Bagaimana dengan ketertarikan kombinasi warna yang digunakan dalam mendesain media dan buku panduan guru permainan ular tangga matematika?				✓	
8	Bagaimana dengan konsistensi penggunaan huruf, gambar, spasi, dan pengetikan materi pada media dan buku panduan guru permainan ular tangga matematika?			✓		
9	Bagaimana ketepatan penempatan gambar pada kolom papan permainan ular tangga matematika?			✓		
10	Bagaimana kesesuaian penggunaan variasi warna pada media permainan ular tangga matematika?		✓			

E. KRITIK

- Ke konsistenan tulisan & warna diperhatikan
- penempatan gambar lebih presisi / tidak ambigu
- kombinasi warna disesuaikan agar lebih I CATCHING
- pemilihan gambar pada papan permainan lebih ke arah 'konteks' matematika

F. SARAN

a) Perlu diperhatikan mengenai kefahaman / kekuatan media dalam penggunaannya
- seperti : kekuatan dadu

b) Papan permainan perlu dicantumkan nama mediaanya (ular tangga matematika)

c) Player (orang-orang) mungkin dapat disesuaikan dengan 'tema' anak-anak.

d) Petunjuk permainan dibuat ~~kleo~~ lebih 'elegan'

Malang, 2 Mei 2013

FACHRUR ROZI, M.Si

Nip. 19800527 200801 1 012

Appendix 5

INSTRUMEN PENILAIAN
AHLI DESAIN MEDIA PELAJARAN MATEMATIKA
"MEDIA PEMBELAJARAN ULAR TANGGA MATEMATIKA UNTUK KELAS 1 SD/MI SEMESTER GENAP"

A. PENGANTAR

Berkaitan dengan pelaksanaan pengembangan Media Pembelajaran Ular Tangga Matematika Untuk Kelas 1 SD/MI Semester Genap, maka peneliti bermaksud mengadakan validasi media pembelajaran yang yang telah diproduksi sebagai salah satu bahan pembelajaran. Oleh sebab itu, peneliti mohon kesediaan Bapak/Ibu untuk mengisi angket di bawah ini. Tujuan dari pengisisan angket adalah untuk mengetahui kesesuaian pemanfaatan bahan ajar ini sebagaimana yang telah dirancang berdasarkan disiplin ilmu matematika. Hasil dari pengukuran melalui angket ini akan digunakan untuk penyempurnaan bahan ajar agar dapat dimanfaatkan dalam proses pembelajaran. Sebelumnya saya sampaikan terima kasih atas kesediaan Bapak/Ibu sebagai ahli desain media pelajaran matematika.

Nama : FACHRUR RODZI, M.Si
NIP : 19800527 200801 1012
Instansi : JURUSAN MATEMATIKA UIN MAULANA MALIK IBRAHIM MALANG
Pendidikan : S2 - MATEMATIKA
Alamat : PUSKOPAD PURI KARTIKA ASRI B-16 TASIK MADU

B. PETUNJUK PENILAIAN:

1. Jawablah pertanyaan di bawah ini dengan memberi tanda centang (√) pada alternatif jawaban yang dianggap paling sesuai.
2. Jika diperlukan kritik dan saran Bapak/Ibu dapat dituliskan pada lembar yang telah disediakan.

C. KETERANGAN:

Skala penilaian/tanggapan				
1	2	3	4	5
Sangat tidak baik	Kurang baik	Cukup baik	Baik	Sangat baik

D. LEMBAR PENILAIAN

No.	Butir Pertanyaan	Nilai				
		1	2	3	4	5
1	Bagaimana ketertarikan pengemasan desain media pembelajaran ular tangga matematika?					✓
2	Bagaimana kesesuaian gambar pada media pembelajaran ular tangga matematika?				✓	
3	Bagaimana dengan ketertarikan desain papan permainan ular tangga matematika?				✓	
4	Bagaimana dengan ketertarikan desain Buku panduan guru pada permainan ular tangga matematika?				✓	
5	Bagaimana dengan ketertarikan desain pada bentuk dadu?					✓
6	Bagaimana dengan kesesuaian pemakaian jenis huruf yang digunakan pada media pembelajaran ular tangga matematika?				✓	
7	Bagaimana dengan ketertarikan kombinasi warna yang digunakan dalam mendesain media dan buku panduan guru permainan ular tangga matematika?				✓	
8	Bagaimana dengan konsistensi penggunaan huruf, gambar, spasi, dan pengetikan materi pada media dan buku panduan guru permainan ular tangga matematika?			✓		
9	Bagaimana ketepatan penempatan gambar pada kolom papan permainan ular tangga matematika?			✓		
10	Bagaimana kesesuaian penggunaan variasi warna pada media permainan ular tangga matematika?				✓	

E. KRITIK

- Perlu diperhatikan kekuatan bahan papan ular tangga

F. SARAN

Malang, 22 Mei 2013

FACHRUR ROZI, M.Si

Nip. 19800527 200801 1012

Appendix 6

INSTRUMEN PENILAIAN

AHLI BAHASA

"MEDIA PEMBELAJARAN ULAR TANGGA MATEMATIKA UNTUK KELAS 1 SD/MI SEMESTER GENAP"

A. PENGANTAR

Berkaitan dengan pelaksanaan pengembangan Media Pembelajaran Ular Tangga Matematika Untuk Kelas 1 SD/MI Semester Genap, maka peneliti bermaksud mengadakan validasi media pembelajaran yang yang telah diproduksi sebagai salah satu bahan pembelajaran. Oleh sebab itu, peneliti mohon kesediaan Bapak/Ibu untuk mengisi angket di bawah ini. Tujuan dari pengisisan angket adalah untuk mengetahui kesesuaian pemanfaatan bahan ajar ini sebagaimana yang telah dirancang berdasarkan disiplin ilmu matematika. Hasil dari pengukuran melalui angket ini akan digunakan untuk penyempurnaan bahan ajar agar dapat dimanfaatkan dalam proses pembelajaran. Sebelumnya saya sampaikan terima kasih atas kesediaan Bapak/Ibu sebagai ahli bahasa.

Nama : Dra. Hj. Siti Annisat Maimunah, MPd.
NIP : 195709271982032001
Instansi : Fak. Tarbiyah UIN - Malang
Pendidikan : Magister Pendidikan Bhs. Indonesia
Alamat : Ponpok Bestari Indah E3 - 198 Landungsari - Malang

B. PETUNJUK PENILAIAN:

1. Jawablah pertanyaan di bawah ini dengan memberi tanda centang (√) pada alternatif jawaban yang dianggap paling sesuai.
2. Jika diperlukan kritik dan saran Bapak/Ibu dapat dituliskan pada lembar yang telah disediakan.

C. KETERANGAN:

Skala penilaian/tanggapan				
1	2	3	4	5
Sangat tidak baik	Kurang baik	Cukup baik	Baik	Sangat baik

D. LEMBAR PENILAIAN

No.	Butir Pertanyaan	Nilai				
		1	2	3	4	5
1	Bagaimana kesesuaian bahasa/kalimat pada cover pengemas media pembelajaran?					✓
2	Bagaimana kesesuaian bahasa/kalimat pada cover buku pedoman guru?					✓
3	Bagaimana kesesuaian kalimat pada papan ular tangga matematika?					✓
4	Bagaimana kesesuaian bahasa yang digunakan pada buku panduan untuk guru?				✓	
5	Bagaimana kesesuaian bahasa yang digunakan pada peraturan permainan?					✓
6	Bagaimana kemudahan bahasa untuk dipahami dalam buku panduan untuk guru?					✓
8	Bagaimana kemudahan bahasa untuk dipahami dalam peraturan permainan ular tangga matematika?					✓
9	Bagaimana ketepatan penggunaan bahasa pada peraturan permainan ular tangga matematika?					✓
10	Bagaimana ketepatan penggunaan bahasa pada buku pedoman guru permainan ular tangga matematika?				✓	

E. KRITIK

Cermati ejaan, kurangi penggunaan kata2 asing & padu padan bhs Indonesia-nya lebih apa?

F. SARAN

LKS diberi garis 2. Kelas satu masih perlu bimbingan kerapian menulis.

Malang, 7 - 5 - 2013

Siti Amiyati M, MPd.

Nip. .....

Appendix 7

INSTRUMEN PENILAIAN
GURU MATA PELAJARAN MATEMATIKA
"MEDIA PEMBELAJARAN ULAR TANGGA MATEMATIKA UNTUK KELAS 1 SD/MI SEMESTER GENAB"

A. PENGANTAR

Berkaitan dengan pelaksanaan pengembangan Media Pembelajaran Ular Tangga Matematika Untuk Kelas 1 SD/MI Semester Genap, maka peneliti bermaksud mengadakan validasi media pembelajaran yang yang telah diproduksi sebagai salah satu bahan pembelajaran. Oleh sebab itu, peneliti mohon kesediaan Bapak/Ibu untuk mengisi angket di bawah ini. Tujuan dari pengisisan angket adalah untuk mengetahui kesesuaian pemanfaatan bahan ajar ini sebagaimana yang telah dirancang berdasarkan disiplin ilmu matematika. Hasil dari pengukuran melalui angket ini akan digunakan untuk penyempurnaan bahan ajar agar dapat dimanfaatkan dalam proses pembelajaran. Sebelumnya saya sampaikan terima kasih atas kesediaan Bapak/Ibu sebagai guru mata pelajaran matematika.

Nama : INDAH SEPTRIANI, S.Pd
NIP : -
Instansi : MI PERWANIDA
Pendidikan : S1. - Biologi
Alamat : JL. Rayo Banggle RT 1 RW 3 Kanigoro, Blitar

B. PETUNJUK PENILAIAN:

1. Jawablah pertanyaan di bawah ini dengan memberi tanda centang (√) pada alternatif jawaban yang dianggap paling sesuai.
2. Jika diperlukan kritik dan saran Bapak/Ibu dapat dituliskan pada lembar yang telah disediakan.

C. KETERANGAN:

Skala penilaian/tanggapan				
1	2	3	4	5
Sangat tidak baik	Kurang baik	Cukup baik	Baik	Sangat baik

D. LEMBAR PENILAIAN

No.	Butir Pertanyaan	Nilai				
		1	2	3	4	5
1	Apakah media pembelajaran ini memudahkan Bapak/Ibu dalam mengajar mata pelajaran matematika?				✓	
2	Apakah media pembelajaran ini dapat membuat siswa aktif dalam pembelajaran?					✓
3	Bagaimana kesesuaian media pembelajaran ular tangga matematika dengan Standar Kompetensi matematika kelas 1 MI/SD?				✓	
4	Bagaimana kesesuaian media pembelajaran ular tangga matematika dengan Kompetensi Dasar matematika kelas 1 MI/SD?				✓	
5	Apakah ukuran dan jenis huruf yang digunakan dalam media pembelajaran mudah dibaca dan dipahami?					✓
6	Bagaimana kejelasan paraturan pada media pembelajaran ular tangga matematika?					✓
8	Bagaimana tingkat kesesuaian antara gambar dan materi dalam media pembelajaran ular tangga matematika?					✓
9	Apakah dengan menggunakan media pembelajaran ini siswa termotivasi dalam mengikuti pembelajaran matematika?				✓	
10	Apakah media ular tangga matematika sangat berperan dalam pembelajaran Matematika?			✓		

No.	Butir Pertanyaan	Nilai				
		1	2	3	4	5
11	Apakah media ular tangga matematika membantu anda dalam memudahkan penyampaian materi?				✓	
12	Apakah media pembelajaran ular tangga matematika dapat dipahami uraian materinya?			✓		
13	Apakah media ular tangga matematika sudah memenuhi kriteria sebagai media pembelajaran?				✓	
14	Apakah media pembelajaran ular tangga matematika mudah digunakan (menurut ukuran dan kejelasannya)?					✓

E. KRITIK

Komponen dadu bentuknya kurang simple (anak bingung membaca angka yang ditunjuk /dimaksud oleh dadu). dan ~~sudah~~ cukup sulit bergerak shg tidak begitu banyak perubahan angka yang berhenti.

F. SARAN

Komponen dalam media pembelajaran ular tangga yaitu pada dadu, bisa dibuat dua buah. Dimana dadu pertama menempati angka puluhan dan dadu ke-2 sebagai angka satuan. Jadi bisa digunakan dalam pengoprasian penjumlahan dan pengurangan bilangan 2 angka dan 1 angka dan 2bilangan 2 angka sekaligus.

Blitar, 15 Mei 2013

Indah Septriani, S.Pd

Nip. -

Appendix 8

A-100000

Nama : Dimas

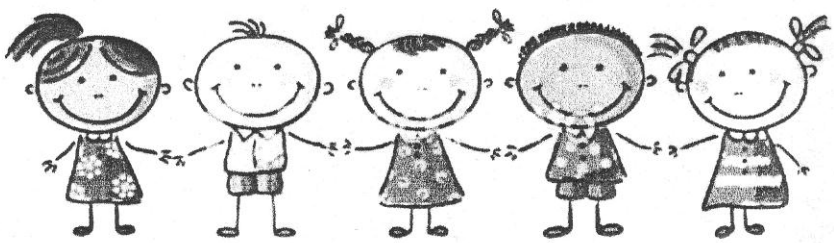
No. : 15

Hari/tanggal : selasa 14 Mei 2013

Jawablah pertanyaan dibawah ini dengan jawaban yang tepat!

1. 10 + 7 = 17
2. 17 + 5 = 22
3. 21 + 9 = 29
4. 18 - 6 = 12
5. 25 - 14 = 11
6. 56 + 10 = 66
7. 48 + 9 = 56
8. 86 + 6 = 92
9. 78 - 9 = 86
10. 88 - 10 = 78

Selamat Mengerjakan!



Appendix 9

A-2

Nama : mutia ulva millati s.

No. : 22

Hari/tanggal : rabu 15 mei 2013

Jawablah pertanyaan dibawah ini dengan jawaban yang tepat!

100

1. 10 + 5 = 15
2. 16 + 4 = 20
3. 25 + 5 = 30
4. 16 - 6 = 10
5. 25 - 10 = 15
6. 57 + 10 = 67
7. 38 + 8 = 46
8. 81 + 6 = 87
9. 78 - 7 = 71
10. 80 - 10 = 70

Selamat Mengerjakan!

Matematika itu mudah

Appendix 10

The Result of T-Test

[DataSet0]

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	before	78.12	32	19.909	3.519
	after	84.69	32	11.635	2.057

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	before & after	32	.471	.007

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	before - after	-6.562	17.709	3.131	-12.947	-.178	-2.096	31	.044

Appendix 11

Assessment Table of Pre-test

No	Name	Question Number										Point	Score per item	Score
		1	2	3	4	5	6	7	8	9	10			
1	Aidah Fitri Nur	1	1	1	1	1	1	0	0	0	1	7	10	70
2	Afifah Nuruh Hidayah	1	1	1	1	1	1	1	1	0	0	8	10	80
3	Ahmad Fauqi	1	1	0	1	1	1	0	0	0	1	6	10	60
4	Ahmad Mukhibah	1	1	1	1	1	1	1	1	1	1	10	10	100
5	Aji Putra Afifi	1	0	1	1	1	1	1	1	1	1	9	10	90
6	Amara Salsabila Yuda	1	0	0	1	1	1	1	1	0	1	7	10	70
7	Mohammad Bintang	1	1	1	1	1	1	0	0	0	1	7	10	70
8	Ardinata Surya	1	1	1	1	1	1	1	1	0	1	9	10	90
9	Aulia Zahrina Saraya	1	1	1	1	1	1	1	1	0	1	9	10	90
10	Auliyaa Rahmanda	1	1	1	1	1	1	0	0	0	1	7	10	70
11	Azza kamila al-haq	1	1	0	1	1	1	0	0	0	1	6	10	60
12	Berliano Putra Kukuh	0	0	0	0	0	0	0	0	0	0	0	10	0
13	Daffa' Zidan Arrosyid	1	1	1	1	1	1	1	1	0	1	9	10	90
14	Dayang Namira	1	1	1	1	1	1	1	1	0	1	9	10	90
15	Dimas Permadi	0	1	0	1	1	1	0	0	0	1	5	10	50
16	Evan Dwi Cahya Putra	1	1	1	1	1	1	1	1	1	1	10	10	100
17	Fatsa Firdaus Hazola	1	1	1	1	1	1	1	1	1	1	10	10	100
18	Haidar Wicaksono	1	1	1	1	1	1	1	1	1	1	10	10	100
19	Liu Elva Chintani	1	1	1	1	1	0	1	1	0	1	8	10	80
20	Mirataz Zamani	1	1	1	1	1	1	1	1	1	0	9	10	90
21	Mohammad Farhan	1	1	1	0	1	0	1	1	1	1	8	10	80
22	Mutia Ulya Millati	1	1	1	1	1	1	1	1	0	1	9	10	90
23	Naila Khanifa Salmaa	1	1	1	1	1	1	0	1	0	1	8	10	80
24	Nakesha Jagad Ashqar	1	1	1	1	1	1	1	1	0	1	9	10	90
25	Naufal Fadiazmara	1	1	1	0	0	0	1	1	0	0	5	10	50
26	Pasha Hanum	1	1	1	1	1	1	0	1	0	1	8	10	80
27	Putri Baduri Malwa	1	1	1	1	1	1	0	0	0	1	7	10	70
28	Rea Fanesa Umrona	1	1	1	1	1	1	1	1	0	1	9	10	90
29	Rizka Tribuanan	1	1	1	1	1	1	0	0	0	1	7	10	70

30	Sanny Rafael Sanjaya	1	1	1	1	1	1	1	1	0	1	9	10	90
31	Syafaro Ahsan	1	1	1	1	0	1	0	1	0	1	7	10	70
32	Wina Amrina Rosyada	1	1	1	1	1	1	1	1	0	1	9	10	90

Appendix 12

Assessment Table of Post-test

No	Name	Question Number										Point	Score
		1	2	3	4	5	6	7	8	9	10		
1	Aidah Fitri Nur Fauziah	1	1	1	1	0	1	1	1	1	0	8	80
2	Afifah Nuruh Hidayah	1	1	1	1	1	1	0	1	1	1	9	90
3	Ahmad Fauqi Kafabillah	1	1	0	1	1	0	1	1	0	1	7	70
4	Ahmad Mukhibah Irfan Ula B	1	1	1	1	1	1	1	1	1	1	10	100
5	Aji Putra Afifi	1	0	1	1	1	1	1	1	1	1	9	90
6	Amara Salsabila Yuda Triana	1	1	1	1	0	1	0	1	1	1	8	80
7	Mohammad Bintang	1	0	1	1	0	1	1	1	1	1	8	80
8	Ardinata Surya Wardani	1	1	1	1	1	1	0	1	1	1	9	90
9	Aulia Zahrina Saraya	1	1	1	1	1	1	1	1	0	1	9	90
10	Auliyaa Rahmanda Zahrawani	1	1	1	1	0	1	1	1	1	1	9	90
11	Azza kamila al-haq	1	1	0	0	1	1	1	1	0	1	7	70
12	Berliano Putra Kukuh	1	1	1	1	1	1	1	1	0	0	8	80
13	Daffa' Zidan Arrosyid	1	1	1	1	1	1	1	1	1	1	10	100
14	Dayang Namira Salsabila	1	0	0	1	1	1	0	1	1	1	7	70
15	Dimas Permadi	1	1	1	1	1	1	1	1	0	0	8	80
16	Evan Dwi Cahya Putra	1	1	1	0	1	1	1	1	1	0	8	80
17	Fatsa Firdaus Hazola Dzaka	1	1	1	1	1	1	1	1	1	1	10	100
18	Haidar Wicaksono	1	1	1	1	1	1	1	1	1	1	10	100
19	Liu Elva Chintani	1	1	1	1	1	1	1	1	1	1	10	100
20	Mirataz Zamani	1	1	1	1	0	1	1	1	0	0	7	70
21	Mohammad Farhan	1	1	1	1	0	1	1	0	0	1	7	70
22	Mutia Ulya Millati Shafana	1	1	1	1	1	1	1	1	1	1	10	100
23	Naila Khanifa Salmaa	1	1	1	1	1	1	0	1	0	0	7	70
24	Nakesha Jagad Ashqar R	1	1	1	1	1	1	1	1	1	0	9	90
25	Naufal Fadiazmara	1	1	1	1	1	1	0	1	0	0	7	70
26	Pasha Hanum Adhwa'ul	1	1	1	1	1	1	1	1	0	1	9	90
27	Putri Baduri Malwa	1	1	1	0	0	1	1	0	1	1	7	70
28	Rea Fanesa Umrona Towil	1	1	1	1	1	1	1	1	1	1	10	100
29	Rizka Tribuanan	1	1	1	0	1	1	0	1	1	1	8	80

30	Sanny Rafael Sanjaya Putra	1	1	1	1	1	1	1	1	1	1	10	100
31	Syafaro Ahsan Pratama	1	1	1	1	0	1	0	1	0	1	7	70
32	Wina Amrina Rosyada	1	0	1	1	1	1	1	1	1	1	9	90

Appendix 13

LKS (Lembar Kerja Siswa)

Nama : Cinta

Kelompok : kelinci

0+5=5

5+1=4

4+10=14

14+4=18

18+8=26

26+3=29

29+4=33

33+10=43

43-3=40

40+1=41

41+7=48

48+7=55

55-3=52

52+5=57

57+3=60

[illegible]+4=102

Matematika itu mudah

Appendix 15

Documentation of Learning

Appendix 16

MINISTRY OF RELIGION
STATE ISLAMIC UNIVERSITY OF
MAULANA MALIK IBRAHIM MALANG
FACULTY OF TARBIYAH AND TEACHING SCIENCES
Gajayana street, No. 50 Phone (0341) 552398 Fax (0341) 552398
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CONSULTATION PROOF

Name : Suhendrianto

ID Number : 09140103

Faculty/Department : Tarbiyah and Teaching Sciences/Islamic Primary School Teacher Education

Advisor : Mokhammad Yahya, M.A., Ph.D

Thesis Title : **The Development of *Snake and Ladder Media of Mathematics* in the Topic of Addition and Subtraction for First Grade Students at MI Perwanida Blitar**

No	Date	Consultation	Signature
1	May, 2nd 2013	Instruments Validation	
2	May, 13th 2013	Give Chapter I	
3	May, 16th 2013	Revision Chapter I	
4	May, 20th 2013	Give Chapter II	
5	May, 30th 2013	Revision Chapter II & Give Chapter III	
6	June, 3rd 2013	Revision Chapter III & Give Chapter IV	
7	June, 10th 2013	Revision Chapter IV & Give Chapter V	
8	June, 12th 2013	Revision Chapter V	
9	June, 13th 2013	ACC All	

Malang, June, 13th 2013
Approved by,
Dean of Tarbiyah and teaching Sciences Faculty

Dr. H. Nur Ali, M. Pd
NIP.196504031998031002

Appendix 17

STUDENT PROFILE

Name : Suhendrianto

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Place, Date of Birth : Blitar, January 29th 1991

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Education :

- (1996 -1997) TK Darma Wanita Ds. Jambepawon Kec. Doko
- (1997-2003) Jambepawon Kec. Doko
- (2003-2006) SMP N 1 Doko
- (2006-2009) SMK N 1 Doko

July, 2nd 2013

Student

Suhendrianto

Buku Panduan Guru

Ular Tangga Matematika

Kelas 1

Suhendrianto

Kata Pengantar

Bismillahirohmanirrohiim.

Segala puji dan syukur bagi Allah SWT Tuhan Penguasa Alam. Berkat Rahmat dan Hidayah-Nya penulis dapat menyusun media pembelajaran berupa permainan ular tangga matematika dan buku panduan guru permainan ular tangga matematika kelas 1 sebagai tugas akhir penyusunan skripsi.

Dalam kesempatan ini penulis ingin menyampaikan terima kasih kepada pihak-pihak yang telah ikut serta dalam penyusunan media pembelajaran dan buku panduan ini, di antaranya:

1. Prof. Dr. H. Mudjia Rahardjo, M.Si, Rektor Universitas Islam Negeri Maulana Malik Ibrahim Malang.
2. Bapak Mokhammad Yahya, M.A., Ph.D sebagai Dosen Pembimbing skripsi yang telah memberikan waktunya untuk bimbingan hingga terselesaikannya penyusunan media pembelajaran dan buku panduan permainan ini.
3. Prof. Dr. Kyai H. Achmad Mudlor, SH, sebagai Pengasuh Lembaga Tinggi Pesantren Luhur Malang.
4. Orang tua penulis, ayah dan ibu yang selalu memberikan kasih sayang, doa yang tiada henti dan motivasi sehingga terselesaikannya media pembelajaran dan buku ini.
5. Teman-teman sejawat dan semua pihak yang telah membantu dalam pembuatan media pembelajaran dan buku panduan permainan ini.

Semoga Allah SWT membalas perbuatan mereka dengan imbalan yang sesuai amal budinya. Amin. Harapan penulis semoga para pengguna dengan ketulusannya memberikan kritik dan saran dalam perbaikan buku panduan permainan ini, agar lebih baik dari yang sekarang. Semoga buku ini bermanfaat bagi diri penulis khususnya dan para pengguna pada umumnya sebagai informasi dalam bidang studi Matematika.

Malang, Juni 2013

Penulis

DAFTAR ISI

Apakah Permainan Ular Tangga Matematika itu ?

1

Masih ingatkah dengan permainan ular tangga diwaktu kita masih kecil? Ya tentunya kita pasti masih mengingatnya. Permainan ini sangat familiar dikalangan anak-anak desa maupun kota. Permainan ular tangga ini biasanya dimainkan oleh 2 – 5 anak. Komponen pada permainan ini antara lain:

a. Dadu berbentuk kubus

b. Papan ular tangga

c. Pion (orang-orangan)

Berbeda dengan permainan ular tangga matematika ini. Permainan ini bukan permainan ular tangga biasa. Karena permainan ular tangga ini sudah didesain dan dimodifikasi menjadi permainan yang bernilai *educative*, *productive, competitive*, dan juga *fun.* Permainan ini didesain untuk permainan edukatif pada mata pelajaran matematika kelas 1 materi penjumlahan dan pengurangan sampai 100.

Media ini diharapakan dapat menjadi media alternatif pembelajaran matematika karena bernilai *educative.* Selain itu juga bernilai *productive,* karena dengan permainan ini siswa dapat memperoleh pengetahuan dengan melatih kecepatan berhitung penjumlahan dan pengurangan sampai 100.

Dengan media ini siswa juga dapat bersaing secara sehat dengan teman – teman sekelompoknya, karena permainan ini bersifat *competitive.* Dan selain itu siswa juga pasti *fun* atau menyenangkan, karena pelajaran matematika yang

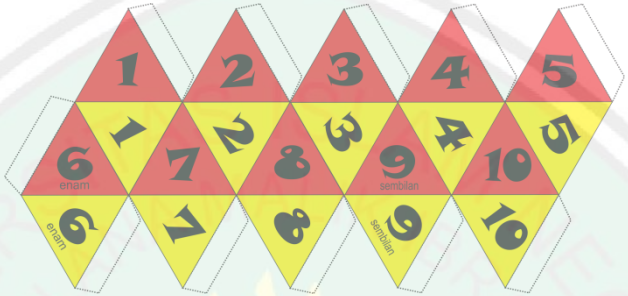
biasanya hanya menghitung dan menghafal, tetapi mereka sekarang dapat bermain dan belajar dengan *enjoy*.

Secara garis besar permainan ular tangga matematika ini sama dengan permainan ular tangga biasa. Namun, ada beberapa perbedaan pada komponen dan cara permainnanya. Berikut ini komponen – komponen permainan ular tangga matematika:

a. **Dadu**

Dadu pada permainan ular tangga adalah komponen yang penting. Dadu ini digunakan untuk mengetahui berapa langkah kita maju atau melangkah pada papan ular tangga. Caranya dengan menggulirkan dadu tersebut, kemudian angka yang terletak di atas adalah angka yang menunjukkan berapa langkah kita akan melangkah.

Selanjutnya, pada permainan ular tangga umumnya menggunakan dadu berbentuk kubus, yang terdiri atas 6 sisi. Kemudian angka pada dadu ditulis menggunakan titik. Nah, berbeda dengan dadu pada permainan ular tangga matematika ini. Dadu pada permainan ular tangga matematika ini menggunakan dadu *icosahedron box.* Yaitu bangun ruang yang tersusun oleh 20 segitiga siku-siku.



Gambar 1.1 jaring-jaring dadu Icosahedron

Gambar 1.2 Dadu Kubus

Gambar 1.3 Dadu Icosahedron

Perbedaan selanjutnya terletak pada warna dadu tersebut. Dalam satu dadu pada permainan ular tangga matematika ini memiliki dua warna, yaitu kuning dan merah. Sisi yang berwarna kuning adalah untuk operasi penjumlahan yang berarti pemain harus maju beberapa langkah sesuai angka pada sisi tersebut. Sedangkan sisi yang berwarna merah adalah untuk operasi pengurangan yang berarti pemain harus mundur beberapa langkah sebanyak angka yang tertera pada sisi tersebut.

b. Papan permainan ular tangga matematika

Pada permainan ular tangga matematika ini menggunakan papan yang berbeda dengan papan ular tangga pada umumnya. Pertama, permainan ini menggunakan papan yang ada angka 0 nya. Angka 0 pada permainan ini digunakan untuk tempat *start* atau awal permainan. Selain itu, dengan ditambahkannya angka 0 ini siswa akan tahu runtutan angka sebenarnya.

Perbedaan yang kedua terletak pada desainnya. Desain papan ular tangga ini disesuaikan dengan karakter anak-anak yang sangat *full colour.* Dengan desain seperti ini akan menarik perhatian siswa, dan juga diharapkan siswa dapat bermain dan belajar dengan antusias.

Keterangan:

1. Kotak Start
2. Area kuning
3. Ular (turun)
4. Tangga (naik)
5. Kotak Finish
6. Penunjuk arah

Gambar 1.4 Papan ular tangga matematika

c. Pion (orang-orangan)

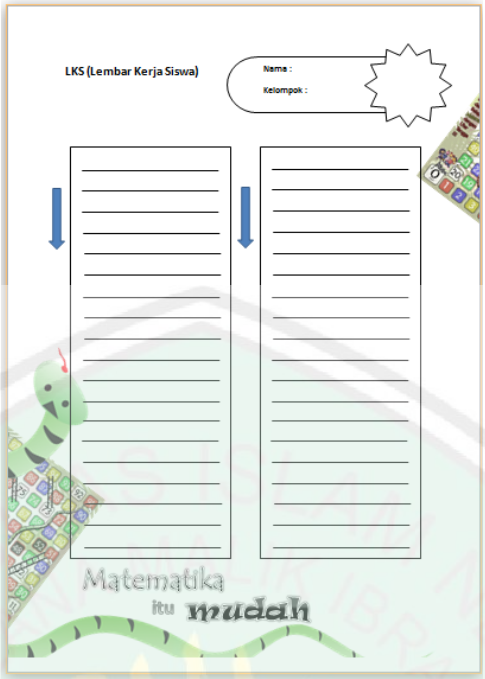
Dalam permainan ular tangga, biasanya ada orang-orangan yang digunakan untuk menunjukkan kedudukan atau posisi kita saat bermain. Orang-orangan *(pion)* pada permainan ular tangga matematika ini sama dengan orang-orangan pada permainan ular tangga biasa. Kita bisa menggunakan orang-orangan seperti gambar, ataupun menggunakan bentuk dan ukuran yang berbeda.

Gambar 1.5 Orang-orangan

d. LKS

Permainan ular tangga matematika ini memang berbeda dengan permainan ular tangga pada umumnya. Pada permainan ular tangga ini juga dilengkapi dengan LKS (Lembar Kerja Siswa). LKS ini berfungsi untuk mencatat operasi penjumlahan maupun pengurangan pada saat permaian ular tangga ini berlangsung.

LKS ini juga berfungsi untuk mengecek atau mengamati pekerjaan siswa. Apakah operasi penjumlahan dan pengurangan yang dilakukan sudah benar atau belum. Selain itu, LKS ini juga dapat dijadikan bahan evaluasi terhadap pemahaman dan penguasaan materi penjumlahan dan pengurangan siswa.



Gambar 1.6 LKS (Lembar Kerja Siswa)

Apa yang Akan Kita Pelajari dengan Permainan Ular Tangga Matematika?

2

Standar Kompetensi:

4. Melakukan penjumlahan dan pengurangan bilangan sampai dua angka dalam pemecahan masalah

Kompetensi Dasar

4.4 Melakukan penjumlahan dan pengurangan bilangan dua angka

Tujuan:

a. Agar siswa dapat melakukan penjumlahan bilangan dua angka dengan cepat dan tepat.

b. Agar siswa dapat melakukan pengurangan bilangan dua angka dengan cepat dan tepat.

Materi :

Penjumlahan dan Pengurangan angka sampai 100.

Bagaimana Cara membuat perlengkapan permainan ular tangga matematika?

3

Pada permainan ular tangga matematika ini memang agak ribet, karena kita harus menyiapkan peralatannya. Tapi jangan terlalu kawatir, sebab penulis sudah menyiapkan peralatan permainan ular tangga matematika ini dengan lengkap. Namun jika anda ingin memperbanyak atau membuat sendiri, maka kami juga telah menyiapkan draf peralatan permainan ini. Sehingga kita lagi terlalu repot untuk membuatnya.

Seperti yang telah dijelaskan pada pembahasan sebelumnya, permainan ular tangga matematika ini memerlukan beberapa peralatan, yaitu: dadu, papan permainan, pion (orang-orangan), dan LKS. Nah, bagaimana cara membuatnya? Berikut ini cara membuatnya:

Pertama, siapkanlah peralatan yang dibutuhkan dalam pembuatan perlengkapan permainan ulanr tangga matematika ini. Peralatannyapun tidak banyak yang dibutuhkan, yaitu: gunting dan lem.

Kedua, kita akan membuat semua perlengkapan permainannya mulai dari dadu sampai LKS. Ikutilah langkah-langkahnya seperti di bawah ini:

A. Dadu

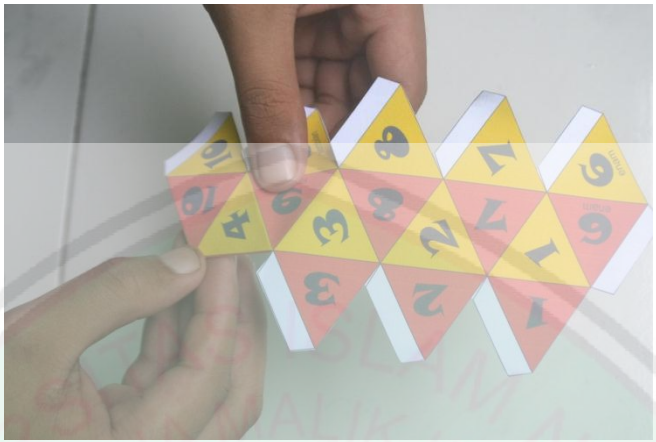
Berikut ini langkah-langkah pembuatan dadu *icosahedron :*

a. Cetak file (draf) jaring-jaring dadu *icosaheron* pada kertas Manila ukuran A4,

b. Potonglah jaring-jaring dadu hingga seperti gambar 3.1,

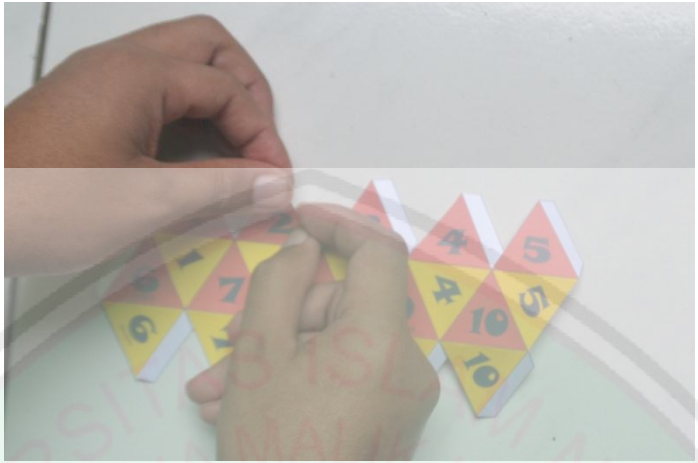
Gambar 3.1

c. Lipat semua bagian tengahnya berdasarkan garis-garis bantu.



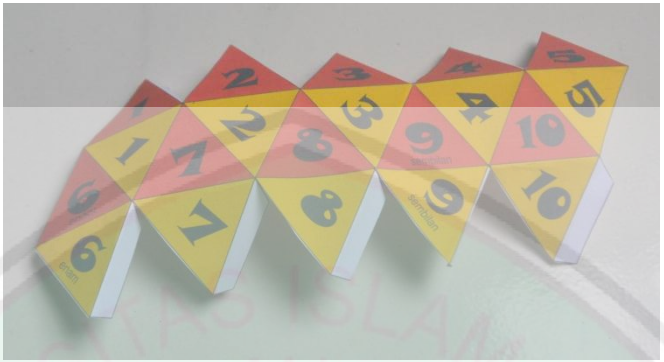
Gambar 3.2

d. Kemudian lanjutkan dengan melipat bagian luar (bagian yang berwarna putih)



Gambar 3.3

e. Lanjutkan proses melipatnya hingga semua bagian sudah terlipat dengan baik, (Lihat gambar),

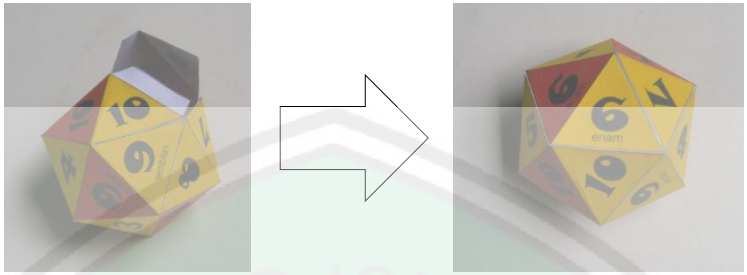


Gambar 3.4

f. Selanjutnya kita gabungkan semua bagiannya dengan lem. Untuk lebih mudahnya kita bisa memulainya dari ujung.

Gambar 3.5

g. Gabungkan semua bagiannya dengan lem, hingga menjadi dadu *icosahedron* seperti gambar di bawah ini:



Gambar 3.6

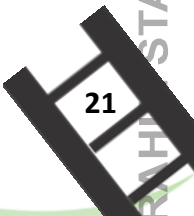
h. Pembuatan dadu *icosahedron* telah selesai. Dadu siap digunakan dalam permainan ular tangga matematika.

B. Papan permainan ular tangga matematika

Seperti pada pembuatan dadu *icosahedron* , dalam pembutan papan permainan ular tangga matematika ini kita tinggal mecetak draf permainan yang telah disertakan. Cetak desain papan permainan pada kertas *Art paper* ukuran A3, kemudian potong pada bagian yang tidak diperlukan. Untuk lebih mudahnya kita bisa mencetaknya di percetakan. Tetapi jika terpaksa tidak ada, maka kita bisa mencetaknya dengan kertas dan ukuran yang berbeda. Sesuaikanlah dengan kebutuhan.

C. Player (orang-orangan)

Player (orang-orang) ini sebenarnya sangat mudah kita dapatkan disekitar kita. kita bisa membeli di Toko mainan anak-anak. Akan tetapi jika kita tidak mau



repot kita juga bisa menggantinya dengan benda yang lain. Misalnya, kita bisa menggunakan tutup botol minuman yang berbeda, batu kecil yang berbeda, dan lain-lain.

D. LKS

Lembar kerja siswa dapat langsung kita cetak pada kertas A4 sesuai dengan jumlah siswa yang ada di kelas.

Bagaimana Cara menggunakan permainan ular tangga matematika?

4

A. Penggunaan ular tangga matematika di Kelas

Penggunaan media ular tangga matematika pada materi penjumlahan dan pengurangan bilangan sampai 100 di kelas dapat digambarkan sebagai berikut:

1) **Pendahuluan**

Sebelum menggunakan atau menerapkan media pemebelajaran ular tangga matematika ini, terlebih dahulu Guru harus menjelaskan materi tentang penjumlahan dan pengurangan angka sampai 100.

Selain itu Guru juga harus memberikan contoh-contoh soal penjumlahan dan pengurnagan. Pada tahap ini siswa mengalami proses pemahaman dan diharapkan mengerti dan memahami materi yang telah disampaikan guru.

2) **Inti**

Setelah memahami materi, siswa dibagi menjadi kelompok kecil yang beranggotakan dua sampai lima anak. Peralatan permainan ular tangga matematika dibagikan kepada masing-masing kelompok dan guru menjelaskan aturan permainan sampai siswa benar-benar paham, agar permainan dapat

berjalan lancar. Ketika siswa bermain, guru mengawasi jalannya permainan untuk mengantisipasi terjadinya konflik antar anggota kelompok.

3) Penutup

Guru melakukan evaluasi untuk menguji hasil yang diperoleh siswa dari permainan yang telah dilakukan. Evaluasi ini dapat dilakukan dengan mengecek LKS (Lembar Kerja Siswa) yang telah diisi oleh siswa. Selain itu, evaluasi dapat dilakukan dengan memberikan pertanyaan lisan atau tertulis, untuk mengetahui tingkat pemahaman siswa terhadap materi penjumlahan dan pengurangan sampai 100.

B. Aturan permainan ular tangga matematika

Aturan permainan pada ular tangga matematika ini sama halnya dengan permainan ular tangga pada umumnya. Namun, ada sedikit perbedaan. Berikut ini aturan permainan ular tangga matematika pada materi penjumlahan dan pengurangan angka sampai 100:

1) Permainan ini dilakukan oleh 2 - 5 orang dalam 1 kelompok,
2) Sisi dadu yang berwarna kuning untuk penjumlahan *(maju),*
3) Sisi dadu yang berwarna merah untuk pengurangan *(mundur),*
4) Jika ada tangga berarti naik dan ular berarti turun sesuai angka yang ditunjukkan,

5) Ingat pada petak 0 – 10 (area kuning), jika warna dadu yang keluar pada lemparan adalah merah maka harus diulang sampai mendapat dadu kuning. Hal ini untuk menghindari pengurangan yang hasinnya negatif,
6) Jika ada beberapa pemain yang menempati angka yang sama, maka semuanya tetap berada pada angka tersebut,
7) Pemenang adalah pemain yang terlebih dahulu mencapai *finish* atau angka 100,
8) Agar permainan ini dapat berjalan efektif maka guru dapat membatasi waktu permainan. Misalnya, 1 games ular tangga matematika dilakukan maksimal 15 – 20 menit,
9) Bagi siswa yang menjadi pemenang, guru bisa memberikan reward berupa hadiah, pin, award dan lain sebagainya sesuai kreatifitas guru. Hal ini penting dilakukan agar siswa merasa dihargai dan bangga terhadap pencapaiannya.

C. Langkah – langkah pembejaran dengan permainan ular tangga matematika:

1) Guru membagi siswa menjadi beberapa kelompok, dengan kapasitas satu papan permainan dimainkan oleh 2 sampai 5 anak,
2) Setelah siswa berkumpul pada kelompoknya masing-masing, siswa terlebih dahulu menyanyikan yel-yel. Ini dimaksudkan agar siswa lebih bersemangat dalam kegiatan pembelajaran ini,
3) Selanjutnya guru membagikan peralatan permainan ular tangga matematika kepada masing – masing kelompok, antara lain yaitu dadu; papan ular tangga; pion (orang – orangan); peraturan permainan; dan LKS (Lembar Kerja Siswa),
4) Kemudian pemain menentukan urutan bermain dengan cara hompimpa atau sesuai dengan kreatifitas guru. Sehingga ada pemain pertama, kedua, ketiga, dan seterusnya.

5) Setelah semuanya siap, letakkan semua player (orang - orangan) pada posisi start atau berada di angka 0,
6) Pemain pertama melempar dadu kemudian mencatat pada lembar kerja siswa angka awal dan angka hasil lemparan dadu. Contohnya:

   Angka awal: 0, angka hasil lemparan dadu: 4 (kuning)

   0 + 4 = ...
7) Setelah itu, baru siswa menjalankan pion *(orang – orangan)* yang ada di papan ular tangga dan menulis hasilnya pada LKS kembali (0 + 4 = 4),
8) Kemudian pemain kedua melakukan lemparan, dan seterusnya seperti pemain pertama,
9) Selanjutnya, giliran pemain pertama kembali. Pemain pertama melempar dadu dan misalkan mendapat angka kuning 3, maka penulisannya pada LKS yaitu:

0 + 4 = 4

4 + 3 = 7

Karena pada papan angka 7 terdapat tangga dan naik sampai angka 51, maka pada lemparan selanjutnya ditulis seperti dibawah ini:

0 + 4 = 4

4 + 3 = 7

51 .....

(ini juga berlaku pada angka yang ada ular nya)

10) Siswa yang menang adalah siswa yang terlebih dahulu mencapai finish atau angka 100,

11) Jika pemain berada pada angka 0 – 10, kemudian mendapat lemparan dadu warna merah, maka pemain harus melempar kembali dadu tersebut sampai

mendapat dadu yang berwarna kuning. Karena angka 0 – 10 adalah area kuning. Hal ini untuk menghindari pengurangan yang hasinnya negatif,

12) Jika pemain mendapat lemparan yang melebihi papan ular tangga maka pemain ini dianggap menang. Misalkan 98 + 4 = 102, maka pemain harus menulis di LKS seperti operasi tersebut dan pemain dianggap menang.

D. Variasi permainan ular tangga matematika

Permainan ular tangga matematika ini juga dapat kita buat menjadi lebih variasi, menarik dan menantang. Misalnya, kita menggunakan dadu 2 atau lebih. Penambahan dadu ini berfungsi untuk melakukan operasi penjumlahan dan pengurangan ganda. Contohnya : posisi player adalah di angka 20, kemudian mendapat lemparan dadu 9 kuning dan 5 merah, maka pada LKS dapat ditulis:

20 + 9 – 5 = 24

Catatan: penggunaan 2 dadu atau lebih ini bisa dilakukan jika pemain berada pada angka lebih dari sama dengan 11. Hal ini dilakukan agar tidak terjadi operasi yang hasilnya negatif.

Apa saja Kelebihan dan kelemahan Permainan Ular Tangga Matematika?

5

Bermain merupakan suatu kegiatan yang dilakukan dengan atau tanpa mempergunakan alat yang menghasilkan pengertian atau memberikan informasi, kesenangan, atau mengembangkan imajinasi anak. Karakteristik siswa SD/MI adalah senang bermain, sehingga jika dalam pembelajaran diselingi atau digunakan media pembelajaran berupa permainan akan lebih membantu siswa dalam memahami

materi pelajaran. Siswa merasa tidak bosan dengan cara belajar yang bervariasi. Dan siswa akan merasa bosan bila mendengarkan guru ceramah di depan kelas.

Setiap permainan memiliki kelebihan dan kekurangan, berikut kelebihan permainan ular tangga matematika:

1) Media ini dapat dipergunakan dalam waktu yang lama,
2) Peraturan permainan mudah dan sederhana,
3) Siswa dapat belajar dengan nyaman dan gembira,
4) Menjadikan pembelajaran matematika menjadi lebih aktif,
5) Dalam diri siswa akan timbul sikap kompetitif,
6) Dengan permainan ini akan melatih kecepatan berhitung dan berfikir siswa dalam materi penjumlahan dan pengurangan angka,

7) Siswa antusias untuk memenangkan permainan sehingga meningkatkan proses belajar,
8) Siswa dapat meraih makna belajar melalui pengalaman.

Sedangkan kelemahan media pembelajaran ular tangga matematika adalah sebagai berikut:

1) Cara pembuatan media cukup rumit,
2) Membutuhkan biaya yang tidak sedikit,
3) Hanya materi tertentu yang dapat diterapkan pada media ini,
4) Jika belum menguasai konsep, tidak dapat memainkan permainan ular tangga matematika.

RENCANA PELAKSANAAN PEMBELAJARAN (RPP)

Mata Pelajaran	: Matematika
Kelas/Semester	: I/2
Sekolah	:
Alokasi waktu	: 2 × 35 menit

1. **Standar Kompetensi**

   Melakukan penjumlahan dan pengurangan bilangan sampai dua angka dalam pemecahan masalah

2. **Kompetensi Dasar**

   4.4 Melakukan penjumlahan dan pengurangan bilangan dua angka

3. **Indikator**

   a. Siswa dapat melakukan penjumlahan bilangan dua angka dengan cepat dan tepat

   b. Siswa dapat melakukan pengurangan bilangan dua angka dengan cepat dan tepat

4. **Materi Pembelajaran**

   Penjumlahan dan pengurangan angka sampai 100

5. **Nilai Karakter yang diharapkan**

   Disiplin (*Discipline*), Rasa ingin tahu, Tekun (*diligence*), kerja sama *(cooperative)*, Tanggung jawab (*responsibility*), Percaya diri, dan Ketelitian (*carefulness*).

6. **Metode Pembelajaran**

   Tanya jawab, ceramah, diskusi, game, demonstrasi

7. Langkah-langkah Pembelajaran

No	Kegiatan Pembelajaran	Waktu
1.	**Kegiatan Awal** a. Guru mengucapkan salam b. Guru mengabsen siswa c. Guru mengajak siswa berdo'a bersama sebelum memulai pelajaran d. Guru menyampaikan tujuan pembelajaran e. Guru membagi siswa menjadi beberapa kelompok f. Siswa menyanyikan yel-yel	15 menit
2.	**Kegiatan Inti** • **Explorasi**	45 menit

	- Siswa menyimak penjelasan guru tentang materi sebelumnya - Siswa memperhatikan contoh penjumlahan dan pengurangan yang dijelaskan guru - Siswa bertanya tentang penjumlahan dan pengurangan • **Elaborasi** - Siswa mendapat peralatan permainan ular tangga matematika - Siswa mendengarkan penjelasan guru tentang aturan permainan - Setiap kelompok melakukan hompimpa, untuk	

	menentukan urutan pemain - Siswa memainkan permainan ular tangga matematika • **Konfirmasi** - Siswa yang menang dalam kelompok mendapat apresiasi dari guru - Dengan bimbingan guru, siswa merefleksi kegiatan pembelajaran guna menggali pengalaman belajar yang telah dilakukan - Guru memberikan semangat kepada siswa	
3.	**Kegiatan Akhir** a. Guru dan siswa membuat kesimpulan tentang materi yang telah dipelajari.	10 menit

	b. Guru menilai kegiatan pembelajaran yang sudah dilaksanakan. c. Guru menginformasikan materi yang akan dipelajari pada pertemuan berikutnya. d. Guru bersama siswa mengakhiri pelajaran dengan do'a dan salam	

8. Media & Sumber Belajar

a. Buku paket

b. Peralatan permainan ular tangga matematika

c. LKS

9. Penilaian

FORMAT PENILAIAN

No	Nama Siswa	Nilai LKS	Nilai Evaluasi	Catatan
1				
2				
3				

- Penilaian Proses

  Aspek yang dinilai keaktifan, kerjasama dan tanggung jawab.

- Penilaian LKS DAN EVALUASI
  - Diserahkan kepada guru.

LEMBAR PENGAMATAN

No	Nama siswa	Aspek yang dinilai									Jml Skor	Nilai
		Kerjasama			Keaktifan			Ketepatan				
		3	2	1	3	2	1	3	2	1		
1.												
2.												
3.												

Keterangan:

- Kerjasama

  Skor : 3 = Dapat bekerja sama dengan baik

  2 = Kurang bisa bekerja sama

  1 = Tidak dapat bekerja sama

- Keaktifan

Skor : 3 = Sangat aktif

2 = Kurang aktif

1 = Tidak aktif

- Ketepatan

Skor : 3 = Jika jumlah benar 81% - 100%

2 = Jika jumlah benar 61% - 80%

1 = Jika jumlah benar < 60%

Mengetahui,

Kepala Sekolah

.....

Guru Matematika

.....

Daftar Pustaka

Willoughby. S, Bareiter. C, and other. 1991. *Open Court Real Math*. United States of America

Yusuf, K dan Aulia, U. 2011. *Sirkuit Pintar "Melejitkan Kemampuan Matematika & Bahasa Inggris Dengan Metode Ular Tangga".* Jakarta Selatan: Transmedia Pustaka

Tentang Penulis

Suhendrianto lahir dari pasangan Daryono dan Rubinah pada tanggal 29 Januari 1991 di Kabupaten Blitar, Jawa timur. Anak terakhir dari dua bersaudara ini pernah bersekolah di TK Darma Wanita Ds. Jambepawon, SDN Jambepawon 01, SMP Negeri 1 Doko-Blitar, SMK Negeri 1 Doko-Blitar dan sekarang sedang menempuh S-1 di Universitas Islam Negeri Maulana Malik Ibrahim Malang, Jurusan Pendidikan Guru Madrasah Ibtidaiyah (PGMI). Kemudian juga menempuh pendidikan pesantren di Lembaga Tinggi Pesantren Luhur Malang sejak tahun 2010.

Jiwa-jiwa kepemimpinannya pun mulai nampak semenjak duduk di bangku SMK, yaitu sebagai wakil ketua OSIS selama tahun 2007-2008. Kemudian di bangku pekuliahan ketrampilan organisasinya tersebut dikembangkan di beberapa organisasi, yaitu pernah menjabat sebagai Sekretaris ORDA IKAMAHALITA tahun 2010-2011, Anggota Devisi Litbang di HMJ PGMI tahun 2011, Anggota Devisi Publisher di UINBUNTU tahun 2010-2011, ia pernah juga menjabat sebagai Sekretaris AICS ICP tahun 2011-2012, Anggota Kemenag DEMA Fakultas Tarbiyah 2012. Serta Bendahara Masjid Majelis Santri Lembaga Tinggi Pesantren Luhur Malang tahun 2011-2012.

Selain organisasi diatas ia juga aktif di kegiatan Kepramukaan, ini terhitung sejak ia masih di SMP. Ia pernah megikuti Jambore Daerah di Malang tahun 2005,

kemudian waktu SMK juga pernah mengikuti EJASS CAMP di Surabaya tahun 2008, dan masih banyak yang lain.

Hingga sekarang ini ia masih terus semangat belajar untuk mencari sedikit ilmu Allah guna bisa menjadi manusia yang dapat bermanfaat bagi orang lain. Ia tak akan mudah putus asa dalam mencapai semua yang dicita-citakannya, karena semua orang punya kesempatan yang sama untuk memperoleh itu, hal ini sesuai motto hidupnya هم رجل نحن يوا رجل *(hum rijalun nahnu yo rijalun).*

Catatan

Matematika adalah pelajaran yang sering menjadi momok bagi siswa. Karena siswa menganggap pelajaran yang satu ini adalah pelajaran yang sulit dan sering menjadi musuh besar mereka. Selain itu juga para siswa tidak hanya takut pada pelajaran matematika, namun juga sangat membenci pelajaran ini.

Dengan buku ini, diharapkan dapat meminimalisir dan bahkan menghilangkan pemikiran di seperti atas. Karena dengan buku ini siswa dapat bermain dan belajar dengan enjoy. Mereka tidak perlu lagi takut dan membenci pelajaran matematika, karena mereka dapat bersenang-senang bersama teman sekelasnya.

Buku ini menawarkan sedikit inovasi belajar matematika khususnya pada materi penjumlahan dan pengurangan angka sampai 100 menggunakan media ular tangga. Dengan media ular tangga ini siswa dapat belajar antusias san gembira, sehingga prestasi belajar mereka akan meningkat. Amin.

Matematika itu Mudah