

THE DEVELOPMENT OF MATHEMATIC INSTRUCTIONAL
MEDIA LESSON OF PLANE BASED ON 3D-STORYBOOK FOR
STUDENTS 3rd GRADE MI RAUDLATUL ULUM
KARANGPLOSO MALANG

THESIS

Presented to Faculty of Tarbiyah and Teaching Science of State Islamic
University of Maulana Malik Ibrahim Malang in partial fulfillment of the
requirement for the degree of Sarjana Pendidikan (S.Pd)

BY
IZZA NURMILLA
11140093



TEACHER EDUCATION OF ISLAMIC ELEMENTARY SCHOOL
FACULTY OF TARBIYAH AND TEACHING SCIENCES
THE STATE ISLAMIC UNIVERSITY OF MAULANA MALIK
IBRAHIM OF MALANG

2015

APPROVAL SHEET

THE DEVELOPMENT OF MATHEMATIC INSTRUCTIONAL MEDIA LESSON OF PLANE BASED ON 3D-STORYBOOK FOR STUDENTS 3rd GRADE MI RAUDLATUL ULUM KARANGPLOSO MALANG

THESIS

By

Izza Nurmillia
11140093

Approved by,
Advisor:

Dr. Abdussakir, M.Pd
NIP. 197510062003121001

Acknowledged by,
The Chief of Teacher Education of Islamic Elementary School Program

Dr. Muhammad Walid, M.A
NIP. 197308232000031002

LEGITIMATION SHEET

THE DEVELOPMENT OF MATHEMATIC INSTRUCTIONAL MEDIA LESSON OF PLANE BASED ON 3D-STORYBOOK FOR STUDENTS 3rd GRADE MI RAUDLATUL ULUM KARANGPLOSO MALANG

THESIS

Prepared and compiled by

Izza Nurmilla (11140093)

Has been defended in front of the board of examiners on

30th June, 2015 and has been stated

PASSED

And has been approved by the board of examiners as the requirement to exam an undergraduate Bachelor of Teacher Education of Elementary School (S.Pd)

The Board of Examiners	Signature
Chairman, <u>Hj. Siti Annijat M., M.Pd</u> NIP. 195709271982032001	
Secretary of The Hearing, <u>Dr. Abdussakir, M.Pd</u> NIP. 197510062003121001	
Advisor, <u>Dr. Abdussakir, M.Pd</u> NIP. 197510062003121001	
Main Examiner, <u>Dr. Muhammad Walid, M.A</u> NIP. 197308232000031002	

Legitimate,

Dean of Tarbiyah And Teaching Sciences Faculty of UIN Maliki Malang

Dr. H. Nur Ali, M.Pd

NIP. 196504031998031002

DEDICATION

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Praise to Allah Almighty for giving everything in my life. This thesis is a great effort in the realization of my aspiration. Shalawat and Salam always bless to our Prophet Muhammad SAW because of him we get the brilliant religion.

This thesis work is dedicated to my parents, **Mr Sumaji** and **Mrs Nur Azizah**, who have always loved me unconditionally, support me for everything that's best for me, and whose good examples have taught me to work hard for everything that I aspire to achieve. I also dedicate this thesis to my brother **Ilman Yazid** and also many thank to **my big family** and **my friends**, who has been support and encourage in my life. Hopefully this thesis could be the motivation to reach your dreams.

MOTTO

يَتَأْتِيهَا الَّذِينَ ءَامَنُوا إِذَا قِيلَ لَكُمْ تَفَسَّحُوا فِي الْمَجَالِسِ فَافْسَحُوا يَفْسَحِ اللَّهُ

لَكُمْ وَإِذَا قِيلَ اُنْشُرُوا فَانْشُرُوا يَرْفَعِ اللَّهُ الَّذِينَ ءَامَنُوا مِنْكُمْ وَالَّذِينَ أُوتُوا الْعِلْمَ

دَرَجَاتٍ ۚ وَاللَّهُ بِمَا تَعْمَلُونَ خَبِيرٌ ﴿١١﴾

There are no 'enough' words to study, as well as never too late to study for a science that will lead us into into benefits human to others

Dr. Abdussakir, M.Pd

The Lecturer of Science and Technology Faculty

The State Islamic University of Maulana Malik Ibrahim Malang

ADVISOR OFFICIAL NOTE

Matter : Thesis of Izza Nurmilla

Appendixes : 16 (four) Exemplar

Dear,

Dean of Tarbiyah and Teaching Science Faculty

The State Islamic University of Maulana Malik Ibrahim Malang

At

Malang

Assalamu'alaikum Wr. Wb

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

Name : Izza Nurmilla

NIM : 11140093

Program : Teacher Education of Islamic Elementary School

Title of Thesis : The Development of Mathematic Instructional Media Lesson of Plane Based on 3D-Storybook for Students 3rd Grade MI Raudlatul Ulum Karangploso Malang

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

Wassalamu'alaikum Wr. Wb

Advisor,

Dr. Abdussakir, M.Pd

NIP. 197510062003121001

STATEMENT LETTER

Hereby state that on this thesis there is no work that ever submitted to obtained a bachelor of education on one university, and as far as I know there is no work or opinion that ever written or published by another person, except for in writes that is referenced on this thesis and mentioned on the bibliography.

Malang, June 13 2015

Izza Nurmilla

TRANSLATION GUIDELINES OF ARAB LATIN

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

A. Font

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

B. Long Vocal

Vokal (a) long = â

Vokal (i) long = î

Vokal (u) long = û

C. Vokal Diftong

أَوْ = aw

أَيَّ = ay

أُو = û

إِي = î

PREFACE

Praise to Allah The All Merciful and The All Compassionate. Thanks to Allah because of all blessing and guidance, so the writer is able to finish this thesis of Research and Development that's study about "The Development Of Mathematic Teaching Book Material Of The Plane Based On 3d-Storybook For Students 3RD Grade Mi Raudlatul Ulum Karangploso Malang" as the final instruction for study activities on The State Islamic University of Maulana Malik Ibrahim Malang. Salawat and salam uninterruptedly extended to Prophet of Muhammad, and all the families, friends, and all Moeslem.

The aim of this thesis is the requirement for obtaining bachelor degree of education (S.Pd). The specific purpose of this thesis is as a discourse of education that is still a lot of things from an education that must be developed.

There is no pronounceable word that can be extended except the great gratitude to the excellency :

1. Prof. Dr. Mudjia Raharjo, M.Si., as Rector of The State Islamic University of Maulana Malik Ibrahim Malang.
2. Dr. H. Nur Ali, M.Pd., as Dean Faculty of Tarbiyah and Teaching Sciences, The State Islamic University of Maulana Malik Ibrahim Malang.
3. Dr. Muhammad Walid, M.A., as The Chief of Teacher Education of Islamic Elementary School Program.
4. Dr. Abdussakir, M.Pd., as Advisor who always give guidance and a lot of suggestion in order to complete the arrangement of research report.
5. Dr. Muhammad Walid, M.A., as design media expert that has taken time to provide validation and improvement suggestion for development product of media.
6. Yeni Tri Asmaningtias, M.Pd., as material of mathematics expert that has taken time to provide validation and improvement suggestion for development product of media.

7. Hj. Siti Annijat Maimunah, M.Pd., as linguist expert that has taken time to provide validation and improvement suggestion for development product of media.
8. Sulistina, S.PdI., as mathematics teacher at grade 3A in MI Raudlatul Ulum Karangploso Malang that has taken time to provide validation and improvement suggestion for development product of media.
9. All civitas of MI Raudlatul Ulum Malang especially student at grade 3A and headmaster of MI Raudlatul Ulum Karangploso Malang, thank you for the ease of research and permission has been granted.
10. My beloved parents, Mr. Sumaji and Mrs. Nur Azizah who has always love me, support me, teach me, and give me suggestion in everything I do, who always pray for me and give me spirit. Thus writer can solve graduate studies at The State Islamic University of Maulana Malik Ibrahim Malang.
11. All the colleagues of ICP PGMI 2011 who always company and give support to the writer in process of arrangement this thesis.
12. All my friends are ACDC class of Acceleration program, HMJ-PGMI management, and all of my friends in PGMI department, who have supported and prayed for me through out the process. Thank you for your understanding and encouragement in every moments in my life. Your friendship makes my life a wonderful and aslo colorfull. I cannot list all the names here, but you are always on my mind. This thesis is only a beginning of my journey.

Hopefully this simple thesis can be beneficial to all researchers and readers. This thesis is still a lot of shortcomings. Therefore, the author expects criticism and suggestions from all parties for the perfection of this thesis.

Malang, June 13, 2015

Writer

TABLE OF CONTENT

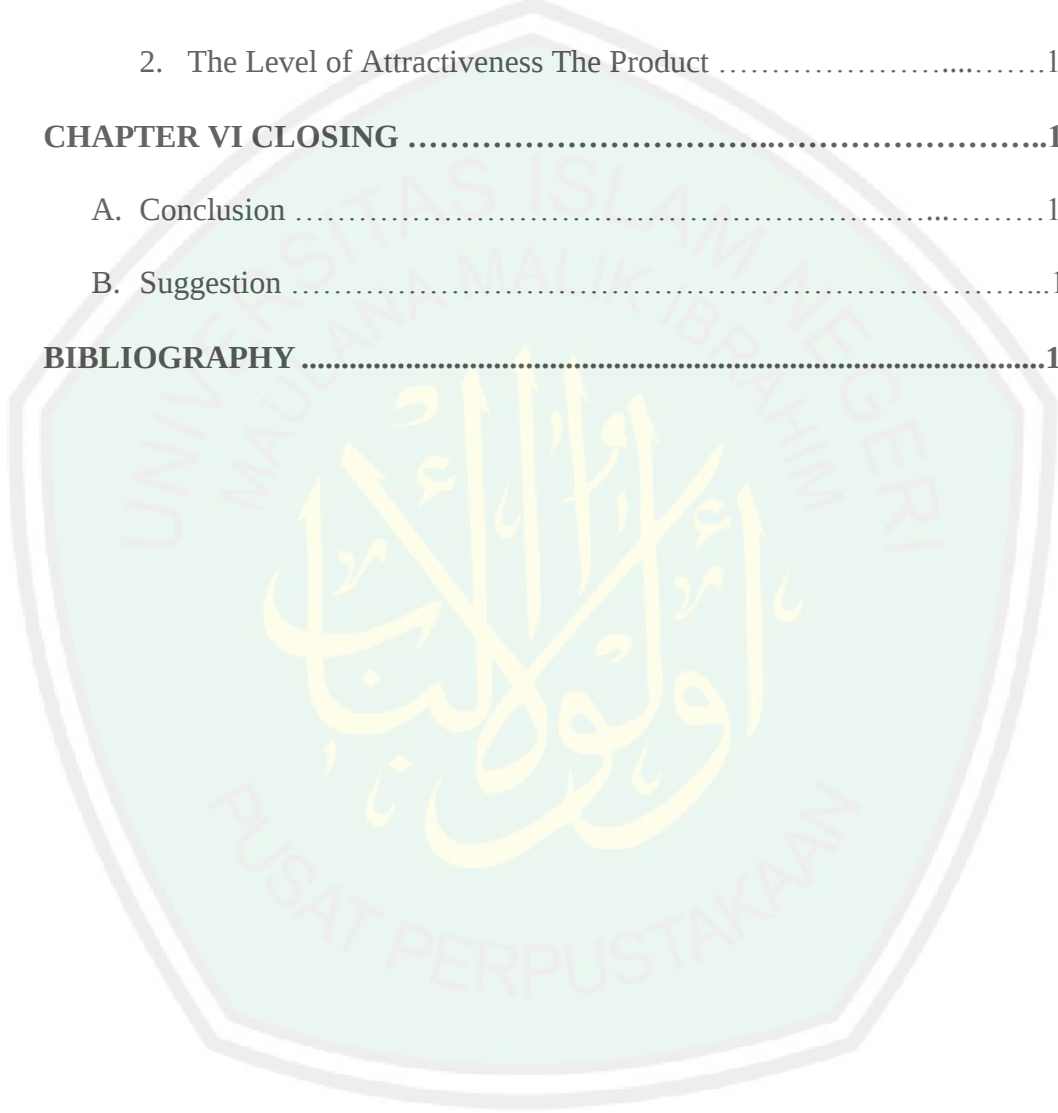
Approval Sheet	ii
Dedication	iii
Motto	iv
Official Note.....	vi
Statement Letter.....	vii
Translation Guideness of Arab Latin.....	viii
Preface.....	ix
Table of Content.....	x
List of Table.....	xv
List of Figure	xvi
List of Appendixes	xvii
Abstract	xviii
CHAPTER I INTRODUCTION	1
A. The Background of Study	1
B. The Problem Formulation	4
C. The Limitation Problem	5
D. The Objectives of Study	6
E. The Benefit of Study	6
F. Produk Specification	7
G. Scope of Research	8
H. Research Orisinality	9

CHAPTER II STUDY OF LITERATURE	11
A. Based Instructional Media Development of 3D-Storybook	11
1. Definition of Instructional Media Development	11
2. Position Media Of Learning	12
3. Function / Role of Media Teaching	13
4. Use of Instructional Media Platform	16
5. Classification of Print Media	17
6. Characteristics of Instructional Media	20
7. Development of Visual Media (based 3D-Storybook)	21
8. Media Selection	24
9. Use of Media	26
B. Mathematics Education.....	28
1. Mathematical Sciences.....	28
2. The Characteristics of Mathematical Sciences	29
3. Mathematics for Elementary School.....	31
C. Plane Lesson of Math Third Class Of Elementary School	34
1. Definition Of Plane.....	34
2. Various Of Plane	35
a. Square	35
b. Ractangle	35
c. Triangle.....	36
d. Circle	37

CHAPTER III METHOD OF RESEARCH	39
A. Approach and Types of Research.....	39
B. Design Of Research	40
C. Procedure Research	41
1. Defining Step.....	41
2. Planning Step (Design).....	44
3. Development Step (Develope)	45
4. Disseminate Step	47
D. Subject Trial	49
E. Type Of Data.....	49
F. Data Collection Instrument	49
G. Data Analysis Techniques.....	50
1. Analysis of Feasibility Product	50
2. Analysis Of The Learning Results Test	52
CHAPTER IV THE RESULT OF RESEARCH AND DEVELOPMENT ..	54
A. Define Step.....	54
1. Preliminary Analysis	54
2. Student Analysis	55
3. Analysis Of Task.....	56
4. Analysis Of Concepts.....	56
5. Analysis Of The Learning Objectives.....	57
B. Design Step	57
1. Preparation Of Lesson In The Form Of A Story	58

2. Preparation Of Media Formats and Preliminary Design.....	58
C. Development Step	62
1. Analysis of Product Validation Data Result	62
a. Design Media Expert Validation.....	63
b. Mathematics Expert Validation.....	67
c. Linguists Expert Validation	71
d. Learning Expert Validation.....	75
D. Disseminate Step.....	79
1. Analysis Attractiveness Data of Product.....	79
2. Analysis Effectiveness Data of Product	83
CHAPTER V DISCUSSION	86
A. Analysis of Textbook Development.....	86
1. Analysis of Mathematics Textbook Development.....	86
2. Advantages and Disadvantages Development Results	87
B. Validation Data Analysis Expert.....	89
1. Questionnaire Score Determination of Validation Expert	89
2. Exposure Data of Design Media Validation Results.....	90
3. Exposure Data of Mathematics Validation Results	91
4. Exposure Data of Linguists Validation Results	93
5. Exposure Data of Learning Validation Results.....	94
C. Revised Product Development.....	96
D. Data Analysis of Field Trial.....	98
1. Attractiveness Data of Product.....	98

2. Effectiveness Data of Product.....	99
E. Analysis The Effectiveness And Attractiveness Product	101
1. Level of Effectiveness Products	101
2. The Level of Attractiveness The Product	102
CHAPTER VI CLOSING	104
A. Conclusion	104
B. Suggestion	106
BIBLIOGRAPHY	108

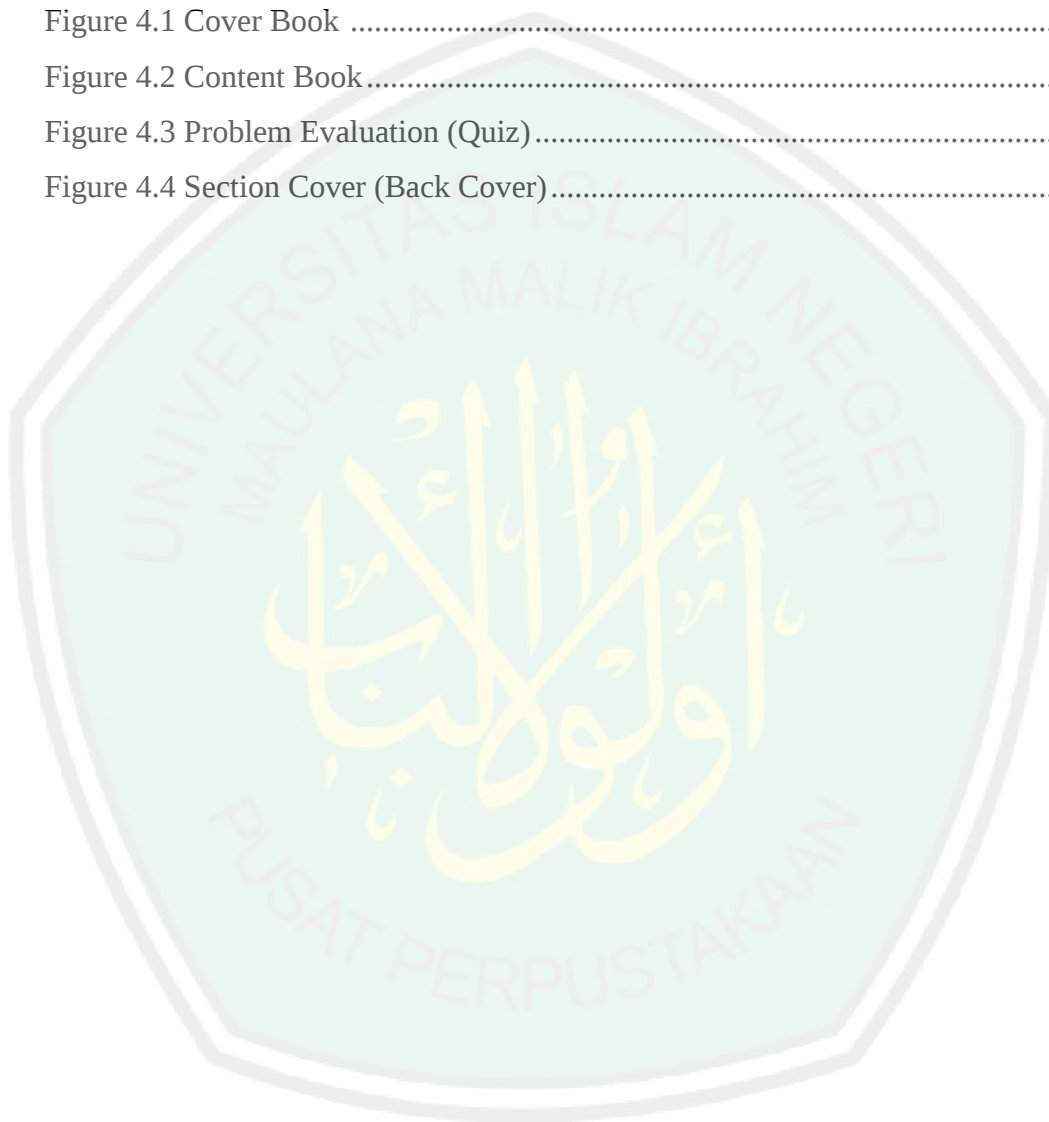


LIST OF TABLES

Table 2.1 Originality Research	9
Table 4.1 Score of Validation Criteria	63
Table 4.2 Assessment Design Media Expert	64
Table 4.3 Frequency Distribution Expert Level of Design Media Validity.....	65
Table 4.4 Suggestions Media Design Expert	65
Table 4.5 Revision Instructional Materials Based Validation Expert Media.....	66
Table 4.6 Mathematics Expert Assessment	67
Table 4.7 Frequency Distribution Expert Level of Mathematics Validity.....	68
Table 4.8 Suggestions Matter Expert	69
Table 4.9 Revision Instructional Based on Mathematics Expert Validation	70
Table 4.10 Assessment of Linguists	72
Table 4.11 Frequency Distribution Expert Level of Linguists Validity	73
Table 4.12 Suggestions Linguist	73
Table 4.13 Revised Instructional Based on Linguists Expert Validation	74
Table 4.14 Assessment Expert Learning Master Field of Study Mathematics ...	75
Table 4.15 Frequency Distribution Expert Level of Learning Validity.....	77
Table 4.16 Suggestions by The Learning Expert of Mathematics	78
Table 4.17 Field Trial Results.....	80
Table 4.18 Field Trial Results.....	81
Table 4.19 Assessment Field Trial Pre-Test and Post-Test	83

LIST OF FIGURES

Figure 3.1 4-D Model of development.....	40
Figure 4.1 Cover Book	59
Figure 4.2 Content Book.....	60
Figure 4.3 Problem Evaluation (Quiz).....	61
Figure 4.4 Section Cover (Back Cover).....	62



LIST OF APPENDIXS

1 st Appendix	: Research Licence
2 nd Appendix	: Research Certificate
3 rd Appendix	: Instrument Validation of Media by Design Media Expert
4 th Appendix	: Instrument Validation of Media by Mathematics Expert
5 th Appendix	: Instrument Validation of Media by Linguist Expert
6 th Appendix	: Instrument Validation of Media by Learning Expert
7 th Appendix	: Instrument Validation of Media by Student
8 th Appendix	: Pre-Test
9 th Appendix	: Post-Test
10 th Appendix	: Name List of Students
11 st Appendix	: Pre-Test Score Result
12 nd Appendix	: Pre-Test Score Result
13 rd Appendix	: Printout of Media
14 th Appendix	: Evidence of Consultation
15 th Appendix	: Activities Photographs
16 th Appendix	: Curriculum Vitae

ABSTRACT

Nurmilla, Izza. 2015. *The Development of Mathematic Instructional Media Lesson of Plane Based on 3D-Storybook for Students 3rd Grade MI Raudlatul Ulum Karangploso Malang*. Thesis, Teacher Education of Islamic Elementary School Program, Faculty of Tarbiyah and Teaching Sciences, The State Islamic University of Maulana Malik Ibrahim Malang. Advisor, Dr. Abdussakir, M.Pd

Mathematics is one subject that always studied from elementary school until high school or university. Mathematics is not just the collection of count formulation, but mathematics subject must understand the concept of material. Mathematics usually content with number, symbol, and many formulation that grow up from the reality life. One of the mathematics material that always exist in daily life is material of plane. Building, office, home, school, and many things other use the material concept of plane. So, many advantage can get from study material of plane can be applied everywhere and everytime in daily life.

The purpose of this research to produce instructional media lesson of plane based on 3D-Storybook for students 3rd grade in MI Raudlatul Ulum Karangploso Malang that is valid and effective. From the purpose, the researcher will develop learning book that usually use in learning activity to be more interesting and effective with make the new innovate to produce teaching book of mathematics based on 3D-Storybook with plane material.

To get the purpose, in this research used quantitative approach of Research and Development (R&D) that adaptation model developed by Thiagarajan and Sammel which consists of 4 stages development that is define, design, develop and disseminate. Developer uses this model will be more effective, simple, can saving more time, and can produce a good product of development. Validation step should be done before the product applied to students in learning activity. The research start with arrangement of teaching book based on 3D-Storybook that will be product of development. The next step is expert validation until the media is valid and doing the field trial to the subject trial. All of the step must doing with structured and get the valid declaration from score result by questionnaire and evaluation result from Pre-Test and Post-Test. Analysis of data result with count the average score from validation and field trial to getting the conclusion. After all of the step have done, the product of development that is teaching book based on 3D-storybook with material of plane can applied in teaching and learning activity.

From the result of research indicate about the produce of teaching book plane material based on 3D-Storybook for students 3rd grade in MI Raudlatul Ulum Karangploso Malang is valid, practical, and efficient that is shown in specific difference of score average student in Pre-Test is 71,2 and score average student in Post-Test is 90,3. And also from many score from validation result is 97,3 student that declare valid.

Key Words: 3D-Storybook, Material of Plane

ملخص

نور ميلا عزي. ٢٠١٥. تطوير مواد تعليمية الرياضيات القائمة على 3D-Storybook في مادة البناء المسطحة لطلاب الفصل الثالث في المدرسة الابتدائية روضة العلوم كرنج فلوسو مالانج. بحث جامعي. قسم تربية معلم المدرسة الابتدائية، كلية التربية والإسلامية، جامعة مولانا مالك إبراهيم الإسلامية الحكومية مالانج. المشرف: الدكتور عبد الشكير الماجستير.

الرياضيات هي واحدة من الموضوعات التي ستكون حاجة دائما إلى أن نتعلمها من مستوى المدارس الابتدائية إلى المرحلة الثانوية أو الجامعية. الرياضيات ليست مجموعة من الصيغ العد، ولكن أيضا في الرياضيات يجب أيضا فهم المفاهيم المواد المرتبطة. الرياضيات عادة تتكون من الأرقام، والرموز، وكثير من الصيغ تطورت تماما من المشاكل في الحياة الحقيقية. واحدة من المواد في الرياضيات التي تنشأ في الحياة اليومية مادة البناء المسطحة. حتى كثير من الاستفادة من تعليم مادة البناء المسطحة الرياضية التي يمكن تطبيقها في أي مكان وفي أي وقت، وبأي دور في الحياة اليومية.

والهدف من هذا البحث هو أن تسفر عن نتائج التطوير وهو الكتب الدراسية القائمة على 3D-Storybook في مادة البناء المسطحة لطلاب الفصل الثالث في المدرسة الابتدائية روضة العلوم كرنج فلوسو مالانج الصلاحية، والعملية، والكفاءة. وبناء على هذه الأهداف، تتور الباحثة الكتب المدرسية التي تستخدم عادة في أنشطة التعلم لتصبح أكثر جاذبية وفعالة لخلق الابتكارات الجديدة وهي إنتاج الكتب الدراسية القائمة على 3D-Storybook في مادة البناء المسطحة.

لتحقيق هذه الأهداف، يستخدم هذا البحث منهج البحث الكمي البحث والتطوير بنموذج البحوث التي قابلة للتكيف مع نموذج التطوير Samme و Thiagarajan الذي يتكون من أربع مراحل التطوير وهي التعريف، والتصميم (التخطيط)، والتطوير، والنشر. استخدمت الباحثة نموذج التطوير بسبب أبسط وأكثر فعالية، ويمكن توفير الوقت، ويؤدي إلى تطوير المنتجات الجيدة. ويجب أن يتم عملية التحقق من الصحة أولا قبل تطبيق المنتج للطلاب. بدأ هذا البحث في إعداد كتاب الرياضيات القائمة على 3D-Storybook التي ستكون

تطوير المنتجات. المرحلة التالية هي التحقق من الخبراء إلى وسائل نتائج التطوير صلاحية وأداء الاختبار الميداني من الموضوعات المحاكمة. جميع الخطوات المذكورة يجب أن نفعل منظما والحصول على صلاحية بناء على نتيجة اكتساب درجات على الاستبيان ونتائج التقويم من الاختبار القبلي والاختبار البعدي. ويتم تحليل البيانات بطريق حساب متوسط درجات نتائج التحقق من صلاحية والتجارب الميدانية إلى مزيد من الاستنتاجات التي يمكن استخلاصها. بعد كل مراحل عملها، الكتب المدرسية نتيجة من لمنتجات التطوير القائمة على 3D-Storybook يمكن تطبيقها في عملية التعليم والتعلم.

دلت النتائج أن منتج تطوير الكتب الدراسية الرياضيات القائمة على 3D-Storybook بمادة البناء المسطحة لطلاب الفصل الثالث في المدرسة الابتدائية روضة العلوم كرنج فلوسو صلاحية، وعملية، وكفاءة أنه يوضح من اختلافات محددة في استحواذ القيمة على متوسط الطالب في الإختبار القبلي ٧١.٢ واكتساب قيمة متوسط الطالب في الإختبار البعدي ٩٠.٣. وأيضا اكتساب متوازن من عملية التحقق من الصلاحية التي تساوي ٩٧.٣٪ من الطلاب صلاحية.

الكلمات الأساسية: 3D-Storybook، مادة البناء المسطحة

ABSTRAK

Nurmilla, Izza. 2015. Pengembangan MediaAjar Matematika berbasis 3D-Storybook pada materi bangun datar untuk siswa kelas 3 MI Raudlatul Ulum Karangploso Malang. Skripsi, Jurusan Pendidikan Guru Madrasah Ibtida'iyah, Fakultas Ilmu Tarbiyah Dan Keguruan, Universitas Islam Negeri Maulana Malik Ibrahim Malang. Pembimbing Skripsi: Dr. Abdussakir, M.Pd.

Matematika adalah salah satu mata pelajaran yang akan selalu dipelajari dari jenjang sekolah dasar sampai jenjang sekolah tinggi atau universitas. Matematika bukan hanya kumpulan dari rumus hitungan saja, akan tetapi dalam mata pelajaran matematika juga harus memahami terkait konsep materinya. Matematika biasanya terdiri dari angka, simbol, dan banyak rumus yang seluruhnya berkembang dari permasalahan di kehidupan nyata. Salah satu materi pada ilmu matematika yang sering muncul dalam kehidupan sehari-hari adalah materi bangun datar. Sehingga, banyak sekali manfaat dari mempelajari materi bangun datar matematika yang dapat diterapkan dimanapun dan kapanpun, dalam kehidupan sehari-hari.

Tujuan dari penelitian ini adalah untuk menghasilkan produk hasil pengembangan yaitu media ajar berbasis 3D-Storybook pada materi bangun datar kelas 3 (tiga) di MI Raudlatul Ulum Karangploso Malang yang valid dan efektif. Berdasarkan tujuan tersebut, peneliti akan mengembangkan media ajar yang biasanya digunakan dalam aktifitas pembelajaran untuk menjadi lebih menarik dan efisien dengan membuat inovasi baru yaitu menghasilkan media ajar matematika yang berbasis 3D-Storybook dengan materi bangun datar.

Untuk mencapai tujuan tersebut, penelitian ini menggunakan pendekatan penelitian kuantitatif Research and Development (R&D) dengan model penelitian yang beradaptasi pada model pengembangan Thiagarajan and Samme yang terdiri dari 4 tahap pengembangan yaitu definisi, desain (perencanaan), pengembangan, dan penyebaran. Peneliti menggunakan model pengembangan tersebut dikarenakan lebih sederhana, lebih efektif, dapat menghemat waktu, dan dapat menghasilkan produk pengembangan yang baik. Proses validasi harus dilakukan terlebih dahulu sebelum dilakukan penerapan produk kepada siswa. Penelitian ini dimulai dengan penyusunan buku ajar matematika berbasis 3D-Storybook yang akan menjadi produk pengembangan. Tahap selanjutnya adalah validasi ahli sampai media hasil pengembangan dinyatakan valid dan melakukan tahap uji coba lapangan terhadap subjek uji coba. Seluruh tahapan di atas harus dilakukan dengan terstruktur dan memperoleh pernyataan valid berdasarkan pada hasil perolehan skor pada questioner dan hasil evaluasi dari Pre-Test dan Post-Test. Analisis data hasil penelitian dilakukan dengan menghitung skor rata-rata dari hasil validasi dan uji coba lapangan untuk selanjutnya dapat ditarik kesimpulannya. Setelah seluruh tahapan dilakukan, buku ajar hasil dari produk pengembangan berbasis 3D-Storybook dapat diterapkan pada proses belajar mengajar.

Dari hasil penelitian menunjukkan bahwa produk pengembangan buku ajar matematika berbasis 3D-Storybook dengan materi bangun datar untuk siswa kelas 3 MI Raudlatul Ulum Karangploso Malang sudah dinyatakan valid dan efektif

yang dapat ditunjukkan dari perbedaan spesifik pada perolehan nilai rata-rata siswa pada Pre-Test yaitu sebesar 71,2 dan perolehan nilai rata-rata siswa pada Post-Test yaitu sebesar 90,3. Dan selain itu juga dari skor perolehan pada proses validasi yaitu sebesar 97,3% siswa menyatakan valid.

Kata Kunci: 3D-Storybook, Materi Bangun Datar



**THE DEVELOPMENT OF MATHEMATIC INSTRUCTIONAL
MEDIA LESSON OF PLANE BASED ON 3D-STORYBOOK
FOR STUDENTS 3rd GRADE MI RAUDLATUL ULUM
KARANGPLOSO MALANG**

THESIS

BY

IZZA NURMILLA

11140093



**DEPARTMENT OF TEACHER EDUCATION OF ISLAMIC
ELEMENTARY SCHOOL
FACULTY OF TARBIYAH AND TEACHING SCIENCES
THE STATE ISLAMIC UNIVERSITY OF MAULANA MALIK
IBRAHIM OF MALANG**

2015

ملخص

نور ميلا عزي. ٢٠١٥. تطوير مواد تعليمية الرياضيات القائمة على 3D-Storybook في مادة البناء المسطحة لطلاب الفصل الثالث في المدرسة الابتدائية روضة العلوم كرنج فلوسو مالانج. بحث جامعي. قسم تربية معلم المدرسة الابتدائية، كلية التربية والإسلامية، جامعة مولانا مالك إبراهيم الإسلامية الحكومية مالانج. المشرف: الدكتور عبد الشكير الماجستير.

الرياضيات هي واحدة من الموضوعات التي ستكون حاجة دائما إلى أن نتعلمها من مستوى المدارس الابتدائية إلى المرحلة الثانوية أو الجامعية. الرياضيات ليست مجموعة من الصيغ العد، ولكن أيضا في الرياضيات يجب أيضا فهم المفاهيم المواد المرتبطة. الرياضيات عادة تتكون من الأرقام، والرموز، وكثير من الصيغ تطورت تماما من المشاكل في الحياة الحقيقية. واحدة من المواد في الرياضيات التي تنشأ في الحياة اليومية مادة البناء المسطحة. حتى كثير من الاستفادة من تعليم مادة البناء المسطحة الرياضية التي يمكن تطبيقها في أي مكان وفي أي وقت، وبأي دور في الحياة اليومية.

والهدف من هذا البحث هو أن تسفر عن نتائج التطوير وهو الكتب الدراسية القائمة على 3D-Storybook في مادة البناء المسطحة لطلاب الفصل الثالث في المدرسة الابتدائية روضة العلوم كرنج فلوسو مالانج الصلاحية، والعملية، والكفاءة. وبناء على هذه الأهداف، تتور الباحثة الكتب المدرسية التي تستخدم عادة في أنشطة التعلم لتصبح أكثر جاذبية وفعالة لخلق الابتكارات الجديدة وهي إنتاج الكتب الدراسية القائمة على 3D-Storybook في مادة البناء المسطحة.

لتحقيق هذه الأهداف، يستخدم هذا البحث منهج البحث الكمي البحث والتطوير بنموذج البحوث التي قابلة للتكيف مع نموذج التطوير Samme و Thiagarajan الذي يتكون من أربع مراحل التطوير وهي التعريف، والتصميم (التخطيط)، والتطوير، والنشر. استخدمت الباحثة نموذج التطوير بسبب أبسط وأكثر فعالية، ويمكن توفير الوقت، ويؤدي إلى تطوير المنتجات الجيدة. ويجب أن يتم عملية التحقق من الصحة أولا قبل تطبيق المنتج للطلاب. بدأ هذا البحث في إعداد كتاب الرياضيات القائمة على 3D-Storybook التي ستكون

تطوير المنتجات. المرحلة التالية هي التحقق من الخبراء إلى وسائل نتائج التطوير صلاحية وأداء الاختبار الميداني من الموضوعات المحاكمة. جميع الخطوات المذكورة يجب أن نفعل منظما والحصول على صلاحية بناء على نتيجة اكتساب درجات على الاستبيان ونتائج التقويم من الاختبار القبلي والاختبار البعدي. ويتم تحليل البيانات بطريق حساب متوسط درجات نتائج التحقق من صلاحية والتجارب الميدانية إلى مزيد من الاستنتاجات التي يمكن استخلاصها. بعد كل مراحل عملها، الكتب المدرسية نتيجة من لمنتجات التطوير القائمة على 3D-Storybook يمكن تطبيقها في عملية التعليم والتعلم.

دلت النتائج أن منتج تطوير الكتب الدراسية الرياضيات القائمة على 3D-Storybook بمادة البناء المسطحة لطلاب الفصل الثالث في المدرسة الابتدائية روضة العلوم كرنج فلوسو صلاحية، وعملية، وكفاءة أنه يوضح من اختلافات محددة في استحواذ القيمة على متوسط الطالب في الإختبار القبلي ٧١.٢ واكتساب قيمة متوسط الطالب في الإختبار البعدي ٩٠.٣. وأيضا اكتساب متوازن من عملية التحقق من الصلاحية التي تساوي ٩٧.٣٪ من الطلاب صلاحية.

الكلمات الأساسية: 3D-Storybook، مادة البناء المسطحة

ABSTRAK

Nurmilla, Izza. 2015. Pengembangan MediaAjar Matematika berbasis 3D-Storybook pada materi bangun datar untuk siswa kelas 3 MI Raudlatul Ulum Karangploso Malang. Skripsi, Jurusan Pendidikan Guru Madrasah Ibtida'iyah, Fakultas Ilmu Tarbiyah Dan Keguruan, Universitas Islam Negeri Maulana Malik Ibrahim Malang. Pembimbing Skripsi: Dr. Abdussakir, M.Pd.

Matematika adalah salah satu mata pelajaran yang akan selalu dipelajari dari jenjang sekolah dasar sampai jenjang sekolah tinggi atau universitas. Matematika bukan hanya kumpulan dari rumus hitungan saja, akan tetapi dalam mata pelajaran matematika juga harus memahami terkait konsep materinya. Matematika biasanya terdiri dari angka, simbol, dan banyak rumus yang seluruhnya berkembang dari permasalahan di kehidupan nyata. Salah satu materi pada ilmu matematika yang sering muncul dalam kehidupan sehari-hari adalah materi bangun datar. Sehingga, banyak sekali manfaat dari mempelajari materi bangun datar matematika yang dapat diterapkan dimanapun dan kapanpun, dalam kehidupan sehari-hari.

Tujuan dari penelitian ini adalah untuk menghasilkan produk hasil pengembangan yaitu media ajar berbasis 3D-Storybook pada materi bangun datar kelas 3 (tiga) di MI Raudlatul Ulum Karangploso Malang yang valid dan efektif. Berdasarkan tujuan tersebut, peneliti akan mengembangkan media ajar yang biasanya digunakan dalam aktifitas pembelajaran untuk menjadi lebih menarik dan efisien dengan membuat inovasi baru yaitu menghasilkan media ajar matematika yang berbasis 3D-Storybook dengan materi bangun datar.

Untuk mencapai tujuan tersebut, penelitian ini menggunakan pendekatan penelitian kuantitatif Research and Development (R&D) dengan model penelitian yang beradaptasi pada model pengembangan Thiagarajan and Samme yang terdiri dari 4 tahap pengembangan yaitu definisi, desain (perencanaan), pengembangan, dan penyebaran. Peneliti menggunakan model pengembangan tersebut dikarenakan lebih sederhana, lebih efektif, dapat menghemat waktu, dan dapat menghasilkan produk pengembangan yang baik. Proses validasi harus dilakukan terlebih dahulu sebelum dilakukan penerapan produk kepada siswa. Penelitian ini dimulai dengan penyusunan buku ajar matematika berbasis 3D-Storybook yang akan menjadi produk pengembangan. Tahap selanjutnya adalah validasi ahli sampai media hasil pengembangan dinyatakan valid dan melakukan tahap uji coba lapangan terhadap subjek uji coba. Seluruh tahapan di atas harus dilakukan dengan terstruktur dan memperoleh pernyataan valid berdasarkan pada hasil perolehan skor pada questioner dan hasil evaluasi dari Pre-Test dan Post-Test. Analisis data hasil penelitian dilakukan dengan menghitung skor rata-rata dari hasil validasi dan uji coba lapangan untuk selanjutnya dapat ditarik kesimpulannya. Setelah seluruh tahapan dilakukan, buku ajar hasil dari produk pengembangan berbasis 3D-Storybook dapat diterapkan pada proses belajar mengajar.

Dari hasil penelitian menunjukkan bahwa produk pengembangan buku ajar matematika berbasis 3D-Storybook dengan materi bangun datar untuk siswa kelas 3 MI Raudlatul Ulum Karangploso Malang sudah dinyatakan valid dan efektif

yang dapat ditunjukkan dari perbedaan spesifik pada perolehan nilai rata-rata siswa pada Pre-Test yaitu sebesar 71,2 dan perolehan nilai rata-rata siswa pada Post-Test yaitu sebesar 90,3. Dan selain itu juga dari skor perolehan pada proses validasi yaitu sebesar 97,3% siswa menyatakan valid.

Kata Kunci: 3D-Storybook, Materi Bangun Datar



ABSTRACT

Nurmilla, Izza. 2015. *The Development of Mathematic Instructional Media Lesson of Plane Based on 3D-Storybook for Students 3rd Grade MI Raudlatul Ulum Karangploso Malang*. Thesis, Teacher Education of Islamic Elementary School Program, Faculty of Tarbiyah and Teaching Sciences, The State Islamic University of Maulana Malik Ibrahim Malang. Advisor, Dr. Abdussakir, M.Pd

Mathematics is one subject that always studied from elementary school until high school or university. Mathematics is not just the collection of count formulation, but mathematics subject must understand the concept of material. Mathematics usually content with number, symbol, and many formulation that grow up from the reality life. One of the mathematics material that always exist in daily life is material of plane. Building, office, home, school, and many things other use the material concept of plane. So, many advantage can get from study material of plane can be applied everywhere and everytime in daily life.

The purpose of this research to produce instructional media lesson of plane based on 3D-Storybook for students 3rd grade in MI Raudlatul Ulum Karangploso Malang that is valid and effective. From the purpose, the researcher will develop learning book that usually use in learning activity to be more interesting and effective with make the new innovate to produce teaching book of mathematics based on 3D-Storybook with plane material.

To get the purpose, in this research used quantitative approach of Research and Development (R&D) that adaptation model developed by Thiagarajan and Sammel which consists of 4 stages development that is define, design, develop and disseminate. Developer uses this model will be more effective, simple, can saving more time, and can produce a good product of development. Validation step should be done before the product applied to students in learning activity. The research start with arrangement of teaching book based on 3D-Storybook that will be product of development. The next step is expert validation until the media is valid and doing the field trial to the subject trial. All of the step must doing with structured and get the valid declaration from score result by questionnaire and evaluation result from Pre-Test and Post-Test. Analysis of data result with count the average score from validation and field trial to getting the conclusion. After all of the step have done, the product of development that is teaching book based on 3D-storybook with material of plane can applied in teaching and learning activity.

From the result of research indicate about the produce of teaching book plane material based on 3D-Storybook for students 3rd grade in MI Raudlatul Ulum Karangploso Malang is valid, practical, and efficient that is shown in specific difference of score average student in Pre-Test is 71,2 and score average student in Post-Test is 90,3. And also from many score from validation result is 97,3 student that declare valid.

Key Words: 3D-Storybook, Material of Plane

PART I

INTRODUCTION

A. The Background Of Study

Story based learning (short stories, Ceragem, fables, etc.) is one of the learning model that can attract students to read and understand. The story consists with many versions, such as folklore, fables, legends, fairy tales, and others. The story is considered able to attract the interest and students attention in the learning process and be able to give good results for the students understanding in obtaining lessons or learning objectives. Stories have information values in the content of story and can affect the child's mind and moral sense.¹ So the school is expected to filter it to be more traditional story becomes more beneficial to the child's development. In the story there is an idea, goal, imagination, language, and style. These elements influence the child's personal.² From this statement, appearing interest to take advantage of the story at school, the importance of choosing the story and how it deliver the children.³

An understanding of the lesson plane is very important for students, especially for students of primary school age. There are various simple plane included in the lesson level of Elementary School (SD) including shape of square, rectangle, triangle, circle, parallelogram, and trapezoid. But at the level of

¹ Dr. Abdul Aziz Abdul Majid, *Mendidik dengan Cerita* (Bandung: PT Remaja Rosdakarya, 2005). Hlm. 4

² Ibid, Hlm. 4

³ Ibid, Hlm. 5

mathematics learning in 3rd grade plane lessons presented only include that is square and rectangle, and some explained about triangles and circles.

Many objects around us in various forms, particularly in the form of a square, rectangle, triangle, and circle. Therefore, it is emphasized since children are at primary school age can understand the plane lesson of mathematic to assist and facilitate problems solving in everyday that associated with plane and assist them in further understanding the lesson as the geometry and measure lesson.

From observations activity that conducted by researchers at MI Raudlatul Ulum Karangploso Malang, researchers get information if there are many students who are still feeling difficulties in working on problem related with the lesson form of a plane. In addition to the delivery of the lesson presented is also attractless the students to learn mathematics. This statement match with the expressed by a teacher that teaching in 3rd grade and direct interviews with some students. Difficulties is trouble, misery, circumstances, or something hard.⁴ Trouble is a condition that exhibit resistance in activities to achieve the objectives that better efforts are needed to overcome the disorder.⁵

The next problem is there are still many children who think math is hard and difficult. This is due to several reasons, such as:⁶

1. Process of mathematics that the majority using arithmetic operations. They are should think so hard to map out the problems with the concept of calculating appropriate, then they should remind about the arithmetic

⁴ Nini Subini, S.Pd, *Mengatasi Kesulitan Belajar Pada Anak* (Jogjakarta: Javalitera, 2012) Hlm. 13

⁵ Ibid. Hlm 13

⁶ Supatmono, F.X.Catur, *Matematika Asyik* (Jakarta: Grasindo, 2009), hlm 5

concept and apply it to the principal problems that they meet. Moreover, for children who are lazy to count. They will have problems when they met with large numbers figures and eventually chose to put their stationery and left to play.

2. How to understanding of the lesson plane mathematic to children who are less attractive and feel difficulties. We know that the lesson is very important. However, the process began to implementation the concept of introductory lesson that is entirely introduced in primary education that attractless for the attention and interest of the children. So that the achievement of their understanding also reduced.

The next problem is the mathematics also can inducted on "weakness". Because it was difficult to learn math, the children feel that they "can not afford". This feeling will affect the other subjects. As a result, our children really as a child with the mindset of "can not afford".⁷

Taken with the math teacher who mostly regarded as not friendly and uninteresting. So needed appearance, facial expressions, speech language, and appeal in the process of introducing a plane lesson of mathematics. The fact on the ground is a teaching lesson in the form of mathematics textbooks used attractiveless and build a spirit of students to learn, use of instructional lessons for this lesson just use a lot of theory, but less understandable students who think in concrete, as well as teaching lessons presented by the print media can not motivated the students to actively observe, think rasonality, and communicate.

⁷ Agustina, Drs. Heribertus, *MagicMathic's* (Yogyakarta: CV. Andi Offset, 2006), hlm. 3

Based on the facts on the ground is obtained information that has never been and there has been no previous application about the use instructional media lesson of plane based 3D-Storybook that use stories in the delivery of learning plane lessons for students in 3rd grade.

From the observation of the problems that have been described in the above paragraph, the researchers intend to conduct research on the development of mathematics instructional media, especially on plane lesson based on 3D-Storybook which uses fables story in the delivery of lessons to the children. And in the instructional media not only presents a short story about the animals and images, but also has the advantage of using the books that display model 3 (three) dimensions that will make an appearance and delivery of content over innovative, exciting, and life. So in this study the researchers take one topic from observation with the title *The Development of Mathematic Instructional Media Lesson of Plane Based On 3d-Storybook For Students 3rd Grade MI Raudlatul Ulum Karangploso Malang*.

B. The Problem Formulation

Based to the above description of the background, there are problems formulation defined is:

1. How the development of mathematic instructional media lesson of plane based on 3D-Storybook for students 3rd grade MI Raudlatul Ulum Karangploso Malang that is valid.

2. how the development of mathematic instructional media lesson of plane based on 3D-Storybook for students 3rd grade MI Raudlatul Ulum Karangploso Malang that is effective.

C. The Limitation Problem

From the identified problems, the researchers limit just for the development of instructional media lessons of plane that is Standards of competence (SK) to understand the elements and characteristics of plane Identified various simple figure according to the nature or elements in the, and basic competence (KD) that is calculate the perimeter of square and rectangular, calculate the area of square and rectangle, resolve issues about perimeter and area in figure of square and rectangle on competency standards calculating perimeter and area of square and rectangle, as well as their use in solving the delivery problem entirely implemented in the form of children's stories were interesting and entertaining for them.

Instructional media based 3D-Storybook is done to increase understanding of students 3rd grade MI Raudlatul Ulum Karangploso Malang for the lesson of plane. The book is intended in this study that is the book that put more emphasis on extracting the interest and motivation of students so they are more interested to explore many science from this book.

D. The Objective of Study

Based on the formulation of the problems mentioned in problem formulation above, the purpose of this research is:

1. To produce mathematic instructional media lesson of plane based on 3D-Storybook For Students 3rd grade MI Raudlatul Ulum Karangploso Malang that is valid.
2. To produce mathematic instructional media lesson of plane based on 3D-Storybook for students 3rd grade MI Raudlatul Ulum Karangploso Malang that is effective.

E. The Benefit of Study

Based on the purpose of this research, the results of this study are expected to contribute:

1. For students
 - a. Students will be more motivated and excited to learn the plane lesson of mathematics.
 - b. Easier for students to understand the plane lesson of mathematics.
 - c. To make easier for students were able to associate the lesson with problems solving in daily life, and make easier for the next lesson.
2. For teachers
 - a. Help the teachers facilitate students to make them understand the plane lesson of mathematics.

- b. Information lesson for teachers about the importance of student motivation.
 - c. To be consideration for the math teacher in MI Raudlatul Ulum Karangploso Malang to get a specific picture to the use math book based on 3D-Storybook as learning effectively and efficiently.
- 3. For educational institutions
 - a. As an suggested (input) for the institution to improving the student achievement.
 - b. To repair and improve the quality of student learning and resulting output quality graduates.
- 4. For researchers
 - a. For researchers can be used as a source of ideas and references in the development of learning resources in the formation of other teaching lessons.
 - b. To get knowledge about teaching media and models of learning that can be applied to teaching in the future.

F. Product Specifications

1. Design of contents

In the product development of mathematical teaching lessons based 3D-Storybook will be packaged in the form of an attractive and minimalist. The book will be presented in attractive font, colorful, and the pictures that match with the discussion lessons. Plane lesson of mathematic will be presented with simple story

for students about animals and human friendship with the title Mikomatika. In writing the story to make it look attractive, the writer uses font Verdana with font size 12 and 1.5 spacing.

2. Design development

The expected product in development research are teaching lessons in the form of mathematics textbook lesson of plane based on 3D-Storybook for students 3rd grade. In this book there is a presentation lesson of plane mathematic 3rd grade elementary school, but there is packaged with the form that more attractive, simple, easy to understand, full of color and images, and delivered with a fable story that have porpose to interest students learning the lesson of mathematic.

G. Scope of Research

The scope of research in this research is:

1. This research focus on the use of mathematic instructional media lesson of plane based 3D-Storybook in 3rd grade elementary school as one of the efforts to improve student's interests and abilities contextually in mathematics learning with using mathematical story book with three dimensional design.
2. This research have the porpose to produce mathematic instructional media that effective to use by the students. This book can help the student easier to study about lesson of plane in elementary school that more attractive and interesting for student.

3. The researcher doing this research in grade 3A MI Raudlatul Ulum Karangploso Malang that conduct by 23 students, 11 boys and 12 girls.

H. Originality Research

In this research, the researcher want to development of mathematics instructional media lesson of plane based on 3D-Storybook is expected to help raise the spirit of students to be more active to study of mathematics science. With form of book that is print media will be make students easier to study about lesson of plane. Displayed image is expected to make students be comforted in reading because basically students liked the pictures and colors that interest to children. The story is presented in the book is expected to attract students to read, so that students just not reading stories but also absorbing lesson that contained in the story.

Based on the older research that found by the writer to know the originality of this research, some of older research that have differences, excess, and weaknes with this research is:

Table 2.1 Originality Research

No.	Name	Title	Th.	Content	Difference	Excess	Weaknes s
1.	Himatul Aliyah	Picture Sequencing Instructional Lessons Development And Lks Math To Improve Student Results In Class V lesson properties Build Flat In SDN Klampok 1 Malang	2013	In this study the authors make the innovation of teaching lessons in the form of pictures / photos and worksheets, as a tool learning aids so as to improve student learning outcomes in the lesson properties flat wake	picture and Sequencin g worksheets	Interestin g, easy to impleme nt, and simple	Little bit boring if used for long periods
2.	Atik Anjarwati	Smithers Instructional Lessons Development	2012	In this lesson the author tries to help them to apply	Realistic	Attractiv e, easy to	Requires extensive

		Through Realistic Mathematics Learning in Increasing Achievement (Studies in Student Class V MIN Sumberjati Blitar)		mathematics in real life situations, particularly on the lesson fractions, because the fractional it is difficult for students and learning which is less meaningful		impleme nt, easy to understan d	creativity
3.	Choerul anwar Badrut tamam	Mathematics Media Development Learning Lesson Computer Assisted Integer Multiplication For Fourth Grade Students of SD / MI	2013	In this study, the authors use the computer as a tool in learning mathematics, especially in lessons that require drawings, animation, visualization , and color, the presentation can be done using macromedia flash cs 5 media which will help the delivery of knowledge about the lesson multiplication and tricks completion can internalize the cognitive, affective, and psychomotor learners.	computer media	Interestin g, easily understo od	Difficult applied in schools that lack of facilities
4.	Sulityowa ti	Mathematics Textbook Development Class III About Measurement Using Realistic Mathematics Learning Approach In MI Islamiyah, Pakis, Tumpang	2012	This study textbook float using PMR approach to lesson measurement (length, mass, and time) is absolutely necessary to the presentation of the problems faced daily (in the context of social, economic, cultural, political, etc.)	Realistic	Attractiv e, easy to impleme nt, and easily understo od	Requires extensive creativity
5.	Saida Ratna Sari	Based Instructional Lessons Development Macromedia Flash to Content Grade Students Build Space For SDN Kribet 01 Bululawang Malang	2013	In this study the authors develop media by utilizing the computer as a medium and Macromedia Flash as a program to provide variation to the delivery of mathematics geometry	macromedi a flash	Interestin g, easy to understan d	Difficult applied in schools that lack of facilities
6.	Amaliah Noor Indahwati	Using Realistic Approach To Enhance Student Learning Motivation Smithers In Class III D Min Rejoso Peterongan In Jombang	2013	In this lesson the author tries to help apply mathematics to the real situation, particularly on the lesson fractions by using media that is close and could conceivably by students, to further enhance the students' understanding, and to make students more active in the learning of mathematics.	realistic	Interestin g, easy to impleme nt, easy to understan d	Requires extensive creativity

CHAPTER II

STUDY OF LITERATURE

A. Based Instructional Media Development of 3D-Storybook

1. Definition of Instructional Media Development

Developments of science and technology that so quickly, make every people go ahead. It also requires teachers and teachers be able to take advantage of advances tools and learning media. Teachers that have not skill and not expert to use a variety of tools and media in accordance with the time progress in order to achieve the expected learning goals.

The word of media is the plural of the word medium. Medium can be defined as an intermediary or an introduction to communication from the sender towards receiver. Media is one of the components of the communication, namely as a messenger from the communicator toward communication.⁸

Based on literally, media means an intermediary or introduction. Sadiman argues, that the media is a tool intermediary or an introductory message from the sender to the recipient of the message. Gagne states, that the media are different types of components and the environment. Described also by Raharjo, that the media is the container of the message by the source wants to be forwarded to the target or recipient of the message. The lesson received is an instructional message, while achievable goal is the achievement of the learning process.⁹

⁸ Drs. Daryanto, *Media Pembelajaran* (Yogyakarta: Penerbit Gava Media, 2010), Hlm. 5

⁹ Cecep Kustandi. M.Pd, dkk., *Media Pembelajaran* (Bogor: Penerbit Ghalia Indonesia, 2011), Hlm. 7

In the Arabic language, media is an intermediary or an introductory message from the sender to the recipient of the message. Gerlach and Ely said that, if understood in outline, then the media is human, lesson, or events that build up a condition or make students able to acquire the knowledge, skills, or attitudes. In this sense, teachers, textbooks, and school environment is a medium.¹⁰

More specifically, the notion of media in teaching and learning tends to be interpreted as graphics tools, photographic, or electronic to capture, process, and reconstruct the visual or verbal information.¹¹

It can be concluded if the learning media is a tool that can help the learning process and be able to clarify the meaning or message you want teach in teaching and learning activities, so as to achieve the purpose of teaching and learning as expected.

2. Position Media of Learning

Instructional media has an important position as one of the components of the learning system. Without the media, communication will not occur and the learning process as a communication process not be optimal. Instructional media is one component of communication. And communication is important in the learning process.

In generally, the position of instructional media in the learning system is as:¹²

¹⁰ Cecep Kustandi. M.Pd, dkk., *Media Pembelajaran* (Bogor: Penerbit Ghalia Indonesia, 2011), Hlm. 7

¹¹ Ibid, Hlm. 8

- a. Learning tools (to help learning process)
- b. Message transferer
- c. Reinforcement tools
- d. Vice teachers to presenting the information that more thorough, clear, and attractive

3. Function / Role of Media Teaching

In the learning process, the media has a function as carriers of information from the source (the teacher) to the receiver (students). While the method is a procedure to assist students in receiving and processing information in order to achieve the learning objectives.¹³

Development of instructional media should be sought to exploit the advantages possessed by the media and trying to avoid obstacles that may arise in the learning process. In detail, the function of the media in the learning process is as follows:¹⁴

- a. Witnessing the existing objects or events that occur in the past through playback images, video, or other media that the students were able to see the real picture of related objects or historical events
- b. Viewing objects or events which are difficult to visit, may be can because the distance is so far, dangerous, or forbidden. For example, a video about the life of a tiger in the jungle, etc.

¹² Cecep Kustandi. M.Pd, dkk., *Media Pembelajaran* (Bogor: Penerbit Ghalia Indonesia, 2011), Hlm. 21

¹³ Drs. Daryanto, *Media Pembelajaran* (Yogyakarta: Penerbit Gava Media, 2010), Hlm. 8

¹⁴ Ibid, Hlm. 10

- c. Getting a clear picture of objects or things that are difficult to be observed directly because the size is not possible (too big or too small) such as picture amoeba shapes, bacteria, etc.
- d. Hearing voices elusive with ear directly, such as heart rate recordings, etc.
- e. Observe and examine the animals which are difficult to be observed directly because of they are difficulty to catch such as insects, birds, etc.
- f. Observing the events that are rare or dangerous to approach, such as volcanic eruptions, rainbow, etc.
- g. Clearly observe objects that are easily damaged or difficult preserved as human organs, etc.
- h. Makes it easy to compare anything with the help of drawings, models, or images, such as comparing the size, height, etc.
- i. Can quickly see a process that takes place slowly, like a butterfly metamorphosis video, etc.
- j. Can see directly the movements rapid, like teaching aid about style diving, etc.
- k. Observing the movements of the machine or tool that is difficult to be observed directly.
- l. Viewing a summary of a series of observations that long or longer, such as milling process cane into sugar, etc.
- m. Can reach the large audience and observe an object simultaneously.
- n. Can learn according to the abilities, interests, and respectively tempo.

Kemp and Dayton points out several studies that show the positive impact of the use media as an integral part of learning in the classroom, or as a primary means of learning directly, as follows:¹⁵

- a. Submission not rigid lesson
- b. Learning become more attractive
- c. Learning becomes more interactive with the application of learning theory and psikologis principles received in terms of student participation, feedback, and reinforcement
- d. Long time of learning can be shortened, because the media usually only takes with jut a bit to deliver messages and mission of learning in considerable amounts, and is likely to be absorbed by the larger student.
- e. The quality of learning outcomes can be improved if the integration of words and pictures as a learning medium to communicate the elements of knowledge in a way that is well organized, specific, and clear.
- f. Learning can be provided whenever and wherever desired. Especially if the media that is designed for use by individuals
- g. A positive attitude of students toward what they are learning and to the learning process can be improved
- h. The teacher's role may change toward a more positive

Besides fun, instructional media must also meet the individual needs of students, because every student has different abilities.

¹⁵ Cecep Kustandi. M.Pd, dkk., *Media Pembelajaran* (Bogor: Penerbit Ghalia Indonesia, 2011), Hlm. 8

4. Use of Instructional Media Platform

There are a number of reviews on runway use instructional media, which are:

a. Philosophical foundation

In this philosophical foundation emphasizes the importance about how the views of teachers on students in the learning process. If the teacher considers the student as a human child who has a personality, self-esteem, motivation, and have different personal abilities with others, that is good for use the new media technology results or not, the conducted of learning process is will continue to use the humanist approach.¹⁶

b. Psychological grounding

Psychological assessment argue that the child will be easier to learn concrete things rather than something abstract. Related to the concrete-abstract relationship and connection with the use of instructional media there are several opinions by experts, among others:¹⁷

- 1) Jerome Burner suggests that learning should be used preferably in the order of learning to use a picture or a movie to get the symbols and the use of words.
- 2) Charles F. Haban pointed out that the actual value of the media lies in the concept of realistic and planting process.
- 3) Edgan Dale made concrete-abstract level starting from the actual experience of students toward students as observers real events,

¹⁶ Drs. Daryanto, *Media Pembelajaran* (Yogyakarta: Penerbit Gava Media, 2010), Hlm. 12

¹⁷ Ibid, Hlm. 13

followed by students as observers real events delivered through the media, and the latter is the student becomes the observer a real phenomenon presented with symbols.

c. Technological grounding

Learning technologies is the theory of design, development, implementation, management, and assessment processes and learning resources. So learning technology is a complex and integrated process involving people, procedures, ideas, equipment, and organizations to analyze problems, find ways solution, implement, evaluate, and manage solutions to problems in situations where the learning activities that have a purpose and controlled.¹⁸

d. Empirical foundation

The findings of a study showed that there was an interaction between the user and the learning media that learning about characteristics of students in determining student learning outcomes. This means that students will gain a significant advantage when he learned to use the media in accordance with the type or characteristics of the learning style.¹⁹

5. Classification of Print Media

a. Print media

The print media is a way to produce or deliver the lesson, such as books and static visual lesson, especially through mechanical or printing these

¹⁸ Drs. Daryanto, *Media Pembelajaran* (Yogyakarta: Penerbit Gava Media, 2010), Hlm. 15

¹⁹ Ibid, Hlm. 16

fotografis. Teknologi can produce the lesson in the form of printed copies.

Printing technology has the following characteristics:²⁰

- 1) The text read linear, while visually observed by space
 - 2) Both text or visual, featuring both one-way communication and repressive
 - 3) The text and static visual display
 - 4) The development is highly dependent on the principles of language and visual perception
 - 5) Both text and visual, both oriented to students
 - 6) Information may be arranged or rearranged by the user
- b. Audio-visual media

Audio-visual media is a way to produce or deliver the lesson using a mechanical or electronic messages to present audio and visual.

Characteristics are:²¹

- 1) As linear
- 2) Presents a dynamic visualization
- 3) Used in the manner specified by the designer
- 4) Using a physical representation of the idea of real or abstract ideas
- 5) Developed in accordance with the principles of behaviorism and cognitive psychology
- 6) Generally oriented to teachers, with the level of interactive engagement of students is low

²⁰ Cecep Kustandi. M.Pd, dkk., *Media Pembelajaran* (Bogor: Penerbit Ghalia Indonesia, 2011), Hlm. 33

²¹ Ibid, Hlm. 34

c. Media Based on Computer

Media based on computer technology is a way of producing or delivering lessons using resources based micro-processor. Some characteristics are as follows:²²

- 1) Can be used randomly, non-sequential, or linear
- 2) Can be used based on all of student wishes or based designer wishes
- 3) Usually can help delivered in abstract ideas with words, graphics, and symbols
- 4) The principles of cognitive science to develop this media
- 5) Students Learning oriented and involve the interaction of high student

d. The combination of media and computer printing technology

The combined technology is a way to produce and deliver lesson that combines the use of several forms of media that are controlled by computer. Some characteristics as follows:²³

- 1) Can be used at random
- 2) Can be used in accordance with the wishes of students
- 3) The principle of cognitive science and constructivism applied in the development of lesson
- 4) Learning organized and focused on the cognitive sphere, so that the knowledge mastered if the lesson was used
- 5) Ingredients subject is involved a lot of interactivity students

²² Cecep Kustandi. M.Pd, dkk., *Media Pembelajaran* (Bogor: Penerbit Ghalia Indonesia, 2011), Hlm. 34

²³ Ibid, Hlm. 35

- 6) Words combination in the lesson lessons and visuals from various sources

6. Characteristics of Instructional Media

Gerlach and Ely suggests three media characteristics that is an indication why the media used and what can be done by the media that the teacher may not be able to do so.²⁴

a. Feature fixative

These characteristics describe the media's ability to record, store, and reconstruct an event or an object such as using the photography, video tape, audio tape, computer diskettes, flash, etc.

b. Manipulative traits

Transformation of an event or object is possible because the media has a characteristic manipulative. Events that took some days can be presented to students within two or three minutes with the technique of shooting time-lapse recording. As an example is the process of metamorphosis of the butterfly.

c. Feature distributive

Distributive characteristics of media enables an object or event transported through space, and simultaneously the incident served to a large number of students with the same stimulus relative experience of the incident.

²⁴ Cecep Kustandi. M.Pd, dkk., *Media Pembelajaran* (Bogor: Penerbit Ghalia Indonesia, 2011), Hlm. 13

7. Development of Visual Media (based 3D-Storybook)

Visual-based media have the concept of delivery to students in the form of shapes, such as photographs, drawings, illustrations, graphs, charts, etc. Visual elements that should be considered is the shape, line, space, texture, and color.

a. Simplicity

Simplicity refers to the number of elements contained in the visualization. The number of elements used in the presentation should also be balanced, not excessive and not little too, so that children will be easier to understand and capture the intent of the message is presented.

b. Cohesiveness

The integration refers to the relationship between the visual elements when observed will function together. These elements should belong together and linked as a whole.

c. Suppression

Although the visual presentation projecting as simple as possible, but often the concept want presented require emphasis for one of the elements that will be the center of students attention.

d. Balance

The balance is the chosen of shape or pattern should occupy space that gives the perception of the views balance although not entirely symmetrical.

e. Shape

Forms strange and foreign to the students can generate interest for them. Therefore election forms must be considered.

f. Line

Lines used to connect the elements, so that can guide the attention of students to study a particular sequence

g. Texture

Texture is a visual element that can create the appearance of rough or smooth. Texture can be used for suppression of an element as well as color.

h. Color

Color is used to give the impression of separation or suppression, and can also be used to build cohesion. In the use of color that should be considered in the selection of colors, color values, color match, and intensity of color strength will provide certain effects as desired.

Mathematics instructional lessons that are currently widely used in the world of education still has a lot of shortcomings, that is: books that are innovative less, paper books that diminish quality, presentation of the lesson that is difficult to understand, the lack of appeal of the book, the book looks monotonous and make students boring, and the price of books which is expensive for student. Of these problems need to be the development of teaching lessons, especially in the subjects of mathematics, according to the majority of students have a difficulty level and high complexity.

Story-based learning is one of the new innovation model of learning that can attract students to read and understand the learning lesson. Various stories widely spread in the society from the beginning until now.²⁵ This is where the importance of the school in order not to neglect education obtained in terms the children of these stories.²⁶ There are shared version of a story such as: folklore, fables, legends, fairy tales, and others. The story is considered able to attract the students interest and students attention in the learning process and being able to give good results for the students understanding in obtaining lessons or learning objectives. The story has the values of the information contained in the story and can affect the child's formation and moral sense.²⁷ So the school is expected to filter it to be more traditional story becomes more beneficial to the child's development.²⁸

The story is an art, and art presented on children must be different, good quality, quantity, style, and method of delivery of adults.²⁹ The story is a literary form that has its own beauty and enjoyment. Story will be fun for children and adults, if the author, storyteller, and listener equally good.³⁰ The story is one of the literary form that can be read or just heard by the people who can not read.³¹

3D-Storybook appointed to be applied in the mathematics study as communication bridge in conveying the lesson. Expected with colored media,

²⁵ Dr. Abdul Aziz Abdul Majid, *Mendidik dengan Cerita* (Bandung: PT Remaja Rosdakarya, 2005), Hlm. 4

²⁶ Ibid. Hlm 4

²⁷ Ibid. Hlm 4

²⁸ Ibid. Hlm 4

²⁹ Ibid. Hlm. 8

³⁰ Dr. Abdul Aziz Abdul Majid, *Mendidik dengan Cerita* (Bandung: PT Remaja Rosdakarya, 2005), Hlm. 8

³¹ Ibid. Hlm 8

pictorial, charming, and use the match language with children vocabularies. Children will feel comfortable and close with his world so it will be easier to understand the lesson being taught.

Mathematics education can be done with 3D-Storybook mathematical approach. 3D-Storybook is a book of stories presented in 3 (three) dimensions model. The story is one form of literature that has the beauty and enjoyment of its own. The story used in the study of this development is a way of presenting a story with 3 (three) dimensions. Similarly, the realistic approach, the approach 3D-Storybook books appropriate to be applied in basic mathematics education, especially in lesson of plane in mathematic that the introduction of lesson and the applications of lesson given in 3rd grade in elementary school.

Storybook 3D-book approach could motivate the students who have low interest to learn mathematics and be able to attract the attention of students with attractive design, simple language and easily understood by students as well as a storyline that makes students eager to read. The difference with the realistic approach is in the process of implementation. Many realistic mathematics using real objects and practices in the implementation, while the 3D-Storybook approach is one of learning method that using media to facilitate the study of students.

8. Media Selection

In the media selection, besides the complexity and uniqueness of the learning process, to understand the meaning of perception, as well as the factors

that influence the perception of the explanation should be sought optimally so that the learning process can take place effectively, so it can be necessary to:³²

- a. Doing the appropriate media selection, so as to attract the attention of students and provide clarity objects observed
- b. Study lessons which will be matched with the students experience

At the level of a thorough and public, media selection can be done by considering some of the following factors, that is:³³

- a. Barriers of the learning and development that includes factors of facilities, and equipment that are not already available, time that are not available, and the resources that are not available (human and lesson)
- b. Content requirements, tasks, and diverse types of learning.
- c. The resistance of the student is taking into account the abilities and beginning skills.
- d. Another consideration that is the level of pleasure and effectiveness
- e. In the selection of media, should also be considered the following matters:
 - 1) The media ability to presentation accommodate of an appropriate stimulus
 - 2) The media ability to accommodate a student's response is right
 - 3) The media ability to accommodate feedback
 - 4) Selection of major media and secondary media for presentation of information or give stimulus.

³² Drs. Daryanto, *Media Pembelajaran* (Yogyakarta: Penerbit Gava Media, 2010), Hlm. 13

³³ Cecep Kustandi. M.Pd, dkk., *Media Pembelajaran* (Bogor: Penerbit Ghalia Indonesia, 2011), Hlm. 84

- f. Secondary media should be receive attention because the learning successful using a variety of media

In terms of learning theory, a wide range of conditions and psychological principles that deserve consideration in the selection and use of media is as follows:³⁴

- a. Students' motivation to learn
- b. Personality Individual differences of students
- c. Learning objectives
- d. Contents organization
- e. Preparation before learning
- f. Students emotional
- g. Student participation
- h. Feedback
- i. Strengthening
- j. Exercise and repetition
- k. Application

9. Use of Media

Based from the variation use of media, the media can be used in individuals students, groups, or in community of students with the number is very much.

- a. Media can be used individually

³⁴ Cecep Kustandi. M.Pd, dkk., *Media Pembelajaran* (Bogor: Penerbit Ghalia Indonesia, 2011), Hlm. 85

Media can be used by a person alone or we can call it with individual learning, a lots of media that is designed for individual use. Such media are usually equipped with clear instructions for use (manual book) so that people can use them independently. This means that the person does not ask others about how to use it, what tools are needed, and how to know that he has succeeded in learning.³⁵

b. Media can be used in groups

Learning will be conduct with a considerable number of students (big group) or nature groups. The group may be a small group that consisting with 2 to 8 people. Or in a large group that consisting with 9 to 40 people. Media that is designed to be used in groups also requires the user guide. This manual is usually addressed to the leadership of the group tutors and teachers. The advantage of using the media as in a group is that can be conduct discussions group about the lesson being studied.³⁶

c. Media can be used together

People who number in the tens, hundreds, or even thousands can use the media together. Media that are designed like this are usually broadcast through transmitters, such as radio, television, or playing in a big room like a 35 mm film. To facilitate people who learn to use such media should be given the print out lessons for participants.³⁷

³⁵ Drs. Daryanto, *Media Pembelajaran* (Yogyakarta: Penerbit Gava Media, 2010), Hlm. 187

³⁶ Ibid, Hlm. 187

³⁷ Drs. Daryanto, *Media Pembelajaran* (Yogyakarta: Penerbit Gava Media, 2010), Hlm. 188

B. Mathematics Education

1. Mathematical Sciences

Mathematics comes from the Latin 'mathanein' or 'mathemata' that means learn or learn things (things that are learned). In the Dutch language called wiskunde or definite science, that all of which are associated with reasoning.³⁸ This research use disciplines of mathematics because according to some experts, the mastery of mathematics is the basis of other disciplines. With understood the mathematic science, children will easily learn other sciences.³⁹

Mathematics is a subject studied by students ranging from elementary school age until in college. Mathematics being an important role in the processing of student reasoning power. But in reality many students who complained about the subjects of mathematics as one of the difficult subjects. At first, the complaint appears since the student studied in elementary school level. Because that complaint is not resolved it will be continue spread to higher levels. Finally, many students who consider in this subject think if mathematic lesson make boring, uninteresting, and difficult.⁴⁰

Mathematics world is a world of abstract number that contains symbols and emblems, so students need the media that can give a real representation in the teaching and mathematic learning process. Media as a bridge to the world of mathematics that will have an impact on the child's memory. Whether that knowledge will last a long time or did not in the child's memory clear received because of information and provable child, not just memorize. In the story there is

³⁸ Supatmono, F.X.Catur, *Matematika Asyik* (Jakarta: Grasindo, 2009), Hlm 4

³⁹ Widiyati, Utami, *Keajaiban Matematika Untuk Anak* (Klaten): Imagepress (2006)

⁴⁰ Supatmono, F.X.Catur, *Matematika Asyik* (Jakarta: Grasindo, 2009), hlm. 5

an idea, goal, imagination, language, and style. These elements influence the child's personal foundation.⁴¹ From this growing interest to take advantage of the story for the learning at school, the importance of choosing the story and how it deliver the child.⁴²

2. The Characteristics of Mathematical Sciences

Like the other sciences, mathematics has characteristics and properties distinguishing mathematics with other sciences. Frans susilo, S.J. in potpourri writing mathematical characteristics as follows:⁴³

- a. Mathematics is not a science that has the absolute truth. Truth in mathematics science is relative truth which depends on a mutually agreeable deal.
- b. Mathematics is not a science that is can not be wrong. As science is shaped and developed by man, of mathematics can not be separated from fault, error, and limitations. Nevertheless, through from the mistakes that will being the mathematics science are encouraged and stimulated to grow.
- c. Mathematics is not just a collection of numbers, symbols and formulas that have nothing to do with the real world. On the contrary, mathematics grew and rooted in the real world.
- d. Math is not a collection of working techniques which only need to memorize it just for ready to solve the questions and finished examination.

⁴¹ Dr. Abdul Aziz Abdul Majid, *Mendidik dengan Cerita* (Bandung: PT Remaja Rosdakarya, 2005), Hlm. 4

⁴² Ibid, Hlm. 5

⁴³ Supatmono, Op.cit, hlm. 8

In mathematics beauty is not solely determined by the final result but rather of the background and the process that bring to the final result.

- e. Mathematical objects are elements that are social cultural historical, which is the common property of all mankind, as one of the means by which human beings to develop certain aspects of the human, and who shaped the face of mathematics itself.⁴⁴

Still in the same book, Yansen Marpaung, implicitly wrote that mathematics has at least two important characteristics, namely:

- a. Mathematics has historically grown not deductively, but empirically deductive. In the process, the experts then use the deduction method for studying mathematics. By using this method are also experts began aggressively to asking the correctness theorems that already exists by the axioms and theorem of mathematics previously to developed and grow up very rapidly.
- b. Axioms in mathematics is consistent. Because it theorems that derived from axioms previously not experienced conflict with one another.⁴⁵

One of the mathematics characteristics that that is mathematics is not a collection of working techniques which only need to memorize just so ready to solve the problems. In mathematics, the beauty is not solely determined by the final result but rather of the background and the process that led to the final result.

⁴⁴ Supatmono, F.X.Catur, *Matematika Asyik* (Jakarta: Grasindo, 2009), hlm. 9

⁴⁵ Supatmono, F.X.Catur, *Matematika Asyik* (Jakarta: Grasindo, 2009), hlm. 9

So indispensable in the mastery of concepts understanding of mathematics, especially in the understanding the concept of plane lesson in mthematic.

3. Mathematics for Elementary School

In mathematics, the symbol is an abstract figure, the introduction should be through concrete stages that children can understand. In this case it takes time to undergo a phase transition to the abstract, from the stage of the introduction of the concept of numbers into the equation and then solving the problem until the introduction of numbers and equations with numbers.⁴⁶

The introduction of mathematics can be done first with the child hang on mathematical concepts at an early age from the surrounding environment and the daily experience of children as well as providing stimulus to support. Of course this is done without coercion and pressure, also through games. The role of parents is irreplaceable and the house is the main base of the child's education.⁴⁷

According to Hurlock, children from the age of six years until the time when sexually mature individuals categorized in childhood (late childhood). At the end of a child's parents often call debagai times difficult, because at times these children are difficult governed and more likely tractable with their peer group.⁴⁸

The teacher mentions childhood as the end of primary school age. At that age children are expected to acquire basic knowledge useful for adaptation in the

⁴⁶ Bob Harjanto, *Agar Anak Anda Tidak Takut pada Matematika* (Yogyakarta: Manika Books, 2011), Hlm. 4

⁴⁷ Bob Harjanto, *Agar Anak Anda Tidak Takut pada Matematika* (Yogyakarta: Manika Books, 2011), Hlm. 5

⁴⁸ Supatmono, F.X.Catur, *Matematika Asyik* (Jakarta: Grasindo, 2009), hlm. 10

next life. Teachers also mentioned that childhood is also the end of a critical period in the encouragement of achievement, a time when children begin to form habits to achieve success, not success, or very successful. Once formed the habit of working under, above, or according to ability, tend to persist into adulthood. Behavioral level of achievement in childhood end positively correlated with the level of achievement in adulthood.⁴⁹

In terms of cognitive development, the child at this time, according Peaget, was at the time a concrete operation. At the time the child is developing concrete operations is based on the idea that certain rules are logical.

At the stage of concrete operations, the child floating the operating system based on anything that looks real and concrete. Children still apply logic thinking on concrete goods, yet abstract, let alone hypotheses. Children are still difficult to solve the problem that has many variables. Therefore, although at this stage the child's way of thinking is still very limited because it was based on something concrete.⁵⁰

This miraculous ways to provide ease can be adequate for children who have difficulty learning mathematics:⁵¹

- a. Facilitation of learning should be adapted to the ongoing cognitive development in children. For elementary school age children learn math would be more effective by using concrete objects, props, etc.

⁴⁹ Ibid, hlm. 10

⁵⁰ Supatmono, F.X.Catur, *Matematika Asyik* (Jakarta: Grasindo, 2009), hlm. 11

⁵¹ Ibid, hlm. 11

- b. Learning while playing will be more effective than studying the structure of the standard as well as a child listening to a lecture, just sit and be quiet. By playing the child will build knowledge by own experience.
- c. Provide opportunities for the children to express freely what he was thinking. Let their minds roam the widest, multiply praise, and do not use guilt to convict. Through the fault of children should be helped to find the truth.
- d. Use the experience in daily activities as a means to learn mathematics. Experience can be gained from the experience themselves, parents, or others.
- e. Respect the child's way of thinking used to solve problems and do not just emphasis on thinking parents or way of thinking that is recommended by the textbook.
- f. Give appreciation for the process that selected and carried the child and do not emphasize on the final result only. Sometimes children also need to be assisted in the process to get a good final result.
- g. Once upon a time ask the children to invite close friends to study together at home. Let them solve the problems in the peer group. Parents are just as facilitators who assist children to learn.⁵²

⁵² Supatmono, F.X.Catur, *Matematika Asyik* (Jakarta: Grasindo, 2009), hlm. 12

C. Lesson of Plane for Mathematics Third Class Of Elementary School

1. Definition of Plane

Plane lesson it means is a form or a shape. So plane lesson means a two dimensional shape or form that can only be measured long and width only. Figure may be consist with a rectangular shape that is square, rectangle, parallelogram, trapesiun, laying kite, rhombus, etc. Triangle consisting of equilateral triangles, isosceles triangle, triangle Random, right-angled triangle, the triangle obtuse and acute triangle. There is also a circle and many other figure having various number of sides. Every figure in plane has characteristics that distinguish each of the flat figure one and another.

Many forms of simple figure in plane lesson can be found in the environment around the home, school, office, and a playground. The doors of many homes and buildings using a rectangular shape, a square shaped of windows, and drinks are circular, and many more. Children will be very easy to find various objects accordance with a simple figure in plane lesson that they know in their environment that will be greatly facilitate them to remember it.

In mathematics 3rd of elementary school, children were introduced with a few simple figure in plane lesson. Including square, rectangle, triangle, and circle. Therefore, the necessary methods, manner, or the introduction of learning in accordance with the world of children that will allow them to learn the lesson of plane as a beginner .

2. Various Of Plane

a. Square

Square is one form of a simple figure in plane lesson belonging to wake rectangular (have 4 sides). Wake square has the following characteristics:

- 1) Has four sides equal length
- 2) Has four equal angles (elbows)

Square shape can we count circumstance and area. Here's how to calculate the perimeter and area of the square for elementary school students:

$$\text{Perimeter} = \text{Sides} + \text{Side} + \text{Side} + \text{Sides}$$

Or

$$K = 4 \times s$$

$$\text{Area} = \text{Side} \times \text{Sides}$$

Or

$$\text{Area} = s \times s$$

b. Rectangle

The rectangle is one of a simple figure in plane lesson belonging in rectangular figure (have 4 sides). Rectangle figure has the following characteristics:

- 1) Having two opposite sides that is equal length (same length)
- 2) Has 4 equal angles (elbows)

Rectangular figure can calculate the circumference and width. Here's how to calculate the perimeter and area of a rectangle for elementary school students:

$$\text{Perimeter} = \text{Length} + \text{Width} + \text{Length} + \text{Width}$$

Or

$$K = 2 (p + l)$$

$$\text{Area} = \text{Length} \times \text{Width}$$

Or

$$L = p \times l$$

c. Triangle

The triangle is one of simple figure in plane lesson included in the group of figure with 3 sides. Triangles generally have the following characteristics, that is:

- 1) Has 3 sides
- 2) Has 3 angles

There is a critical part that is contained in the triangle sides and angles.⁵³

With these two elements we can develop various of triangle figure.⁵⁴

⁵³ Farikhin, *Mari Berpikir Matematis* (Yogyakarta: Graha Ilmu, 2007), Hlm. 84

⁵⁴ Ibid, Hlm. 84

1) Based on the long side, the triangle is divided into three types:

a) The equilateral triangle, has a characteristic feature:

- Has three sides of the same length
- It has three equally large angle

b) An isosceles triangle, has the characteristics:

- Have two sides of the same length
- Has 2 angles of the equally large

c) Scalence Triangle, has the characteristics:

- Has 3 different side lengths
- Has 3 angles with different sizes

2) Based on the number large of angle, triangle divided into three types:

a) Right triangle, has characteristics that is one of angle number consist 90° or elbows

b) Triangle taper, have characteristics that one of angle number less than 90° or taper

c) Triangle blunt, has characteristics that one of angle number more than 90° or blunt

d. Circle

The circle is the set point within the same distance with particular point. Furthermore, a specific point called the center of the circle. While the distance

from the center of the circle to any point on the circle is called the radius.⁵⁵ Figure of circle has the following characteristics:

- a. Having only one side. That is side that make curved shape
- b. Have not angel



⁵⁵ Farikhin, *Mari Berpikir Matematis* (Yogyakarta: Graha Ilmu, 2007), Hlm. 84

CHAPTER III

RESEARCH METHODS

A. Approach and Types of Research

In this study used quantitative approach of Research and Development (R & D) because this study studied a phenomenon and the relation with empirical observation and mathematical expression of quantitative relationships. Researchers want to produce a particular product and also doing the test to know the effectiveness of product.

According Sugiono, R&D is a research method that is used to produce a particular product and also doing the test to know the effectiveness of product.⁵⁶ Quantitative research methods is one type of research with the systematic specification, planned step and clearly structured from the beginning to the manufacture of research design. This method was taken because the research conducted with scientific principles, namely concrete, empirical, objective, measurable, rational, and systematic. This method also referred as a discovery method, because this method can be discovered and developed a variety of new science and technology.

Model R & D that is used in this research is the model cycle of the 4-D by Thiagarajan and Sammel (1974), which consists of 4 (four) stages development

⁵⁶ Sugiyono, *Metode Penelitian Pendidikan* (Bandung: cv Alfabeta, 2008), Hlm. 407

consist of, define (defining step), design (planning step), develop (development step), and disseminate (deployment step).⁵⁷

B. Design Of Research

R & D research model that will be used in this study is the 4-D cycle model by Thiagarajan and Semmel. This model consists of four stages of development, that is define (defining), design (planning), develop (development), and disseminate (deployment).⁵⁸

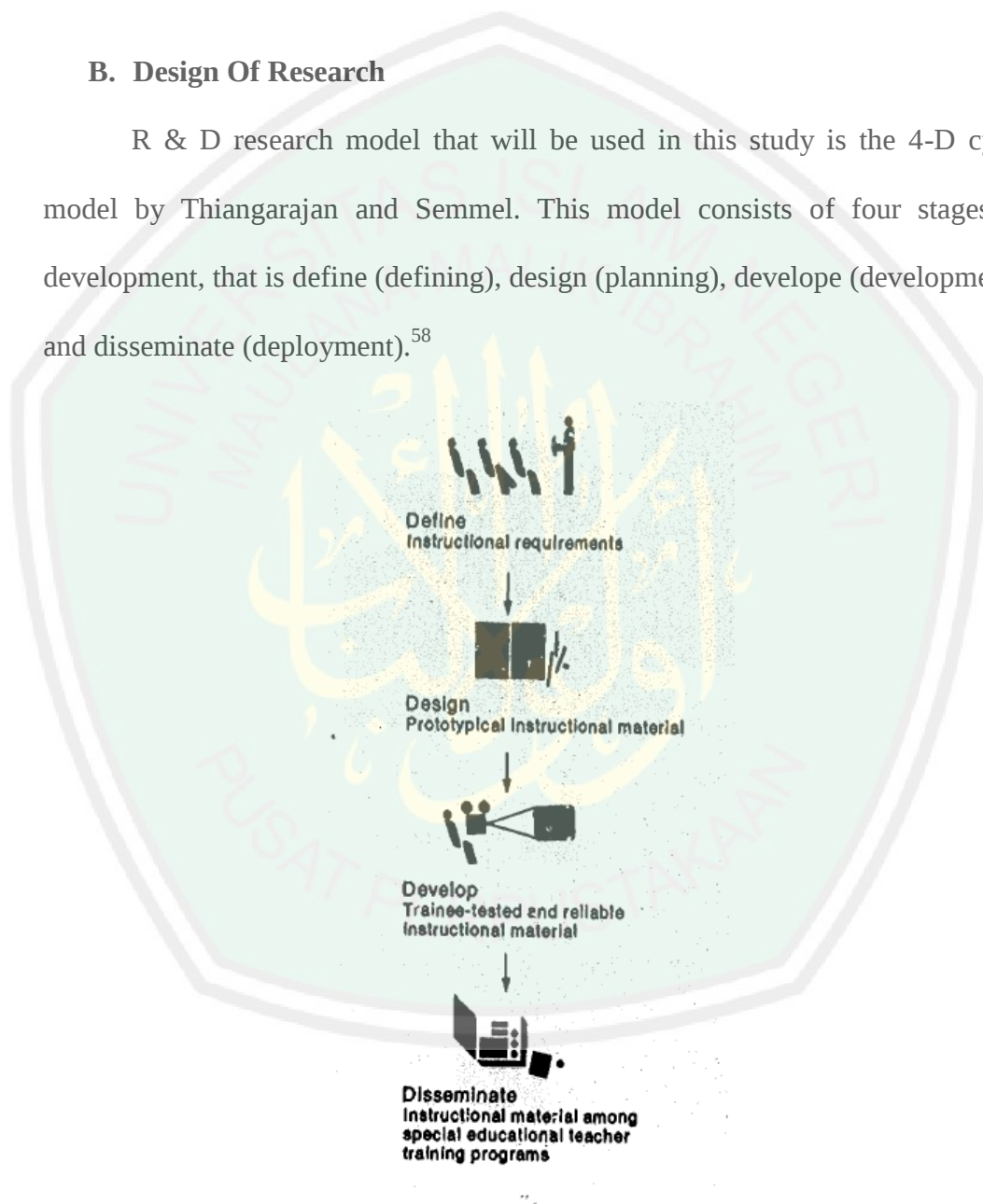


Figure 3. 1 4-D Model of development

⁵⁷ Thiagarajan, S dan Semmel, D. S. (1974) (Instructional Development For Training Teachers Of Exceptional Children: A Sourcebook). Minneapolis: University Of Minnesota.

⁵⁸ Thiagarajan, S dan Semmel, D. S. (1974) (Instructional Development For Training Teachers Of Exceptional Children: A Sourcebook). Minneapolis: University Of Minnesota.

C. Procedure Research

1. Defining Step

This stage have porpose to establish and define the needs in the learning process. In the set of learning needs with the applicable curriculum, level, or stage of development of students, and school conditions also. There are five steps in this stage, namely:

a. Analysis of the problem

In this analysis have porpose to establish basic problems faced in the learning lesson of plane 3rd grade of elementary school, so it takes the development of instructional media in the form of 3D-Storybook.

Based on interviews with 3rd grade teachers classroom at MI Raudlatul Ulum karangploso, generally the learning process in the classroom is still centered on the teacher. Teacher must explain and teach everytime and every lesson. So, that is can make student never be more active. Schools also still use textbooks mathematic in the form of textbooks of mathematics that has the attractiveness levels are less so students become lazy to reading. It will have an impact on the students will suit understand and try to solve the problems associated with lesson of plane in mathematics subject.

It can be concluded there is some problems that arise in mathematics learning lesson of plane in mathematic 3rd grade elementary school are as follows:

(1) The book is still used school mathematics textbooks that the attractiveness

levels are less, (2) mathematics learning still centered on the teacher, so it is difficult for students try to find his own knowledge.

Based on these problems, researchers intend to develop the teaching lessons of plane use instructional media that based on 3D-Storybook with the title is Mikomatika which includes the fable with the story figure is Mikomatika, si Acil, and si Cici. In the story indirectly convey the three characters of story figure tell about the lesson of shape mathematic that is packaged in a children's fable with simple dialog and easily understood by children.

b. Analysis of students

In terms of cognitive development, according Peaget, the child at 7-11 years old, was at the time a concrete operation.⁵⁹ At the time the child is developing concrete operations is based on the idea that certain rules are logical. Process analysis of students who aims to determine the characteristics of learning, behavior, and abilities of students who are still in the concrete operational stage where students think to make real everything they learned were able to imagine, receive knowledge, and concluded. Use of teaching lessons that lead students on an object centered actually will greatly assist students to understanding the lesson presented.

c. Analysis of task

Is a collection of procedures in determining the content and the learning unit by detailing the contents of teaching lessons in outline. Results of the analysis task contained in the 3D-Storybook as a learning device used by research.

⁵⁹ Trianto, *Model Pembelajaran Terpadu* (Jakarta: PT Bumi Aksara, 2010), Hlm.71

Preparation of 3D-Storybook refers to the lesson of plane mathematics in 3rd grade elementary school.

d. Analysis of the concept

An identification of the main concepts to be taught and systematically relevant compile and appropriate concepts, so can be forming from SK and KD that is:

- 1) Standards of competence (SK) that is:
 - a) To understand the elements and characteristics of plane
 - b) Identified various simple figure according to the nature
- 2) basic competence (KD) that is:
 - a) Calculate the perimeter of square and rectangular,
 - b) Calculate the area of square and rectangle
 - c) Resolve issues about perimeter and area in figure of square and rectangle on competency standards calculating perimeter and area of square and rectangle.

Basically the concepts contained in the standart of content in KTSP. To help students understand the concepts discussed, it is necessary to sort according to the knowledge and skills you have acquired student learning at the previous meeting.

e. Analysis of the learning objectives

Analysis of learning objectives and task analysis refers to the analysis of the concept that is:

- 1) Help the students easier to understand the elements and characteristics of plane (SK)
- 2) Help the students easier to identified various simple figure according to the nature
- 3) Help the students easier to calculate the perimeter of square and rectangular
- 4) Help the students easier to calculate the area of square and rectangle
- 5) Help the students easier to resolve issues about perimeter and area in figure of square and rectangle on competency standards calculating perimeter and area of square and rectangle.

2. Planning Step (Design)

This stage aims to create a learning prototype device. The steps in this phase are:

a. The selection of teaching lessons

The selection of teaching lessons should be in accordance with the purpose of producing the product as a means of conveying lesson and can increase student interest, which is a children's book based 3D-Storybook with lesson of plane mathematics in 3rd grade elementary school

b. Format selection

Developed format of learning tools oriented towards to the use of a children's book based 3D-Storybook as learning tools to teach the lesson of plane mathematics in 3rd grade elementary school.

c. An initial draft of 3D-Storybook

Design preparation of 3D-Storybook mathematics will generate a book that includes:

- 1) Title 3D-Storybook mathematics
- 2) Objectives to be achieved
- 3) The story fable entitled Mikomatika, that story about the children who will be leaders in the delivery lesson introduction of plane mathematics in 3rd grade elementary school.
- 4) Let's Practice. Are exercises that correspond to the lesson raised in the story.

3. Development Step (Develope)

Results stages of product development is the product result from the planning stage. The parts that have been designed in the planning stages will be arranged and designed to be arranged in such as way that it becomes a draft product in this stage. If the draft product finished then product should be validated and assessment to 4 (four) experts, that is: lessons experts, education experts, media design expert, and linguists expert are entirely choose from the Faculty of Tarbiyah Science and Teaching lecturer as validator. Draft products will have been validated obtain input and assessment to be made repairs before the book tested to the practitioner (teacher educators) and students in field trials.

This development phase aims to produce 3D- Storybook with the title is Mikomatika lesson of plane mathematics in 3rd grade elementary school that have been valid.

The following sequence in the validation process:

a. Validation of expert lecturers

Conducted by lecturers experts that consisting lessons lecturer experts of faculty, mathematics lecturer experts, design media lecturer experts, linguists lecturer experts to determine whether lesson in the book are in accordance with KI, KD, and indicators that have been made. Aspects of assessment developed by researchers accordance with product that develop. Expert assessment procedure using the following steps:

- 1) Determine appropriate indicators of products that will be developed
- 2) Develop a content expert test instruments based on indicators that have been created by developers
- 3) To do evaluation with the book result of development by expert of faculty and classroom teachers
- 4) Conduct an analysis of the results of the expert test scores obtained by converting it into a statement of quality.

Validation of expert is performed to determine whether a book be able to use students in learning.

b. Validation class teacher or practitioner

Practitioner Validation is performed to determine whether a book be able to use students in learning. Assessment procedures by practitioners using the following steps:

- 1) Determine the assessment indicators in accordance with the products developed
- 2) Develop a feasibility test instruments in accordance book with products developed
- 3) To test the feasibility of books
- 4) Conduct an analysis of the results of the expert test scores obtained by converting the quality statement. The developer using appropriate repair advice and analytical results

c. Revision Of The Product And The Product Is Ready

Repair or revision of the product obtained from the test results by the experts, practitioners testing, and field trials. Product revision aims to enhance 3D-Storybook of math book so that it will becomes a product that is ready to use students in learning process.

4. Disseminate Step (Test Of Products)

This stage is step of the use devices that have been developed in this research that is mathematical teaching lessons 3rd grade by using 3D-Storybook mathematics are packed in a child's storybook fable interesting and contains

lesson of plane mathematics in 3rd grade elementary school. In this research, phase of dissemination is limited to schools that tested using a single test class.

a. Field Trials

Field trials applied to students in 3rd grade that will taken by random sampling. One of the samples taken can be a small group that is comprised of 3 (three) to 6 (six) students, the group is comprised of 1 (one) class of students in grade 3 (three) Raudlatul Ulum MI, and major groups that is comprised of 3rd grade students all of school in one village. In this research, researchers used a sample medium, so the researchers conducted by the research in grade 3A MI Raudlatul Ulum Karangploso Malang that encourage of 23 students. The purpose of this trial is to operationalize 3D-Storybook mathematics developed and the necessary learning tools. Implementation procedures of this trial are as follows:

- 1) Explain to students the purpose of trial
- 2) Implement the learning use 3D Storybook mathematics lesson of plane to the students
- 3) Hold a post test after using 3D-Storybook math books
- 4) Researcher distribute questionnaire to know about the attractiveness after using the 3D-Storybook math books
- 5) Analyze the results of the student's answers from the questionnaire to see the advantages and disadvantages of the product

D. Subject Trial

Researcher use the medium sample that the member is all of students in one of class. Research subjects to test the product in this research is students 3rd grade (3A) MI Raudlatul Ulum Karangploso academic year 2014/2015 that conduct of 23 students.

E. Type of Data

In this study the data obtained in two types, namely:

1. Primary data, that is data about the quality of the feasibility math book based on 3D-Storybook obtained from the validation experts. Such data contain with assessment scores of feasibility aspects of contents, aspects of language, aspect of design, and comments in the form of criticism and advice from all experts.
2. Secondary data, that is data obtained from the results score evaluation of student from learning activities after math books based on 3D-Storybook

F. Data Collection Instrument

The data collection instruments used in this study are:

1. Questionnaire

Questionnaire which contains the questionnaire used to obtain data related to the feasibility of math book based on 3D-Storybook in terms that is feasibility aspects of content, language, design, the attractiveness and effectiveness of product development. So, the produk can be apply and used by the student in

learning activity with the score value of questionnaire from the expert. The questionnaire is intended for validator experts and practitioners (teachers). Preparation of the questionnaire conducted by the grille, and before use, the questionnaire was first corrected by lecturers and experts, questionnaire prepared using a Likert scale.

2. Test results of learning

Researchers used the Pre-Test and final test (Post-Test) for students to conducting tests of learning result. Test result of learning can be use to know the effectiveness of product after used by the students in the learning activity. Pre-Test and final test (Post-Test) give to the students before and after use the product of development and that we can compae score result between Pre-Test and final test (Post-Test). In The form of test is essay test that adapted to the lesson in the math book based on 3D-Storybook. Problem is based on the lattice, then made the same assessment scores.

G. Data Analysis Techniques

1. Analysis of Feasibility Product

Technical analysis of the data for the feasibility of the product by the experts and the response of students is done by stages as follows:

- a. Tabulation. Which is a technique the analysis of data obtained from the validator for each component, sub-component of the assessment provided in the assessment instruments.

- b. Calculating the average score of each component with using the formula:⁶⁰

$$P = \frac{\sum X}{\sum x_1} \times 100 \%$$

Specification:

X = the average scores

$\sum x$ = Total score

N = number of assessors

- c. The average score change into a value with the criteria

Assessment of the results of validation using the conversion scale levels of achievement, because the necessary assessment standards of achievement (score) and adjusted to predefined categories. The following qualification table ratings:⁶¹

Table 3.1 Qualification Level of properly Based on Percentage

Achievement	level Qualification	Specification
80-100%	Valid	No need revision
60-79%	Enough Valid	No need revision
40-59%	Less Valid	Revision
0-39%	Invalid	Revision

Based on the table above assessment considered valid if achievement scores ranging from 60-100 of all elements contained in the questionnaire assessment experts of design media, experts lecturer of mathematic, experts lecturer of linguistic, mathematics teacher, and students. Score must get the

⁶⁰ Zen Amiruddin, *Statistik Pendidikan Pendidikan*, (Yogyakarta: Teras, 2010), hlm. 35

⁶¹ B. Subali, dkk, *Pengembangan CD Pembelajaran Lagu Anak Untuk Menumbuhkan Pemahaman Sains Anak*. *Jurnal Pendidikan Fisika Indonesia*, prodi Fisika UNNES No.8, Januari 2012

criteria for a valid assessment. If the criteria is not valid then be revised to achieve a valid criterion. To feasibility score of 3D-Storybook book, researcher using a scale of four, then the category enough or medium is not used.

2. Analysis Of The Learning Results Test

Data analysis from the achievement test will be used to measure student learning result comparison between before and after using the development product of mathematics textbook based on 3D-Storybook lessons of plane for 3rd grade elementary school in field trials conducted by using the experiment to comparing the situation before and after use the new teaching method (before-after).⁶²

Here's an explanation associated with experimental models before after:



O1 X O2

Figure 3. 1 Design of Experiments (Before-After)

Specification:

O1: Value before treatment

O2: Value after treatment

X: Treatment

Field trial data collected using questionnaires and achievement tests (learning test achievement) before and after using the product development. Data

⁶² Sugiono, *Metode Penelitian Pendidikan* (Bandung: cv Alfabeta, 2008), hlm. 414.

obtained from field trials and then collected for later comparison. The data consist of the results of the pre-test and final test (post-test) in order to determine the ratio of learning outcomes, as well as data from a questionnaire to measure the attractiveness and effectiveness of product development. In comparing the value of the initial test and final test previously had known the the evaluation average score of student. To calculate the average score of students used the following formula:

1. Mean (average)

The analysis technique used to determine the mean pre-test and post-test with the following formula:⁶³

$$\text{Mean} = \frac{\sum X}{N}$$

Specification:

Mean : average

$\sum X$: the amount of the value of pre-test or post-test

N : number of samples

⁶³ Zen Amiruddin, *Statistik Pendidikan Pendidikan*, (Yogyakarta: Teras, 2010), hlm.73

CHAPTER IV

THE RESULT OF RESEARCH AND DEVELOPMENT

Development of instructional mathematic instructional media based on 3D-Storybook with lesson of plane for students in grade 3A MI Raudlatul Ulum Karangploso Malang done according to stages of 4-D model development (Four D Models), including the following:

A. Define Step

1. Preliminary Analysis

Data obtained from the results of the preliminary analysis that is the curriculum used in grade 3A MI Raudlatul Ulum Karangploso Malang school year 2014/2015 which uses the curriculum KTSP. In mathematics subject, one of lesson that is considered difficult by students of grade 3A is the plane lesson. Students difficulty in understanding plane lesson is about the distinguish between characteristics to with one another, in addition some student also difficult to calculate the perimeter and the area of many figure in plane lesson, some of student still difficult to remember the formula one with another formula in plane lesson, one of the reason why they feel difficult with plane lesson because the students are lazy to read, repeat the lesson, so as to remember and understand it will also be difficult.

Understanding and knowledge that getting among students with other students is different, especially to convey teacher explanation, because that the using interesting media is needed in the learning about plane lesson. Selection of

appropriate and matched media with the lesson, and also the use of media must be appropriate and match with character of students is needed to deliver the lessons. With the development of media teaching math book based on 3D-Storybook in this subject is expected to facilitate student's understanding and will be attraction for students to learn math, so the presence of this development could be the solution of the problems that occur in learning.

2. Student Analysis

The research was conducted in grade 3A MI Raudlatul Ulum Karangploso Malang, amounting to 23 students with different characteristics of each other. In terms of cognitive development, according Peaget, the child at 7-11 years old, was at the time a concrete operation.⁶⁴ One of the characteristics of students in grade 3A who become the subject of a trial that is between 8-9 years old, has the academic ability of different views of the score of the task and the daily quiz mathematics courses, some students with high academic ability, some medium, and some low. Students active always doing the task about plane lesson that given by the teacher very excellent but some student still difficulties with this lesson. Students have get the lesson of plane in mathematics subject, but student's understanding of the lesson is still lacking.

⁶⁴ Trianto, *Model Pembelajaran Terpadu* (Jakarta: PT Bumi Aksara, 2010), Hlm.71

3. Analysis Of Task

The tasks that given by the teacher in mathematics plane lesson is in form descriptions and essays question. Teachers also provide daily tests for mathematics plane lesson. In addition, teachers also give the task for the students to make a poster about mathematics plane lesson and then the poster will be hang on the classroom wall.

4. Analysis Of Concepts

According to basic competencies of mathematics learning that is identified various simple figure according to the nature or elements in the standards of competence (SK) to understand the elements and characteristics of plane, and basic competence (KD) that is calculate the perimeter of square and rectangular, calculate the area of square and rectangle, resolve issues about perimeter and area in figure of square and rectangle on competency standards calculating perimeter and area of square and rectangle, as well as their use in solving the delivery problem entirely implemented in the form of children's stories were interesting and entertaining for them. Besides presenting the stories in book with color full design, also packaged in a simple and practical, making it attractive for the children. So that will facilitate the delivery of the mathematics plane lesson to the students, so the lesson that is considered difficult by the students will presented in an interesting teaching lessons but according to the curriculum KTSP.

5. Analysis Of The Learning Objectives

Learning objectives formulated covering four basic competencies, which identify various of plane according to the characteristic or elements, calculate the perimeter of square and rectangle, calculate the area of square and rectangle, resolve issues related with the perimeter and area of square and rectangle. The formulation of the learning objectives are as follows:

- a. Students are able to mention the names various of plane
- b. Students are able to mention the characteristics variety of plane accordance SK and KD
- c. Students are able to distinguish the characteristics variety of plane accordance SK and KD.
- d. Students are able to mention various objects in around accordance with variety of plane that they have been learned.
- e. Students are able to calculate the perimeter and area of square and rectangle (according to SK and KD).
- f. Students are able to resolve issues related with the perimeter and area of square and rectangle.

B. Design Step

At the design phase will doing the development of teaching media that will produce the preliminary product in the form of mathematics textbook based on 3D-Storybook for later validation process before the next step that is applied to the students in learning process. The steps in this phase are:

1. Preparation Of Lesson In The Form Of A Story

The lesson is arranged in Mathematics 3D-Storybook consists of four basic competencies that is: identifies various of plane according to their characteristic or their elements, calculate the perimeter of square and rectangle, calculate the area of square and rectangle, resolve issues related with the perimeter and area of square and rectangle packed into one in the form of a simple story that suitable for children ,

Math book based on 3D-Storybook equipped with a variety of questions and quiz which delivery it also through the story, played by the characters. Selection of the story aims to attract students to learn the mathematics plane lesson with their self desire more easily, besides delivery of content through direct dialogue delivered by characters will facilitate sticking lesson in the memory of the child. So that the lesson received will provide fun and stick very strong impression on the memory of the child. In the 3D-Storybook of Mathematics there are also some problems in some dialogue between characters is intended for readers that would give rise to the impression of direct interaction between the reader with the characters in the story, it can also attract the interested students.

2. Preparation Of Media Formats and Preliminary Design

Results of the development instructional media that based on 3D-Storybook of mathematics with plane lessons for 3rd grade students of elementary school. This book can be viewed through three aspects: the introduction part, part

of the contents, and the closing part. Following exposure to the product description:

a. Introduction (Cover)

In the introduction, which can be seen through the cover of the book are in the design as attractive as possible, colorful, and interesting, and have covering with important information regarding the contents of the content in the book.

Cover book of 3D Storybook of mathematics with plane lessons have customized design for children. In accordance with the characteristics of children of primary school age are the majority like the variety of images with full color will be the main attraction for children want to opening and reading the book with self desire. In the cover story that included the title is take from the name of the main character in the story that is Mikomatika. In addition there are other particulars showing the contents of the book, good lessons, basic use, as well as the subject of the book targets were intended for elementary school students in grade 3. Following the design of the book cover image:

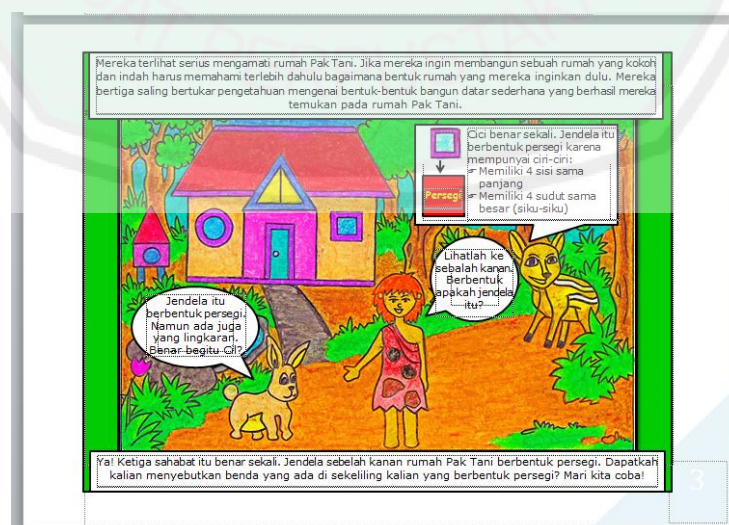


Picture 4.1 Cover Book

b. Contents Of Book

1) Fill story

Part contents of the book is a story consisting of 12 pages that tell about the friendship between a little boy that is Mikomatika with his animal friends, si Acil and si Cici. Miko is a child who grow in the forest since childhood has been diforce from his parents and cared by the animals in the forest. Everyday Miko always play with his two friends, si Acil and si Cici. One day, Miko told his friends if he wanted to build a house for residence, but Miko not know what kind of home is right and deserves to be home later. Finally they are take a walk through the forest, until they reach the edge of the forest and they found the house of Farmer in there. Farmer's house is so beautiful and big. Finally they are studying about what kind that they need to build home from looking the Farmer's house order to imitate them build their own homes for Miko. Here's an example of the design image of the content of the book:



Picture 4.2 Content Book

2) Evaluation (Quiz)

In the book also comes with evaluation questions. There are two types of evaluation questions in the book that evaluation directly and indirectly. Directly evaluation will be displayed on the contents of the book in the end pages with a description about the form that asks students to calculate the perimeter and area of square and rectangle. As for the evaluation are indirectly in the book is written in a dialog text submitted by one of the cast of characters in the story, so memorable as the reader like doing interaction directly with the characters in the story. To delivered evaluate the indirectly question also simple and can be directly answered by the children as a reader.

Bangun Datar	Keliling	Luas	Nilai
 4 cm			 
 6 cm 4 cm			 
 7 cm 5 cm			 
 6 cm 6 cm			 
 6 cm 3 cm			 

Bagaimana? Mudah kan?
Berapa kartu senyum dan kartu sedih yang sudah tertempel?

Figure 4.3 Problem Evaluation (Quiz)

c. Closing part

The closing part of the book that is back cover. On the back cover (section cover) included few details about contents of the book are presented in there. Purpose formulation contains about books, subjects who were targeted as a reader,

what about the lesson, and some little stories contained in the 3D-Storybook of mathematics. Also on the cover is also equipped with a biography of the author.

Here is a picture book cover design:

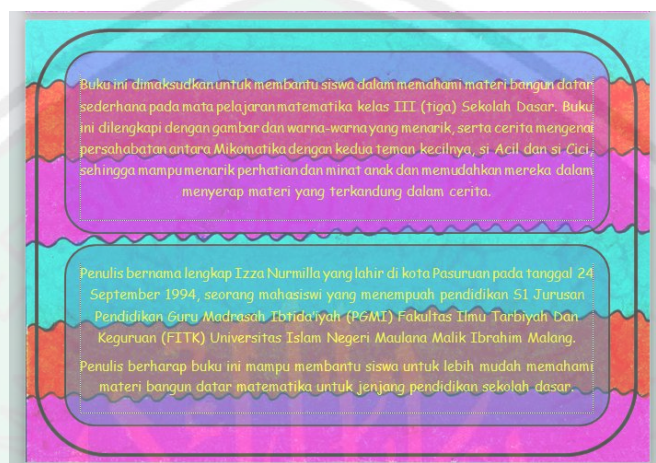


Figure 4.3 Section Cover (Back Cover)

C. Development Step

In the development stage researchers conducted various sequences as follows:

1. Analysis of Product Validation Data Result

Data from the validation of teaching lessons taken starting on 13 April 2015 and ended on May 8, 2015. The data was validated through the results of expert validation and field testing. Making validation data obtained from three validator experts consisting of one mathematic expert validator, design media experts validator, linguists expert validator, and the learning experts validator.

Media expert validator is Dr. Muhammad Walid, MA. He is lecturer and head of the Madrasah Ibtida'iyah Teacher Education (PGMI) Department in

Tarbiyah Science and Teaching Faculty UIN Maulana Malik Ibrahim Malang. Mathematic expert validator is Mrs. Yeni Tri Asmaningtias, M.Pd who is a lecturer in Madrasah Ibtida'iyah Teacher Education (PGMI) Department in Tarbiyah Science and Teaching Faculty UIN Maulana Malik Ibrahim Malang. Linguists expert validator is Mrs. Hj. Siti Annijat M.,M.Pd. who is a lecturer in Madrasah Ibtida'iyah Teacher Education (PGMI) Department in Tarbiyah Science and Teaching Faculty UIN Maulana Malik Ibrahim Malang, and teacher grade 3A as learning expert validators Mathematics from MI Raudlatul Ulum Karangploso Malang, namely Mrs. Sulistina, S.Pdi. Criteria of score value used in the validation process are follows:

Table 4. 1 Score of Validation Criteria

Answers	Description	Score
SB	Excellent	5
B	Good	4
TB	No Good	2
STB	Very Not Good	1

Presentation of data from the analysis of a questionnaire assessment of design media expert, mathematics expert, language expert, learning expert, are as follows:

a. Design Media Expert Validation

Product development results in the form of math books based on 3D-Storybook with plane lessons for students in 3rd grade of elementary school submitted to design media experts to do the validation. Exposure descriptive design media expert validation results will be shown through questionnaire method with questionnaires that can be seen in table 4.2, 4.3, 4.4, 4.5.

1) Exposure Quantitative Data

Quantitative data can be seen in table 4.2, 4.3, as follows:

Table 4. 2 Assessment Design Media Expert

No.	Statement	x	xi	P (%)	Level of Validity	Ket.
1.	The attractiveness of media packaging	5	5	100	Valid	No Revision
2.	The accuracy of the typeface and font style that used in media	4	5	75	Valid Enough	No Revision
3.	The accuracy of typing layout	5	5	100	Valid	No Revision
4.	Clarity of writing or typing	5	5	100	Valid	No Revision
5.	Accuracy of Image placement	5	5	100	Valid	No Revision
6.	Accuracy of illustrations use	5	5	100	Valid	No Revision
7.	Consistent the use of system	5	5	100	Valid	No Revision
8.	Suitability organizing of media content	5	5	100	Valid	No Revision
9.	The suitability of the types and forms of assessment	4	5	75	Valid Enough	No Revision
10.	Ease of language used in teaching media	5	5	100	Valid	No Revision
Total		48	50	96%	Valid	No Revision

2) Data Analysis

Based on the results quantitative data validator by design media experts, the next step is analyze the data. Data analysis can be calculated by the percentage level of achievement validity of the data. Here's the explanation:

$$P = \frac{\sum x}{\sum xi} \times 100 \%$$

Specification:

x : Score the answers of the validator, by Dr. Muhammad Walid, MA
as a design media expert.

x_i : Highest Score answer.

P : The percentage level of validity.

Table 4.3 Frequency Distribution Level of Design Media Expert Validity

Validity level	F	%
Valid	8	80
Valid Enough	2	20

Table 4.2, and 4.3, indicating that the media expert validation results showed if 80% of the data is valid, that is the item number 1,3,4,5,6,7,8,10. While 20% stated quite valid, that is the item number 2 and 9.

3) Exposure Qualitative Data

Here is exposure qualitative data obtained through criticism and advice provided directly by design media experts.

Table 4. 4 Suggestions Media Design Expert

Expert Name	Suggestions
Dr. Muhammad Walid, MA	Choose font style more easier to reading by children

Based on the table above criticism and advice, media experts providing input to the author for more attention to the use of the typeface so chosen that are

easier to read and understood by children. Selection of the typeface is very influential on the success of the delivery of intent contained in the open, in addition to the proper use of fonts can also facilitate children that has reading ability is still low and help the children that are not easily to be bored with the reading of story because of the difficulty in reading , For the whole book has been very good and just need a bit of improvement before it is applied to the students. Validation of the design media experts was conducted on 20 April 2015 by Dr. Muhammad Walid, MA as a design media expert. In the validation process with design media experts, researchers have conducted consultation related to teaching lessons with the supervisor.

4) Product revision

Table 4. 5 Revision Instructional Lessons Based Validation Expert Media

No.	Point Revised	Before Revision	After Revision
1.	Choose font style more easier to reading by children	Font style used is Comic Sans MS entirely with size 12	Font used is Verdhana on the part of the story, DaunPenh for the title on the cover, and Comic Sans MS on the cover. With the size of each 12

All data from the results of the validation, assessment, as well as criticism and advice from design media experts as a basis for revision. It is useful for the improvement of mathematics textbook based on 3D-Storybook before will be applied to the students in grade 3A MI Raudlatul Ulum Karangploso Malang.

b. Mathematics Expert Validation

Product development results in the form of math books based on 3D-Storybook with plane lessons for students in 3rd grade of elementary school submitted to mathematics experts to do the validation. Exposure descriptive mathematics expert validation results will be shown through questionnaire method with questionnaires that can be seen in table 4.6, 4.7, 4.8, 4.9.

1) Exposure Quantitative Data

Table 4. 6 Mathematics Expert Assessment

No.	Statement	x	xi	P (%)	Level Of Validity	Ket.
1.	Presentation of the lesson in accordance with the character of subjects	4	5	75	Valid Enough	No Revision
2.	The development of the concept of the lesson	5	5	100	Valid	No Revision
3.	Completeness of lesson	4	5	75	Valid Enough	No Revision
4.	Rotation of lesson	4	5	75	Valid Enough	No Revision
5.	Compliance with the progress of students	4	5	75	Valid Enough	No Revision
6.	The logical relationships between facts, concepts, and theories	4	5	75	Valid Enough	No Revision
7.	Conformity with the concept of core competence and basic competences in the curriculum in 2013	4	5	75	Valid Enough	No Revision
8.	Elaboration of the concept of lesson and activities in accordance with the students 3 rd grade of elementary school	4	5	75	Valid Enough	No Revision
9.	Emphasizing process skills	5	5	100	Valid	No Revision
10.	There is a evaluation that is capable to measuring student learning result	4	5	75	Valid Enough	No Revision
11.	There are questions that lead	4	5	75	Valid	No

	students to take conclusions				Enough	Revision
12.	There is a matter that emphasizes to the process skills	4	5	75	Valid Enough	No Revision
13.	Instructions of evaluation is easy to understand	4	5	75	Valid Enough	No Revision
14.	Presentation lesson and appearance instructions are easy to understand for students	4	5	75	Valid Enough	No Revision
15.	In an interesting presentation of the lesson	5	5	100	Valid	No Revision
Total		63	75	84 %	Valid	No Revision

2) Data Analysis

Based on the results quantitative data validator by mathematics experts, the next step is analyze the data. Data analysis can be calculated by the percentage level of achievement validity of the data. Here's the explanation:

$$P = \frac{\sum x}{\sum x_1} \times 100 \%$$

Specification:

x : Score the answers of the validator, by Mrs. Yeni Tri

Asmaningtias, M.Pd. as a mathematics expert.

x_i : Highest Score answer.

P : The percentage level of validity.

Table 4.7 Frequency Distribution Level of Mathematics Expert Validity

Validity level	F	%
Valid	3	20
Valid Enough	12	80

Based on table 4.7, and 4.8, indicating that the mathematics expert validation results showed if 20% of the data is valid, that is the item number 2.9, and 15. While 80% stated quite valid, that is the item number 1,3,4,5, 6,7,8,10,11,12,13, and 14.

3) Exposure Qualitative Data

Here is exposure qualitative data obtained through criticism and advice provided directly by media experts.

Table 4. 8 Suggestions Matter Expert

Expert Name	Suggestions
Yeni Tri Asmaningtias, M.Pd.	1. Its 3D shape where? 2. Fixing page 10, which adjusts the text answers in the text field of si Cici not related with questions in the text field of si Acil 3. The color is so dark (on the ground) 4. Page 7 corrected (by giving marks on each corner) 5. Whether the lesson is limited to square, rectangle, triangle, and circle?

Based on the table above criticism and advice, mathematics experts providing input to the author to fix the dialog text in a text field si Acil and si Cici is not match between questions and answers. The second criticism is the use of colors that are so dark and is limited to those colors alone (the majority use brown and green). Then on page 7 that displays various types of images form a triangle based on the angle it is advisable to give an indication on the part of each angel as the difference between the angle that one with another.

For the fourth suggestion is about the limitations of the lesson only at the 4 wake modest flat that is square, rectangle, triangle, and circle has indeed been adapted to the Competency Standards (SK) and the Basic Competency (KD) of plane lesson (an measurement and geometry) for students 3rd grade 3 SD/MI. Validation in this matter experts conducted on 20 April 2015 by Mrs. Yeni Tri Asmaningtias, M.Pd as a mathematics expert. In the validation process with mathematics experts, researchers have conducted consultation related to teaching lessons with the supervisor.

4) Product revision

Based on the analysis that has been done, following the exposure of data related to the revision of teaching lessons:

Table 4. 9 Revision Instructional Based on Mathematics Expert Validation

No.	Point Revised	Before Revision	After Revision
1.	Assertion 3-dimensional shape	At some pictures again highlighted by sticking a paper to the shape of the appropriate section.	In some image attachment again highlighted with the paper to the shape of the corresponding part.
2.	Improvements page 10 which adjusts the text answers in the text field of si Cici not related with questions in the text field of si Acil	Earlier on page 10 there is a dialogue that does not match between si Acil were asked to answer given si Cici.	Dialogue between si Acil who asks has been adapted to the answers given si Cici
3.	The color is so dark		

		The color is so dark	color is so highlight
4.	Repair page 7 (marking on the part of each angel to distinguish between the angel of the premises another angle)	On page 7 there are various types of triangular shape image based on the angle. In this section, each corner has not been given a sign to show the differences in each angel	Marking on the part of each angel to distinguish between type of triangle based on angel that is right triangle, obtuse triangle and taper triangle
5.	Limitations of the lesson only on plane lesson of mathematics that is square, rectangle, triangle, and circle lesson	Contained in the story is confined to the plane lesson of mathematics that is square, rectangle, triangle, and circle lesson	Contained in the story is confined to plane lesson of mathematics that is square, rectangular, triangle, and circle adapted to Kompeensi Basic (KD) of such lesson

All data from the results of the validation, assessment as well as criticism and advice from mathematics experts as a basis for revision. It is useful for the improvement of mathematics textbook based on 3D-Storybook before will be applied to the students in grade 3A MI Raudlatul Ulum Karangploso Malang.

c. Linguists Expert Validation

Product development results in the form of math books based on 3D-Storybook with plane lessons for students in 3rd grade of elementary school submitted to linguists experts to do the validation. Exposure descriptive linguists expert validation results will be shown through questionnaire method with questionnaires that can be seen in table 4.10, 4.11, 4.12, 4.13.

1) Exposure Quantitative Data

Quantitative data can be seen in table 4.2, 4.3, as follows:

Table 4. 10 Assessment of Linguists

No.	Statement	x	xi	P (%)	level of validity	Ket.
1.	Words selection in the presentation of lessons	4	5	75	Valid Enough	No Revision
2.	The language used is easy to understand by the reader or user	4	5	75	Valid Enough	No Revision
3.	Learning media (fun to read and understand)	5	5	100	Valid	No Revision
4.	The used of language accordance with EYD	4	5	75	Valid Enough	No Revision
5.	The used of language suitable for students in 3 rd grade elementary school	4	5	75	Valid Enough	No Revision
6.	Sentences are used has not double meaning	4	5	75	Valid Enough	No Revision
Total		25	30	84%	Valid	No Revision

2) Data Analysis

Based on the results quantitative data validator by linguists experts, the next step is analyze the data. Data analysis can be calculated by the percentage level of achievement validity of the data. Here's the explanation:

$$P = \frac{\sum x}{\sum xi} \times 100 \%$$

Specification:

x : Score the answers of the validator, by Hj. Siti Annijat M., M.Pd as linguists experts.

xi : Highest Score answer.

P : The percentage level of validity.

Table 4.11 Frequency Distribution Level of Linguists Expert Validity

Validity level	F	%
Valid	1	17
Valid Enough	5	83

Table 4.10, and 4.11, indicating that the linguist expert validation results showed if 17% of the data is valid, that is the item number 3, while 83% stated quite valid, that is the item number 1,2,4,5, and 6.

3) Exposure Qualitative Data

Here is exposure qualitative data obtained through criticism and advice provided directly by linguists expert.

Table 4. 12 Suggestions Linguist

Expert Name	Suggestions
Hj. Siti Annijat, M. Pd	1. Adjustment of the color of the cover 2. Background color (the soil) make brighter 3. Fix wording on page 2 4. On page 12 directly supplied patch smile card 5. Suggestions to include an interactive CD in the book

Based on the table above criticism and suggestions, linguists provide feedback to the author to adjust the color on the front cover, which is on the title text color, background color (in the ground) be more highlight, wording in the text section Miko improved dialogue, direct provision of stickers smile card on page 12, and linguists provide inputs to include an interactive CD in the book as a supplement if the student would like to see the shape of his impressions.

According to linguists, the whole book has been very good and just need a bit of improvement before it is applied to the students. Validation of the media experts was conducted on 20 April 2015 by Mrs. Hj. Siti Annijat, M.MPd as a linguists expert. In the validation process by linguists, researchers have conducted consultation related to teaching lessons with the supervisor.

4) Product revision

Table 4. 13 Revised Instructional Based on Linguists Expert Validation

No.	Point Revised	Before Revision	After Revision
1.	Adjustment of the color one word in the cover	The color of the letter "i" in pink not match with a dark green background	Color of the letter "i" is replaced by light green and pink background
2.	The background color (the soil) make brighter	Background color (part of the land) is too brown and dark	The background colors make brighter by making slightly yellowish
3.	Fix wording on page 2	Settling Miko dialog text: "Lihatlah! Bagus sekali rumah itu!"	Text dialog Miko become: "Lihatlah! Rumah itu bagus sekali!"
4.	On page 12 about Previous smile card and sad card sticker	Previous smile card and sad card sticker has not been provided on this page	Smile card and sad card sticker in this section in addition to the matter of student evaluations
5.	Suggestions to include an CD interactive	Previous CD Interactive in this book is not included	For this research only focused on 3D-Storybook book, so the inclusion of CD Interactive can be done in future research

All data from the results of the validation, assessment, as well as criticism and advice from design linguists experts as a basis for revision. It is useful for the

improvement of mathematics textbook based on 3D-Storybook before will be applied to the students in grade 3A MI Raudlatul Ulum Karangploso Malang.

d. Expert Learning Validation

Product development results in the form of math books based on 3D-Storybook with plane lessons for students in 3rd grade of elementary school submitted to learning experts to do the validation. Exposure descriptive learning expert validation results will be shown through questionnaire method with questionnaires that can be seen in table 4.14, 4.15, 4.16, 4.17.

1) Exposure Quantitative Data

Quantitative data can be seen in Table 4.14, 4.15, as follows:

Table 4. 14 Assessment Expert Learning of Study Mathematics

No.	Statement	x	xi	P (%)	level of validity	Ket.
1.	Relation the concept with competence standard and basic competences in the curriculum in 2013	5	5	100	Valid	No Revision
2.	Elaboration of the concept of lesson and activities in accordance with the 3 rd grade students	5	5	100	Valid	No Revision
3.	Clarity identity of theme	5	5	100	Valid	No Revision
4.	Completeness of components in student guides	4	5	75	Valid Enough	No Revision
5.	Clarity of lesson characteristics	4	5	75	Valid Enough	No Revision
6.	The development concept lessons	4	5	75	Valid Enough	No Revision
7.	Completeness of the lessons	5	5	100	Valid	No Revision

8.	Rotation of lesson	5	5	100	Valid	No Revision
9.	Compliance with the student's progress	4	5	75	Valid Enough	No Revision
10.	Correct of using learning strategies	5	5	100	Valid	No Revision
11.	Ease for use of student	5	5	100	Valid	No Revision
12.	The attractiveness of organization the lesson	5	5	100	Valid	No Revision
13.	Clarity evaluation of learning result	5	5	100	Valid	No Revision
14.	Emphasizing of process skills	4	5	75	Valid Enough	No Revision
15.	There are questions that is capable to measuring student learning result	5	5	100	Valid	No Revision
16.	There are questions that lead students to take conclusions	4	5	75	Valid Enough	No Revision
17.	There are evaluation that emphasizes to the process skills	5	5	100	Valid	No Revision
18.	There is a evaluation instructions that easy to understand	5	5	100	Valid	No Revision
19.	Presentation lesson instructions are easy to understand for students	4	5	75	Valid Enough	No Revision
20.	Lesson interesting presentation	5	5	100	Valid	No Revision
21.	Synchronizing lessons design and picture of media	4	5	75	Valid Enough	No Revision
22.	Consistency of use the space and typing of title	4	5	75	Valid Enough	No Revision
Total		101	101	91,9 %	Valid	No Revision

2) Data Analysis

Based on the results quantitative data validator by learning experts, the next step is analyze the data. Data analysis can be calculated by the percentage level of achievement validity of the data. Here's the explanation:

$$P = \frac{\sum x}{\sum x_1} \times 100 \%$$

Specification:

x : Score the answers of the validator, by Ms. Sulistina, S.Pdi as learning expert that is teachers Mathematics in grade 3A.

x_i : Highest Score answer.

P: The percentage level of validity.

Table 4.15 Frequency Distribution Expert Level of Learning Validity

Validity level	F	%
Valid	13	60
Valid Enough	9	40

Based on the table 4.14 and 4.15, indicating that the learning expert validation results showed if 60% of the data is valid, that is the item number 1,2,3,7,8,10,11,12,13,15,17,18, and 20 . While 40% stated quite valid, that is the item number 4,5,6,9,14,16,19,21, and 22.

3) Exposure Qualitative Data

Here is exposure qualitative data obtained through criticism and advice provided directly by learning experts.

Table 4. 16 Suggestions by The Learning Expert of Mathematics

Expert Name	Suggestions
Sulistina, S.PdI	1. Learning with use 3D-Storybook is very good

	2. Little point (suggestions) in writing of the lesson in the book needs to be developed with many more examples for the application of various lessons (Can be applied in a variety of appropriate lessons)
--	--

Validator learning experts that is Mrs. Sulistina, S.Pdi. She just suggested-based 3D math book Storybook is already very attractive and could be developed also in the various subject matter of mathematics to interest students in learning mathematics.

Based on the table above criticism and advice, has written that the data has been declared invalid. Data was taken on Mei 22, 2015 and conduct research and product trials on May 26, 2015 because it has received approval from the validator experts, as well as the supervisor not to mention learning expert teachers of Mathematics has been allowed to do research because teaching lesson deserves to be tested based on the criteria questionnaire, opinions, and criticisms and suggestions from experts validator.

All data is the result of the reviews, ratings, and comments and suggestions from the expert subject teachers teaching mathematics as a lesson used as a basis for revision and refinement of the components useful for teaching lessons tested prior to the student class 3A.

D. Disseminate Step (Field Trial)

After the book development results declared valid by the validator, then researchers conducted the next stage of field trials. Field trial was conducted to determine the effectiveness and attractiveness of the teaching lessons to help students learn. Field testing of the process of teaching lessons on May 25-26, 2015. The products development are tested in the field in the form of 3D-based math books Storybook flat wake lessons for students in grade 3A SD/MI that has passed the validation process by experts, and has declared eligible to apply to students. Field trials (field evaluation) was conducted on all students in grade 3A MI Raudlatul Ulum Karangploso Malang that amount of 23 students. Following exposure of the test result data:

1. Analysis Attractiveness Data of Product
 - a. Exposure Quantitative Data Field Trials

In the field trial the students are not given a questionnaire with scoring as in the validator. Students are given a questionnaire with answer options a, b, c, and d to help students understand the purpose of the questionnaire. The form of the questionnaire was made as a test structure that is usually given to students so that students can easier to answer it alone. Scoring students' responses with scoring each answer choice, namely a choice answers with a 5 score, b choice answers with a 4 score, option c answers with a 2 score, and the choice of answers d with a 1 score. Here quantitative data exposure results of field trials 4.13 in the table:

Table 4. 17 Field Trial Results

No.	Statement	Scores From Respondents	$\sum x$	$\sum x_i$	P (%)	Validity Level	Ket.
1.	The media 3D-Storybook of mathematics book can facilitate you in learning	5,5,5,4,5,4,5,5,5,5,5,4,5,5,5,5,5,5,5,5	112	115	97,3	Valid	No Revision
2.	Does the use of media 3D-Storybook of mathematics book can give encouragement in your learning	5,4,5,4,5,5,5,5,5,5,5,5,5,5,5,5,5,5	113	115	98,2	Valid	No Revision
3.	Do you easily understand the lesson lesson with the media 3D-Storybook of mathematics book	5,4,5,4,4,4,5,4,5,5,4,5,5,4,5,5,5,5,5,4	106	115	92,2	Valid	No Revision
4.	How do you think about the questions on the media 3D-Storybook of mathematics book	5,5,4,4,5,4,5,5,5,5,4,5,5,5,5,5,5,5,5,5	110	115	95,6	Valid	No Revision
5.	How is the typeface and font size contained in the media 3D-Storybook of mathematics book	5,5,5,4,5,5,5,5,5,5,4,5,5,5,5,5,5,5,5,5	113	115	98,2	Valid	No Revision
6.	During the course of media 3D-Storybook of mathematics book, do you see the words that are difficult to understand	5,4,5,4,5,4,5,5,5,5,5,5,5,5,5,5,5,5	111	115	96,5	Valid	No Revision
7.	How the	5,5,5,4,5,4,5,5,5,5,5,5,5,5,5,5,5,5	113	115	98,2	Valid	No

	questions					
10.	Is the media 3D-Storybook of mathematics book helps to understand the lesson of plane	5,5,5,5,5,5,5,5,5,5,5,5,5,5	115	115	100	Valid
Total			1119	1150	97,3 %	Valid

Description names of respondents by the number of students absent class

3A UluM MI Raudlatul Karangploso 4.18 Malang mentioned in the following table:

Table 4. 18 Field Trial Results

No	Student Name
----	--------------

3A Ulum MI Raudlatul Karangploso 4.18 Malang mentioned in the following table:

Table 4. 18 Field Trial Results

No.	Student Name
1.	Ahmad Khoirudin
2.	Ahmad Mualfin Fahrul F.
3.	Andi Fernando
4.	Astrid Belladona Aqila Putri
5.	Dewi Navilatul Maulidiyah
6.	Elsa Ismel Sabrinah
7.	Erdatul Nahdiyah
8.	Fara Sandina Putri
9.	Icha Dwi Agustina
10.	Iqbal Multazam Busyro
11.	M. Firdan

12.	M. Ivan Bagus Saputra
13.	Nadia Rasina Sabrina
14.	Nadia Putri Kholidia
15.	Nanang Ardiansyah
16.	Nur Lailatul Ramadhani
17.	Rudi Muslimin
18.	Sentana Adi Putra
19.	Syalditama Andaresta
20.	Trias Nur Halimah
21.	Uyun Aminatuz Zuhriyah
22.	Valen Vebrian Anggraini
23.	Zahro'us Sania Filmaulidi

b. Data Analysis

Quantitative data obtained from the results of field tests in Table 4:19, after obtaining the data, the next step is analyze the data. Data analysis can be calculated by the percentage level of achievement validity of the data. Here are prosetase level of achievement in the field trials:

$$P = \frac{\sum X}{\sum X_1} \times 100 \%$$

Specification:

x : Score respondents' answers by students of grade 3A Raudlatul MI

Ulum Karangploso Malang

x_i : Highest Score answer.

P : The percentage level of validity.

In accordance with the results of scoring which has been defined in the questionnaire student researcher, then the percentage of field trial can be seen in

Table 4.17 results the amount of 97.3% is valid and that is the percentage score scale conversion is located on qualification valid so that the product does not require a revision of the development back. At the end of the questionnaire, the researchers included parts criticism and suggestions for researchers from students. In parts of criticism and suggestions from students some students wrote that they were very happy and excited with learning by using storybooks especially in this research is by using media 3D- Storybook of mathematics book with plane lessons. They wanted to researchers to re-teach in their classrooms by using storybooks with various other lessons. Criticism and suggestions from the students as respondents field trials collected through questionnaires, received and taken into consideration to enhance development results book.

2. Analysis Effectiveness Data of Product

a. Analysis of Pre-Test and Post-Test Results

Following the presentation of data from the captured score of the pre-test and post-test were obtained from students grade 3A on field tests are presented in Table 4.20 below:

Table 4. 19 Assessment Field Trial Pre-Test and Post-Test

No.	Student Name	Score	
		Pre-Test	Post-Test
1.	Ahmad Khoirudin	70	92
2.	Ahmad Mualfin Fahrul F.	68	92
3.	Andi Fernando	68	92
4.	Astrid Belladona Aqila Putri	80	88
5.	Dewi Navilatul Maulidiyah	70	100
6.	Elsa Ismel Sabrinah	75	88

7.	Erdaton Nahdiyah	78	79
8.	Fara Sandina Putri	80	100
9.	Icha Dwi Agustina	70	83
10.	Iqbal Multazam Busyro	75	92
11.	M. Firdan	70	92
12.	M. Ivan Bagus Saputra	70	92
13.	Nadia Rasina Sabrina	68	88
14.	Nadia Putri Kholidia	85	100
15.	Nanang Ardiansyah	68	88
16.	Nur Lailatul Ramadhani	70	96
17.	Rudi Muslimin	64	83
18.	Sentana Adi Putra	65	92
19.	Syalditama Andraresta	68	83
20.	Trias Nur Halimah	70	79
21.	Uyun Aminatuz Zuhriyah	68	96
22.	Valen Vebrian Anggraini	70	83
23.	Zahro'us Sania Filmaulidi	68	100
Total		1638	2078
Average		71,2	90,3

Based on the table above, it can be seen score of student achievement difference between before and after using the book value of the development by calculating the average of the pre-test and post-test using the formula:

$$\text{Mean} = \frac{\sum X}{N}$$

Specification :

Mean : average

$\sum X$: the amount of the value of pre or post test

N : number of samples

By using the above formula can be seen that the average value of the pre-test students in grade 3A to plane lesson is 71.2 and after application of learning

by using media 3D- Storybook with plane lesson of mathematics and be tested again (post- test) the average value of students in grade 3A be 90.3 so that it can be concluded that the understanding of student learning result experienced significant improvement after studying the lesson of plane by using 3D- Storybook with plane lesson of mathematics. Based on this it can be concluded that the 3D- Storybook with plane lesson of mathematics capable of effectively improve student's understanding of the lesson, especially on plane lesson that suggested use it because this lesson include to difficult mathematical previously by the majority of students in grade 3A MI Raudlatul Ulum Karangploso Malang.

CHAPTER V

DISCUSSION

A. Analysis of Textbook Development

1. Analysis of Mathematics Textbook Development

The development of mathematics textbook based on 3D-Storybook lesson of plane for students 3rd grade elementary school is adapted to the standards competence and basic competences of mathematics courses in 3rd grade elementary school. In addition, textbooks are used both the teachers and students are usually combined by the textbooks student worksheet (LKS). That is why the researchers were moved to undertake the development of mathematics textbook based on 3D-Storybook that content with lesson of plane in mathematics 3rd grade elementary school.

The development of mathematics textbook based on 3D-Storybook refers to the 4-D model of development which was developed by Thiagarajan and Semmel comprising the steps is defining (define), stage design (design), stage of development (develop) and deployment phase (dessiminate).⁶⁵

With the development of media math textbook based on 3D-Storybook with the lesson plane is expected to help raise the spirit of students to be more active to study of mathematics science. With form of book that is print media will be make students easier to access and use it. Displayed image is expected to make students be comforted in reading because basically students liked the pictures and

⁶⁵ Thiagarajan, S. Dan Semmel, D.S. (1974) *Instructional Development For Training Teachers Of Exceptional Children: A Sourcebook*. Minneapolis: University Of Minnesota.

colors that interest to children. The story is presented in the book is expected to attract students to read, so that students inadvertently just not reading stories on all the pages in the book but also absorbing lesson that contained in the story. So the lesson delivery as well as more modest but memorable and impression the students after they read the book. In addition, with the 3 dimensional shape displayed will be more emphasis to the lesson of plane that raised in the story. Students can directly lesson of plane that they are learned with touch the shape of the 3 dimensional miniature affixed to the book.

2. Advantages and Disadvantages Development Results

Although it has been declared invalid, textbook results of this development can not be separated from the advantages and disadvantages, and still needs a lot of improvement. Here are the advantages of a math textbook based 3D-Storybook when compared to other textbooks are as follows:

- a. Textbooks according to the curriculum KTSP
- b. The lesson presented in accordance with the competence standards and basic competences lesson of plane mathematics courses in 3rd grade in elementary school
- c. The textbook is designed based on the characteristics of the students so that the book can be used independently
- d. Teaching lessons in the design as a book supporting lesson of plane in mathematicat related with curriculum KTSP 2006, and also can be used for the next curriculum.

- e. Design of book is interesting for the student that is elevate like storybook with the concept of 3 dimensional book in which there is a content with children's story (fable).
- f. Pictures are served varied and suitable with children in 3rd grade age. So that will be the main attraction for students to open and read the contents in the book
- g. Submission of lessons are implied through the story, played by the characters so that students are able to absorb the lesson indirectly only to read the story
- h. Form 3 dimensional emphasis on the application of the concept of mathematical lesson in this book, that is about plane. With the 3 dimensional shape that will be easier for students to observe and touch directly form of many figure that affixed in the book
- i. An interesting story, but simply as a transmission means of the content lesson that is plane of mathematics that tell about of the friendship between the animals with a child in the forest, that is story about Miko, the Acil, and the Cici
- j. There are evaluation being included in the book are not directly as a matter of practice or like examination, but conveyed straightly by the characters in the story to be answered by the student reader. So that students do not feel pressured by the presence of such questions, but they like being asked and answer directly to the characters in the story

- k. There is a matter of the final evaluation presented interesting. Besides the provision of point assessment can also be done by the students by attaching a sad smile card or cards in the column value
- l. The book design is simpler than the textbooks or student worksheet commonly used by school students
- m. Make it easy for teachers to apply learning to students because with using this book students can independently learn the lesson studied
- n. Problem in the book adapted to the lesson that has been presented in the story
- o. The design of the book like storybook than the textbooks in general that will help students to suppress the feeling lazy, bored, and stress students in learning so that students will be more enthusiastic about learning.

As for the shortage of mathematics textbook based on 3D-Storybook is limited lesson in the book only covers the discussion of any matter that is lesson of plane 3rd grade of elementary school.

B. Validation Data Analysis Expert

1. Questionnaire Score Determination of Validation Expert

Here is an explanation of the questionnaire scores determination of validation expert from the product assessment by the validator is based on a conversion scale used:

- a. Score 1 for very less, it is not appropriate, it is not relevant, it is not systematic, it is not motivation, it does not measure ability.
- b. Score 2 for less, less fit, less relevant, less systematic, less motivated, less measuring capability.
- c. Score 4 for good, appropriate, relevant, systematic, motivating, measuring ability.
- d. Score 5 for very good, very fit, very relevant, very systematic, very motivated, very measuring capability.

2. Exposure Data of Design Media Validation Results

Here are the validation results of the exposure data from design media experts, namely Dr. Muhammad Walid, MA. to textbook mathematics based on 3D-Storybook by Table 4.2, are as follows:

- a. The attractiveness of media packaging is very good.
- b. The accuracy of the typeface and font style that used in media is good and appropriate.
- c. The accuracy of typing layout is very good and very appropriate.
- d. Clarity of writing or typing very good and very clear.
- e. Image placement accuracy is very good and very appropriate.
- f. Accuracy of illustrations use is very good and very appropriate.
- g. Consistent the use of system is very good and very appropriate.
- h. Suitability organizing of media content is very good and very appropriate.

- i. The suitability of the types and forms of assessment is good and appropriate.
- j. Ease of language used in teaching media is very good and very easy.

Based on data from the questionnaire result by Mr. Muhammad Walid, MA. as a media expert, can be measured by the level of validation calculated using the formula percentage the level of validity as follows:

$$P = \frac{\sum X}{\sum x_1} \times 100 \%$$

$$P = \frac{\sum 48}{\sum 50} \times 100 \% = 96 \%$$

Based on the results obtained above, it can be seen if the percentage level of validity textbook development results by media expert is 96%, which means there qualification are valid and do not require revision. The percentage indicates that math textbook based 3D-Storybook with plane mathematics lesson can be use according with expert validation of media and can be applied in the learning process in the classroom.

3. Exposure Data of Mathematics Validation Results

Here are the validation results of the exposure data from mathematics experts, namely Mrs. Yeni Tri Asmaningtias, M.Pd. to textbook mathematics based on 3D-Storybook by table 4.6, are as follows:

- a. Presentation of the lesson in accordance with the character of subjects is good and appropriate

- b. The development of the concept of the lesson is very good and very appropriate
- c. Completeness of lesson is good
- d. Rotation of lesson is good
- e. Compliance with the progress of students is good and appropriate
- f. The logical relationships between facts, concepts, and theories is well and fit
- g. Conformity with the concept of core competence and basic competences in the curriculum in 2013 is good and appropriate
- h. Elaboration of the concept of lesson and activities in accordance with the students 3rd grade of elementary school is good and appropriate
- i. Emphasizing process skills is very good
- j. There is a evaluation that is capable to measuring student learning result with good and appropriate
- k. There are questions that lead students to take conclusions with good and fit
- l. There is a matter that emphasizes to the process skills with good and appropriate
- m. Instructions of evaluation is easy to understand well and suit
- n. Presentation lesson and appearance instructions are easy to understand for students with a good and appropriate
- o. In an interesting presentation of the lesson very well and very fit

Based on data from the questionnaire result by Mrs. Yeni Tri Asmaningtias, M.Pd. as a mathematics experts, can be measured by the level of validation calculated using the formula percentage the level of validity as follows:

$$P = \frac{\sum X}{\sum X1} \times 100 \%$$

$$P = \frac{\sum 63}{\sum 75} \times 100 \% = 84 \%$$

Based on the results obtained above, it can be seen if the percentage level of validity textbook development results by media expert is 84%, which means there qualification are valid and do not require revision. The percentage indicates that math textbook based 3D-Storybook with plane mathematics lesson can be use according with expert validation of mathematics and can be applied in the learning process in the classroom.

4. Exposure Data of Linguists Validation Results

Here are the validation results of the exposure data from linguists experts, namely Mrs. Hj. Siti Annijat M., M.Pd. to textbook mathematics based on 3D-Storybook by table 4.10, are as follows:

- a. Words selection in the presentation of lessons is good and appropriate
- b. The language used is easy to understand by the reader or user is good and appropriate
- c. Learning media (fun to read and understand) with very good and very motivated
- d. The used of language accordance with EYD is good and appropriate

- e. The used of language suitable for students in 3rd grade elementary school is good and fit
- f. Sentences are used has not double meaning is good

Based on data from the questionnaire result by Mrs. Hj. Siti Annijat, M.Pd. as linguists expert, can be measured by the level of validation calculated using the formula percentage the level of validity as follows:

$$P = \frac{\sum X}{\sum x_1} \times 100 \%$$

$$P = \frac{\sum 25}{\sum 30} \times 100 \% = 84 \%$$

Based on the results obtained above, it can be seen if the percentage level of validity textbook development results by media expert is 84%, which means there qualification are valid and do not require revision. The percentage indicates that math textbook based 3D-Storybook with plane mathematics lesson can be use according with expert validation of linguists and can be applied in the learning process in the classroom.

5. Exposure Data of Learning Validation Results

Here are the validation results of the exposure data from learning experts, namely Mrs. Sulistina, S.Pdi. to textbook mathematics based on 3D-Storybook by table 4.14, are as follows:

- a. Relation the concept with competence standard and basic competences in the curriculum in 2013 was very good and very appropriate

- b. Elaboration of the concept of lesson and activities in accordance with the 3rd grade students are very good and very appropriate
- c. Clarity identity of theme is very good and very clear
- d. Completeness of components in student guides is good and appropriate
- e. Clarity of lesson characteristics is good and appropriate
- f. The development concept lessons is good and appropriate
- g. Completeness of the lessons is very good and very appropriate
- h. Rotation of lesson is very good and very appropriate
- i. Compliance with the student's progress well and fit
- j. Correct of using learning strategies very well and very fit
- k. Ease for use of student is very good and very easy
- l. The attractiveness of organization the lesson is very good and very interesting
- m. Clarity evaluation of learning result are very good and very appropriate
- n. Emphasizing of process skills is good and appropriate
- o. There are questions that is capable to measuring student learning result with a very good and very appropriate
- p. There are questions that lead students to take conclusions with good and fit
- q. There are evaluation that emphasizes to the process skills with very good and very appropriate
- r. There is a evaluation instructions that easy to understand with very well and very fit

- s. Presentation lesson instructions are easy to understand for students with good and appearance
- t. Lesson interesting presentation is very well and very fit
- u. Synchronizing lessons design and picture of media is good and fit
- v. Consistency of use the space and typing of title is well and fit

Based on data from the questionnaire result by Mrs. Sulistina, S.Pdi. as a media expert, can be measured by the level of validation calculated using the formula percentage the level of validity as follows:

$$P = \frac{\sum x}{\sum x_1} \times 100 \%$$

$$P = \frac{\sum 101}{\sum 110} \times 100 \% = 91,9 \%$$

Based on the results obtained above, it can be seen if the percentage level of validity textbook development results by media expert is 91,9%, which means there qualification are valid and do not require revision. The percentage indicates that math textbook based 3D-Storybook with plane mathematics lesson can be use according with expert validation of learning and can be applied in the learning process in the classroom.

C. Revised Product Development

1. Revision Development Product by Design Media Expert

Revision of product development is carried out after the experts validation process. Product revision is based on feedback received from the expert validator.

Based on media expert validation, product development has been declared valid and do not require revision. However, media experts advise to change the typeface that is more adapted for ease children to reading

2. Revised Development Product by Mathematics Expert

Revision of product development is carried out after the experts validation process. Product revision is based on feedback received from the mathematics experts validator in table 4.8 and can be described as the following explanation:

- a. The emphasis on three-dimensional shape more featured again
- b. Fixing page 10, which adjusts the text answers in the text field of si Cici not related with questions in the text field of si Acil
- c. Fixing the colors that are too dark (on the ground)
- d. Fixing page 7, by giving a sign on each corner
- e. Lesson restrictions only on the lesson is flat wake

3. Revised Development Product by Linguists Expert

Revision of product development is carried out after the experts validation process. Product revision is based on feedback received from the expert validator. Based on the linguists validation, product development has been declared valid and do not require revision. However, linguists expert give suggestions for appropriate books include interactive CD product development as a complement to the book and increase the attractiveness of children as users of the book later.

D. Data Analysis of Field Trial

1. Attractiveness Data of Product

Here are the test results of the exposure data from graders 3A MI Raudlatul Ulum Karangploso Malang that researchers take based on questionnaire answers to the mathematics textbook based 3D-Storybook by 4.17 table, is as follows:

1. Mathematics book media based on 3D -Storybook can help students learning activity of 97.3%
2. The use of mathematics book media based on 3D -Storybook can give encouragement to student learning by 98.2%
3. Students expressed easily to understand the lesson in the mathematics book media based on 3D -Storybook by 92.2%
4. Problems that contained in the mathematics book media based on 3D – Storybook is easy and can be understood by students of 95.6%
5. Typeface and size of letters contained in the mathematics book media based on 3D -Storybook is easy to read is amounted to 98.2%
6. During the study of mathematics book media based on 3D -Storybook, the students not found the difficult words that is 96.5%
7. The instructions that contained in the mathematics book media based on 3D -Storybook is easy and can be understood by 98.2%
8. The language that used in mathematics book media based on 3D - Storybook easily understood by 97.3%

9. Exercises in mathematics book media based on 3D -Storybook easy to understand by 99.1%
10. mathematics book media based on 3D -Storybook can help to understand the lesson of plane is 100%

Based on data from the questionnaire result by the students in graders 3A MI Raudlatul Ulum Karangploso Malang with the total of students is 23 students after the testing process, can be measured by the level of validation calculated using the formula percentage the level of validity as follows:

$$P = \frac{\sum x}{\sum x_1} \times 100 \%$$

$$P = \frac{\sum 1119}{\sum 1150} \times 100 \% = 97,3 \%$$

Based on the results obtained above, it can be seen if the percentage level of validity textbook development results of 97.3%, which means there qualification are valid and do not require revision. The percentage indicates that math textbook based 3D-Storybook with plane mathematics lesson can be use and can be applied in the learning process in the classroom.

2. Effectiveness Data of Product

Accordance with the data in the table shows the comparison of the value of 4.20 that student achievement from pre-test and post-test by students in grade 3A MI Raudlatul Ulum Karangploso Malang has a score validation can be determined

with count data using the percentage level of validity. The following comparison of the results of the calculation:

- a. The average students score based on the results of the Pre-Test

$$\text{Mean} = \frac{\sum X}{N}$$

$$\text{Mean} = \frac{\sum 1638}{23} = 71,2$$

- b. The average students score based on the results of the Post-Test

$$\text{Mean} = \frac{\sum X}{N}$$

$$\text{Mean} = \frac{\sum 2078}{23} = 90,3$$

Based on the results obtained above, shows that the average score of students in the pre-test is 71.2 and the average score of students in post-test is 90.9 which can be calculated by using a formula to get the average or mean from pre-test and post-test mean.

It can be seen if the percentage level validity results of textbook development is 97.3%, which means there is entered in valid qualification and do not require revision. The percentage indicates that mathematics book media based on 3D -Storybook plane lesson can be used and applied to the learning process in classroom.

It can be concluded that there are significant differences between student achievement in grade 3A for mathematics lessons of plane in before and after using a mathematics book media based on 3D –Storybook with lesson of plane. So mathematics book media based on 3D –Storybook able to effectively improve

student's understanding the lesson of plane for students in grade 3A MI Raudlatul Ulum.

E. Analysis The Effectiveness and Attractiveness Product

Learning activities as well as an activity for students seeking to learn. In learning activities requiring balance the role of the various parties that support good teaching activities of teachers, students, school staff, school leaders, parents, and also books and media that used in the learning activities. Various attempts to induce the attractiveness of learning activities usually done by teachers for learning objectives expected to be realized. One of the steps taken by the subject teachers of mathematics to see the level of effectiveness and attractiveness of learning activity is to divide into three kinds, that is the opening activity, centered activities, and closing activities. The third stage should be done systematically and accordance with the Learning Implementation Plan (RPP).

1. Level of Effectiveness Products

To determine the effectiveness of product development, researchers have conducted pre-tests that doing before the process implementation of learning by using products development and Post-Test that performed after application of learning by using products development. From the results of Pre-Test the average score student for plane lesson of mathematics is 71.2 while the average score of students who obtained through the Post-test after application activities of learning with use the product development in learning prcess amounted to 90.3. The

determination of the average value through from calculation score evaluation results all of students divided by number of students in one class. There are significant differences score prentation between the student's understanding results before and after applied mathematics book media based on 3D –Storybook lesson of shape.

In suggested colume in quessionaire some students also wrote advice column hope to the reader in the student questionnaire sheet for the researchers to develop more books with a variety of lessons and re-apply learning using mathematics book media based on 3D-Storybook at the next learning activities. They claim to be happy and simple way to learn to use math books based 3D-Storybook in accordance with the table 4.17 in the statement number 1 that as many as 97.3% stated that the mathematics book media based on 3D –Storybook easier for students to learn the lesson flat wake.

2. The Level of Attractiveness The Product

In addition of the product effectiveness, aspects of the attractiveness of the product can also be measured through the acquisition of a questionnaire scores are presented in Table 4.17 statement number 2 which states that 98.2 students feel more energized to study of mathematics plane lesson, and also in data based on the declaration number 10 that is 100% of students stated that mathematics book media based on 3D-Storybook helps students to understand the lesson of plane previously considered difficult. Design books with many pictures, colors, and accompanied by a children's story makes mathematics book media based on 3D-

Storybook to be attraction for the children. Especially with the presentation on the 3 dimensional shape that is increasingly attractive for students to read. According to James W.Bowman, illustration is a device that can attract student interest.⁶⁶



⁶⁶ Sudjana, *Media Pengajara*. (Bandung: Sinar Baru Algesindo, 2013), hlm.32

CHAPTER VI

CONCLUSION AND SUGGESTION

A. Conclusion

Based on the problem formulation that is how the development of instructional media lessons plane based on 3D-Storybook 3rd grade in MI Ulum Raudlatul Karangploso Malang that is valid and effective, the development of mathematics instructional media based on 3D-Storybook lesson of plane use the quantitative approach Research and Development (R & D) with the structure of model cycle of the 4-D by Thiagarajan and Sammel (1974), which consists of 4 (four) stages development consist of, define (defining), design (planning), develop (development), and disseminate (deployment).⁶⁷

Before field trial, product of development should be validation to the expert. From the questionnaire that have be answer by expert can get validity score to know the level of product validity that is exposure data of design media validation results is 96 %, exposure data of mathematics validation results 84 %, exposure data of linguists validation results 84 %, exposure data of learning validation results 91,9 % that all of the score validation in the valid level.

⁶⁷ Thiagarajan, S dan Semmel, D. S. (1974) (Instructional Development For Training Teachers Of Exceptional Children: A Sourcebook). Minneapolis: University Of Minnesota.

In field trial step, researchers used a medium sample that is conducted the research in grade 3A MI Raudlatul Ulum Karangploso Malang that encourage of 23 students. Validation of development product by the design media expert, mathematics expert, linguist expert, and learning expert until all of the expert make clear the product and get the valid score to the next step is field trial to the students in learning process. Student that being sample of field trial must doing the Pre-test before use the product development and doing the Post-Test after use the product development. An actually they must answer the questionnaire from the researcher to know the effectiveness product of development.

Based on research that have been conduct in MI Raudlatul Ulum. The use of mathematics instructional media based on 3D-Storybook with lesson of plane can make significant differences between before and after using the media. We can know the effectiveness of product from evaluation result by the students grade 3A that is the average of the students before use the development media (Pre-Test) is 71,2 but the score average of the students after use the development media (Post-Test) is 90,3. Beside it, some student write the suggested in colum of suggested on questionnaire that is hope from the student for the researchers to develop more books with a variety of lessons and re-apply learning using mathematics book media based on 3D-Storybook at the next learning activities. They very like with 3D-Storybook of mathematics.

From result of questionnaire by students we can get know about the attractiveness of the product, that is the percentage of field trial can be seen in Table 4.17 the statement from the students amount of 97.3% is valid and that is the percentage score scale conversion is located on qualification valid and can implemented to the students and use in learning activity.

From the research result in chapter four and discussion in chapter five it can be concluded that the math textbook based 3D-capable Storybook development results effectively to enhance student's understanding the lesson of plane mathematics 3rd grade previously considered difficult. This is supported by the opinion of some students who feel happy and interested to read a mathematics book media based on 3D-Storybook because of 3D-Storybook mathematics is more attractive and simple presentation that is appropriate children elementary school age.

B. Suggestion

This research is so far from the perfect word, this research still has the excess and the lack, so the suggest from reader to development needs. Those suggestion can be specifically explain as follow:

1. Suggested for the product usage needs
 - a. 3D-Storybook of mathematics can be used as an alternative media of learning process

- b. 3D-Storybook of mathematics can used in some lesson of any subject. 3D-Storybook based can applied in some lesson of subject that match with their concept
 - c. Not all subject can applied in 3D-Storybook of mathematics. So if we want to use 3D-Storybook to development of book or media, we must fit the lesson is match with 3D-Storybook basic or not before applied the lesson.
2. Suggested for the furthered development
- a. 3D-Storybook of mathematics need to more sources for developing the product to be more effective and efficient
 - b. From this research, the researcher have a suggestion for the next researcher to inclusion of CD Interactive in future research.

CURRICULUM VITAE



Name : Izza Nurmilla

NIM : 11140093

Place and Date of Birth : Pasuruan, 24 September 1994

Faculty/Dept/Prodi : FITK/PGMI

Address : Ngijo, Karangploso, Malang

Telephone : 085655511374

Malang, 13 Juni 2015

Mahasiswa

Izza Nurmilla

BIBLIOGRAPHY

- Agustina, Heribertus. 2006. *MagicMathic's*. Yogyakarta: CV. Andi Offset
- Amiruddin, Zen. 2010. *Statistik Pendidikan Pendidikan*. Yogyakarta: Teras
- Arikunto, S. 2006. *Prosedur Penelitian: Suatu Pendekatan Praktek (edisi revisi VI)*. Jakarta: PT. Rineka Cipta
- Buzan, Tony. 2007. *Buku Pintar Mind Map*. Jakarta: Gramedia Pustaka Utama
- Cecep, dkk. 2011. *Media Pembelajaran*. Bogor: Penerbit Ghalia Indonesia. Yogyakarta: Manika Books
- Daryanto. 2010. *Media Pembelajaran*. Yogyakarta: Penerbit Gava Media.
- Farikhin. 2007. *Mari Berpikir Matematis*. Yogyakarta: Graha Ilmu
- Fatimah. 2009. *Matematika Asyik*. Bandung: Mizan Pustaka
- Fatimah, Enung. 2008. *Psikologi Perkembangan*. Bandung: Pustaka Setia
- Harjanto, Bob. 2011. *Agar Anak Anda Tidak Takut pada Matematika*. Kustandi,
- Majid, Abdul Aziz Abdul. 2005. *Mendidik dengan Cerita*. Bandung: PT Remaja Rosdakarya
- Meleong, Lexy J. 2003. *Metode Penelitian Kualitatif Edisi Revisi*. Bandung: PT. Remaja Rosdakarya
- Nazir, Moh. 2011. *Metode Penelitian*. Bogor: Ghalia Indonesia
- Subali, dkk. 2012. *Pengembangan CD Pembelajaran Lagu Anak Untuk Menumbuhkan Pemahaman Sains Anak*. *Jurnal Pendidikan Fisika Indonesia*, prodi Fisika UNNES No.8. Januari

- Subini, Nini. 2012. *Mengatasi Kesulitan Belajar Pada Anak*. Jogjakarta: Javalitera
- Sudjana. 2013. *Media Pengajaran*. Bandung: Sinar Baru Algesindo
- Sugiyono. 2008. *Metode Penelitian Pendidikan*. Bandung: CV Alfabeta
- Supatmono, F.X.Catur. 2009. *Matematika Asyik*. Jakarta: Grasindo
- Thiangerajan, S dan Semmel, D. S. 1974. *Instructional Development For Training Teachers Of Exceptional Children: A Sourcebook*. Minneapolis: University Of Minnesota
- Widijati, Utami. 2006. *Keajaiban Matematika Untuk Anak*. Klaten: Imagepress
2014. *Buku Pedoman Penulisan Skripsi*. Malang: UIN Press



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

EVIDENCE OF CONSULTATION

Name : Izza Nurmilla
NIM : 11140093
Faculty/ Departement : FITK/PGMI
The Author : Dr. Abdussakir, M.Pd
Title : **THE DEVELOPMENT OF MATHEMATIC INSTRUCTIONAL MEDIA LESSON OF PLANE BASED ON 3D-STORYBOOK FOR STUDENTS 3rd GRADE MI RAUDLATUL ULUM KARANGPLOSO MALANG**

No	Tanggal	Hal yang Dikonsultasikan	Paraf
1.	April 13, 2015	Development of Teaching Book	1.
2.	April 20, 2015	Development of Teaching Book	2.
3.	Mei 04, 2015	Development of Teaching Book	3.
4.	Mei 11, 2015	Consultation of Chapter I-III	4.
5.	Mei 19, 2015	Consultation of Chapter I-III	5.
6.	Juni 01, 2015	Consultation of Chapter IV-VI	6.
7.	Juni 09, 2015	Consultation of Chapter	7.
8.	Juni 15, 2015	Thesis and ACC	8.

Malang, Juni 15, 2015
Acknowledged by,
Dean of FITK

Dr. H. Nur Ali, M.Pd
NIP. 196504031998031 002