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Development of kite number learning media help adobe flash cs6 on the concept of place number values in elementary school 2 Singaparna

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Abstract

Mathematics learning in class II Elementary School 2 Singaparna there are detention in learning material concept of place number values. Detention is when the teacher teaches the value of the concept of place numbers, students do not understand the material so that the teacher must explain repeatedly to students who have learning difficulties. The average value of students from 32 people is reaching 75,75, and teacher experience detention and limitations in making learning media truly suitable and in accordance with the material to be taught. This time teacher in teaching the material only use learning media by using objects in the environment. There is an active student response in learning, some are still not active because they do not understand even when learning using media. The problem if not resolved as soon as possible will have an impact on student learning achievement and hamper the subsequent learning material as in addition and subtraction operation material. By developing learning media that are interesting for students, can make students become more active, and fun in learning. Kite number learning media can also help students to more easily understand the material concepts of place number values. This study aims to develop and test effectiveness kite number learning media help adobe flash cs6 on the concept of place number values in Elementary School 2 Singaparna. The research method used is the development method with research design development or R&D (Research and Development). This research was carried out in Elementary School 2 Singaparna Sub-District Singaparna Districts Tasikmalaya in class II students as many as 32 people. The data analysis technique used in this study is qualitative and quantitative data analysis techniques. Data collection techniques in this study used questionnaire and pretest-posttest. Quantitative data analysis techniques use descriptive statistics. Development results kite number learning media help **(Approx. 300 words)**

Keywords: Media, Adobe flash, kite number

Topic: Education

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Letter of Acceptance for Abstract

Dear Authors: Siti Komariah Nurlela1*, A S Pratiwi1 , Rahmat Permana1 , M F Nugraha1 , B Hendrawan1 , Mujiarto2 , and Milah Nurkamilah1

We are pleased to inform you that your abstract (ABS-223, Oral Presentation), entitled:

"Development of kite number learning media help adobe flash cs6 on the concept of place number values in elementary school 2 Singaparna"

has been reviewed and accepted to be presented at ICComSET 2019 conference to be held on 15-16 October 2019, in Banten, Indonesia.

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Date: 11 October 2019

Letter of Acceptance for Full Paper

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Email: iccomset@umtas.ac.id

Date: 10 September 2019

Letter of Invitation

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Siti Komariah Nurlela^{1*}, A S Pratiwi¹, Rahmat Permana¹, M F Nugraha¹, B Hendrawan¹, Mujiarto², and Milah Nurkamilah¹

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Abstract. Mathematics learning in class II Elementary School 2 Singaparna there are detention in learning material concept of place number values. Detention is when the teacher teaches the value of the concept of place numbers, students do not understand the material so that the teacher must explain repeatedly to students who have learning difficulties. The average value of students from 32 people is reaching 75,75, and teacher experience detention and limitations in making learning media truly suitable and in accordance with the material to be taught. This time teacher in teaching the material only use learning media by using objects in the environment. There is an active student response in learning, some are still not active because they do not understand even when learning using media. The problem if not resolved as soon as possible will have an impact on student learning achievement and hamper the subsequent learning material as in addition and subtraction operation material. By developing learning media that are interesting for students, can make students become more active, and fun in learning. Kite number learning media can also help students to more easily understand the material concepts of place number values. This study aims to develop and test effectiveness kite number learning media help adobe flash cs6 on the concept of place number values in Elementary School 2 Singaparna. The research method used is the development method with research design development or R&D (Research and Development). This research was carried out in Elementary School 2 Singaparna Sub-District Singaparna Districts Tasikmalaya in class II students as many as 32 people. The data analysis technique used in this study is qualitative and quantitative data analysis techniques. Data collection techniques in this study used questionnaire and pretest-posttest. Quantitative data analysis techniques use descriptive statistics. Development results kite number learning media help adobe flash cs6 on the concept of place number values already meet valid criteria. The results of the material expert validation reached a validity level of 4,66 with a very good category. The results of the media expert validation reached a validity level of 4,73 with a very good category. The results of teacher expert validation reached a validity level of 4,83 with a very good category. Product trials, which include one-on-one trails, get an average score of 4,8 with a very good category and small group trials got an average score of 4,65 with a very good category. The results of a large group trial in the application of learning in class, the results of the pretest students get a value of 59,44 and the posttest results get a value of 86,48. Based on the results of the analysis using

paired sampel t-test statistics to produce $t_{\text{count}} 18,417$ and $t_{\text{table}} 2,056$ which mean $t_{\text{count}} > t_{\text{table}}$. So it can be concluded that there are significant differences between before and after using the kite number learning media help adobe flash cs6 on the concept of place number values in Elementary School 2 Singaparna.

1. Introduction

Mathematics learning is given to students at every level of education. The purpose of learning mathematics is so that students are skilled in the field of mathematics studies. In addition to being skilled in the field of mathematics studies students must also be able to apply mathematical sciences as a provision in daily life to live in the midst of the society in which they live. Mathematics is one of the fields of study at every level of education. Mathematics according to Susanto (2016: 183) is abstract ideas that contain symbols and must first understand the concept before manipulating symbols [11]. The need for mathematical applications according to Susanto (2016: 185) is not only for daily needs but also needed to support the world of work and support the development needs of science [11]. Therefore, mathematics is a field of study that must be well mastered by students, especially starting from elementary school age.

In learning mathematics in class II SDN 2 Singaparna based on the results of an interview on January 17, 2019 there were several obstacles in learning the material concept of place number values. That obstacle is when the teacher teaches the concept of place value numbers, students do not understand the material so the teacher must explain repeatedly, especially for students who have learning difficulties. The overall average value of 32 students in learning the concept of place number values in class II is 75.75. In addition, teachers experience obstacles in making learning media, namely teachers have difficulty in expressing ideas to make learning media more attractive to students and can facilitate a variety of student learning styles so that media that is made is really suitable for students and in accordance with the material will be taught. Teachers experience time constraints in making learning media that takes a long time and the material to be delivered is not only a lot of material to the concept of place numbers, the teacher in using media when learning only uses modest learning media. At present the teacher in teaching material concept of place value numbers in class II SDN 2 Singaparna uses only modest learning media by utilizing objects in the surrounding environment. For example when teaching the concept of the place value of the teacher using the media images, stones, matches, or sticks as concrete objects in learning. Student responses in learning the concept of the value of places where some are active and some are still not active even though in learning using media.

These problems if not resolved immediately will have an impact on student achievement and hamper further learning material such as the addition and subtraction operation material. Before studying the material addition and subtraction operations, students must understand the value of the place of numbers in advance to add numbers that belong to hundreds, tens, and units. This is in line with the opinion expressed by Hudojo in Sundayana (2016: 29) that [10]:

In the process of learning mathematics, the principle of learning must first be chosen, so that when learning mathematics can take place smoothly, for example learning concept B which is based on concept A. Without understanding concept A, it is impossible for the person to understand concept B. This means that learning mathematics must be gradual and sequentially and basing on past learning experiences.

Based on the above problems, the writer is interested in developing learning media that are interesting for students, can make students become more active, and fun in learning. The media of learning kite numbers can also help students more easily understand the material concept of the place value of numbers.

In this study, researchers will develop learning media kite numbers. Therefore, researchers focus on the development of adobe flash cs6 numbered kite learning media on the concept of place number values in Singapore SDN 2.

2. Kite Number Learning Media

2.1. Definition Number Learning Media

Kite number learning media is a learning media that can be used to assist teachers in conveying the concept of place number values in mathematics. In addition, the existence of this learning media can make it easier for students to understand the concept of place number values to determine place values starting from hundreds, tens, and units and value of numbers. The media of learning kite numbers when viewed from its nature is included in the audio visual media aided by adobe flash cs6 because the learning media of kite numbers is made a number kite media application in which there is a menu of instructions for use which contains procedures for using the media and will the voice of the voice appeared. Adobe Flash CS6 is a software or software that has been updated from the previous version. Versions of Adobe Flash before Adobe Flash CS6 include Adobe Flash CS3, Adobe Flash CS4, and Adobe Flash CS5. Adobe flash cs6 according to Island Script in Fatimah (2016: 24) is software or graphics software that can create graphic animation objects that can be designed directly as you wish without having to be supported by using graphics software such as illustrator or photoshop. Adobe Flash CS6 features more complete and not owned by Adobe Flash previous versions [3]. Adobe flash cs6 according to Ariesto Hadi Sutopo in Fatimah (2016: 25) has several advantages when compared to other programs. In Adobe Flas CS6 in making various animations it is very easy and users can create animations with free movements according to the concept of the desired animation scene. In addition, for making animations or interactive teaching materials it is also very easy to use by users because the tools, templates and components available in Adobe Flash CS6 are available, easy to use, and ready to use. Adobe Flash CS6 produces small file sizes that are flexible and can be converted into swf, html, jpg, png, exe, and mov type files [3]. In the number kite media there is a learning menu that is a menu that functions for students to learn the concept of place number values while playing moving cards according to the place value. The next menu is the practice menu and quiz that contains material questions on the concept of place numbers as a means for students to learn to work on problems.

2.2. Reason Naming Media Kite Number Learning Media

This learning media is referred to as the kite learning media because in this learning media there are a number of kite-shaped number cards. In addition, there is also a picture of a coin, a picture of a plate of strawberries containing 10 pieces, and a picture of a match to concretize the translation of the concept of place number values. At the bottom of each picture that symbolizes the place value of hundreds, tens, and this unit is given a spare box to store coins, a picture of a strawberry plate containing 10 pieces, and a picture of a match as an explanation of the concept of numbers. For example when given a question about number 323, the number in the hundreds place is number 3, then the coins stored in the spare box are 3 pieces because every 1 coin has a value of 100. In the tens place is the number 2, then a picture of one strawberry plate stored on 2 pieces of reserve box, because each picture of one plate of strawberries containing 10 pieces has a value of 10. The last number 3 has a unit place value, the picture of a matchbox stored in the spare box is 3 pieces because every 1 piece of lighters has a value of 1. After completing the three drawings in the spare box, the students then count the number of images in each spare box and write down the number by taking a kite card and store the number cards in the hundreds, tens, and units. When students add up the picture in the spare box and write the amount on the lines of hundreds, tens, and units, students will know the value of a number on a symbol. For example, if the question is 323, then the number of coins in the hundreds of red reserve boxes is 3 and the number is 300, then students take the kite in red number 3 and store it in the hundreds line. In the dozens of blue spare boxes there are 2 strawberry plates, each plate containing 10 strawberries and the total number is 20, then students take the kite blue number 2 and stored in the tens line. In the yellow dozens of spare boxes there are 3 matches and the number is 3, then students take the kite yellow number 3 and stored in the unit line. The number value in the 323 number symbol problem is $300 + 20 + 3$.

The spare box placed under the coin image, the picture of a strawberry plate containing 10 pieces, and the picture of a match aimed to provide an understanding of the concept that each number in a number

has a different place value even though the numbers are the same. As in the example number 3 the first has a place value of hundreds while the last number 3 in the third position has a unit place value. Beneath this reserve box, there is a translation of the number of numbers that requires hundreds, tens and units. In this media in the upper right corner is equipped with a number board or can be called a kite for giving questions. Under the number board or called the character kite there are three boxes lined down as a storage area for a collection of coin images, a picture of a strawberry plate containing 10 pieces, and a picture of a match.

3. Learning Media

Along with the development and progress of science and technology pushes to make updates in the use of the results of educational technology in the learning process. Teachers are required to be able to use the tools provided by the school so that the learning objectives expected by the school can be achieved optimally. In addition to teachers being required to be able to use the tools that are already available in schools, teachers must also be able to make learning media if there are no learning media available in schools that can support the learning materials that will be delivered to students. In the process of teaching and learning media according to Arsyad (2015: 3) is defined as graphic, photographic or electronic tools that function to process visual and verbal information again [1]. Learning media is a part that can help the teaching and learning process so that learning objectives can be achieved properly. In addition, Hamalik in Maolani (2017: 159) states that learning media are all things that can be used to convey messages or information contained in the material delivered, stimulating students' minds to be more developed, stimulating students' feelings, concerns, and wishes because by the existence of media students become motivated to learn the material that will be delivered by the teacher so that it can encourage the learning process and be able to deliver students in achieving learning goals [7].

Learning media as a tool in learning activities according to Sanaky in Sundayana (2016: 9) has a function to stimulate students in learning by presenting duplication of actual objects and step objects, making from abstract concepts to concrete concepts, giving a common perception, overcome the obstacles of time, distance, place and the amount of distance that is not possible, present information consistently, the learning atmosphere becomes stressed, relaxed and interesting so that learning objectives can be achieved [10].

4. Concept of Place Number Values

Numbers are mathematical concepts used for enumeration and measurement. Number is a term to express the number or amount of something. Symbols or symbols used to represent a number are called numbers or symbols of numbers. Understanding of numbers according to Febriyanti & Prastowo (2014: 31) is a collection of numbers that rank as units, tens, hundreds, thousands, and so on [4]. Following is the arrangement of place values:

- Unit numbers are numbers arranged from numbers 0 to 9.
- Tens numbers are numbers arranged starting from 10-99.
- Hundreds are numbers arranged starting with numbers 100-999.
- Thousands are numbers arranged from numbers 1,000-9,999.

Place value according to Haryono, et al (2014: 49) can be interpreted as the value of a number in a number that has a place value with various levels depending on the location of a number. The level of the place consists of units, tens, hundreds, thousands, tens of thousands and so on [6]. This opinion is in line with the opinion of Untoro & the Indonesian Teachers Team (2010: 2) that the place value of a number is a number composed of several numbers, where each number has a different place value depending on its location [12]. According to Seputra & Amin in Haryono (2014: 51) that the concept of place value numbers has an example of the number 15, number 1 has a value of tens and number 5 has a unit value. Place value 1 is ten, value is 10, place value 5 is unit, value is 5 [6]. The value of hundreds of places according to Gunanto & Adhalia (2016: 9) there are three numbers where each number has a different value according to the place. For example as in the number 333 consists of 3

numbers. The place value at the left 3 point is hundreds and has a value of 300, the place value at number three in the middle position is tens and has a value of 30, and the value of number 3 at the rightmost position is the place value and has a value of 3 [5]. So, it can be concluded that the place value of a number is a number that has a different place value depending on its location. The place values include units, tens, hundreds, thousands, tens of thousands, and hundreds of thousands. Numeration that is widely used by people today is using a place value system. The system is a Hindu-Arabic numeration system. Hindu-Arabic numeration system is a numeration system that uses 10 digits or digits, namely 0, 1, 2, 3, 4, 5, 6, 7, 8, 9. In general according to Haryono (2014: 50) that numeracy is widely used by people currently using the place value system is a Hindu-Arabic numeration system. The Hindu-Arabic numeration system is also called the decimal numeration system [6]. According to Troutman & Lichtenberg in Haryono (2014: 50) that the Hindu-Arabic numeration system has several characteristics related to the place value of a number including the following:

4.1. *Contains a ten base system.* This means that every ten units are grouped into one tens, every ten tens into one hundred, and so on. So at the symbol base number ten, the rightmost place is a unit place with a place value of one, the place to the left of the place is tens with a place value of ten, and so on [6].

4.2. *Using a place value system.* For example at number 554321, the place value is as follows [6]:



Figure 1. Mapping place value of numbers

Based on the above opinion it can be concluded that the Arabic numeration system is a numeration system that has a base number of ten and uses a place value system of hundreds of thousands, tens of thousands, thousands, hundreds, tens, and units.

5. Method

This research belongs to the type and design of research or development (R&D). Research and Development (R&D) method according to Sugiyono (2016: 407) is used to produce products and test the effectiveness of the products produced. To be able to produce a particular product, it is used research that is needs analysis and the product is tested for its effectiveness in order to function in the wider community. The product to be developed in this research is the learning media of kite numbers for mathematics subjects in grade II elementary school on the concept of place number values. The development of this research was carried out until the product trial phase, namely the effectiveness test and product revision, the seventh stage. The research was carried out until the product trial phase because in this study it did not develop to the stage of widely used trials, final product revisions, and mass production. Following are the steps of the adaptation research model from Sugiyono [9]:

5.1. Potential and Problems

The first step before developing a product, it must first determine the potential and problems contained in the field. To find out the potential and problems contained in the field, then in this study interviews were conducted first. The interview was conducted with the second grade teacher of Singapore SDN 2

namely Dede Rokayah, S.Pd regarding mathematics learning on the concept of place number values to determine the learning media used, student responses during learning, the learning models used, how to teach the concept of place number value material, and student achievement in the form of values obtained by students in the material concept of place value number.

5.2. Analysis of Similar Learning Media

After the potentials and problems are obtained, the next step is collecting data. Data collection at this stage is gathering various information that can be used as material for product planning and can overcome problems found in the field. To overcome the problem in learning material concept of place values, researchers will develop learning media products. Researchers are looking for various information as reference materials for making learning media on the concept of place number values. In developing the media for learning kite numbers, researchers obtained information as reference material about the media used for learning the material concept of place number values. The media are media bags of numbers according to Mayasa in Darmawan (2014: 14-15) the number bags are square with four bags in the center of the main box. This media serves as a determinant of the value of a number, namely units, tens, hundreds, and thousands. Determination of the number of a number on the media using a straw. If one straw is placed in a thousand bag, it is worth thousands of places and so on [2]. In addition to the media bag of numbers, the media reference used to teach the material concept of place number values is the learning trajectory design that is to classify place values of hundreds, tens, and units by using ice cream sticks media that are bound by students every ten pieces of ice cream sticks then in put it into the scar bag, dozens, and units [8].

5.3. Product Design

The design of kite learning media development in this study is the first step that must be prepared, namely creating a story board of kite learning media that is the design or sketch of the kite learning media application to be developed, so that it can produce a picture or concept from the application that will be generated. The second step is to create a flowchart view. Flowchart view learning media of kite numbers is a flow chart that contains to show the direction of the flow of activities that show the sequence of procedures and processes of several files on learning media kite numbers. The third step is to make a way to use kobe media assisted by Adobe Flash CS6.

5.4. Design Validation

Design or product validation is an activity to assess the design of media development and provide improvements and improvements so that the media can be used effectively and efficiently. The validation of learning media of kite numbers is done by presenting experts or experts. The experts presented were material experts, media experts, and teachers.

5.5. Design Improvement / Design Revision

After the media learning the number kite is validated by media experts, material experts, and teachers then data analysis and product revisions are carried out. The product revision is based on input and advice from media experts, material experts, and teachers.

5.6. Product Trial

The learning media for kite numbers was tried out. In testing this product there are three stages, as follows:

- The one-on-one trial is a trial conducted on 3 students followed by data analysis and product revisions
- Small group trials namely trials conducted on 10 students followed by data analysis and product revisions.
- Large group trials namely trials conducted on 32 students followed by data analysis and product revisions. In addition, at the end of the trial in this large group the effectiveness of the media

will be tested. This test was conducted to determine the effectiveness of the learning media of kite numbers on the concept of place number values in SDN 2 Singaparna. This effectiveness test aims to find out the significance of learning differences in the material concept of the place value of numbers in SDN 2 Singaparna between before and after being treated in the form of the use of learning media kite numbers.

5.7. Product Revision

At this stage the researcher made a product revision based on the results of data analysis, inputs, and responses from the results of one-on-one trials, small-group tests, and large-group tests. The results of the analysis are used as input material to revise the product after each trial run as an improvement material for the next, so that the learning media of kite numbers can become a finished product.

6. Results and Discussion

The resulting learning media is then subjected to product validation. The product validation stage is carried out by material experts, media experts, and teachers. Each expert provides an assessment and input or suggestion through a questionnaire. Validation by material experts is done twice. Suggestions or input provided on stage I validation include sound must be improved, images contained in the media must have relevant meaning and be connected to the material to show the value of hundreds, tens, and units, the media needs to be added with some features, it is recommended to make a form for help with the assessment of exercises in learning. The following is a table of the results of the material expert validation in stage I:

Table 1. Recapitulation Result of Material Expert Validation Stage I

No.	Aspect	Aspect Value	Average Score	Category
1.	Format	8	4	Good
2.	Content	14	3,5	Good
3.	Language	5	1,66	Very Deficient
4.	Learning	7	2,33	Deficient
Amount		34	2,83	Enough

The results of the validation of material experts in stage I, the values obtained from all aspects get a value of 2.83 and fall into the "Fair" category. The results of the expert validation of the material in stage I of this learning media kite assisted number adobe flash cs6 were declared feasible to use with revision. After revision, validation will be carried out again in stage II. Suggestions and entry or input provided by material experts in validation phase II, namely in the quiz menu 1-5 must be included Basic Competency (KD) and indicators, and pictures that symbolize dozens of learning menus should be replaced because they are less relevant. The following is an evaluation of the results of the material expert validation in stage II:

Table 2. Recapitulation Result of Material Expert Validation Stage II

No.	Aspect	Aspect Value	Average Score	Category
1.	Format	9	4,5	Very Good
2.	Content	19	4,75	Very Good
3.	Language	15	5	Very Good
4.	Learning	13	4,33	Very Good
Amount		56	4,66	Very Good

Overall data based on the results of the validation of material experts in stage II obtained an average of 4.66 with the category "Very Good", so that the learning media of kite adobe flash cs6-assisted numbers is feasible for trial use. Validation was carried out by media experts twice. Suggestions or input provided by media experts in the validation of phase I, namely the voice of the guide on the instructions menu is attempted with a female voice and the voice must be clearer, the instructions menu must be added to the instructions or functions of the buttons used on the learning media, and a menu must be added. profile and included the researcher profile. In the expert phase II validation there was no suggestion or input. The following is a table of results of media expert validation in stage I:

Table 3. Recapitulation Result of Media Expert Validation Stage I

No.	Aspect	Value Aspect	Average Score	Category
1.	Display	28	3,11	Enough
2.	Programming	21	3,5	Good
Amount		49	3,26	Enough

The results of the validation of media experts in stage I, the values obtained from all aspects get a value of 3.26 and are included in the category of "Enough". The results of the validation of media experts in phase I learning media kite number assisted by adobe flash cs6 were declared feasible to use with revision. After making improvements or revisions based on the results of stage I validation then stage II is validated. Following are the results of the stage II material expert validation:

Table 4. Recapitulation Result of Media Expert Validation Stage II

No.	Aspect	Value Aspect	Average Score	Category
1.	Display	42	4,66	Very Good
2.	Programming	29	4,83	Very Good
Amount		71	4,73	Very Good

Based on the results of the validation of the media as a whole covering aspects of the feasibility of the display and the feasibility of programming obtained an average of 4.73 with the category "Very Good", so that the learning media of adobe flash aided cs6 assisted numbers is suitable for trial use. Teacher validation is done twice. Suggestions or input provided in stage I is to make it more interesting the pictures that appear should be adjusted to the theme which is about living in harmony. In addition, images must be raised relating to the theme of harmonious life relating to Core Competencies (KI) 1, namely spiritual attitudes and Core Competencies (KI) 2, namely social attitudes. In the teacher validation stage II there are no revisions or suggestions and input from the teacher. The following are the results of the validation of the first and second stage teachers:

Table 5. Recapitulation Result of Teacher Stage I dan Stage II

No.	Aspect	Value Aspect	Average Score	Category
1.	Format	10	5	Very Good
2.	Content	19	4,75	Very Good
3.	Language	15	5	Very Good
4.	Learning	14	4,66	Very Good
Amount Score		58	4,83	Very Good

Overall data based on the results of teacher validation in stages I and stage II which showed the assessment of learning media kobe adobe flash assisted number cs6 obtained an average of 4.83 with the category of "Very Good", so that the learning media of adobe flash assisted number kites CS6 is suitable for trial use. After the validation phase is completed, the product trial is then performed.

Product trials are carried out in three stages, one on one trials, small group test, and large group test. One-on-one trials were conducted on three students. The following are the results of one-on-one trials:

Table 6. Recapitulation Result of One on One Trials

No.	Name of Learner	Value Aspect			Average Score	Category
		Display	Programming	Learning		
1.	Ersa Nopitasari	38	18	14	4,6	Very Good
2.	Nisayuliani	39	20	15	4,93	Very Good
3.	Rena Dewi Humaira	39	19	15	4,86	Very Good
Amount Score		58			4,83	Very Good

Based on the results of one-on-one trial data analysis, the overall score is an average of 4.8 and is categorized as "Very Good" and there are no suggestions and input for improvement or revision. According to the three students based on the results of research on one-on-one trials that learning by using kite learning media assisted by adobe flash cs6 is more understanding, very helpful in learning the concept of place number values, it's easier to determine place values and number values. In addition, viewed from the aspect of the appearance of learning media kite assisted by Adobe Flash CS6 is very interesting, how to use media easily understood, the colors used in the media are contrast and clear, the sound contained in the media can be heard clearly, with music making media becomes more interesting, and the language contained in the media is easy to understand. Images, text, and numbers displayed on the media can be read and seen clearly, each button and button contained in the media menu are placed in the same place so that it is easier. Viewed from the aspect of programming the buttons used on each menu make it easier for students to operate the media, the kite card is easy to move, and the program when used runs quickly and can be used easily. Thus, the learning media of adobe flash cs6 assisted number kites based on the results of one-on-one trials is feasible and effective to be used as learning media on the concept of place values for mathematics subjects. A small group test was conducted on ten students. Following are the results of small group test:

Table 7. Recapitulation Result of Small Group Test

No.	Name of Learner	Value Aspect			Average Score	Category
		Display	Programming	Learning		
1.	Agis Triatmi R	39	19	15	4,86	Very Good
2.	Arifin Nugraha	39	19	15	4,86	Very Good
3.	Denis Nur M	36	19	13	4,53	Very Good
4.	Ihsan Hilmi N R	36	18	14	4,53	Very Good
5.	Mirna Nabila	36	15	14	4,53	Very Good
6.	Moch Albi F A	37	19	14	4,66	Very Good
7.	Naira Auriedia	37	19	15	4,73	Very Good
8.	Nugi Sugiro R	36	19	13	4,53	Very Good
9.	Saina Syahladikta	39	19	15	4,86	Very Good
10.	Yoga Putra P	36	19	14	4,6	Very Good
Amount Score		58			4,83	Very Good

Based on the results of the analysis of small group trial data, overall the average score is 4.65 and is categorized as "Very Good" and there are no suggestions and input for improvement or revision. According to ten students based on the results of research on small group trials that learning by using kite learning media assisted by adobe flash cs6 is more understanding, can help in learning the concept of place number values, it is easier to determine place values and number values. In addition, viewed from the aspect of the appearance of learning media kite assisted by Adobe Flash CS6 is very interesting, how to use media easily understood, the colors used in the media are contrast and clear, the sound contained in the media can be heard clearly, with music making media becomes more interesting, and the language contained in the media is easy to understand. Images, text, and numbers displayed on the media can be read and seen clearly, each button and button contained in the media menu are placed in the same place so that it is easier. Seen from the programming aspect, the buttons used on each menu make it easier for students to operate the media, the kite card is easy to move, and the program when used runs quickly and can be used easily. Thus, in this case the learning media of adobe flash cs6 assisted kite numbers based on the results of small group tests is feasible and effective to be used as a learning medium on the concept of place values for mathematics subjects. Large group test were conducted on 27 students. In the large group tests stage, students are given action as much as 3 meetings. Allocation at each meeting is 2 x 35 minutes. The following are the results of a large group tests:

Table 8. Recapitulation of Value and Effectiveness of Media

No.	Name of Learner	Pretest Value (x)	Posttest Value (y)	Normal Gain	Quality Effectiveness Level
1.	Aidil Alfariji	40	85	0,75	High
2.	Aji Adli Saputra	55	75	0,44	Medium
3.	Albi Prayoga Putra	55	85	0,66	Medium
4.	Arfin Nugraha	55	80	0,55	Medium
5.	Denis Nur Muhamad	75	90	0,6	Medium
6.	Devika Wulan Sarisha	50	80	0,6	Medium
7.	Ersa Nopitasari	75	95	0,8	High
8.	Fuji Ramadhan	50	80	0,6	Medium
9.	Fuji Fauziah	60	85	0,62	Medium
10.	Ineu Kiara Sakti	50	80	0,6	Medium
11.	Luthfiah Naila Nur. H	45	85	0,72	High
12.	Miar Melgani Putri	55	85	0,66	Medium
13.	Mirna Nabila	60	85	0,62	Medium
14.	Moch Albi FA	60	85	0,62	Medium
15.	Muhamad Rifal AL	50	80	0,6	Medium
16.	Naira Auriella	50	85	0,7	Medium
17.	Nayla Nur Akhira	55	80	0,55	Medium
18.	Nisayuliani	85	100	1	High
19.	Nugi Sugiro R	65	85	0,57	Medium
20.	Rena Dewi Humaira	75	95	0,8	High
21.	Rini Mulyani	45	80	0,63	Medium
22.	Romi Muhamad Romli	60	85	0,62	Medium
23.	Saina Syahladikta	65	100	1	High
24.	Wulan Sari Pratiwi	60	90	0,75	High
25.	Yoga Putra Pratama	70	90	0,66	Medium
26.	Ihsan Hilmi Nur Rojabi	75	90	0,6	Medium
27.	Agistriatmi Ramdani	65	100	1	High
Amount		1605	2335	0,66	Medium
Average		59,44	86,48		

Based on data table 32 shows that the average pretest value is 59.44 and the average posttest value is 84.48. This shows that the posttest value is higher than the pretest value. The overall quality value of the effectiveness of the media is getting a value of 0.66 with the category "Medium". The pretest and posttest values will then be analyzed by Paired Sample T-Test with a significance level of 0.05. The following is the data from the analysis of the Paired Sample T-Test test:

Table 9. Recapitulation Results of Paired Sampel T-Test

	Paired Samples Test					t	df	Sig. (2-tailed)
	Paired Differences							
	Mean	Std. Deviation	Std. Error Mean	95% Interval of The Difference				
				Lower	Upper			
Pair 1 Pretest-Posttest	-23.037	7.628	1.468	-30.055	-	-18.417	26	.000
						24.019		

Based on the data table 33 test results Paired Sample T-Test shows that the t_{count} is 18.417 with df 26, so the t_{table} is 2.056 with a significant level of 0.05 then $t_{count} > t_{table}$ or $18.417 > 2.056$. Thus, it can be concluded that H_0 is rejected and H_a is accepted, meaning that there is a significant difference between before and after using the adobe flash assisted kite media learning aid cs6 on the concept of

place number values in Singapore SDN 2. Judging from the results of the average student posttest score of 86.48 is already above the Minimum Completeness Criteria in Mathematics which is 75. Based on the average results of the posttest score of 86.48 is greater than the pretest value of 59.44 , then the kite media assisted by Adobe Flash CS6 can be said to be feasible and effective for use in mathematics subject matter concept of place number values.

7. Conclusions

The development of adobe flash cs6 assisted number kite media in its development first saw potential problems by conducting interviews with Second Class Teachers in Primary Schools. After finding a problem, then do the data collection by means of analyzing similar media. The next step is to create a story board, flowchart view, and how to use the kite media assisted by Adobe Flash CS6. Then, the media design contained in the story board and flowchart view, and how to use the media is poured into Adobe Flash CS6 software to become a kite media assisted by Adobe Flash CS6. When the media is ready, at the next stage the design validation is carried out. Design validation is done by material experts, media experts, and teachers. The results of design validation from material experts are 4.66 with very good category, media experts are 4.73 with very good categories, and 4.83 teachers with very good categories so that the media is valid and worth testing. The next stage is product testing. Trials on the media carried out 3 times, namely one-on-one trials, small group trials, and large group trials. One-on-one test conducted on 3 students with an average result of 4.8 in the excellent category. A small group trial was conducted on 10 students with an average yield of 4.65 in the excellent category. Large group trials were conducted on 27 students and the results were obtained by looking at the average pretest score of 59.44 and the posttest value of 86.48.

The learning media of adobe flash cs6 assisted number kite is effective to be used in the concept of number place values in Singapore SDN 2. The results of the pretest and posttest values were calculated using the Paired Sample T-Test analysis technique with the acquisition of $t_{count} > t_{table}$ or $18,417 > 2,056$ which means that H_0 was rejected and H_a was accepted so there was a difference between before and after being treated using adobe flash assisted number kite media cs6.

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Development of kite number learning media help adobe flash cs6 on the concept of place number values in elementary school 2 Singaparna

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Abstract. Mathematics learning in class II Elementary School 2 Singaparna there are detention in learning material concept of place number values. Detention is when the teacher teaches the value of the concept of place numbers, students do not understand the material so that the teacher must explain repeatedly to students who have learning difficulties. The average value of students from 32 people is reaching 75,75, and teacher experience detention and limitations in making learning media truly suitable and in accordance with the material to be taught. This time teacher in teaching the material only use learning media by using objects in the environment. There is an active student response in learning, some are still not active because they do not understand even when learning using media. The problem if not resolved as soon as possible will have an impact on student learning achievement and hamper the subsequent learning material as in addition and subtraction operation material. By developing learning media that are interesting for students, can make students become more active, and fun in learning. Kite number learning media can also help students to more easily understand the material concepts of place number values. This study aims to develop and test effectiveness kite number learning media help adobe flash cs6 on the concept of place number values in Elementary School 2 Singaparna. The research method used is the development method with research design development or R&D (Research and Development). This research was carried out in Elementary School 2 Singaparna Sub-District Singaparna Districts Tasikmalaya in class II students as many as 32 people. The data analysis technique used in this study is qualitative and quantitative data analysis techniques. Data collection techniques in this study used questionnaire and pretest-posttest. Quantitative data analysis techniques use descriptive statistics. Development results kite number learning media help adobe flash cs6 on the concept of place number values already meet valid criteria. The results of the material expert validation reached a validity level of 4,66 with a very good category. The results of the media expert validation reached a validity level of 4,73 with a very good category. The results of teacher expert validation reached a validity level of 4,83 with a very good category. Product trials, which include one-on-one trails, get an average score of 4,8 with a very good category and small group trials got an average score of 4,65 with a very good category. The results of a large group trial in the application of learning in class, the results of the pretest students get a value of 59,44 and the posttest results get a value of 86,48. Based on the results of the analysis using

paired sampel t-test statistics to produce $t_{\text{count}} 18,417$ and $t_{\text{table}} 2,056$ which mean $t_{\text{count}} > t_{\text{table}}$. So it can be concluded that there are significant differences between before and after using the kite number learning media help adobe flash cs6 on the concept of place number values in Elementary School 2 Singaparna.

1. Introduction

Mathematics learning is given to students at every level of education. The purpose of learning mathematics is so that students are skilled in the field of mathematics studies. In addition to being skilled in the field of mathematics studies students must also be able to apply mathematical sciences as a provision in daily life to live in the midst of the society in which they live. Mathematics is one of the fields of study at every level of education. Mathematics according to Susanto (2016: 183) is abstract ideas that contain symbols and must first understand the concept before manipulating symbols [11]. The need for mathematical applications according to Susanto (2016: 185) is not only for daily needs but also needed to support the world of work and support the development needs of science [11]. Therefore, mathematics is a field of study that must be well mastered by students, especially starting from elementary school age.

In learning mathematics in class II SDN 2 Singaparna based on the results of an interview on January 17, 2019 there were several obstacles in learning the material concept of place number values. That obstacle is when the teacher teaches the concept of place value numbers, students do not understand the material so the teacher must explain repeatedly, especially for students who have learning difficulties. The overall average value of 32 students in learning the concept of place number values in class II is 75.75. In addition, teachers experience obstacles in making learning media, namely teachers have difficulty in expressing ideas to make learning media more attractive to students and can facilitate a variety of student learning styles so that media that is made is really suitable for students and in accordance with the material will be taught. Teachers experience time constraints in making learning media that takes a long time and the material to be delivered is not only a lot of material to the concept of place numbers, the teacher in using media when learning only uses modest learning media. At present the teacher in teaching material concept of place value numbers in class II SDN 2 Singaparna uses only modest learning media by utilizing objects in the surrounding environment. For example when teaching the concept of the place value of the teacher using the media images, stones, matches, or sticks as concrete objects in learning. Student responses in learning the concept of the value of places where some are active and some are still not active even though in learning using media.

These problems if not resolved immediately will have an impact on student achievement and hamper further learning material such as the addition and subtraction operation material. Before studying the material addition and subtraction operations, students must understand the value of the place of numbers in advance to add numbers that belong to hundreds, tens, and units. This is in line with the opinion expressed by Hudojo in Sundayana (2016: 29) that [10]:

In the process of learning mathematics, the principle of learning must first be chosen, so that when learning mathematics can take place smoothly, for example learning concept B which is based on concept A. Without understanding concept A, it is impossible for the person to understand concept B. This means that learning mathematics must be gradual and sequentially and basing on past learning experiences.

Based on the above problems, the writer is interested in developing learning media that are interesting for students, can make students become more active, and fun in learning. The media of learning kite numbers can also help students more easily understand the material concept of the place value of numbers.

In this study, researchers will develop learning media kite numbers. Therefore, researchers focus on the development of adobe flash cs6 numbered kite learning media on the concept of place number values in Singapore SDN 2.

2. Kite Number Learning Media

2.1. Definition Number Learning Media

Kite number learning media is a learning media that can be used to assist teachers in conveying the concept of place number values in mathematics. In addition, the existence of this learning media can make it easier for students to understand the concept of place number values to determine place values starting from hundreds, tens, and units and value of numbers. The media of learning kite numbers when viewed from its nature is included in the audio visual media aided by adobe flash cs6 because the learning media of kite numbers is made a number kite media application in which there is a menu of instructions for use which contains procedures for using the media and will the voice of the voice appeared. Adobe Flash CS6 is a software or software that has been updated from the previous version. Versions of Adobe Flash before Adobe Flash CS6 include Adobe Flash CS3, Adobe Flash CS4, and Adobe Flash CS5. Adobe flash cs6 according to Island Script in Fatimah (2016: 24) is software or graphics software that can create graphic animation objects that can be designed directly as you wish without having to be supported by using graphics software such as illustrator or photoshop. Adobe Flash CS6 features more complete and not owned by Adobe Flash previous versions [3]. Adobe flash cs6 according to Ariesto Hadi Sutopo in Fatimah (2016: 25) has several advantages when compared to other programs. In Adobe Flas CS6 in making various animations it is very easy and users can create animations with free movements according to the concept of the desired animation scene. In addition, for making animations or interactive teaching materials it is also very easy to use by users because the tools, templates and components available in Adobe Flash CS6 are available, easy to use, and ready to use. Adobe Flash CS6 produces small file sizes that are flexible and can be converted into swf, html, jpg, png, exe, and mov type files [3]. In the number kite media there is a learning menu that is a menu that functions for students to learn the concept of place number values while playing moving cards according to the place value. The next menu is the practice menu and quiz that contains material questions on the concept of place numbers as a means for students to learn to work on problems.

2.2. Reason Naming Media Kite Number Learning Media

This learning media is referred to as the kite learning media because in this learning media there are a number of kite-shaped number cards. In addition, there is also a picture of a coin, a picture of a plate of strawberries containing 10 pieces, and a picture of a match to concretize the translation of the concept of place number values. At the bottom of each picture that symbolizes the place value of hundreds, tens, and this unit is given a spare box to store coins, a picture of a strawberry plate containing 10 pieces, and a picture of a match as an explanation of the concept of numbers. For example when given a question about number 323, the number in the hundreds place is number 3, then the coins stored in the spare box are 3 pieces because every 1 coin has a value of 100. In the tens place is the number 2, then a picture of one strawberry plate stored on 2 pieces of reserve box, because each picture of one plate of strawberries containing 10 pieces has a value of 10. The last number 3 has a unit place value, the picture of a matchbox stored in the spare box is 3 pieces because every 1 piece of lighters has a value of 1. After completing the three drawings in the spare box, the students then count the number of images in each spare box and write down the number by taking a kite card and store the number cards in the hundreds, tens, and units. When students add up the picture in the spare box and write the amount on the lines of hundreds, tens, and units, students will know the value of a number on a symbol. For example, if the question is 323, then the number of coins in the hundreds of red reserve boxes is 3 and the number is 300, then students take the kite in red number 3 and store it in the hundreds line. In the dozens of blue spare boxes there are 2 strawberry plates, each plate containing 10 strawberries and the total number is 20, then students take the kite blue number 2 and stored in the tens line. In the yellow dozens of spare boxes there are 3 matches and the number is 3, then students take the kite yellow number 3 and stored in the unit line. The number value in the 323 number symbol problem is $300 + 20 + 3$.

The spare box placed under the coin image, the picture of a strawberry plate containing 10 pieces, and the picture of a match aimed to provide an understanding of the concept that each number in a number

has a different place value even though the numbers are the same. As in the example number 3 the first has a place value of hundreds while the last number 3 in the third position has a unit place value. Beneath this reserve box, there is a translation of the number of numbers that requires hundreds, tens and units. In this media in the upper right corner is equipped with a number board or can be called a kite for giving questions. Under the number board or called the character kite there are three boxes lined down as a storage area for a collection of coin images, a picture of a strawberry plate containing 10 pieces, and a picture of a match.

3. Learning Media

Along with the development and progress of science and technology pushes to make updates in the use of the results of educational technology in the learning process. Teachers are required to be able to use the tools provided by the school so that the learning objectives expected by the school can be achieved optimally. In addition to teachers being required to be able to use the tools that are already available in schools, teachers must also be able to make learning media if there are no learning media available in schools that can support the learning materials that will be delivered to students. In the process of teaching and learning media according to Arsyad (2015: 3) is defined as graphic, photographic or electronic tools that function to process visual and verbal information again [1]. Learning media is a part that can help the teaching and learning process so that learning objectives can be achieved properly. In addition, Hamalik in Maolani (2017: 159) states that learning media are all things that can be used to convey messages or information contained in the material delivered, stimulating students' minds to be more developed, stimulating students' feelings, concerns, and wishes because by the existence of media students become motivated to learn the material that will be delivered by the teacher so that it can encourage the learning process and be able to deliver students in achieving learning goals [7].

Learning media as a tool in learning activities according to Sanaky in Sundayana (2016: 9) has a function to stimulate students in learning by presenting duplication of actual objects and step objects, making from abstract concepts to concrete concepts, giving a common perception, overcome the obstacles of time, distance, place and the amount of distance that is not possible, present information consistently, the learning atmosphere becomes stressed, relaxed and interesting so that learning objectives can be achieved [10].

4. Concept of Place Number Values

Numbers are mathematical concepts used for enumeration and measurement. Number is a term to express the number or amount of something. Symbols or symbols used to represent a number are called numbers or symbols of numbers. Understanding of numbers according to Febriyanti & Prastowo (2014: 31) is a collection of numbers that rank as units, tens, hundreds, thousands, and so on [4]. Following is the arrangement of place values:

- Unit numbers are numbers arranged from numbers 0 to 9.
- Tens numbers are numbers arranged starting from 10-99.
- Hundreds are numbers arranged starting with numbers 100-999.
- Thousands are numbers arranged from numbers 1,000-9,999.

Place value according to Haryono, et al (2014: 49) can be interpreted as the value of a number in a number that has a place value with various levels depending on the location of a number. The level of the place consists of units, tens, hundreds, thousands, tens of thousands and so on [6]. This opinion is in line with the opinion of Untoro & the Indonesian Teachers Team (2010: 2) that the place value of a number is a number composed of several numbers, where each number has a different place value depending on its location [12]. According to Seputra & Amin in Haryono (2014: 51) that the concept of place value numbers has an example of the number 15, number 1 has a value of tens and number 5 has a unit value. Place value 1 is ten, value is 10, place value 5 is unit, value is 5 [6]. The value of hundreds of places according to Gunanto & Adhalia (2016: 9) there are three numbers where each number has a different value according to the place. For example as in the number 333 consists of 3

numbers. The place value at the left 3 point is hundreds and has a value of 300, the place value at number three in the middle position is tens and has a value of 30, and the value of number 3 at the rightmost position is the place value and has a value of 3 [5]. So, it can be concluded that the place value of a number is a number that has a different place value depending on its location. The place values include units, tens, hundreds, thousands, tens of thousands, and hundreds of thousands. Numeration that is widely used by people today is using a place value system. The system is a Hindu-Arabic numeration system. Hindu-Arabic numeration system is a numeration system that uses 10 digits or digits, namely 0, 1, 2, 3, 4, 5, 6, 7, 8, 9. In general according to Haryono (2014: 50) that numeracy is widely used by people currently using the place value system is a Hindu-Arabic numeration system. The Hindu-Arabic numeration system is also called the decimal numeration system [6]. According to Troutman & Lichtenberg in Haryono (2014: 50) that the Hindu-Arabic numeration system has several characteristics related to the place value of a number including the following:

4.1. *Contains a ten base system.* This means that every ten units are grouped into one tens, every ten tens into one hundred, and so on. So at the symbol base number ten, the rightmost place is a unit place with a place value of one, the place to the left of the place is tens with a place value of ten, and so on [6].

4.2. *Using a place value system.* For example at number 554321, the place value is as follows [6]:



Figure 1. Mapping place value of numbers

Based on the above opinion it can be concluded that the Arabic numeration system is a numeration system that has a base number of ten and uses a place value system of hundreds of thousands, tens of thousands, thousands, hundreds, tens, and units.

5. Method

This research belongs to the type and design of research or development (R&D). Research and Development (R&D) method according to Sugiyono (2016: 407) is used to produce products and test the effectiveness of the products produced. To be able to produce a particular product, it is used research that is needs analysis and the product is tested for its effectiveness in order to function in the wider community. The product to be developed in this research is the learning media of kite numbers for mathematics subjects in grade II elementary school on the concept of place number values. The development of this research was carried out until the product trial phase, namely the effectiveness test and product revision, the seventh stage. The research was carried out until the product trial phase because in this study it did not develop to the stage of widely used trials, final product revisions, and mass production. Following are the steps of the adaptation research model from Sugiyono [9]:

5.1. Potential and Problems

The first step before developing a product, it must first determine the potential and problems contained in the field. To find out the potential and problems contained in the field, then in this study interviews were conducted first. The interview was conducted with the second grade teacher of Singapore SDN 2

namely Dede Rokayah, S.Pd regarding mathematics learning on the concept of place number values to determine the learning media used, student responses during learning, the learning models used, how to teach the concept of place number value material, and student achievement in the form of values obtained by students in the material concept of place value number.

5.2. Analysis of Similar Learning Media

After the potentials and problems are obtained, the next step is collecting data. Data collection at this stage is gathering various information that can be used as material for product planning and can overcome problems found in the field. To overcome the problem in learning material concept of place values, researchers will develop learning media products. Researchers are looking for various information as reference materials for making learning media on the concept of place number values. In developing the media for learning kite numbers, researchers obtained information as reference material about the media used for learning the material concept of place number values. The media are media bags of numbers according to Mayasa in Darmawan (2014: 14-15) the number bags are square with four bags in the center of the main box. This media serves as a determinant of the value of a number, namely units, tens, hundreds, and thousands. Determination of the number of a number on the media using a straw. If one straw is placed in a thousand bag, it is worth thousands of places and so on [2]. In addition to the media bag of numbers, the media reference used to teach the material concept of place number values is the learning trajectory design that is to classify place values of hundreds, tens, and units by using ice cream sticks media that are bound by students every ten pieces of ice cream sticks then in put it into the scar bag, dozens, and units [8].

5.3. Product Design

The design of kite learning media development in this study is the first step that must be prepared, namely creating a story board of kite learning media that is the design or sketch of the kite learning media application to be developed, so that it can produce a picture or concept from the application that will be generated. The second step is to create a flowchart view. Flowchart view learning media of kite numbers is a flow chart that contains to show the direction of the flow of activities that show the sequence of procedures and processes of several files on learning media kite numbers. The third step is to make a way to use kobe media assisted by Adobe Flash CS6.

5.4. Design Validation

Design or product validation is an activity to assess the design of media development and provide improvements and improvements so that the media can be used effectively and efficiently. The validation of learning media of kite numbers is done by presenting experts or experts. The experts presented were material experts, media experts, and teachers.

5.5. Design Improvement / Design Revision

After the media learning the number kite is validated by media experts, material experts, and teachers then data analysis and product revisions are carried out. The product revision is based on input and advice from media experts, material experts, and teachers.

5.6. Product Trial

The learning media for kite numbers was tried out. In testing this product there are three stages, as follows:

- The one-on-one trial is a trial conducted on 3 students followed by data analysis and product revisions
- Small group trials namely trials conducted on 10 students followed by data analysis and product revisions.
- Large group trials namely trials conducted on 32 students followed by data analysis and product revisions. In addition, at the end of the trial in this large group the effectiveness of the media

will be tested. This test was conducted to determine the effectiveness of the learning media of kite numbers on the concept of place number values in SDN 2 Singaparna. This effectiveness test aims to find out the significance of learning differences in the material concept of the place value of numbers in SDN 2 Singaparna between before and after being treated in the form of the use of learning media kite numbers.

5.7. Product Revision

At this stage the researcher made a product revision based on the results of data analysis, inputs, and responses from the results of one-on-one trials, small-group tests, and large-group tests. The results of the analysis are used as input material to revise the product after each trial run as an improvement material for the next, so that the learning media of kite numbers can become a finished product.

6. Results and Discussion

The resulting learning media is then subjected to product validation. The product validation stage is carried out by material experts, media experts, and teachers. Each expert provides an assessment and input or suggestion through a questionnaire. Validation by material experts is done twice. Suggestions or input provided on stage I validation include sound must be improved, images contained in the media must have relevant meaning and be connected to the material to show the value of hundreds, tens, and units, the media needs to be added with some features, it is recommended to make a form for help with the assessment of exercises in learning. The following is a table of the results of the material expert validation in stage I:

Table 1. Recapitulation Result of Material Expert Validation Stage I

No.	Aspect	Aspect Value	Average Score	Category
1.	Format	8	4	Good
2.	Content	14	3,5	Good
3.	Language	5	1,66	Very Deficient
4.	Learning	7	2,33	Deficient
Amount		34	2,83	Enough

The results of the validation of material experts in stage I, the values obtained from all aspects get a value of 2.83 and fall into the "Fair" category. The results of the expert validation of the material in stage I of this learning media kite assisted number adobe flash cs6 were declared feasible to use with revision. After revision, validation will be carried out again in stage II. Suggestions and entry or input provided by material experts in validation phase II, namely in the quiz menu 1-5 must be included Basic Competency (KD) and indicators, and pictures that symbolize dozens of learning menus should be replaced because they are less relevant. The following is an evaluation of the results of the material expert validation in stage II:

Table 2. Recapitulation Result of Material Expert Validation Stage II

No.	Aspect	Aspect Value	Average Score	Category
1.	Format	9	4,5	Very Good
2.	Content	19	4,75	Very Good
3.	Language	15	5	Very Good
4.	Learning	13	4,33	Very Good
Amount		56	4,66	Very Good

Overall data based on the results of the validation of material experts in stage II obtained an average of 4.66 with the category "Very Good", so that the learning media of kite adobe flash cs6-assisted numbers is feasible for trial use. Validation was carried out by media experts twice. Suggestions or input provided by media experts in the validation of phase I, namely the voice of the guide on the instructions menu is attempted with a female voice and the voice must be clearer, the instructions menu must be added to the instructions or functions of the buttons used on the learning media, and a menu must be added. profile and included the researcher profile. In the expert phase II validation there was no suggestion or input. The following is a table of results of media expert validation in stage I:

Table 3. Recapitulation Result of Media Expert Validation Stage I

No.	Aspect	Value Aspect	Average Score	Category
1.	Display	28	3,11	Enough
2.	Programming	21	3,5	Good
Amount		49	3,26	Enough

The results of the validation of media experts in stage I, the values obtained from all aspects get a value of 3.26 and are included in the category of "Enough". The results of the validation of media experts in phase I learning media kite number assisted by adobe flash cs6 were declared feasible to use with revision. After making improvements or revisions based on the results of stage I validation then stage II is validated. Following are the results of the stage II material expert validation:

Table 4. Recapitulation Result of Media Expert Validation Stage II

No.	Aspect	Value Aspect	Average Score	Category
1.	Display	42	4,66	Very Good
2.	Programming	29	4,83	Very Good
Amount		71	4,73	Very Good

Based on the results of the validation of the media as a whole covering aspects of the feasibility of the display and the feasibility of programming obtained an average of 4.73 with the category "Very Good", so that the learning media of adobe flash aided cs6 assisted numbers is suitable for trial use. Teacher validation is done twice. Suggestions or input provided in stage I is to make it more interesting the pictures that appear should be adjusted to the theme which is about living in harmony. In addition, images must be raised relating to the theme of harmonious life relating to Core Competencies (KI) 1, namely spiritual attitudes and Core Competencies (KI) 2, namely social attitudes. In the teacher validation stage II there are no revisions or suggestions and input from the teacher. The following are the results of the validation of the first and second stage teachers:

Table 5. Recapitulation Result of Teacher Stage I dan Stage II

No.	Aspect	Value Aspect	Average Score	Category
1.	Format	10	5	Very Good
2.	Content	19	4,75	Very Good
3.	Language	15	5	Very Good
4.	Learning	14	4,66	Very Good
Amount Score		58	4,83	Very Good

Overall data based on the results of teacher validation in stages I and stage II which showed the assessment of learning media kobe adobe flash assisted number cs6 obtained an average of 4.83 with the category of "Very Good", so that the learning media of adobe flash assisted number kites CS6 is suitable for trial use. After the validation phase is completed, the product trial is then performed.

Product trials are carried out in three stages, one on one trials, small group test, and large group test. One-on-one trials were conducted on three students. The following are the results of one-on-one trials:

Table 6. Recapitulation Result of One on One Trials

No.	Name of Learner	Value Aspect			Average Score	Category
		Display	Programming	Learning		
1.	Ersa Nopitasari	38	18	14	4,6	Very Good
2.	Nisayuliani	39	20	15	4,93	Very Good
3.	Rena Dewi Humaira	39	19	15	4,86	Very Good
Amount Score		58			4,83	Very Good

Based on the results of one-on-one trial data analysis, the overall score is an average of 4.8 and is categorized as "Very Good" and there are no suggestions and input for improvement or revision. According to the three students based on the results of research on one-on-one trials that learning by using kite learning media assisted by adobe flash cs6 is more understanding, very helpful in learning the concept of place number values, it's easier to determine place values and number values. In addition, viewed from the aspect of the appearance of learning media kite assisted by Adobe Flash CS6 is very interesting, how to use media easily understood, the colors used in the media are contrast and clear, the sound contained in the media can be heard clearly, with music making media becomes more interesting, and the language contained in the media is easy to understand. Images, text, and numbers displayed on the media can be read and seen clearly, each button and button contained in the media menu are placed in the same place so that it is easier. Viewed from the aspect of programming the buttons used on each menu make it easier for students to operate the media, the kite card is easy to move, and the program when used runs quickly and can be used easily. Thus, the learning media of adobe flash cs6 assisted number kites based on the results of one-on-one trials is feasible and effective to be used as learning media on the concept of place values for mathematics subjects. A small group test was conducted on ten students. Following are the results of small group test:

Table 7. Recapitulation Result of Small Group Test

No.	Name of Learner	Value Aspect			Average Score	Category
		Display	Programming	Learning		
1.	Agis Triatmi R	39	19	15	4,86	Very Good
2.	Arifin Nugraha	39	19	15	4,86	Very Good
3.	Denis Nur M	36	19	13	4,53	Very Good
4.	Ihsan Hilmi N R	36	18	14	4,53	Very Good
5.	Mirna Nabila	36	15	14	4,53	Very Good
6.	Moch Albi F A	37	19	14	4,66	Very Good
7.	Naira Auriedia	37	19	15	4,73	Very Good
8.	Nugi Sugiro R	36	19	13	4,53	Very Good
9.	Saina Syahladikta	39	19	15	4,86	Very Good
10.	Yoga Putra P	36	19	14	4,6	Very Good
Amount Score		58			4,83	Very Good

Based on the results of the analysis of small group trial data, overall the average score is 4.65 and is categorized as "Very Good" and there are no suggestions and input for improvement or revision. According to ten students based on the results of research on small group trials that learning by using kite learning media assisted by adobe flash cs6 is more understanding, can help in learning the concept of place number values, it is easier to determine place values and number values. In addition, viewed from the aspect of the appearance of learning media kite assisted by Adobe Flash CS6 is very interesting, how to use media easily understood, the colors used in the media are contrast and clear, the sound contained in the media can be heard clearly, with music making media becomes more interesting, and the language contained in the media is easy to understand. Images, text, and numbers displayed on the media can be read and seen clearly, each button and button contained in the media menu are placed in the same place so that it is easier. Seen from the programming aspect, the buttons used on each menu make it easier for students to operate the media, the kite card is easy to move, and the program when used runs quickly and can be used easily. Thus, in this case the learning media of adobe flash cs6 assisted kite numbers based on the results of small group tests is feasible and effective to be used as a learning medium on the concept of place values for mathematics subjects. Large group test were conducted on 27 students. In the large group tests stage, students are given action as much as 3 meetings. Allocation at each meeting is 2 x 35 minutes. The following are the results of a large group tests:

Table 8. Recapitulation of Value and Effectiveness of Media

No.	Name of Learner	Pretest Value (x)	Posttest Value (y)	Normal Gain	Quality Effectiveness Level
1.	Aidil Alfariji	40	85	0,75	High
2.	Aji Adli Saputra	55	75	0,44	Medium
3.	Albi Prayoga Putra	55	85	0,66	Medium
4.	Arfin Nugraha	55	80	0,55	Medium
5.	Denis Nur Muhamad	75	90	0,6	Medium
6.	Devika Wulan Sarisha	50	80	0,6	Medium
7.	Ersa Nopitasari	75	95	0,8	High
8.	Fuji Ramadhan	50	80	0,6	Medium
9.	Fuji Fauziah	60	85	0,62	Medium
10.	Ineu Kiara Sakti	50	80	0,6	Medium
11.	Luthfiah Naila Nur. H	45	85	0,72	High
12.	Miar Melgani Putri	55	85	0,66	Medium
13.	Mirna Nabila	60	85	0,62	Medium
14.	Moch Albi FA	60	85	0,62	Medium
15.	Muhamad Rifal AL	50	80	0,6	Medium
16.	Naira Auriella	50	85	0,7	Medium
17.	Nayla Nur Akhira	55	80	0,55	Medium
18.	Nisayuliani	85	100	1	High
19.	Nugi Sugiro R	65	85	0,57	Medium
20.	Rena Dewi Humaira	75	95	0,8	High
21.	Rini Mulyani	45	80	0,63	Medium
22.	Romi Muhamad Romli	60	85	0,62	Medium
23.	Saina Syahladikta	65	100	1	High
24.	Wulan Sari Pratiwi	60	90	0,75	High
25.	Yoga Putra Pratama	70	90	0,66	Medium
26.	Ihsan Hilmi Nur Rojabi	75	90	0,6	Medium
27.	Agistriatmi Ramdani	65	100	1	High
Amount		1605	2335	0,66	Medium
Average		59,44	86,48		

Based on data table 32 shows that the average pretest value is 59.44 and the average posttest value is 84.48. This shows that the posttest value is higher than the pretest value. The overall quality value of the effectiveness of the media is getting a value of 0.66 with the category "Medium". The pretest and posttest values will then be analyzed by Paired Sample T-Test with a significance level of 0.05. The following is the data from the analysis of the Paired Sample T-Test test:

Table 9. Recapitulation Results of Paired Sampel T-Test

	Paired Samples Test					t	df	Sig. (2-tailed)
	Paired Differences							
	Mean	Std. Deviation	Std. Error Mean	95% Interval of The Difference				
				Lower	Upper			
Pair 1 Pretest-Posttest	-23.037	7.628	1.468	-30.055	-	-18.417	26	.000
						24.019		

Based on the data table 33 test results Paired Sample T-Test shows that the t_{count} is 18.417 with df 26, so the t_{table} is 2.056 with a significant level of 0.05 then $t_{\text{count}} > t_{\text{table}}$ or $18.417 > 2.056$. Thus, it can be concluded that H_0 is rejected and H_a is accepted, meaning that there is a significant difference between before and after using the adobe flash assisted kite media learning aid cs6 on the concept of

place number values in Singapore SDN 2. Judging from the results of the average student posttest score of 86.48 is already above the Minimum Completeness Criteria in Mathematics which is 75. Based on the average results of the posttest score of 86.48 is greater than the pretest value of 59.44 , then the kite media assisted by Adobe Flash CS6 can be said to be feasible and effective for use in mathematics subject matter concept of place number values.

7. Conclusions

The development of adobe flash cs6 assisted number kite media in its development first saw potential problems by conducting interviews with Second Class Teachers in Primary Schools. After finding a problem, then do the data collection by means of analyzing similar media. The next step is to create a story board, flowchart view, and how to use the kite media assisted by Adobe Flash CS6. Then, the media design contained in the story board and flowchart view, and how to use the media is poured into Adobe Flash CS6 software to become a kite media assisted by Adobe Flash CS6. When the media is ready, at the next stage the design validation is carried out. Design validation is done by material experts, media experts, and teachers. The results of design validation from material experts are 4.66 with very good category, media experts are 4.73 with very good categories, and 4.83 teachers with very good categories so that the media is valid and worth testing. The next stage is product testing. Trials on the media carried out 3 times, namely one-on-one trials, small group trials, and large group trials. One-on-one test conducted on 3 students with an average result of 4.8 in the excellent category. A small group trial was conducted on 10 students with an average yield of 4.65 in the excellent category. Large group trials were conducted on 27 students and the results were obtained by looking at the average pretest score of 59.44 and the posttest value of 86.48.

The learning media of adobe flash cs6 assisted number kite is effective to be used in the concept of number place values in Singapore SDN 2. The results of the pretest and posttest values were calculated using the Paired Sample T-Test analysis technique with the acquisition of $t_{count} > t_{table}$ or $18,417 > 2,056$ which means that H_0 was rejected and H_a was accepted so there was a difference between before and after being treated using adobe flash assisted number kite media cs6.

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Development of kite number learning media help adobe flash cs6 on the concept of place number values in elementary school 2 Singaparna

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Abstract. Mathematics learning in class II Elementary School 2 Singaparna there are detention in learning material concept of place number values. Detention is when the teacher teaches the value of the concept of place numbers, students do not understand the material so that the teacher must explain repeatedly to students who have learning difficulties. The average value of students from 32 people is reaching 75,75, and teacher experience detention and limitations in making learning media truly suitable and in accordance with the material to be taught. This time teacher in teaching the material only use learning media by using objects in the environment. There is an active student response in learning, some are still not active because they do not understand even when learning using media. The problem if not resolved as soon as possible will have an impact on student learning achievement and hamper the subsequent learning material as in addition and subtraction operation material. By developing learning media that are interesting for students, can make students become more active, and fun in learning. Kite number learning media can also help students to more easily understand the material concepts of place number values. This study aims to develop and test effectiveness kite number learning media help adobe flash cs6 on the concept of place number values in Elementary School 2 Singaparna. The research method used is the development method with research design development or R&D (Research and Development). This research was carried out in Elementary School 2 Singaparna Sub-District Singaparna Districts Tasikmalaya in class II students as many as 32 people. The data analysis technique used in this study is qualitative and quantitative data analysis techniques. Data collection techniques in this study used questionnaire and pretest-posttest. Quantitative data analysis techniques use descriptive statistics. Development results kite number learning media help adobe flash cs6 on the concept of place number values already meet valid criteria. The results of the material expert validation reached a validity level of 4,66 with a very good category. The results of the media expert validation reached a validity level of 4,73 with a very good category. The results of teacher expert validation reached a validity level of 4,83 with a very good category. Product trials, which include one-on-one trails, get an average score of 4,8 with a very good category and small group trials got an average score of 4,65 with a very good category. The results of a large group trial in the application of learning in class, the results of the pretest students get a value of 59,44 and the posttest results get a value of 86,48. Based on the results of the analysis using



paired sampel t-test statistics to produce $t_{\text{count}} 18,417$ and $t_{\text{table}} 2,056$ which mean $t_{\text{count}} > t_{\text{table}}$, So it can be concluded that there are significant differences between before and after using the kite number learning media help adobe flash cs6 on the concept of place number values in Elementary School 2 Singaparna.

1. Introduction

Mathematics learning is given to students at every level of education. The purpose of learning mathematics is so that students are skilled in the field of mathematics studies. In addition to being skilled in the field of mathematics studies students must also be able to apply mathematical sciences as a provision in daily life to live in the midst of the society in which they live. Mathematics is one of the fields of study at every level of education. Mathematics according to Susanto (2016: 183) is abstract ideas that contain symbols and must first understand the concept before manipulating symbols [11]. The need for mathematical applications according to Susanto (2016: 185) is not only for daily needs but also needed to support the world of work and support the development needs of science [11]. Therefore, mathematics is a field of study that must be well mastered by students, especially starting from elementary school age.

In learning mathematics in class II SDN 2 Singaparna based on the results of an interview on January 17, 2019 there were several obstacles in learning the material concept of place number values. That obstacle is when the teacher teaches the concept of place value numbers, students do not understand the material so the teacher must explain repeatedly, especially for students who have learning difficulties. The overall average value of 32 students in learning the concept of place number values in class II is 75.75. In addition, teachers experience obstacles in making learning media, namely teachers have difficulty in expressing ideas to make learning media more attractive to students and can facilitate a variety of student learning styles so that media that is made is really suitable for students and in accordance with the material will be taught. Teachers experience time constraints in making learning media that takes a long time and the material to be delivered is not only a lot of material to the concept of place numbers, the teacher in using media when learning only uses modest learning media. At present the teacher in teaching material concept of place value numbers in class II SDN 2 Singaparna uses only modest learning media by utilizing objects in the surrounding environment. For example when teaching the concept of the place value of the teacher using the media images, stones, matches, or sticks as concrete objects in learning. Student responses in learning the concept of the value of places where some are active and some are still not active even though in learning using media.

These problems if not resolved immediately will have an impact on student achievement and hamper further learning material such as the addition and subtraction operation material. Before studying the material addition and subtraction operations, students must understand the value of the place of numbers in advance to add numbers that belong to hundreds, tens, and units. This is in line with the opinion expressed by Hudojo in Sundayana (2016: 29) that [10]:

In the process of learning mathematics, the principle of learning must first be chosen, so that when learning mathematics can take place smoothly, for example learning concept B which is based on concept A. Without understanding concept A, it is impossible for the person to understand concept B. This means that learning mathematics must be gradual and sequentially and basing on past learning experiences.

Based on the above problems, the writer is interested in developing learning media that are interesting for students, can make students become more active, and fun in learning. The media of learning kite numbers can also help students more easily understand the material concept of the place value of numbers.

In this study, researchers will develop learning media kite numbers. Therefore, researchers focus on the development of adobe flash cs6 numbered kite learning media on the concept of place number values in Singapore SDN 2.

2. Kite Number Learning Media

2.1. Definition Number Learning Media

Kite number learning media is a learning media that can be used to assist teachers in conveying the concept of place number values in mathematics. In addition, the existence of this learning media can make it easier for students to understand the concept of place number values to determine place values starting from hundreds, tens, and units and value of numbers. The media of learning kite numbers when viewed from its nature is included in the audio visual media aided by adobe flash cs6 because the learning media of kite numbers is made a number kite media application in which there is a menu of instructions for use which contains procedures for using the media and will the voice of the voice appeared. Adobe Flash CS6 is a software or software that has been updated from the previous version. Versions of Adobe Flash before Adobe Flash CS6 include Adobe Flash CS3, Adobe Flash CS4, and Adobe Flash CS5. Adobe flash cs6 according to Island Script in Fatimah (2016: 24) is software or graphics software that can create graphic animation objects that can be designed directly as you wish without having to be supported by using graphics software such as illustrator or photoshop. Adobe Flash CS6 features more complete and not owned by Adobe Flash previous versions [3]. Adobe flash cs6 according to Ariesto Hadi Sutopo in Fatimah (2016: 25) has several advantages when compared to other programs. In Adobe Flas CS6 in making various animations it is very easy and users can create animations with free movements according to the concept of the desired animation scene. In addition, for making animations or interactive teaching materials it is also very easy to use by users because the tools, templates and components available in Adobe Flash CS6 are available, easy to use, and ready to use. Adobe Flash CS6 produces small file sizes that are flexible and can be converted into swf, html, jpg, png, exe, and mov type files [3]. In the number kite media there is a learning menu that is a menu that functions for students to learn the concept of place number values while playing moving cards according to the place value. The next menu is the practice menu and quiz that contains material questions on the concept of place numbers as a means for students to learn to work on problems.

2.2. Reason Naming Media Kite Number Learning Media

This learning media is referred to as the kite learning media because in this learning media there are a number of kite-shaped number cards. In addition, there is also a picture of a coin, a picture of a plate of strawberries containing 10 pieces, and a picture of a match to concretize the translation of the concept of place number values. At the bottom of each picture that symbolizes the place value of hundreds, tens, and this unit is given a spare box to store coins, a picture of a strawberry plate containing 10 pieces, and a picture of a match as an explanation of the concept of numbers. For example when given a question about number 323, the number in the hundreds place is number 3, then the coins stored in the spare box are 3 pieces because every 1 coin has a value of 100. In the tens place is the number 2, then a picture of one strawberry plate stored on 2 pieces of reserve box, because each picture of one plate of strawberries containing 10 pieces has a value of 10. The last number 3 has a unit place value, the picture of a matchbox stored in the spare box is 3 pieces because every 1 piece of lighters has a value of 1. After completing the three drawings in the spare box, the students then count the number of images in each spare box and write down the number by taking a kite card and store the number cards in the hundreds, tens, and units. When students add up the picture in the spare box and write the amount on the lines of hundreds, tens, and units, students will know the value of a number on a symbol. For example, if the question is 323, then the number of coins in the hundreds of red reserve boxes is 3 and the number is 300, then students take the kite in red number 3 and store it in the hundreds line. In the dozens of blue spare boxes there are 2 strawberry plates, each plate containing 10 strawberries and the total number is 20, then students take the kite blue number 2 and stored in the tens line. In the yellow dozens of spare boxes there are 3 matches and the number is 3, then students take the kite yellow number 3 and stored in the unit line. The number value in the 323 number symbol problem is $300 + 20 + 3$.

The spare box placed under the coin image, the picture of a strawberry plate containing 10 pieces, and the picture of a match aimed to provide an understanding of the concept that each number in a number

has a different place value even though the numbers are the same. As in the example number 3 the first has a place value of hundreds while the last number 3 in the third position has a unit place value. Beneath this reserve box, there is a translation of the number of numbers that requires hundreds, tens and units. In this media in the upper right corner is equipped with a number board or can be called a kite for giving questions. Under the number board or called the character kite there are three boxes lined down as a storage area for a collection of coin images, a picture of a strawberry plate containing 10 pieces, and a picture of a match.

3. Learning Media

Along with the development and progress of science and technology pushes to make updates in the use of the results of educational technology in the learning process. Teachers are required to be able to use the tools provided by the school so that the learning objectives expected by the school can be achieved optimally. In addition to teachers being required to be able to use the tools that are already available in schools, teachers must also be able to make learning media if there are no learning media available in schools that can support the learning materials that will be delivered to students. In the process of teaching and learning media according to Arsyad (2015: 3) is defined as graphic, photographic or electronic tools that function to process visual and verbal information again [1]. Learning media is a part that can help the teaching and learning process so that learning objectives can be achieved properly. In addition, Hamalik in Maolani (2017: 159) states that learning media are all things that can be used to convey messages or information contained in the material delivered, stimulating students 'minds to be more developed, stimulating students' feelings, concerns, and wishes because by the existence of media students become motivated to learn the material that will be delivered by the teacher so that it can encourage the learning process and be able to deliver students in achieving learning goals [7].

Learning media as a tool in learning activities according to Sanaky in Sundayana (2016: 9) has a function to stimulate students in learning by presenting duplication of actual objects and step objects, making from abstract concepts to concrete concepts, giving a common perception, overcome the obstacles of time, distance, place and the amount of distance that is not possible, present information consistently, the learning atmosphere becomes stressed, relaxed and interesting so that learning objectives can be achieved [10].

4. Concept of Place Number Values

Numbers are mathematical concepts used for enumeration and measurement. Number is a term to express the number or amount of something. Symbols or symbols used to represent a number are called numbers or symbols of numbers. Understanding of numbers according to Febriyanti & Prastowo (2014: 31) is a collection of numbers that rank as units, tens, hundreds, thousands, and so on [4]. Following is the arrangement of place values:

- Unit numbers are numbers arranged from numbers 0 to 9.
- Tens numbers are numbers arranged starting from 10-99.
- Hundreds are numbers arranged starting with numbers 100-999.
- Thousands are numbers arranged from numbers 1,000-9,999.

Place value according to Haryono, et al (2014: 49) can be interpreted as the value of a number in a number that has a place value with various levels depending on the location of a number. The level of the place consists of units, tens, hundreds, thousands, tens of thousands and so on [6]. This opinion is in line with the opinion of Untoro & the Indonesian Teachers Team (2010: 2) that the place value of a number is a number composed of several numbers, where each number has a different place value depending on its location [12]. According to Seputra & Amin in Haryono (2014: 51) that the concept of place value numbers has an example of the number 15, number 1 has a value of tens and number 5 has a unit value. Place value 1 is ten, value is 10, place value 5 is unit, value is 5 [6]. The value of hundreds of places according to Gunanto & Adhalia (2016: 9) there are three numbers where each number has a different value according to the place. For example as in the number 333 consists of 3

numbers. The place value at the left 3 point is hundreds and has a value of 300, the place value at number three in the middle position is tens and has a value of 30, and the value of number 3 at the rightmost position is the place value and has a value of 3 [5]. So, it can be concluded that the place value of a number is a number that has a different place value depending on its location. The place values include units, tens, hundreds, thousands, tens of thousands, and hundreds of thousands. Numeration that is widely used by people today is using a place value system. The system is a Hindu-Arabic numeration system. Hindu-Arabic numeration system is a numeration system that uses 10 digits or digits, namely 0, 1, 2, 3, 4, 5, 6, 7, 8, 9. In general according to Haryono (2014: 50) that numeracy is widely used by people currently using the place value system is a Hindu-Arabic numeration system. The Hindu-Arabic numeration system is also called the decimal numeration system [6]. According to Troutman & Lichtenberg in Haryono (2014: 50) that the Hindu-Arabic numeration system has several characteristics related to the place value of a number including the following:

4.1. *Contains a ten base system.* This means that every ten units are grouped into one tens, every ten tens into one hundred, and so on. So at the symbol base number ten, the rightmost place is a unit place with a place value of one, the place to the left of the place is tens with a place value of ten, and so on [6].

4.2. *Using a place value system.* For example at number 554321, the place value is as follows [6]:



Figure 1. Mapping place value of numbers

Based on the above opinion it can be concluded that the Arabic numeration system is a numeration system that has a base number of ten and uses a place value system of hundreds of thousands, tens of thousands, thousands, hundreds, tens, and units.

5. Method

This research belongs to the type and design of research or development (R&D). Research and Development (R&D) method according to Sugiyono (2016: 407) is used to produce products and test the effectiveness of the products produced. To be able to produce a particular product, it is used research that is needs analysis and the product is tested for its effectiveness in order to function in the wider community. The product to be developed in this research is the learning media of kite numbers for mathematics subjects in grade II elementary school on the concept of place number values. The development of this research was carried out until the product trial phase, namely the effectiveness test and product revision, the seventh stage. The research was carried out until the product trial phase because in this study it did not develop to the stage of widely used trials, final product revisions, and mass production. Following are the steps of the adaptation research model from Sugiyono [9]:

5.1. Potential and Problems

The first step before developing a product, it must first determine the potential and problems contained in the field. To find out the potential and problems contained in the field, then in this study interviews were conducted first. The interview was conducted with the second grade teacher of Singapore SDN 2

namely Dede Rokayah, S.Pd regarding mathematics learning on the concept of place number values to determine the learning media used, student responses during learning, the learning models used, how to teach the concept of place number value material, and student achievement in the form of values obtained by students in the material concept of place value number.

5.2. *Analysis of Similar Learning Media*

After the potentials and problems are obtained, the next step is collecting data. Data collection at this stage is gathering various information that can be used as material for product planning and can overcome problems found in the field. To overcome the problem in learning material concept of place values, researchers will develop learning media products. Researchers are looking for various information as reference materials for making learning media on the concept of place number values. In developing the media for learning kite numbers, researchers obtained information as reference material about the media used for learning the material concept of place number values. The media are media bags of numbers according to Mayasa in Darmawan (2014: 14-15) the number bags are square with four bags in the center of the main box. This media serves as a determinant of the value of a number, namely units, tens, hundreds, and thousands. Determination of the number of a number on the media using a straw. If one straw is placed in a thousand bag, it is worth thousands of places and so on [2]. In addition to the media bag of numbers, the media reference used to teach the material concept of place number values is the learning trajectory design that is to classify place values of hundreds, tens, and units by using ice cream sticks media that are bound by students every ten pieces of ice cream sticks then in put it into the scar bag, dozens, and units [8].

5.3. *Product Design*

The design of kite learning media development in this study is the first step that must be prepared, namely creating a story board of kite learning media that is the design or sketch of the kite learning media application to be developed, so that it can produce a picture or concept from the application that will be generated. The second step is to create a flowchart view. Flowchart view learning media of kite numbers is a flow chart that contains to show the direction of the flow of activities that show the sequence of procedures and processes of several files on learning media kite numbers. The third step is to make a way to use kobe media assisted by Adobe Flash CS6.

5.4. *Design Validation*

Design or product validation is an activity to assess the design of media development and provide improvements and improvements so that the media can be used effectively and efficiently. The validation of learning media of kite numbers is done by presenting experts or experts. The experts presented were material experts, media experts, and teachers.

5.5. *Design Improvement / Design Revision*

After the media learning the number kite is validated by media experts, material experts, and teachers then data analysis and product revisions are carried out. The product revision is based on input and advice from media experts, material experts, and teachers.

5.6. *Product Trial*

The learning media for kite numbers was tried out. In testing this product there are three stages, as follows:

- The one-on-one trial is a trial conducted on 3 students followed by data analysis and product revisions
- Small group trials namely trials conducted on 10 students followed by data analysis and product revisions.
- Large group trials namely trials conducted on 32 students followed by data analysis and product revisions. In addition, at the end of the trial in this large group the effectiveness of the media

will be tested. This test was conducted to determine the effectiveness of the learning media of kite numbers on the concept of place number values in SDN 2 Singaparna. This effectiveness test aims to find out the significance of learning differences in the material concept of the place value of numbers in SDN 2 Singaparna between before and after being treated in the form of the use of learning media kite numbers.

5.7. Product Revision

At this stage the researcher made a product revision based on the results of data analysis, inputs, and responses from the results of one-on-one trials, small-group tests, and large-group tests. The results of the analysis are used as input material to revise the product after each trial run as an improvement material for the next, so that the learning media of kite numbers can become a finished product.

6. Results and Discussion

The resulting learning media is then subjected to product validation. The product validation stage is carried out by material experts, media experts, and teachers. Each expert provides an assessment and input or suggestion through a questionnaire. Validation by material experts is done twice. Suggestions or input provided on stage I validation include sound must be improved, images contained in the media must have relevant meaning and be connected to the material to show the value of hundreds, tens, and units, the media needs to be added with some features, it is recommended to make a form for help with the assessment of exercises in learning. The following is a table of the results of the material expert validation in stage I:

Table 1. Recapitulation Result of Material Expert Validation Stage I

No.	Aspect	Aspect Value	Average Score	Category
1.	Format	8	4	Good
2.	Content	14	3,5	Good
3.	Language	5	1,66	Very Deficient
4.	Learning	7	2,33	Deficient
Amount		34	2,83	Enough

The results of the validation of material experts in stage I, the values obtained from all aspects get a value of 2.83 and fall into the "Fair" category. The results of the expert validation of the material in stage I of this learning media kite assisted number adobe flash cs6 were declared feasible to use with revision. After revision, validation will be carried out again in stage II. Suggestions and entry or input provided by material experts in validation phase II, namely in the quiz menu 1-5 must be included Basic Competency (KD) and indicators, and pictures that symbolize dozens of learning menus should be replaced because they are less relevant. The following is an evaluation of the results of the material expert validation in stage II:

Table 2. Recapitulation Result of Material Expert Validation Stage II

No.	Aspect	Aspect Value	Average Score	Category
1.	Format	9	4,5	Very Good
2.	Content	19	4,75	Very Good
3.	Language	15	5	Very Good
4.	Learning	13	4,33	Very Good
Amount		56	4,66	Very Good

Overall data based on the results of the validation of material experts in stage II obtained an average of 4.66 with the category "Very Good", so that the learning media of kite adobe flash cs6-assisted numbers is feasible for trial use. Validation was carried out by media experts twice. Suggestions or input provided by media experts in the validation of phase I, namely the voice of the guide on the instructions menu is attempted with a female voice and the voice must be clearer, the instructions menu must be added to the instructions or functions of the buttons used on the learning media, and a menu must be added. profile and included the researcher profile. In the expert phase II validation there was no suggestion or input. The following is a table of results of media expert validation in stage I:

Table 3. Recapitulation Result of Media Expert Validation Stage I

No.	Aspect	Value Aspect	Average Score	Category
1.	Display	28	3,11	Enough
2.	Programming	21	3,5	Good
Amount		49	3,26	Enough

The results of the validation of media experts in stage I, the values obtained from all aspects get a value of 3.26 and are included in the category of "Enough". The results of the validation of media experts in phase I learning media kite number assisted by adobe flash cs6 were declared feasible to use with revision. After making improvements or revisions based on the results of stage I validation then stage II is validated. Following are the results of the stage II material expert validation:

Table 4. Recapitulation Result of Media Expert Validation Stage II

No.	Aspect	Value Aspect	Average Score	Category
1.	Display	42	4,66	Very Good
2.	Programming	29	4,83	Very Good
Amount		71	4,73	Very Good

Based on the results of the validation of the media as a whole covering aspects of the feasibility of the display and the feasibility of programming obtained an average of 4.73 with the category "Very Good", so that the learning media of adobe flash aided cs6 assisted numbers is suitable for trial use. Teacher validation is done twice. Suggestions or input provided in stage I is to make it more interesting the pictures that appear should be adjusted to the theme which is about living in harmony. In addition, images must be raised relating to the theme of harmonious life relating to Core Competencies (KI) 1, namely spiritual attitudes and Core Competencies (KI) 2, namely social attitudes. In the teacher validation stage II there are no revisions or suggestions and input from the teacher. The following are the results of the validation of the first and second stage teachers:

Table 5. Recapitulation Result of Teacher Stage I dan Stage II

No.	Aspect	Value Aspect	Average Score	Category
1.	Format	10	5	Very Good
2.	Content	19	4,75	Very Good
3.	Language	15	5	Very Good
4.	Learning	14	4,66	Very Good
Amount Score		58	4,83	Very Good

Overall data based on the results of teacher validation in stages I and stage II which showed the assessment of learning media kobe adobe flash assisted number cs6 obtained an average of 4.83 with the category of "Very Good", so that the learning media of adobe flash assisted number kites CS6 is suitable for trial use. After the validation phase is completed, the product trial is then performed. Product trials are carried out in three stages, one on one trials, small group test, and large group test. One-on-one trials were conducted on three students. The following are the results of one-on-one trials:

Table 6. Recapitulation Result of One on OneTrials

No.	Name of Learner	Value Aspect			Average Score	Category
		Display	Programming	Learning		
1.	Ersa Nopitasari	38	18	14	4,6	Very Good
2.	Nisayuliani	39	20	15	4,93	Very Good
3.	Rena Dewi Humaira	39	19	15	4,86	Very Good
Amount Score		58			4,83	Very Good

Based on the results of one-on-one trial data analysis, the overall score is an average of 4.8 and is categorized as "Very Good" and there are no suggestions and input for improvement or revision. According to the three students based on the results of research on one-on-one trials that learning by using kite learning media assisted by adobe flash cs6 is more understanding, very helpful in learning the concept of place number values, it's easier to determine place values and number values. In addition, viewed from the aspect of the appearance of learning media kite assisted by Adobe Flash CS6 is very interesting, how to use media easily understood, the colors used in the media are contrast and clear, the sound contained in the media can be heard clearly, with music making media becomes more interesting, and the language contained in the media is easy to understand. Images, text, and numbers displayed on the media can be read and seen clearly, each button and button contained in the media menu are placed in the same place so that it is easier. Viewed from the aspect of programming the buttons used on each menu make it easier for students to operate the media, the kite card is easy to move, and the program when used runs quickly and can be used easily. Thus, the learning media of adobe flash cs6 assisted number kites based on the results of one-on-one trials is feasible and effective to be used as learning media on the concept of place values for mathematics subjects. A small group test was conducted on ten students. Following are the results of small group test:

Table 7. Recapitulation Result of Small Group Test

No.	Name of Learner	Value Aspect			Average Score	Category
		Display	Programming	Learning		
1.	Agis Triatmi R	39	19	15	4,86	Very Good
2.	Arifin Nugraha	39	19	15	4,86	Very Good
3.	Denis Nur M	36	19	13	4,53	Very Good
4.	Ihsan Hilmi N R	36	18	14	4,53	Very Good
5.	Mirna Nabila	36	15	14	4,53	Very Good
6.	Moch Albi F A	37	19	14	4,66	Very Good
7.	Naira Auriedia	37	19	15	4,73	Very Good
8.	Nugi Sugiro R	36	19	13	4,53	Very Good
9.	Saina Syahladikta	39	19	15	4,86	Very Good
10.	Yoga Putra P	36	19	14	4,6	Very Good
Amount Score		58			4,83	Very Good

Based on the results of the analysis of small group trial data, overall the average score is 4.65 and is categorized as "Very Good" and there are no suggestions and input for improvement or revision. According to ten students based on the results of research on small group trials that learning by using kite learning media assisted by adobe flash cs6 is more understanding, can help in learning the concept of place number values, it is easier to determine place values and number values. In addition, viewed from the aspect of the appearance of learning media kite assisted by Adobe Flash CS6 is very interesting, how to use media easily understood, the colors used in the media are contrast and clear, the sound contained in the media can be heard clearly, with music making media becomes more interesting, and the language contained in the media is easy to understand. Images, text, and numbers displayed on the media can be read and seen clearly, each button and button contained in the media menu are placed in the same place so that it is easier. Seen from the programming aspect, the buttons used on each menu make it easier for students to operate the media, the kite card is easy to move, and the program when used runs quickly and can be used easily. Thus, in this case the learning media of adobe flash cs6 assisted kite numbers based on the results of small group tests is feasible and effective to be used as a learning medium on the concept of place values for mathematics subjects. Large group test were conducted on 27 students. In the large group tests stage, students are given action as much as 3 meetings. Allocation at each meeting is 2 x 35 minutes. The following are the results of a large group tests:

Table 8. Recapitulation of Value and Effectiveness of Media

No.	Name of Learner	Pretest Value (x)	Posttest Value (y)	Normal Gain	Quality Effectiveness Level
1.	Aidil Alfariji	40	85	0,75	High
2.	Aji Adli Saputra	55	75	0,44	Medium
3.	Albi Prayoga Putra	55	85	0,66	Medium
4.	Arfin Nugraha	55	80	0,55	Medium
5.	Denis Nur Muhamad	75	90	0,6	Medium
6.	Devika Wulan Sarisha	50	80	0,6	Medium
7.	Ersa Nopitasari	75	95	0,8	High
8.	Fuji Ramadhan	50	80	0,6	Medium
9.	Fuji Fauziah	60	85	0,62	Medium
10.	Ineu Kiara Sakti	50	80	0,6	Medium
11.	Luthfiah Naila Nur. H	45	85	0,72	High
12.	Miar Melgani Putri	55	85	0,66	Medium
13.	Mirna Nabila	60	85	0,62	Medium
14.	Moch Albi FA	60	85	0,62	Medium
15.	Muhamad Rifal AL	50	80	0,6	Medium
16.	Naira Auriella	50	85	0,7	Medium
17.	Nayla Nur Akhira	55	80	0,55	Medium
18.	Nisayuliani	85	100	1	High
19.	Nugi Sugiro R	65	85	0,57	Medium
20.	Rena Dewi Humaira	75	95	0,8	High
21.	Rini Mulyani	45	80	0,63	Medium
22.	Romi Muhamad Romli	60	85	0,62	Medium
23.	Saina Syahladikta	65	100	1	High
24.	Wulan Sari Pratiwi	60	90	0,75	High
25.	Yoga Putra Pratama	70	90	0,66	Medium
26.	Ihsan Hilmi Nur Rojabi	75	90	0,6	Medium
27.	Agistriatmi Ramdani	65	100	1	High
Amount		1605	2335	0,66	Medium
Average		59,44	86,48		

Based on data table 32 shows that the average pretest value is 59.44 and the average posttest value is 84.48. This shows that the posttest value is higher than the pretest value. The overall quality value of the effectiveness of the media is getting a value of 0.66 with the category "Medium". The pretest and posttest values will then be analyzed by Paired Sample T-Test with a significance level of 0.05. The following is the data from the analysis of the Paired Sample T-Test test:

Table 9. Recapitulation Results of Paired Sampel T-Test

	Paired Samples Test					t	df	Sig. (2-tailed)
	Paired Differences				95% Interval of The Difference			
	Mean	Std. Deviation	Std. Error Mean					
Pair 1 Pretest-Posttest	-23.037	7.628	1.468	-30.055	Lower Upper	-18.417 24.019	26	.000

Based on the data table 33 test results Paired Sample T-Test shows that the t_{count} is 18.417 with df 26, so the t_{table} is 2.056 with a significant level of 0.05 then $t_{count} > t_{table}$ or $18.417 > 2.056$. Thus, it can be concluded that H_0 is rejected and H_a is accepted, meaning that there is a significant difference between before and after using the adobe flash assisted kite media learning aid cs6 on the concept of

place number values in Singapore SDN 2. Judging from the results of the average student posttest score of 86.48 is already above the Minimum Completeness Criteria in Mathematics which is 75. Based on the average results of the posttest score of 86.48 is greater than the pretest value of 59.44, then the kite media assisted by Adobe Flash CS6 can be said to be feasible and effective for use in mathematics subject matter concept of place number values.

7. Conclusions

The development of adobe flash cs6 assisted number kite media in its development first saw potential problems by conducting interviews with Second Class Teachers in Primary Schools. After finding a problem, then do the data collection by means of analyzing similar media. The next step is to create a story board, flowchart view, and how to use the kite media assisted by Adobe Flash CS6. Then, the media design contained in the story board and flowchart view, and how to use the media is poured into Adobe Flash CS6 software to become a kite media assisted by Adobe Flash CS6. When the media is ready, at the next stage the design validation is carried out. Design validation is done by material experts, media experts, and teachers. The results of design validation from material experts are 4.66 with very good category, media experts are 4.73 with very good categories, and 4.83 teachers with very good categories so that the media is valid and worth testing. The next stage is product testing. Trials on the media carried out 3 times, namely one-on-one trials, small group trials, and large group trials. One-on-one test conducted on 3 students with an average result of 4.8 in the excellent category. A small group trial was conducted on 10 students with an average yield of 4.65 in the excellent category. Large group trials were conducted on 27 students and the results were obtained by looking at the average pretest score of 59.44 and the posttest value of 86.48.

The learning media of adobe flash cs6 assisted number kite is effective to be used in the concept of number place values in Singapore SDN 2. The results of the pretest and posttest values were calculated using the Paired Sample T-Test analysis technique with the acquisition of $t_{count} > t_{table}$ or $18,417 > 2,056$ which means that H_0 was rejected and H_a was accepted so there was a difference between before and after being treated using adobe flash assisted number kite media cs6.

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