

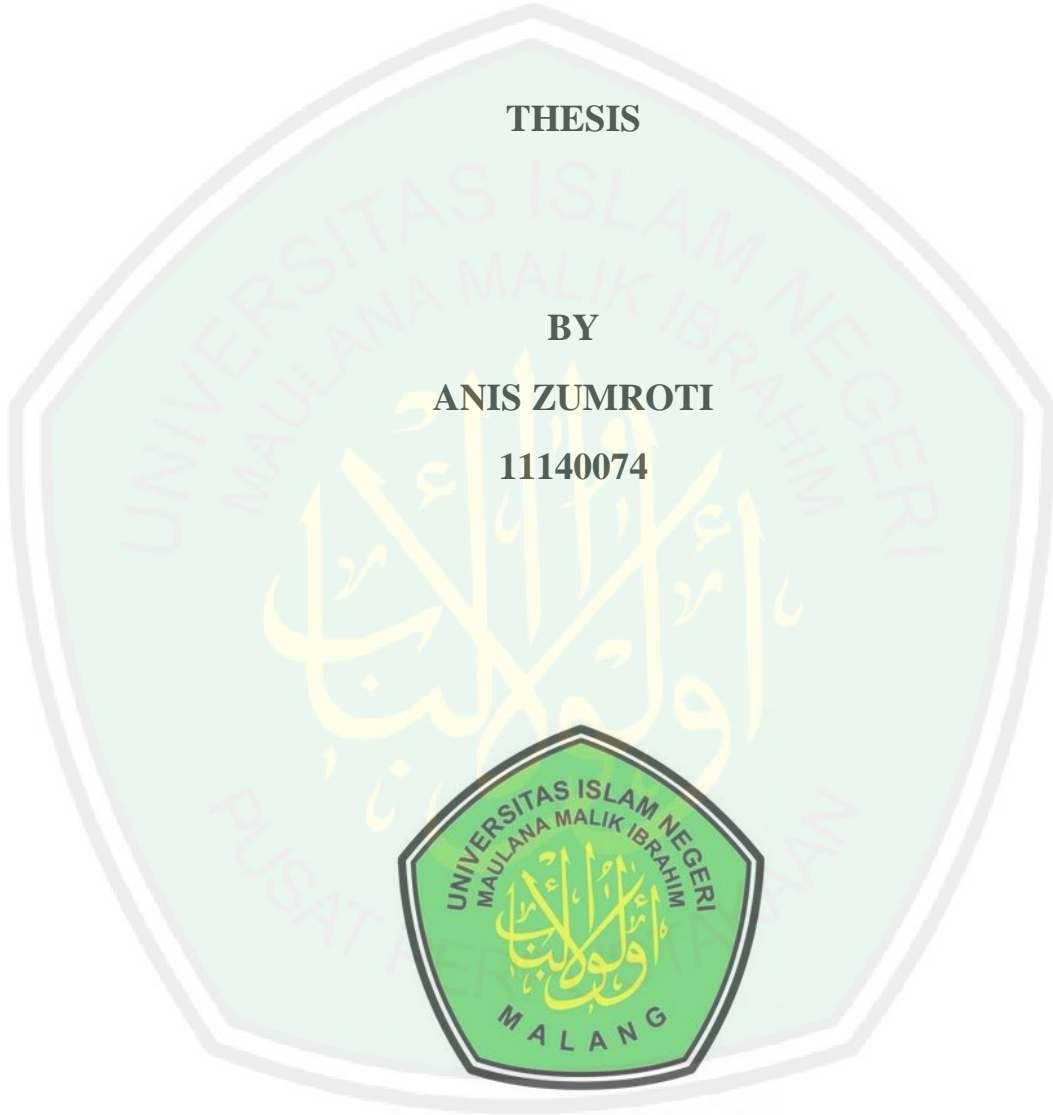
**THE DEVELOPMENT OF LESSON MATERIALS OF  
SCIENCE BASED ON NOVEL TO IMPROVE LEARNING  
ACHIEVEMENT IN OBJECT AND THEIR NATURE GRADE  
III SDI ANNUR TUMPANG MALANG**

**THESIS**

**BY**

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**TEACHER EDUCATION OF ISLAMIC ELEMENTARY  
SCHOOL PROGRAM  
FACULTY OF TARBIYAH AND TEACHING TRAINING  
FACULTY  
MAULANA MALIK IBRAHIM STATE ISLAMIC  
UNIVERSITY OF MALANG  
JUNE 2015**

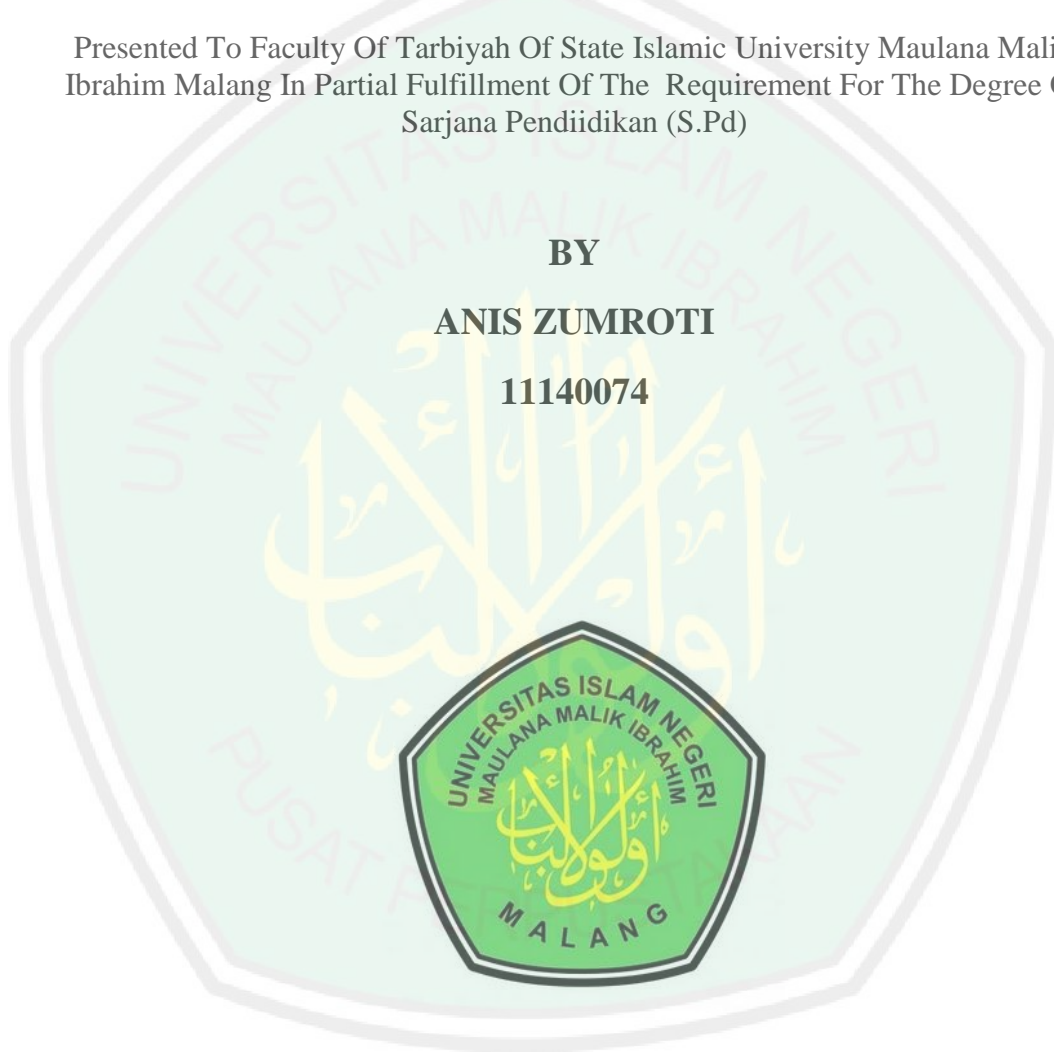
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SCIENCE BASED ON NOVEL TO IMPROVE LEARNING  
ACHIEVEMENT IN OBJECT AND THEIR NATURE GRADE  
III SDI ANNUR TUMPANG MALANG**

Presented To Faculty Of Tarbiyah Of State Islamic University Maulana Malik  
Ibrahim Malang In Partial Fulfillment Of The Requirement For The Degree Of  
Sarjana Pendiidikan (S.Pd)

**BY**

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JUNE 2015**

## APPROVAL SHEET

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THEIR NATURE GRADE III SDI ANNUR TUMPANG MALANG

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So, please tolerate presence.

*Wassalamu'alaikum Wr. Wb.*

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## MOTTO

أَقْرَأْ بِاسْمِ رَبِّكَ الَّذِي خَلَقَ ﴿١﴾

" Please read, with (call) the name of your Lord who created ”.<sup>1</sup>  
(Qs. Al ‘Alaq: 1)



---

<sup>1</sup>Al-Qur'an dan Terjemahnya, 1990, (Semarang: Menara Kudus), hlm. 521



## DEDICATION

Thank you fortunately we devote to God (Allah SWT )that always give blessing to us, so I can solve my thesis, regards most outpouring to our prophet

Muhammad as straighten our life.

The author will presents this paper to all of for each employee that accompanies the struggle the author completed the scientific papers that may be useful.

Dear father (Wirai), the mother (Srianik), my brothers and sisters, thank you overflow will not be endless fighting over him to the writer during the period of this study.

Dear teachers and lecturers-professors, which has been educating and teaching author with care and love. Teach new things in every breath of life and a valuable lesson for the future which is still secret.

## PREFACE

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Only thanks him profusely that can convey the author, hopefully help and prayer has been granted can be the records of charitable goodness before God Almighty.

Finally, we wish this thesis can be a benefit for those who read it, and to the institution in order to shape the future generation better.

Malang, 03 June 2015

Writer,

## ARAB LATIN transliteration GUIDELINES

Latin transliteration of the Arabic-writing in this thesis using transliteration n guidelines based on a joint decision of the Minister of religious affairs RI and Minister of education and culture of Indonesia No. 158 in 1987 and no. 0543 b/U/1987 that generally can be described as follows:

### A. Letter

ا	=	A	ز	=	Z	ق	=	Q
ب	=	B	س	=	S	ك	=	K
ت	=	T	ش	=	Sy	ل	=	L
ث	=	Ts	ح	=	Sh	م	=	M
ج	=	J	خ	=	dl	ن	=	N
ح	=	<u>H</u>	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

Vocal (a) length = â  
 Vocal (i) length = î  
 Vocal (u) length = û

### C. Diphthong Vocal

أو = Aw  
 أي = Ay  
 أو = û  
 إي = î

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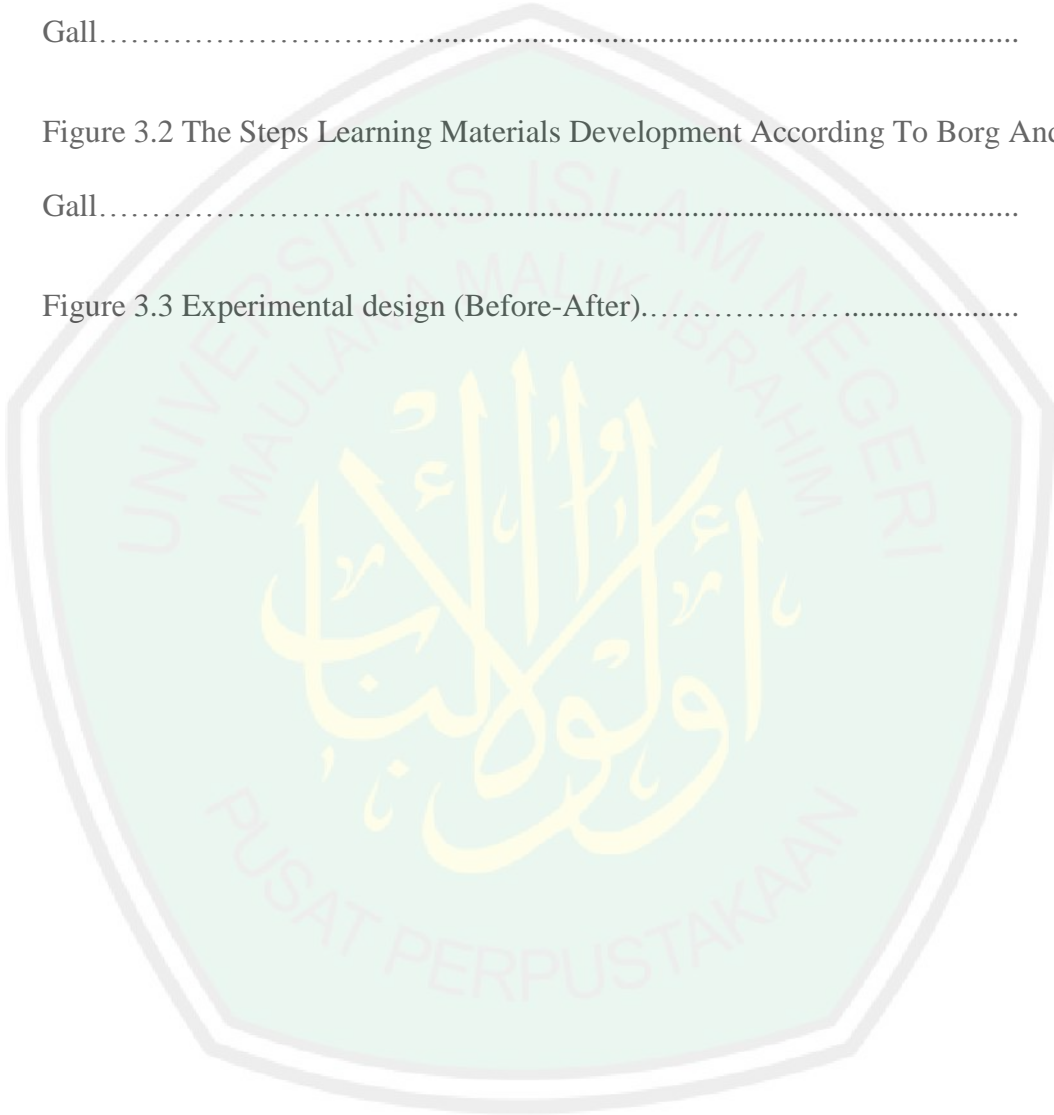


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## ABSTRAK

Zumroti, Anis. 2015. *Pengembangan Bahan Ajar IPA Berbasis Novel Untuk Meningkatkan Prestasi Belajar Siswa Kelas III Pada Materi Benda Dan Sifatnya Di SDI Annur Tumpang*. Skripsi. Jurusan Pendidikan Guru Madrasah Ibtidaiyah. Fakultas Ilmu Tarbiyah dan Keguruan. Universitas Islam Negeri Maulana Malik Ibrahim Malang. Pembimbing: Dr. Muhammad Walid MA.

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Pengembangan bahan ajar IPA merupakan salah satu sarana guna membantu memahami siswa dalam pembelajaran. Melalui bahan ajar, diharapkan siswa dapat termotivasi dan dapat meningkatkan prestasi belajar. Bahan ajar yang dapat mendukung proses pembelajaran IPA adalah bahan ajar berbasis Novel, berupa buku ajar siswa kelas III SD/MI. Materi pokok yang dibahas adalah Benda Dan Sifatnya. Materi ini menjelaskan tentang Macam-macam benda, ciri-ciri benda dan Sifat Perubahan Benda. Tujuan penelitian ini adalah mengembangkan bahan ajar IPA berbasis Novel materi benda dan sifatnya pada kelas III SDI Annur TUMPANG.

Bentuk penelitian yang digunakan oleh peneliti adalah deskriptif dengan analisis data secara kualitatif dan kuantitatif. Jenis penelitian ini adalah *Reserch and Development*, yang mengacu pada model Borg And Gall.

Hasil dari penelitian pengembangan bahan ajar berbasis novel dalam mata pelajaran IPA memenuhi kriteria valid dengan hasil uji ahli materi mencapai tingkat kevalidan 95%, ahli media mencapai 90%, ahli mata pelajaran mencapai 92,5%, dan hasil uji coba lapangan mencapai 95%, hasil belajar siswa rata-rata nilai *pre-test* 71,21 dan nilai *post-test* 80,46 Pada uji-t manual dengan tingkat kemaknaan 0,05 diperoleh hasil  $t_{hitung} \geq t_{tabel}$  yaitu  $4,491150 \geq 1,67$  artinya  $H_0$  ditolak dan  $H_a$  diterima. Sehingga, terdapat perbedaan yang signifikan terhadap bahan ajar yang dikembangkan. Hal ini menunjukkan bahwa produk yang dikembangkan memiliki kualifikasi tingkat kevalidan yang tinggi, sehingga bahan ajar layak digunakan dalam pembelajaran.

**Kata Kunci:** *pengembangan, bahan ajar, berbasis novel, benda dan sifatnya, kelas III SD/MI.*



## ABSTRACT

Zumrot, Anis. 2015. *The Development of Lesson Materials of Science Based On Novel To Improve Learning Achievement In Objects and Their Nature Grade III SDI Annur Tumpang Malang* Thesis. Islamic Teacher Education Of Islamic Elementary School. Tarbiyah and Teaching Training Faculty. Maulana Malik Ibrahim State Islamic University of Malang. Advisor: Dr. Muhammad Walid MA.

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Sciences lesson material development is one of medium to assist the students understand better in learning. By means of lesson material, the students are expected to keep-highly motivated and cultivate scientific skill as well do effort in self-learning to get knowledge whether or not by teacher's help. The lesson material which may support sciences learning is materials based novel, in the form of guidebook for third grade elementary school students. The subject matter being discussed is "*Objects and Its Nature*". This lesson explains about the kinds of material, The effects, and the type of material. The aim of conducting this research is to develop lesson material on sciences based novel in "*Objects and Its Nature*" lesson of third grade Annur Islamic Elementary School of Tumpang.

This research was conducted by using descriptive qualitative and quantitative design. The genre of this research is Research and Development, which refer in Borg And Gall model of research.

The result of this research fulfill the criteria of validities by test result from the matter experts equal to 95%, media experts up to 90 %, lesson experts equipped 92,5%, result of field trials up to 95%, result of students' pre-test mark average 71,21, and result of students' post-test mark average 80,46. In t-manual test by significance level 0,05 obtained result  $t_{\text{number}} \geq t_{\text{table}}$  is  $4,491150 \geq 1,67$  means Rejecting  $H_0$  and Accepting  $H_a$ . Therefore, there are significant differences among lesson materials being developed. It's show that the product being developed has high-quality of validity that consequently lesson material which is being developed is appropriate to be used in learning science.

**Key terms:** development, lesson material, based novel, material and its nature , third grade elementary school students.

## مستخلص البحث

زمرتي، أنيس. ٢٠١٥. تطوير المواد (IPA) على أساس الرواية لترقية إنجاز تعليم الطلاب الفصل الثالث على الكادة "الاسما وصفتها" بمدرسة النور الابتدائية الإسلامية تومفاغ. بحث جامعي. قسم تعليم معلم المدرسة الابتدائية. كلية علوم التربية والتعليم. جامعة مولانا مالك إبراهيم الإسلامية الحكومية مالنج.

المشرف: الدكتور محمد والد الماجستير

الكلمة الرئيسية : تطوير، المواد التعليمي، على أساس الرواية، الأسماء وصفتها، الفصل الثالث مدرسة الابتدائية

تطوير المواد (IPA) هو إحدى وسائل التعليمية لمساعدة الطلاب في فهم المادة، بوسيلة هذه المادة التعليمية، ينال الطلاب تشجيعا و إنجازا في تعليمهم. المواد التعليمي الذي يوافق على عملية تعليم (IPA) هي المواد التعليمي على الأساس الرواية، بشكل كتاب التعليمي للفصل الثالث في مدرسة الابتدائية. المناقشة في المادة الأساسية هي الاسما وصفتها. هذه المادة يبحث عن أنواع الاسم، علامة الاسم وصفة تغييره. أما الهدف هذا البحث هو تطوير المواد التعليمي (IPA) على أساس الرواية بالمادة الاسماء وصفتها في الفصل الثالث بمدرسة النور الابتدائية الإسلامية تومفاغ.

المنهج المستخدم في هذا البحث هو المنهج الوصفي بتحليل البيانات كفيًا و  
 كميًا. والنوع هذا البحث هو البحث التطويري ( Research and Development )،  
 بالأسلوب Borg and Gall.

والنتيجة من البحث التطويري في المواد التعليمي على أساس الرواية في المادة  
 (IPA) قد قضى المعيار الصالح بتقدير الخبراء يصل إلى درجة صالح ٩٥%، الخبير  
 الواسلي يصل إل ٩٠%، خبير المادة يصل إلى ٩٢،٥%، و التجربة الميدانية يصل إلى  
 ٩٥%. النتيجة في علمية تعليم الطلاب إجمالاً في الإختبار القبلي ٧١،٢١ و النتيجة  
 في الإختبار البعدي ٨٠،٤٦ في تقدير  $t$  دليل بمستوى الدلالة ٠،٠٥ المأخوذ من  $t$   
 حساب < جدول ١،٦٧<٤،٤٩١١٥٠ بمعنى  $H_0$  غير مقبول و  $H_a$  مقبول. حتى،  
 وجود الإختلاف الكبير على تطوير المواد التعليمي. وهذا دليل أن تطوير الإنتاج لها  
 استحقاق في درجة صدق. حتى هذا المواد التعليمي مستخدمة في عملية تعليم.

## CHAPTER 1

### INTRODUCTION

This chapter will discuss, (a) Background, (b) The formulation of the problem, (c) The purpose of the research, (d) Product specifications, (e) The benefits of the research, (f) The assumptions and limitations of the study, (g) Operational definition, (h) Previous Studies

#### A. Background

Education is a conscious effort to prepare learners through guidance, instruction and exercises for its role in the future.<sup>1</sup> In the sense of the other education is the future learners in order to develop the talent, potential, and skills have in living the life. Therefore, it should be an education designed to give understanding and increase learning achievements of students (pupils).<sup>2</sup>

The learning achievements of students in the school are often indicated with issues of learning of the students in understanding the material. This is possible because the indication of the factors studied are less effective, even the students themselves do not feel motivated in the following learning in class. As a result the students understand the material which is difficult given by the teacher.

In this regard the teacher as a developer of science has a very big role to implement learning especially subjects natural science proper and efficient for students.<sup>3</sup>

---

<sup>1</sup> Oemar Hamalik, *Kurikulum dan Pembelajaran* (Jakarta: Bumi Aksara, 2007), hlm. 2

<sup>2</sup> Daryanto, *Media Pembelajaran* (Bandung: Satu Nusa, 2010), hlm. 1.

<sup>3</sup> *ibid*

Natural Sciences (IPA) is the study of objects that exist in nature, both of which can be observed with the sense or not observable by the senses. IPA not only as a lesson, but also as an educational tool as listed in the takstonomi Bloom that

IPA is expected to provide knowledge (cognitive), which is the primary purpose of learning. The type of the specified knowledge is a basic knowledge of the principles and materials that are useful for everyday life. Knowledge in the outline about the fact that there is in nature to be able to understand and deepen further, and see any description and rules. In addition to that, learning science is expected to also provide skills (psychomotor), ability of scientific attitudes (affective), understanding, and appreciation. In searching for an answer to a problem. Because of the characteristics that differentiate with other learning.<sup>4</sup>

The learning of natural science in the elementary school emphasizes on granting experience directly in everyday life, so that students can find facts, developing concepts, theories and scientific attitudes that can be a positive effect to the quality of the educational process or product education.

The learning of natural science which has linkages with the everyday life demands a teacher can provide learning materials and learning media close to the original concept of the error does not occur in order that by the time the learning process takes place. It is based on the theory of cognitive development Piaget that elementary school students including on concrete operational phase that is between the ages of 7-11 years, which at this stage was the beginning of rational

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<sup>4</sup> Trianto, *Model Pembelajaran Terpadu* ( Jakarta: Bumi Aksara, 2010), hlm. 142.



thinking. This means, that a child can only be invited to think logically for reasoning can be applied to specific examples and concrete. For example, concrete operational thinker cannot imagine the steps needed to solve equations algebra, that is too abstract for this stage of development thinking.<sup>5</sup> So the necessary election materials science is right for elementary school students support the understanding of students against the material.

Learning materials in learning is one of the factors that influence on the quality of education because learning materials is an important medium to stimulate the student's learning activities. Interaction with the media which is actually a real form of follow-up study.<sup>6</sup> While the learning materials available today are more conventional in nature. The submission of such materials is less interesting and monotone, students tend to be boring because it doesn't fit the needs of students

Based on the results of the author's interviews with one of the IPA's field of study teacher SDI Annur Tumpang, obtained that learning the IPA there are still a lot of problems, especially on material objects and nature. The problem is too much material presented so there are no hours to carry out the experiment. As a result many students feel saturated with learning the IPA only emphasize on the material alone. And many students who do not meet the standards of the value of

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<sup>5</sup> John W. Santrock, *Perkembangan Anak*, terj., Mila Rachmawati dan Anna Kuswanti (Jakarta: Erlangga, 2007), hlm. 50.

<sup>6</sup> Nyoman Sudana Degeng, *Ilmu Pengajaran Taksonomi Variabel*, (Jakarta: Depdikbud Dirjen Perguruan tinggi Proyek Pengembangan Lembaga Pendidikan tenaga kependidikan, 1989), hlm. 150.



the KKM (Minimum Graduation Criteria) for the field of study of the IPA in accordance with that set.

Seeing the situation, researchers using one innovative or interesting way, namely by developing a textbook-based novel, which is one of the ways this is very appreciated by teachers to assist SDI An Annur and facilitate students in learning. In addition students SDI Annur Tumpang was fond of reading novels KKPK (Kecil-kecil Punya Karya).

The novel is a form of a literary work that is a fiction in the form of writing or words and has elements of and extrinsic. A novel usually tells the story of human life in interacting with the environment and each other. In a novel, the author is trying everything possible to direct the reader to the reality of life figures through the stories contained in the novel.

From the explanation above author can deduce that the textbook-based novel directs students to the reality of life figures through the stories contained in the novel. And it can also improve the learning results of IPA students, where in this case students are expected to be more active, creative, and skillful in linking and apply the knowledge possessed by their lives to solve a problem in everyday daily activity related to material objects and nature.

From the above problems, the author will hold a study with the title "THE DEVELOPMENT OF LESSON MATERIALS Of SCIENCE BASED ON NOVEL TO IMPROVE LEARNING ACHIEVEMENT IN MATERIAL OBJECTS AND NATURE GRADE III SDI ANNUR TUMPANG MALANG "

## **B. Problem Formulation**

Based on the background of the problems that have been described, then the problem is formulated as follows:

1. How The Way of Development product materials science class III on the material object and its nature-based novel to grade III SDI Annur Tumpang would be developed?
2. How The effective of materials science class III on the material object and its nature-based novel to grade III SDI Annur Tumpang would be developed?
3. Is the use of learning materials development book based on the material of the novel science of matter and its nature can improve the learning results of IPA for grade III SDI Annur Tumpang?

## **C. Research Objectives**

As for the goals of this research are:

1. To produce a textbook products IPA based novel that is effective, efficient, and draws on material objects and their nature in class III in the SDI Annur Tumpang, which can be used as a handle for the teachers and students
2. To know the Effectiveness of the IPA based novel materials for grade III on the material object and its behavior in class III in the SDI Annur Tumpang
3. To improve the learning result in learning science through the use of IPA based textbook novel

#### **D. Product Specifications**

The specifications of the product and the development of learning materials based novel is as follows:

1. The products being developed are textbook based novel that Teachers can use as well as Students in the process of teaching and learning. And in the textbook such novel shaped emphasized on deployment through the observations on the story in the novel can also be implemented in daily activities based on experience.
2. The novel-based textbook designed with size of 6x8 cm. Paper size A5 cartoon type images related to material objects and nature. The letter was written by using the font Comic Sans MS with 10 sizes and with a variety of colors.
3. Textbook based novel includes material objects and properties are expected to enhance the understanding of the students in understanding the concept of such material by way of looking at the pictures that are interesting, along with exciting stories that are packaged in the form of the novel

#### **E. Benefits of Research**

The results of this research will hopefully contribute to the development of natural sciences. Besides, it can also provide benefits for:

1. For Researchers
  - a. As a means to know the obstacles and weaknesses of learning
  - b. In an effort to fix the books learning materials and fixing problems in learning to improve students ' learning motivation
  - c. Broaden insight into the development of learning materials and media.

2. For students
  - a. Increase interest in student learning, particularly subjects IPA.
  - b. Improving students ' ability in understanding the concept of change in the nature of things.
  - c. Improve student learning outcome achievement.
3. For schools
  - a. Obtain better student learning and satisfying.
  - b. Get the alternative models of textbook-based novel.
  - c. Enhance the achievements of the school.
4. For teachers
  - a. To find out the weaknesses/excess teachers in delivering subject matter
  - b. Give an alternative problem solving in an instruction.
  - c. Assist teachers in learning doing repairs on the subjects of the IPA.
5. For the reader

As a reference point and an alternative resolution in anticipation of the failure of learning the IPA especially concept changes the nature of objects.
6. For a school institution examined;

Textbook-based novels can be used as references or references to sort out another the right textbook for use in Natural Science subjects.

## **F. The Assumptions and Limitations of The Development**

### **1. Assumptions**

Some of the assumptions that underlie the development of materials science of material objects and nature, among others:

- a. IPA based novel materials can increase the learning achievements of students.
- b. Materials which includes a number of activities and exercises will motivate students to study.
- c. Yet the existence of a novel-shaped materials on material objects and nature.

### **2. The limitations of Development**

Some of the development of learning materials in the pelaksanaan of the product materials are:

- a. Product of the development of learning materials is limited to material relationships between living things and the environment that exists in the class III 2 semester consisting of subject matter as follows:
  - 1) various objects
  - 2) The properties of objects
  - 3) Usefulness of objects
- b. Object Development limited user-based novel learning materials grade III in SDI Annur An unfortunate.
- c. Assessment of the valid in materials science based this novel done by 4 experts, namely validator the validator contents materials, Design



materials, validator, the validator teacher majors in natural sciences in SDI Annur Tumpang. And trial class III

### **G. Operational Definition**

On the sub chapter will explain about some of the terms used in the writing of the thesis to avoid mistake in understanding the content of this research. As for the definition of the term in the law related to the study of this research are as follows:

#### **1) Development**

Development is an attempt to improve the technical, theoretical, conceptual, and the morale of employees in accordance with need job/position through education and training. Edwin b. Flippo defines development as follows: "education is associated with an increase in the General knowledge and understanding of our environment as a whole". While Andrew f. Sikula defines development as follows: "Development refers to the issue of staff and personnel is a long-term education process using a procedure that is systematic and organized manner in which managers learn the conceptual and theoretical knowledge for public purposes".<sup>7</sup>

From an understanding of the above, it can be concluded that Development is an attempt to increase public knowledge and understanding of someone thoroughly by using a procedure that is systematic and organized.

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<sup>7</sup> Senja, *Definisi Pengembangan* (<http://developmentcountry.blogspot.com/2009/12/definisi-pengembangan.html> diakses 16 april pada jam 09.50 WIB)



## 2) Learning materials

Learning materials or learning materials, teaching material that is packaged as an ingredient for presented in the learning process. Learning materials in the form of served description is describes the facts and principles, namely the norms relating to the rules, values and attitudes, as well as a set of actions/motor skills. Thus, the learning materials are essentially describes the knowledge, values, attitudes, actions and the skills that contains messages, information and illustrations in the form of facts, concepts, principles, and processes associated with a particular subject matter directed to achieve learning objectives.<sup>8</sup>

## 3) Natural Sciences

Understanding the IPA according to Srini m. Alexander that is the nature of science is a vast human knowledge that is obtained by way of systematic observation and experiments, and described with the aid of rules, laws, principles, theories and hypotheses.

According to the IPA sense Maslichah Ash'ari Science is knowledge about human nature that are obtained by a controlled way. This is the explanation of the meaning of that science in addition to being as a product as well as the process. Science as a product that is human knowledge and as a process that is how to get the knowledge.

Based on some of the above it can be concluded that the understanding of the nature of Science (IPA) or science is human knowledge about the symptoms and natural material obtained by means of observation, experimentation/research, or

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<sup>8</sup> Anak pesisir, *Definisi Bahan Ajar*(<http://jaririndu.blogspot.com/2011/09/definisi-bahan-ajar.html> diakses 16 april pada jam 09.30 WIB)

testing, based on the observations of humans. Human observation can be either facts, rules, laws, principles, theories and so on.

#### 4) The Novel

The novel is one form of a literary work. The novel is a story of fiction in the form of writing or words and has elements of and extrinsic. A novel usually tells the story of human life in interacting with the environment and each other. In a novel, the author is trying everything possible to direct the reader to the reality of life figures through the stories contained in the novel.

Many of the poets who gave that gives the limitation or definition of the novel. Limitation or definition that they provide different viewpoints because they use also vary. Definition of it, among others, according to experts in their field are as follows:

- 1) Novel is the most popular form of literature in the world. This literary form most widely printed and widely circulated, due to the extensive community resources in the community.
- 2) Novel is a literary work that has two elements, namely: intrinsic and extrinsic elements there are both interconnected as it is very influential in the presence of a work of literature.
- 3) Novel is a literary work in the form of prose that have intrinsic elements.
- 4) The Novel is a form of literature that values social, moral, cultural, and education.<sup>9</sup>

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<sup>9</sup> <http://www.e-jurnal.com/2013/12/pengertian-novel-menurut-para-ahli.html> ( diakses pada 16 april jam 09.50 WIB)

## 5) Achievements

The sense of achievement according to experts-many people who pursue the achievements in all fields, they assess the person's ability of the trophy, in recognition of the achievements that have already been reached, but do we already understand what exactly the nature of the sense of accomplishment in itself, if we discuss about the sense of accomplishment so a lot of people who expressed his opinion about the definition accomplishment, both in the field of study or any other fields, here I am trying to gather some opinions about definition achievements from several sources.

If based on a term or grammatically correct or Common Indonesian Language Dictionary or according to EYD "Understanding the definition of achievement is the result of that has been accomplished (done, done and so forth)".

According to Nasrun Harahap argued that achievement is The value education on the development and progress of students with regard to mastery of learning materials that are presented to the students. According to Mas'ud Khasan

Abdul Qohar achievements is what has cant to creat the results of the work, the results are pleasing to that obtained by means of perseverance. The achievements can be fixed in the history of human life because of a pair of her life has always been the pursuit of achievement according to the field and the ability of each. Learning achievement can give satisfaction to the person concerned, in particular those that are being studied in schools. Achievements include the whole psychiatric realm are changing as a result of the experience and the learning process of the students concerned.

While according to Sardiman a. m. "achievement is real ability is the result of interaction between the various factors that influence both from within and from outside individuals in learning".

From the above description of the achievements is the ability of real (actual ability) who achieved the individual from one activity or effort.<sup>10</sup>

## H. Originality Research

Based on the results of previous studies is the reference of this study, namely by:

The first "Development of Instructional Materials Natural Sciences Elementary School Practicum through the addition method and Learning CD" By Nuril Nuzulia In 2012, graduate programs UIN Maulana Malik Ibrahim Malang in PGMI Prodi.<sup>11</sup>

Existing problems in the development of teaching materials research through practical methods and CD Lessons from Sister Nuril Nuzulia due to the fact that the unavailability of teaching materials which have criteria as material that can increase the attractiveness and effectiveness of learning science in MI Al-Hidayah Sidoarjo. In the development of teaching materials using the model of the development of Walter Dick and Lou Carey (1978) which has 10 stages of design development. Results from field trials in grade 4 B MI Al-Hidayah Sidoarjo number of 36 students shows the average value of the pre-test 61, 52 and the average value of the post-test 83.47. Judging from the results of pre-test and post-test, it can be said

<sup>10</sup> Admin, Definisi Prestasi Menurut Ahli. (<http://definisipengertian.com/2012/pengertian-definisi-prestasi-menurut-para-ahli/>) diakses pada jam 08.10 tgl 16-04-2014

<sup>11</sup> Nuril Nuzulia, "Pengembangan Bahan Ajar Ilmu Pengetahuan Alam Madrasah Ibtidaiyah Melalui Penambahan dan CD Pembelajaran", Skripsi, Program Studi PGMI, Universitas Islam Negeri Maulana Malik Ibrahim Malang, 2012.

that the textbook learning science through the addition of practicum and CD learning method proven significantly effective to improve science learning outcomes in grade 4 in MI Al-Hidayah Sidoarjo.

The second "Development of Instructional Materials science concepts to increase understanding of Material Structure and Function of the Plant Student Class IV Interactive Multimedia Based Elementary School In Ponggok 04 Blitar" by Latifatul Jannah in 2013, Bachelor of UIN Maulana Malik Ibrahim Malang in PGMI Prodi.<sup>12</sup>

In development using the Dick and Carey model of development that has 10 stages of development. Field trials using two classes of grade control and experimental classes. The results of tests on the control class and experimental class is  $51.05 < 61.65$ , it can be said that there is a difference between the two concepts in the understanding of the class. P also shows the resulting product is able to make learning more effective, lively and interesting than did students also easy to understand science concepts through images in the textbook and interactive multimedia CD.

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<sup>12</sup> Latifatul Jannah, "Pengembangan Bahan Ajar IPA untuk meningkatkan Pemahaman Konsep Materi Struktur dan Fungsi bagian Tumbuhan Siswa Kelas IV Berbasis Multimedia Interaktif Di SD Negeri Ponggok 04 Blitar", Skripsi, Program Studi PGMI, Universitas Islam Negeri Maulana Malik Ibrahim Malang, 2013.



The third "Practical Handbook Development Guided Inquiry Based On Material and Its Objects To Improve Student Achievement Motivation and Class II MI Bahrul Ulum Ngoro Mojokerto" written by Roihatul Miskiyah in 2013, Bachelor of UIN Maulana Malik Ibrahim Malang in PGMI Prodi.<sup>13</sup>

Background research of sister Roihatul Miskiyah above is in the process of learning science should emphasize direct swcara experience to develop competence in order to explore and understand the universe around naturally, therefore, requires the development of teaching materials in the form of manual-based guided inquiry lab to boost motivation student achievement and class II A Bahrul Ulum Ngoro Mojokerto.

This study uses a model of the development of Dick and Carry with 10 stages in the development procedure. The results of tests on a second grade student obtained results the average value of the control class motivation smaller than the experimental class is 14.21 <22.00, and the average value of the control class learning achievement is smaller than the experimental class is 577.79 <84.96. Judging from the average value of achievement and motivation can be said that the proven science lab manual can significantly improve student motivation and learning achievement of class II A in MI Bahrul Ulum Ngoro Mojokerto. Here the researchers include similarities and differences between this study with previous research, which:

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<sup>13</sup> Roihatul Miskiyah, *"Pengembangan Buku Panduan Praktikum Berbasis Inkuiri Terbimbing Pada Materi Benda dan Sifatnya Untuk Meningkatkan Motivasi dan Prestasi Belajar Siswa Kelas II MI Bahrul Ulum Ngoro Mojokerto"*, Skripsi, Program Studi PGMI, Universitas Islam Negeri Maulana Malik Ibrahim Malang, 2013.



Table 1.1

## Similarities and Differences Of Research

Title Research	Equation	Difference	This Research
1. Development of Instructional Materials Natural Sciences Elementary School Learning Through Addition and CD.	<ul style="list-style-type: none"> <li>Development of Instructional Materials Sciences IPA.</li> </ul>	<ul style="list-style-type: none"> <li>Practical Methods and Learning CD.</li> </ul>	<ul style="list-style-type: none"> <li>To increase the Novel Based Student Achievement Class III to Content Objects and Its Primary Schools Annur Islamic Tumpang.</li> </ul>
2. Development of Instructional Materials science concepts to increase understanding of Material Structure and Function of the plant Student Class IV Interactive Multimedia Based Elementary School In Ponggok 04 Blitar.	<ul style="list-style-type: none"> <li>Development of Subjects Natural Sciences.</li> </ul>	<ul style="list-style-type: none"> <li>With respect to Content structure and function of plant parts in the Elementary School Fourth Grade Ponggok 04 Blitar.</li> <li>Using interactive multimedia..</li> </ul>	<ul style="list-style-type: none"> <li>On the subject matter of the nature of objects and changes in class III in Primary Schools Annur Islamic Tumpang.</li> <li>Using Novel-based teaching materials.</li> </ul>
3. Development of Practical Guidebook Guided Inquiry Based on Matter and Its Objects to Improve Student Achievement Motivation and Class II MI Bahrul Ulum Ngoro Mojokerto	<ul style="list-style-type: none"> <li>Subjects were developed IPA</li> <li>Method development of the R &amp; D</li> <li>The material used in the development of textbooks that material objects and nature</li> </ul>	<ul style="list-style-type: none"> <li>Products produced textbook is Inquiry-Based Practical Handbook</li> <li>Objects are studied: Class II, MI Bahrul Ulum Jombang Ngoro</li> <li>To Increase Motivation and Learning Achievement</li> </ul>	<ul style="list-style-type: none"> <li>Product-based teaching materials produced Novel</li> <li>Objects are studied: Class III in Annur Tumpang SDI.</li> <li>To improve the achievement of learning</li> </ul>

Based on the similarities and differences of the table research above shows some similarities and differences found in previous research with the research done. The equation of this research is equally developing learning materials as guidelines for teachers and students. As for the difference i.e. lies in the methods used in the development of learning materials and considering the subject matter.

In this research based methods using Novel where students know the concepts of the material that is in material objects and of its nature is supported by an attractive image as well as stories that are packaged in the novel. Thus, the pastime is the research reference for researchers in developing learning materials tailored to the concept of the IPA and the characteristics of the students provide the research.

## CHAPTER II

### REVIEW OF THE LITERATURE

In this chapter will be discussed, (a) The study of the theory consists of 1) Nature Materials, 2) The development of learning materials, 3) Learning natural science in elementary, 4) Objects and Nature, 5) Novel.

#### A. The Study of Theory

##### 1. The Nature of Learning Materials

Learning materials are materials or learning materials are arranged systematically used teachers and learners in the learning process. Learning materials must have a structure and a systematic order, explain the purpose of instructional will achieve, motivate learners to study, anticipate difficulties learning, gives the opportunity to the students, generally oriented learners individually (learner oriented), and learning materials are independent.

##### a. Functions of Learning Materials

As for the function of learning materials, namely:

- 1) Facilitate independent learning activities of students, both about the substances as well as on a number of principles that incorporate served and that can increase the competencies possessed learners. For teachers, learning materials for the development of competencies for learners through the textbook, teachers have the freedom in owning, developing and presenting the material in line with the principles of the instructional to achieve the learning objectives

It further mentioned that learning materials function as:

- a) Guidelines for teachers that will direct all of its activities in the learning process, and the substance of the competence that should be taught to students.
- b) Guidelines for students who will direct all its activities in the learning process, and the substance of the competence that should be learned/acquisition.
- c) Evaluation Tool achievement/mastery learning outcomes. Another opinion says as follows;

"The Definition of teaching materials; They are the information, equipment and plain text for instructors that are required for planning and review upon training implementation. Text and training equipment are included in the teaching material ".

Learning materials are any materials used to help an instructor/teacher in the teaching and learning activities in the classroom. The material in question could be either written material or material not written.

#### **b. Principles of Preparation of Learning Materials**

- 1) considers the character of students. Dealing with issues such as the conformance level of difficulty learning materials with the skill level of students ' language learning materials, how students can be challenging without making them frustrated, and how materials can accommodate the needs and interest of students.

- 2) Consider learning objectives. This consideration concerning how learning materials support the achievement of the competencies required in the curriculum, improving students' knowledge, support the students responsible for their own learning.
- 3) Take into consideration the needs and interest of teachers (teacher's needs and preferences consideration). Related to the issue of how materials can exploit and not limit the expertise of teachers.
- 4) Consider the practicality and customary (practicalities and general consideration). Related to the criteria that the materials should have an imaginative child and look attractive, economically in terms of using the time of life, and must allow students can be actively involved in its use.

**c. The Principles of Election Materials**

- 1) Learner centered principle is the students will learn the language properly if they are treated as individuals with their own interest and needs (needs and interest)
- 2) Active involvement principle is the students will learn the language properly if they were given the opportunity to participate in communication with the use of that language in the varied activities.
- 3) Immersion principle is students will be learning the language communicative activities properly if given to them can be understood (comprehensible) and relevant to their needs and interest.



- 4) Focusing principle is students will be learning the language well if they focus on the form and language skills vary, and the variation learning strategies to support the process of language acquisition.
- 5) Sociocultural principle is students will learn the language properly if they are aware of the role, functions, and properties of that language.
- 6) Awareness principle is students will be learning the language well when they realize the role and nature of language itself
- 7) Assessment principle is the students will learn the language properly if they are given the appropriate feedback about the development that they achieve
- 8) Responsibility principle is the students will learn the language properly if they are given the opportunity to set their own learning

## **2. The Development of Learning Materials**

### **a. The Nature of The Development of Learning Materials**

Learning materials developed from standards of competence and basic competence ability. Basic competencies in the curriculum of its elements is analyzed and divided into sub competences, further elaborated upon existing resource book. Description of the learning material containing details of the material that is important (key concept) to learn the students or in the form of a complete description as contained in the textbooks. Learning materials or materials containing knowledge skills and attitudes or values to be learned students. Types of learning materials need to be identified or determined exactly because every material need of learning strategies, media, and how to evaluate.



### **3. Learning Natural Science In Elementary School**

#### **a. Nature of IPA and IPA Learning In Primary School**

Natural Sciences (IPA) or narrow in the sense that Science is a discipline that consists of physical sciences (physical sciences) and life sciences (Biological Sciences). That includes the physical sciences are Sciences of astronomy, mineralogy, chemistry, geology, meteorology, and physics. While life sciences includes Anatomy, Physiology, zoology, microbiology, embryology, citologi.

IPA or science attempts to generate interest to increase human intelligence and understanding about natural all of the contents which is full of secrets that is endless. With the opening of the secret nature of that one by one, as well as flow the information it generates, the more extensive coverage of science and the birth of that practice, that is the nature of the technology.

IPA or science discusses the symptoms of nature are organized systematically based on the results of experiments and observations made by humans. It is as expressed by that IPA is the science that deals with the symptoms and natural material which systematically arranged on a regular basis, generally in the form of a collection of observations and experiments.

IPA is the science that was originally acquired and developed based on experiment (inductive) but on the further development.

The understanding of some of the above can we know that the IPA is the study of the universe and its contents and events that can be acquired and developed either deductive or inductive. There are two external links relating to IPA , IPA as a product and as a process. IPA knowledge as the product that is in

the form of factual knowledge, conceptual, procedural, and Metacognition. The IPA as the process i.e. the scientific work. Either the product or the process of IPA is the subject of the study of the IPA. By learning the IPA, learning products and how we can get the IPA process. In our daily lives much knowledge that we can.

Knowledge of religion, education, health, economic, political, social, and natural surroundings are examples of knowledge possessed by every human being. On the understanding that the second IPA can we know that the IPA is the scientific knowledge is knowledge obtained scientifically. This shows that the science has two main properties. The main properties are rational and objective.

Reasonable means of rational, logical, or accepted common sense while the objective meaning in accordance with its object, fact, or observation.

Knowledge of nature is seen as a way of thinking in search of the secrets of nature as how an investigation into the nature and symptoms as the torso of the knowledge resulting from the inquiry. In addition to learning about the process and the products IPA, by learning the IPA we can also know about the ways of thinking that are good.

#### **b. Learning IPA In Elementary School**

The purpose of learning the IPA in the primary Curriculum according to KTSP (Mone 2006) in detail are:

- a) Gained confidence against the greatness of God based on the existence, nature and regularity of beauty, creature of God
- b) Developing knowledge and understanding of science concepts that are useful and can be applied in everyday life,

- c) Develop curiosity, positive attitude and awareness about the existence of the relationship of the interplay between science, environment, technology and society,
- d) Develop a process to investigate the natural surroundings, solve problems and make decisions,
- e) Raising awareness to participate in maintain, safeguard and preserve the natural environment and all suitable as one of God's creation, and
- f) Acquired the stock of knowledge, concepts and skills for science as the basis for continuing education to Junior High School or MTS.

#### **4. Objects and Their Nature**

In everyday life, man is inseparable from the name of the object. Human activities on a daily basis will definitely always use objects, such as when the shower water we use, we are writing need pencils, books, erasers, etc. Of such activities we already use many of the functions of objects. Object that has its own uniqueness we find good solid, liquid and gas. Uniqueness of these objects be based on the nature of the object.

##### **a. Object Properties**

Each object has properties. Typical properties of objects can be differentiated based on form, shape, color, and odor. Based on his form, objects are grouped into solid, liquid, and gas.

##### **1) Properties of solid objects**

Solid object has a fixed size and shape. Example is. wood, stone, and book. Shape and size of the object remains despite being moved into place.

## 2) The nature of the Liquid

- a) Have a fixed size, but its forms fluctuate in accordance with the current container. For example water. In 1 liter of water put into the bottle then the shape is like a fixed volume bottle and 1 liter. If the water is transferred into a can then keep 1 liter in volume and shape as it can.
- b) Form the surface of the liquid is always flat although take in in a slant.
- c) Fluid flow to a lower place. Pay attention to the flow of water around the House, such as in sewers, streams or on the roof of the House. The rain water that falls on top of the House flowing through tile and chamfer. From there the water flows into the gutters and eventually into the river.
- d) Have Water pressure. The deeper pressure. The deeper the water pressure in a place that's getting bigger. The case this can be proven by the steady stream of water. A steady stream of water from a deeper place seem more distant.
- e) Liquid seep through the cracks. You can spill touch drinks it with tissue and paper gets wet. Fluid from the table has been moved to the tissue. Liquid that seeped into the tissue through the cracks

## 3) Nature of the Objects of Gas

The nature of the objects of gas is has the changing shape and size. For example the air inside the balloon its shape like a balloon and occupies an entire room of balloons.

## **b. Change The Properties of Objects**

Changes in objects can usually be observed. The properties of the objects to be compared between before and after the change. There is a change in color, there is a changing shape, some are turned into software.

There are several factors that affect changes in objects:

- a) Warming (butter and Brown to warm so the shape will turn into liquid)
- b) Combustion (burnt paper shape is transformed into a soft gray and the color will also change)
- c) Is placed in an open space (fruit when bitten its colour will change to orange color)

In a State of cold, the chocolate is usually dense and hard enough. However, the chocolate melts when heated. At that time, its nature changed such as the nature of the liquid. Because the intangible brown liquid, bias is poured into their molds. The shape of the melted chocolate in the shape it is cooled in the open air, or in the refrigerator (refrigerator), chocolate can harden again.

What about butter? Butter is indeed more mushy than Brown. However, if kept in the refrigerator, butter can be hardened like chocolate. So heated in a frying pan, the butter can melt into such cooking oil.

Attention, the time of mother's cooking water. When water is heated, the water above it appears the smoke out of the surface of the water. The smoke is actually steam the water is water that intangible objects. When heated, the liquid can be changed into gas.



So, warming can change things. For example, changing the liquid into solid objects like the examples above.

## **5. Novel**

### **a. Definition Of Novel**

The novel is one form of a literary work. The novel is a story of fiction in the form of writing or words and has elements of and extrinsic. A novel usually tells the story of human life in interacting with the environment and each other. In a novel, the author is trying everything possible to direct the reader to the reality of life figures through the stories contained in the novel.

Many of the poets who gave that gives the limitation or definition of the novel. Limitation or definition that they provide different viewpoints because they use also vary. The definition of it, among others, according to experts in their field are as follows:

- 1) The Novel is the most popular form of literature in the world. This literary form most widely printed and widely circulated, due to the extensive community resources in the community.
- 2) Novel is a literary work that has two elements, namely: intrinsic and extrinsic elements there are both interconnected as it is very influential in the presence of a work of literature.
- 3) Novel is a literary work in the form of prose that have intrinsic elements.



- 4) The Novel is a form of literature that values social, moral, cultural, and education.<sup>1</sup>

The novel is a form of literary works that are most popular in the world. This literary form most widely circulated, due to the extensive communication resources in society. As the reading material, the novel can be divided into two classes, namely serious works and works of entertainment. Opinion so it is true but also there it goes is that not all who are able to provide entertainment can be referred to as a serious literary works. A serious novel, not only claimed that he is a wonderful, interesting work and thus also provide entertainment in the us. But he also charged more than that. The novel is a novel whose main requirement is bring it must be interesting, entertaining and bring complacency after the exhausted reading it.

The novel is a good read for self perfection. A good novel is a novel whose contents can humanise his readers. Conversely novel entertainment only read for a mere casual interests. Provide an important preoccupation on its readers to solve them. The tradition of entertainment novels tied with patterns – patterns. Thus it can be said that the novel had serious social function, is a novel free entertainment personal functioning. The novel is functioning social due to the novel a good join the foster parent community into a human. Being novel entertainment ignore whether the story served not nurture human or not, the important thing is that the novel allure and people want to fast read it.

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<sup>1</sup> <http://www.e-jurnal.com/2013/12/pengertian-novel-menurut-para-ahli.html> ( diakses pada 16 april jam 09.50 WIB)

Many of the poets who gave that gives the limitation or definition of the novel. Limitation or definition that they provide different viewpoints because they use also vary.

Definition of it among others are as follows:

1. The Novel is the most popular form of literature in the world. This literary form most widely printed and widely circulated, due to the extensive community resources society.
2. The Novel is a form of literature that values social, moral, cultural, and education.
3. Novel is a literary work that has two elements, namely: intrinsic and extrinsic elements there are both interconnected as it is very influential in the presence of a work of literature.
4. Novel is a literary work in the form of prose that have intrinsic elements.

#### **b. Elements Of The Novel**

The novel has elements that are contained in the elements are:

##### **1. Intrinsic Element**

###### **a) Themes**

The theme is the main idea or the main problems underlying the plot of the novel

###### **b) Setting**

The setting is the background that helps clarity storyboard, setting includes the time, place, social culture.

c) point of view

The viewpoint described Perry Luback in his book *The Craft Of Fiction*

d) Plot

Plot is the sequence of events in the novel. The Groove is distinguished into 2 parts, namely the forward flow (progressive). If event is moving gradually towards a chronological order based on the storyline. While the backward flow (flash back progressive) that happens has to do with the events that are taking place

e) Characterizations

Characterizations described the character for the perpetrator. Principals can to know the character of the Act, the physical characteristics, the environment of residence.

f) Language Style

It is the dominant style in a novel

**2. Item Ekstinsik**

This item covers the background to the creation, history, biography of the author, and others, beyond the intrinsic elements. Elements that exist outside of the body of literary work. Attention to the elements, this element will help the accuracy of the interpretation of the content of a work of literature

**c. Characteristic Novel For Children**

Characters of a person, other than an innate from birth (genetic), also formed by education, since education in the family arrived at the school, as well as the influence of values that is circulating in the community and the

environment that foster it. Because each person has a different genetic default, and grow in an environment of education and a relatively different guidelines, then grows also the specific characters that are attached to the figure-a unique personal figure, since the characters were weak and badly (consumerist, lazy, easy to give up, rough, treasonous, and corrupt) to good character and superior (creative, diligent, hardworking, tenacious, polite, honest, reliable , fair, and responsible).

In addition to individual character that is unique and different, there is also a collective character, built by values that are universal values like religion, and values that become a kind of "mutual agreement" in social life and passed down orally by elders to the younger ones. This collective character into a sort of communal character of a society or nation. For example, the character of a religious community, as well as the character of the communities polite, caring and love to contribute mutual.

Students is the younger generation, the next generation, who will become the owner of the nation's future. What kind of nation will face Indonesia in the future depends very much on how we shape the character of the students since now. When we like losing hope in the political elite and leaders of the nation (ruler) of the current, then hope we stay depends on the owners of the future of it. Therefore, building character in students since now a shared work (especially teachers and parents) which is very important. Teaching at the school, including the teaching of literature, became the object of very vital. If we fail to form a positive character and superior to the students, can-can the future of this nation

will be slumped, losing hope, or at least will lose the personality and is easily colonized as well as "enslaved" by the nation's other more superpowers.



## CHAPTER III

### METHODS OF RESEARCH AND DEVELOPMENT

In this third chapter will be discussed about this development research methods, such as, 1) Type of research, 2) Model development, 3) Procedure development, 4) Validation of the product, and 5) Product Trials.

#### A. Types of Research

The methods used in this research is a method of research and development (Research and Development). Research development of used-oriented product development in the field of education. Nana Syaodih Suryadinata reveals in his book entitled methods of educational research that research development or Research and Development (R D &) is a strategy or a pretty powerful research method in/to improve practice.<sup>1</sup>

While according to Borg & Gall (1983) research development is a process used to develop and validate product education.<sup>2</sup>

The research of development according to the Seels & Richey is defined as follows: "the research development, as distinguished from a simple learning development, defined as the study systematically to design, develop and evaluate programs, processes, and outcomes of learning should meet the criteria of consistency and effectiveness internally.

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<sup>1</sup> Sukmadinata, Nana Syaodih. *Metode Penelitian Pendidikan*. (Bandung: PT Remaja Rosdakarya, 2007), hlm. 164

<sup>2</sup> Sukmadinata, Nana Syaodih. *Metode Penelitian Pendidikan*. (Bandung: PT Remaja Rosdakarya, 2007), hlm. 164



The purpose of the research is the development of principal as assessment of the changes that occur in a certain period of time. The change is expected to lead to a change in the improvement of learning.

Thus research is the development of research related to improving the quality of education, both in terms of process as well as outcomes of education.<sup>3</sup> This is in line with research that will aim to develop a product that performed the researcher about the book materials devoted to the subjects of Natural Science at the grade III elementary school.

This product is expected to be a road that attempts to bridge the gap of information between fulfillment and the provision of appropriate learning materials needs of students in learning the IPA. Therefore, one of the researchers developed to facilitate the understanding of the students is through a "development-oriented product" in the form of the development of learning materials and Science based novel to grade 3 Elementary School that is focused on material objects and nature.

## **B. Development Model**

Development Model learning media development novel used adapted from research and development model of Borg & Gall stated "Educational research and development (R&D) is a process used to develop and validate educational products." <sup>4</sup>So, the purpose of this research and development is to produce a

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<sup>3</sup> Nurwiga, Adhin Maulidya, "Pengembangan Buku Panduan Praktikum IPA untuk meningkatkan prestasi belajar siswa kelas V pada materi Sifat Cahaya dan Alat Optik di MI Negeri Gedog Kota Blitar", *Skripsi*, Fakultas Tarbiyah UIN malang, 2012, hlm. 57

<sup>4</sup> Walter Borg and Gall, *Education Research an Introduction*, (New York: Loongman, 1983), hlm. 624

product and it's been validated, so that the resulting product has a scientific value and can be trusted.

As for the measures the development of learning materials in the study traveled through ten stages, among other things:

**a. Research and Early Information Gathering (Research and Information Collecting)**

Research and information collection includes early literature review, observation or observation class, and the preparation of the initial report. Initial research or analysis very important needs done in order to obtain preliminary information in order to do development.

**b. Planning**

Planning includes the formulation of specific objectives to determine the sequence of materials and small scale trials. This objective is intended to provide information material on the right to develop a program or product so that it complies with the specific purpose to be achieved.

**c. Development of The Initial Product Format**

The development of an early draft of the beginning or format that includes the preparation of learning materials, handbooks, and evaluation tools. The format of the product development may include printed materials such as modules and learning materials in the form of textbooks, the order process or procedure in the draft system of learning that comes with the video or in the form of compact disks.

Drafts or early product was developed with the assistance of experts or people who have the needed skills. Before a product tested in the field required

example evaluation of experts to assess the feasibility of the basics concepts of or theory are used.<sup>5</sup>

**d. Initial Trials**

Initial tests conducted on 1-3 school that involves 6-12 the data subject and the results of the interviews, observation and question form is collected and analyzed. Analysis of the results of the initial test be inputs or do a revision of the initial product.

**e. Revision of The Product**

Product revision is done based on the results of early trials. Field trial results achieved qualitative information about the program or the product being developed.

**f. Field Trials**

The revised product based on small scale trial results, then tested again to the unit or the subject of the trial. Field trials conducted against 5-15 school involving 30-100 subjects. Trial results are collected and analyzed. The results of the analysis of the initial trials to do further product revisions.

**g. Revision of The Product**

Product revision is done based on the results of field trials. The results of the field trials with larger groups or the subject is intended to determine the product's success in achieving the objectives in improving the product for the purposes of repair at a later stage.

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<sup>5</sup> Nana Syaudih Sukmadinata. *Metode Penelitian Pendidikan*, (Bandung: Remaja Rosdakarya, 2011), hlm. 176.

#### **h. Field Test**

Once the product is revised, if the developers want products that are more feasible and adequate, then the necessary field trials. Field test involving 10-30 school involving 40-200 subjects. Trial results are collected and analyzed. Analysis of the results of the initial test to do revisions to the final product.

#### **i. Revision of The Product**

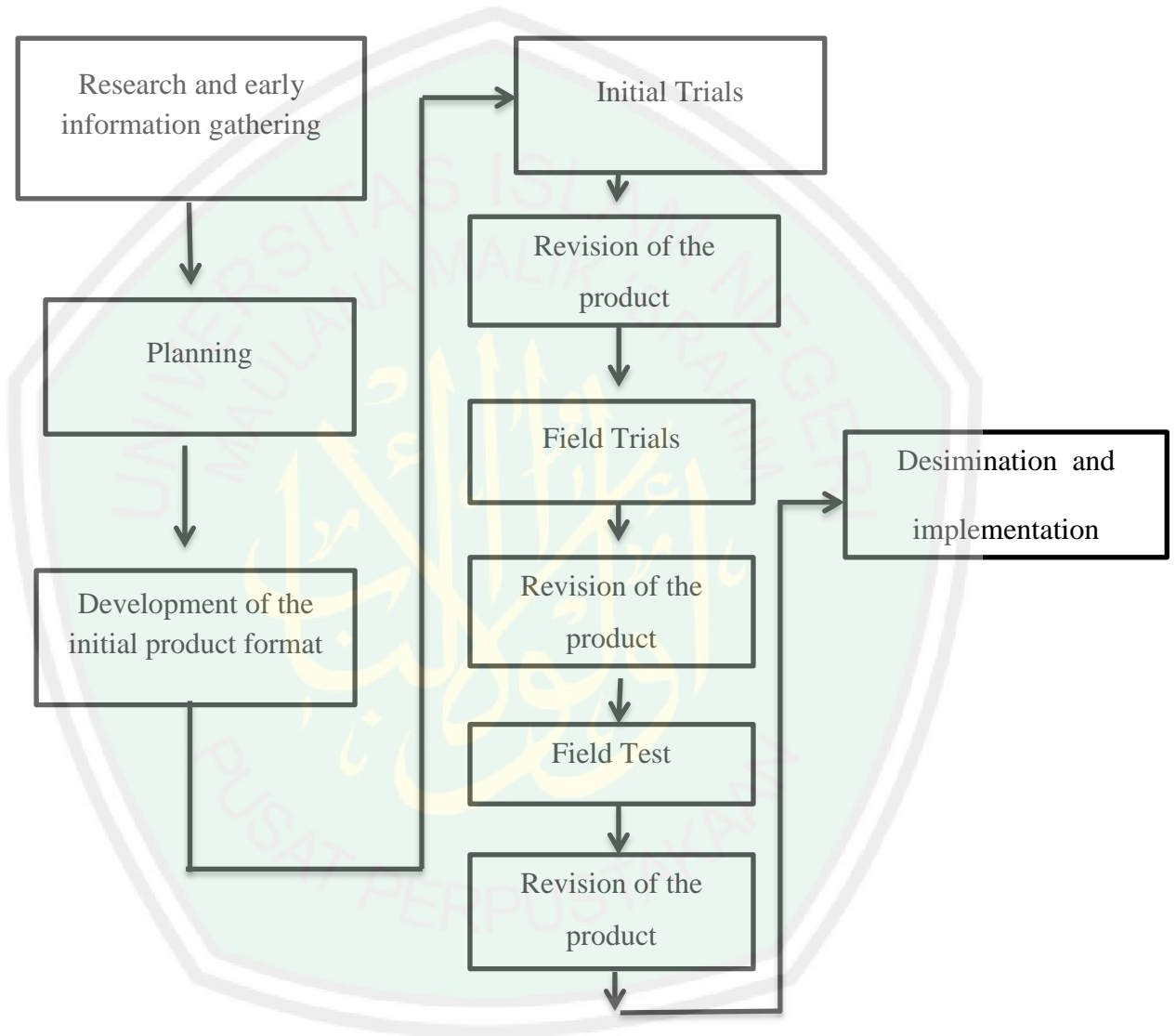
Revision the revision level of the product that is based on a broader field test. conducted based on results of field trials. The results of the field trials with larger groups or the subject is intended to determine the product's success in achieving the objectives in improving the product for the purposes of repair at a later stage.

#### **j. Desimination and Implementation**

Desimination and implementation is the development users to explain results through the forum or in the form of books or handbooks.

Based on the steps of the development of the Borg and Gall above, can be described as follows:

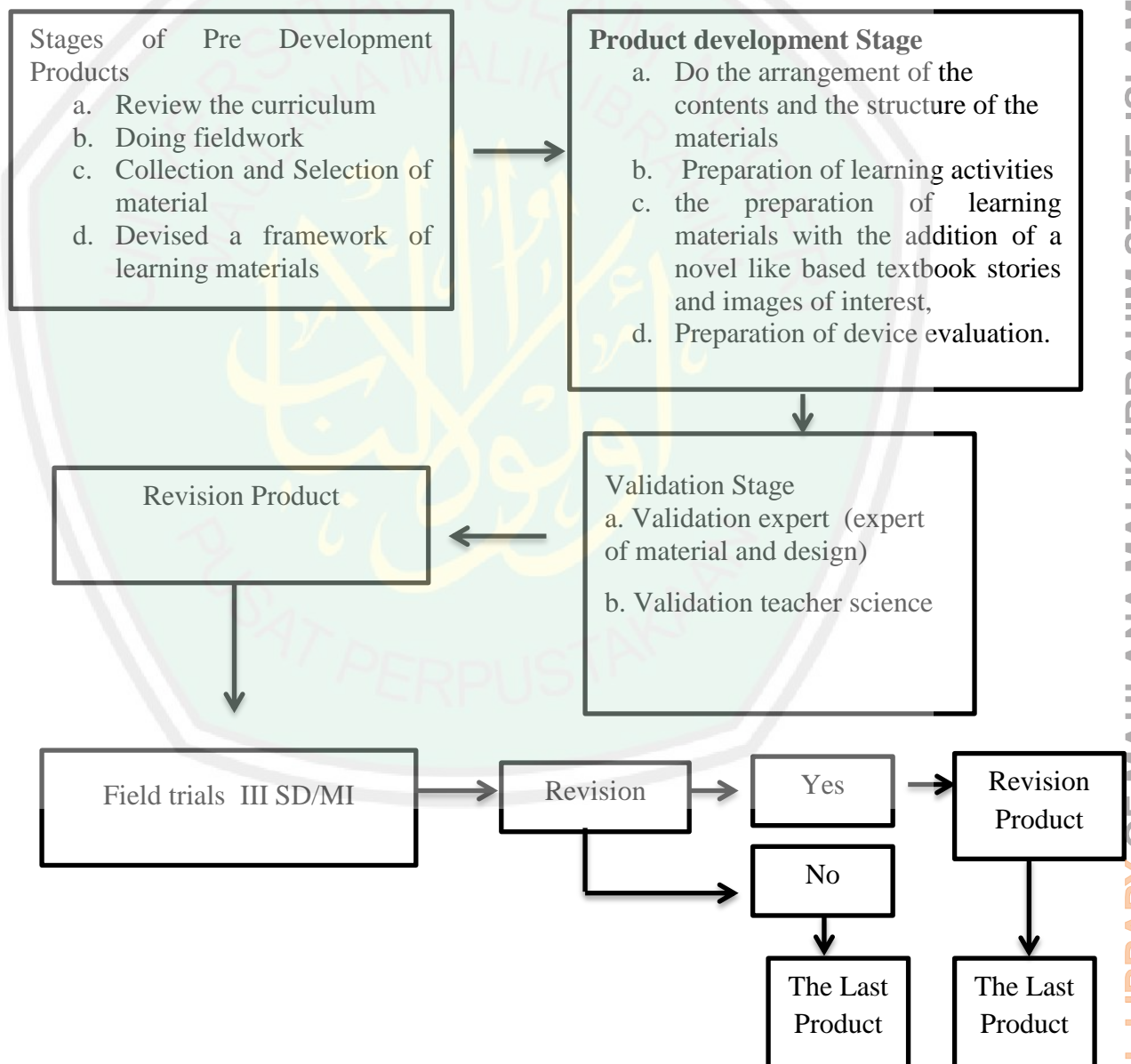
**Figure 3.1 The Steps Learning Materials Development According To Borg And Gall**





From the model of research done, Borg and Gall researchers adapted modernism as follows: (1) stage of pre-development, (2) the stage of product development, (3) Validation stage, (4) stages of revision, (5) Field Trial . The following charts the development of adaptation. is:

**Figure 3.2 Step-By-Step Development Of Learning Materials**



### **C. Procedure Development**

Based on the research model of Borg and Gall, procedures or measures undertaken by researcher through five stages, (1) stage of pre-development, (2) the stage of product development, (3) Validation stage, (4) Stages of revision, (5) Field Trial

#### **a. Stages of Pre Development Products**

The purpose of this stage of pre-development is studied and mastered the material characteristics developed into planned learning materials. In addition, to collect materials the materials needed for designing learning materials. Activities performed in this stage are:

##### **a) Review the curriculum**

Analysis of the curriculum implemented aims to define a standard of competence and basic competence. At this stage determined the amount of the standard of competence and basic competence would be developed into the materials. As for the standard of competence and basic competence standard of competence chosen is about Understanding the properties of the object, change the properties of objects, and its usefulness in everyday life and basic competence that is selected is to identify the properties of the objects based on observations include solid, liquid, and gas, describe the changing nature of the object (size, shape, color, or flavor) that can be observed resulting from burning, warming, and laying in the open air, explaining the usefulness of objects, plastic, wood, glass, and paper.

b) Doing fieldwork

Field studies conducted aiming to identify the behavior and characteristics of grade III SD/MI students learning difficulties, analyze, and analyze the needs of the learning materials and nature grade III SD/MI, this activity is carried out by means of interviews to the classroom teacher as well as observe the learning materials and media used in the study of natural sciences in particular material object and its nature.

The results of the observations indicate that materials science particularly material objects and nature refers to KTSP curriculum, it's just textbook used less varied so impress saturating students and is monotonous. And only descriptive-shaped instead of starting from the daily experience of students. In the end it will make students having a lot of difficulty in understanding the material presented, so that will affect the results of student learning.

c) Collection and Selection of materials

At this stage, do collect and selection of materials used in the development of learning materials. Selected learning materials tailored to the students ' ability on the level of SD/MI, the result of the process in the form of textbook of class III material that deals with objects and properties will be used as examples in the learning materials developed.

d) Devised a framework of learning materials

Preparation of framework of learning materials to classify indicators, material, evaluation of learning, step the competence about the matter and its nature.

### **b. Product Development Stage**

At this stage, the development of learning materials-based novel. In developing this material, researchers conduct consultations with teachers of subjects and some competent in the field of natural sciences. The material presented in this book is not the material instantly introduce the concept. Object and nature of the material in this book are written by adding a story starting from the experience of the students daily. As for a series of processes that is as follows: (1) do the arrangement of the contents and the structure of the materials, (2) preparation of learning activities, (3) the preparation of learning materials with the addition of a novel like based textbook stories and images of interest, (4) preparation of device evaluation.

### **c. Validation Stage**

Validation Stage is directly go to the expert, Expert of material or content, Expert of Design, Expert Practice from Teacher. The benefits fom validation Stage is to know the weakness the text book so that can improve to be a good text book and can used by students.

### **d. Field Trial Products**

Activities at this stage to know the level of appropriateness of initial drafts resulting from the development phase so that it can be done the fix for to perfect products in the form of learning materials. At this stage of testing a product there are two steps namely validation stage and the stage of field trials. Product validation is performed with the Group of experts, namely the consultation of experts the material, design and media experts, practitioners/teachers. The results

of the evaluation of validation experts and practitioners used for refinement of the product. After that, do field trials to find out the feasibility of the learning materials that have been developed.

#### **e. Product Revision Phase**

This activity is carried out for repair or completion against the draft early based on analysis of the data or information obtained from experts and students. If learning materials are already said to be valid then the researcher does not need to make revisions and the product is ready to be implemented, but if the materials have not been said to be valid it must be revised before being the end product development.

### **D. Product Validation**

#### **1. Design Validation**

Validation of the design used on the research of the development of this is validation of the contents of the subjects of Natural Science expert, expert media design learning, teachers as learners and students as expert users of the product.

This validation is aiming to obtain data in the form of assessment and advice validator, so note whether a valid product developed and later used as the basis for performing revision.

#### **2. The Subject of Validation**

The subject of validation or validator textbook-based novel consists of 2 people lecturer UIN Maulana Malik Ibrahim was unfortunate and a teacher IPA subjects class III in SDI Annur Tumpang. Validator criteria are as follows:

- a. Lecturer teaching Guidebook content validation of Science:



- 1) Lecturer PGMI competent in the field of science education Madrasah Ibtidaiyah.
  - 2) Have a minimum education background of S2.
  - 3) Know science curriculum SD/MI.
  - 4) Has written a book about science, and others.
- b. validation of media design Lecturers:
- 1) Have a minimum education background of S2.
  - 2) As the author of the books, papers, and so forth as well as educational observers.
  - 3) Experienced in the design and design book.
- c. Teacher
- 1) As a teacher who has taught the IPA for 5 years.<sup>6</sup>
  - 2) Understand the science curriculum SD/MI.\

### 3. Data Types

The types of data that are retrieved from the results of the validation against the learning materials that have been developed there were two kinds. First data in the form of quantitative data obtained from the scoring results in the form of a percentage to know the feasibility or valid materials. The second is data qualitative data in the form of responses-responses or advice from the validator.

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<sup>6</sup> Ayu Muhayyinah. Pengembangan Buku ajar Ilmu Pengetahuan Alam Materi Gaya dengan Model Learning Cycle 5 Fase untuk Siswa Kelas IV MI Islamiyah Pakis-Tumpang. Skripsi tidak diterbitkan. Program Studi Pendidikan Guru Madrasah Ibtidaiyyah. UIN Malang, 2012. Hlm 46

#### **4. The Instrument of Data Collection**

The instruments used to collect the data of this research is in the form of the now which comprise two parts. The first part is the qualitative data collection instruments, namely in the form of likert scale question form with 4 alternative answers, as follows:

- a. Score 1, if not very precise, very not appropriate, is not very clear, very unattractive, not very easily.
- b. Score 2, if less precise, less fit, less obvious, less attractive, less easy.
- c. Score 3, if appropriate, precise, clear, interesting, easy.
- d. Score 4, if very precise, very fit, very clear, very interesting, very easy. While the second part is the qualitative data collection instruments in the form of sheets of charging advice and comments from the validator.

#### **5. Data Analysis Techniques**

Data analysis techniques used to analyze qualitative data validation results with engineering calculation of average value. Calculation function to know the ranking of the final value for the items in question. The formula of calculation of average value as follows:

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

Description:

P = The Feasibility

$\sum x$  = number of assessment answers

$\sum x_i$  = number of answers the highest<sup>7</sup>

**Table 3.1: Eligibility Criteria Based Book Novel.<sup>8</sup>**

Percentage (%)	Eligibility Criteria
80-100	Valid, no revision
60 - 79	Enough Valid, no revision
40 – 59	Less valid, partial revision
0 - 39	No, the revised total

Based on the above criteria, learning materials are declared valid if it meets the criteria of score 80 from all elements contained in question form a validation assessment of media experts, expert content, teacher of natural science majors in elementary and grade III SD. In the development of these materials, which are made must meet the criteria. Therefore, the revision is done when it is still not valid criteria.

<sup>7</sup> Suharsini, Arikunto. 1999. *Dasar-Dasar Evaluasi Pendidikan (Edisi Revisi)*. Jakarta: Bumi Aksara, hlm. 112

<sup>8</sup> Arikunto, *Dasar-Dasar Evaluasi Pendidikan (Jakarta: Bumi Aksara, 2003)*. Hlm. 313

## E. Product Trials

### 1. Design Trials

In the field of education, product design such as the textbook can be directly tested, validated and after revision. Early stage trials conducted with simulated use of the textbook. After the simulated, then it can be tested on a limited group. Testing conducted with the aim to obtain information as to whether the new textbook is more effective and efficient than the old textbook or another.<sup>9</sup>

This textbook for the testing done by comparing the situation before and after wearing the new system (before-after).<sup>10</sup>

**Figure 3.3 Experimental design (Before-After). O<sub>1</sub> O<sub>2</sub> Values Before Treatment and After Treatment Value**



X= learning to use textbook and learning

O<sub>1</sub>= Preliminary test/pre test

O<sub>2</sub>= The final test/post test

### 2. The Subject of The Trial

The subject field trials in the research development was carried out on students class III SD Annur Tumpang that add up to 32 students. Things are examined, namely comparing student learning outcomes before and after using the textbook and learning media.

<sup>9</sup> Sugiyono. *Metode Penelitian Pendidikan*. (Bandung: CV. ALFABETA, 2009), hlm. 414

<sup>10</sup> *Ibid.*, hlm. 303

### 3. Data Types

Data obtained in this study is in the form of quantitative data collected using the achievement test study on learning the IPA, which includes pre test and post test.

### 4. The Instrument of Data Collection

The instruments used in the form of a test pre test and post test. The test is used to gather data about the results which shows the changes before and after understanding the learning process by using the textbook science and learning media.

### 5. Data Analysis Techniques

In field trials, the data collected using the question form and achievement test or achievement test (the test achievement of learning outcomes). Data collected by field trials using the initial tests and final tests in order to find out the results of a study group trials target is class III before and after using the product development of the textbook. Data analysis techniques using experiments one group pretest post test design is the sample given the initial tests and the final test despite treatment. Test criteria is t-test to careful again, to be used to find out whether there is influence of a treatment that was imposed on a group of objects of research. As for the formula that is used with a level of significance of 0.05 is:<sup>11</sup>

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<sup>11</sup> Turmudi. *Metode Statistika* (Malang: UIN Press, 2008), hlm. 214



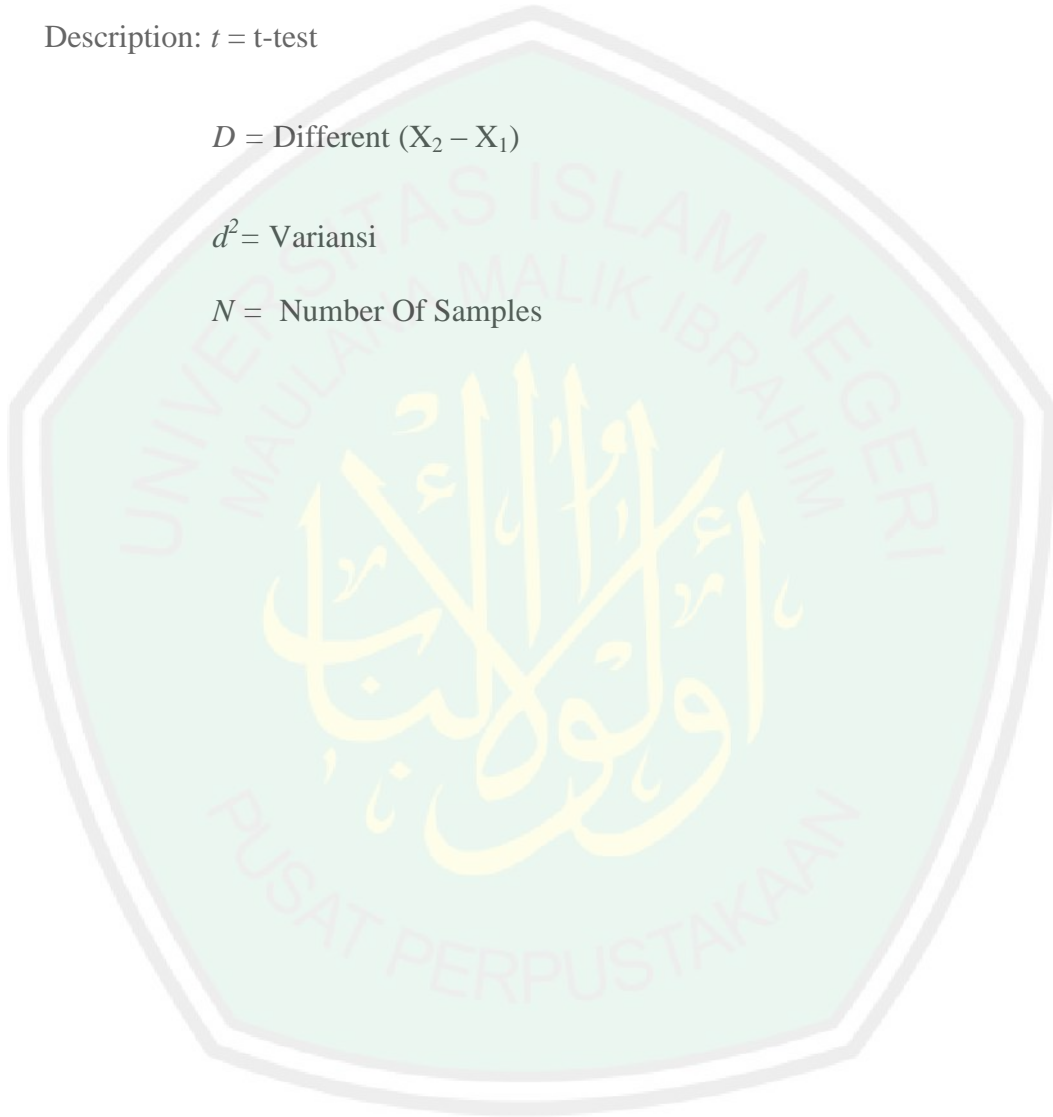
$$t = \frac{\bar{D}}{\sqrt{\frac{d^2}{N(N-1)}}}$$

Description:  $t = t$ -test

$D =$  Different ( $X_2 - X_1$ )

$d^2 =$  Variansi

$N =$  Number Of Samples



## CHAPTER IV

### THE RESULTS OF THE DEVELOPMENT

The data outlined in this chapter the results of textbook development and science learning media such as, 1) Description of the form of textbook development results, 2)) Presentation of data validation, and 3) Results of field trials.

#### A. Description of The Results of The Development of Learning Materials

Learning materials development results that have been created made up of stextbook students subject Material objects and of its nature for the Grade III SDI Annur Tumpang.

##### 1. Textbook

The resulting student textbook on the development contains three parts namely the introduction, the body and the cover. The following is an explanation of each section.

##### a. The introduction

The introduction describes the components before you start learning.

## 1) Cover

Page (cover) the front consists of the name of the book, the title of the book "the SBI (Nice Learn IPA)", for whom the textbook (SD/MI Students For class III), the image on the cover to suit the material being developed as well as the author's name. While the back cover contains a few snippets of the story content of the book.



## 2) Preface

The preface is the explanation of framers of hope against the constituent materials, thanks to all those who help the development of learning materials and suggestions from constituents criticism requests to all my readers for the refinement of materials wrote.



### 3) Table of contents

The table of contents on the learning materials of the components there are titles of the entire section in the learning materials and their home to make it easier for students to find the material to be studied. The list also describes the basic competence to be accomplished.

#### b. Section Contents

On the contents of the book consists of the entire discussion of material contained on materials

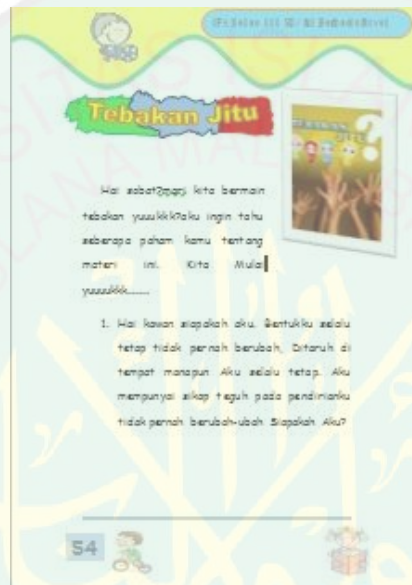


#### c. The closing section

On the cover of learning materials are equipped with components which are exercises reserved namely Guesses Sharpshooter.

### 1) Tebakan Jitu

Tebakan Jitu is questions that are addressed to the students have understood the material studied or even vice versa. The question presented is not like the problems that normally, the question this time like a quiz or puzzle sniper.



### 2) Bibliography

Bibliography is a great source of reference book used by the compiler as a reference for the creation of materials contained on the end of learning materials.

In this case students can search for references or other literature that is listed in the bibliography.



## **B. Presentation of The Results of The Validation Data Product Development Materials Natural Scholarship-Based Novel Class III on The Material Object and Its Nature**

Validation against the learning materials made by the validator experts held on 15 January 2015 until 28 January 2015. Data product development assessment materials was done in 4 stages. The first stage of the assessment of the results obtained from the product of the development of learning materials which are performed by one expert as a management lecturer in product design, the second stage of the assessment of the results obtained from the product of the development of learning materials is done by one lecturer teacher education Majors Madrasah Ibtidaiyah (PGMI) and Secretary of the Department of material's content experts as PGMI, third stage, by one of the teachers of natural sciences field of study class III MI as expert learning and results and fourth stage of validation of product materials development conducted in third grade.

The data retrieved is the quantitative data and qualitative data. Quantitative data are derived from the question form the assessment scale Linkert, while qualitative data in the form of additional assessment or advice from the validator.

The validation test result data is analyzed with techniques scoring average assessment evaluators at each assessment item.

### **1. The Results of The Validation Material Experts**

Product development expert materials submitted to subjects of natural science is a form of learning materials. The descriptive results of validation experts expose the material science of product development of materials science class III

objects and nature of material submitted through the questionnaire method with instruments now can be seen in Table 4.1. 4.2.4.3.

**Table 4.1 Results of The Expert Assessment of The Science Material Against Materials Science Based The Novel on A Material Matter and Its Nature**

No.	Statement	$\sum x$	$\sum x_i$	P (%)	Level Of Validity	Description
1	Outline of the topics on the development of textbook science is clear.	4	4	100	Valid	No Revision
2	The suitability of the material presented on the development of textbook science.	4	4	100	Valid	No Revision
3	The relevance of Standards of competence with indicators on the development of textbook science is relevant	4	4	100	Valid	No Revision
4	The formulation of indicators in the development of textbook science is presented in accordance with the outline of the Basic Competencies which have been set out in the 2006 KTSP.	4	4	100	Valid	No Revision
5	Description of the contents of the study presented on the development of textbook science is very systematic.	3	4	75	Quite Valid	No Revision
6	The scope of the material presented on the development of textbook science is very appropriate to the theme.	4	4	100	Valid	No Revision
7	Writing tool materials and trial measures on any games on the development of textbook science either.	3	4	75	Quite Valid	No Revision
8	The material is presented through this science textbook can provide motivation to students to be more enterprising learning very motivating.	4	4	100	Valid	No Revision

9	Levels of difficulty the language used, in accordance with the level of understanding of students.	4	4	100	Valid	No Revision
10	Evaluation Instruments used can measure students ' ability.	4	4	100	Valid	No Revision
Result		3	40	95	Valid	No Revision

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

Description:

P = Percentage rate valid

$\sum x$  = Total assessment answers

$\sum x_i$  = Highest number of answers

100 = Integer constant

**Table 4.2 Distribution of Frequency Levels of Validity of Expert Material**

Science

The Level of Validity	f	%
<b>Valid</b>	8	80
<b>Quite Valid</b>	2	20

Tables 4.1 and 4.2 show data validation results of expert material science of product development of materials science-based novel material objects and to its class III SD is 80% declared valid, i.e. at item 1.2, 3.4 .6 .8 .9, and 10. Whereas 20% indicate the level of validity of quite valid, that is, on items 5, 7.

As for the qualitative data collected from the input, advice and expert commentary of material science in an open statement with regard to the materials presented in table 4.3. as follows:

**Table 4.3 Overview of Data Assessment and Expert Review of Material Nature**

Component	Description Data	Suggestions/Comments
Page 33	The wrong use of the word	Word Word kelsa replaced kelas
Page 43	The wrong use of the word	word Kaa replaced kata
Page 48	Error concept	For Example eskrim, you may want to give another example, that is when the chocolate is heated and is left in the open air
Page 49	The use of the wrong word	Word soalanya replaced soalnya
Page 37	Error concept	gas characteristics do not expand

All data from the results of the review, assessment and discussion with experts the material foundation of Natural Science Foundation to revise to the refinement of component materials and material science subjects before tester on learners learning materials development product users.

## **2. The results of the validation of the learning Media expert**

Product development submitted to the learning media expert is a form of learning materials. Exposure to media expert validation results a descriptive study of product development of materials science-based novel material objects and to its class III filed through a questionnaire with instruments now can be seen in Table 4.4.

**Table 4.4 Result of Learning Media Expert Assessment Against learning Materials Science-based Novel Material Objects and Nature.**

No.	Statement	$\sum x$	$\sum x_i$	P (%)	Level Of Validity	Description
1	Cover design in accordance with the contents of the material	3	4	100	Quite Valid	No Revision
2	Pictures on the book according to the material presented.	3	4	100	Quite Valid	No Revision
3	Types of fonts used in accordance with the grade III MI.	4	4	75	Valid	No Revision
4	The size of the fonts used in accordance with the grade III MI.	4	4	100	Valid	No Revision
5	Use of color variations.	3	4	100	Quite Valid	No Revision
6	Illustrations pictures can clarify the matter.	3	4	100	Quite Valid	No Revision
7	Design interesting layouts.	4	4	100	Valid	No Revision
8	Color combinations to design right.	4	4	100	Valid	No Revision
9	Interesting learning media Packaging	4	4	100	Valid	No Revision
10	Effective textbook learning with media.	4	4	100	Valid	No Revision
Result		36	40	90	Valid	No Revision



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

Description:

P = Percentage rate valid

$\sum x$  = Total assessment answers

$\sum x_i$  = Highest number of answers

100 = Integer constant

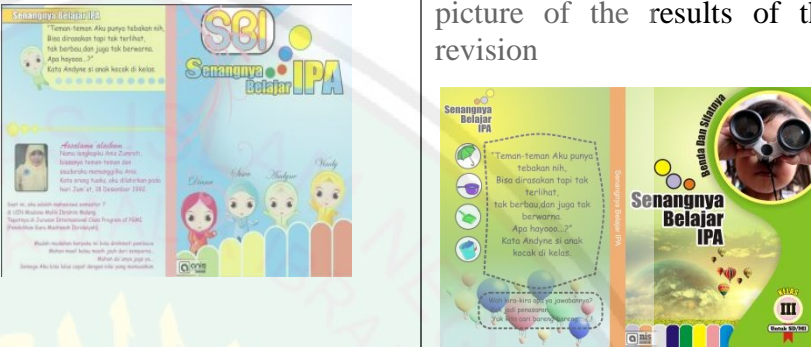
**Table 4.5 Distribution of Frequency Levels of Validity of Expert Media**

The Level Of Validity	f	%
Valid	6	60
Quite Valid	4	40

Tables 4.4 and 4.5, showing the results of the validation data media expert science of product development of materials science-based novel material objects and to its class III SD is 60% declared valid, namely in item 3.4.5 .7 .8 .9, and 10. While 40% indicate the level of validity of quite valid is at item 1.2 .5 .6.

As for the qualitative data collected from the input, advice and expert commentary of material science in an open statement with regard to the materials presented in table 4.6. as follows:

**Table 4.6 Overview of Data Assessment and Expert Review of Design**

Component	Description Data	Suggestions/Comments
Cover	The image on the front cover (cover) 	The image on the cover is less appropriate to the content of the material and less attractive. picture of the results of the revision
Colour	Use of colors on the color of materials	used on materials less bright and attractive
Content Of Book	The contents of the writing a foreign language	Foreign language Writing printed in italics.
Picture	Image size	Image size on the title of the material is less proportional.
Lay out	Lay out Lay out on the content of the material	Lay Out don't using a frame
The writing	Writing on the book contents	Do not wear the color red

All data from the results of the review, assessment and discussion with experts the material foundation of Natural Science Foundation to revise to the refinement of component materials and material science subjects before tester on learners learning materials development product users.

### 3. The Results of The Validation Teacher Courses natural sciences class III MI

Product development submitted to the teacher to study natural sciences class III SD is a form of learning materials. Descriptive results exposure validation

teacher courses natural science of product development of materials science class

III filed through the questionnaire method with instruments now can be seen in

Table 4.7. 4.8.4.9

**Table 4.7 Teacher Assessment Results The Study of Natural Science**

No.	Statement	$\sum x$	$\sum x_i$	P (%)	Level of Validity	Description
1	The suitability of topics on the development of learning materials.	4	4	100	Valid	No Revision
2	The suitability of the material that is presented with the development of learning materials.	4	4	100	Valid	No Revision
3	Compliance with the material standard of Competency Graduates.	4	4	100	Valid	No Revision
4	Suitability of Indicators with the material.	4	4	100	Valid	No Revision
5	Interest the content of learning materials to motivate students in learning.	4	4	100	Valid	No Revision
6	Clarity of presentation materials .	4	4	100	Valid	No Revision
7	Accuracy of election material can foster the motivation students.	4	4	100	Valid	No Revision
8	The suitability of material with Figure.	3	4	75	Quite Valid	No Revision
9	Material Suitability evaluation with the given.	3	4	75	Quite Valid	No Revision
10	Ease of language used in the development of learning materials.	4	4	100	Valid	No Revision
Result		38	40	95	Valid	No Revision

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

Description:

P = Percentage rate valid

$\sum x$  = Total assessment answers

$\sum x_i$  = Highest number of answers

100 = Integer constant

**Table 4.8 Distribution of Frequency Levels of Validity of Teacher Assessment**

The Level Of Validity	f	%
Valid	8	80
Quite Valid	2	20

**Table 4.9 Overview Of Data Assessment And Expert Review of teacher Science**

Component	Deskripsi Data	Suggestions/Comments
Over all	Overall All the book	overall this book is pretty good, just a little addition need images attract more interest to read child, because usually the first they see is the picture, then they will read it.
Evaluation	Exercise	Needs to be added to question the question, to gauge the level of understanding of students against the material presented.

All data from the results of the review, assessment and discussion with experts the material foundation of Natural Science Foundation to revise to the refinement of component materials and material science subjects before tester on learners learning materials development product users.

### C. Results of The Field Trials

Data validation is obtained from the results of testing against materials on class III SD students performed on September 28, 2014. Product development that are submitted for field trials of learning science is a form of learning materials.

Product development was left to field trials of small groups which are represented with six correspondents. The criteria of the correspondent was the top correspondents, including 2 include the central part and two correspondents including the correspondent for the bottom. Exposure quantitative data from the results of the field test is as described in table 4.10 below:

**Table 4.10 Result Of Field Trials Small Group**

No	Statement	x <sub>1</sub>	x <sub>2</sub>	x <sub>3</sub>	x <sub>4</sub>	x <sub>5</sub>	x <sub>6</sub>	$\sum x$	$\sum x_i$	P (%)	Criteria Of Validity	Description
1	Materials science can facilitate students in learning	4	4	4	4	4	4	24	24	100	Valid	No Reviton
2	Use of materials science can give spirit in student learning.	4	4	4	4	3	3	22	24	91,7	Valid	No Reviton
3	Natural science materials facilitate the	4	4	4	4	4	4	24	24	100	Valid	No Reviton



	students understand learning materials.											
4	Problems in materials science is easy.	4	3	4	4	3	3	21	24	87,5	Valid	No Revition
5	Fonts and font size contained in natural science materials facilitate students in reading	4	4	3	3	3	4	21	24	87,5	Valid	No Revition
6	Words that are used in accordance with the circumstances of the students.	4	4	4	4	4	4	24	24	100	Valid	No Revition
7	Instructions contained in materials science is easy to understand.	3	3	3	4	4	4	21	24	87,5	Valid	No Revition
8	Language used in learning materials easy to understand.	3	4	3	4	3	4	21	24	87,5	Valid	No Revition
9	Practice questions are easy to understand.	4	4	3	3	3	4	21	24	87,5	Valid	No Revition
10	This learning materials help students to cooperate with friends and the environment.	3	3	4	4	4	4	22	24	91,7	Valid	No Revition
Result		37	37	36	38	35	38	221	240	92,1	Valid	No Revition

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

Description:

P = Percentage rate valid

$\sum x$  = Total assessment answers

$\sum x_i$  = Highest number of answers

100 = Integer constant

**Table 4.11 Distribution of Frequency Levels of Field Trials**

The Level Of Validity	f	%
Valid	10	100
Quite Valid	0	0

Table 4.10. and 4.11., showing the results of the data assessment field trials of product development of materials science-based novel material objects and their nature in SD Annur Tumpang is 100% valid, stating Kualitatif data collected from the input, advice and comment field trials in the open questions with regard to the product materials that have been tested for tester is as follows:

- a. The look book is already good, pictures are less numerous and interesting
- b. This book is very complete, expanded duties and exercise because.

In field trials use before after intended because the product development model used as remedial. As for the presentation of the data pre-test and post test results obtained from field trials grade III explain in table 4.12:

**Table 4.12 Result Score Field Trials Pretest and Post Test**

No.	NameOf Student	Score Of Pre-test	Score Of Post-test
1	A.Faiq Abidul L	80	85
2	A. Royhanul A.	80	90
3	Adisty Maulani	45	60
4	Aisyah Syeril Azzahra	90	85
5	Ana Tasya Putri	60	85
6	Bagas Adhiyasta	70	75
7	Baharudin Almisbah	40	75
8	Bima Catur Wicaksana	60	80
9	Chafifah Indana	60	70
10	Danial Hamzah	90	85
11	Ervina Kartika Sari	80	100
12	Fadhilatun Na'imah	80	70
13	Faridatul Abdillah	50	85
14	Kanabi Hanafiyah	75	85
15	Luna Syifa Maharani	85	85
16	M. Defan Qodri A	85	80
17	M. Zidna Mafaza	65	80
18	Manna Ilham Firdaus	100	90
19	Marella Asipatra	75	85
20	M. Nabil Bassalma	80	80
21	M. Zidan Abdul A	60	50
22	Nur M. Faizuddaroini	50	85
23	Nadira Eustacia	60	85
24	Nur M. Fatih Abdul M.	60	80
25	Nuri Azka Sabila	100	90
26	Reva Alfina Ghina	80	85
27	Satria Pambayun	90	80
28	Aditya Marera	50	75
29	Hemalia Putri	80	80
30	Nur A. Maquril Aziz	100	90
31	Valde Rama Al fares	60	70
32	M. Salman Irwansyah	40	75
<b>Jumlah</b>		2280	2575
<b>Rata-rata</b>		71,21	80,46

Based on the data in table 4.12 shows that the average value of pre-test was 71, 21 and the average value of the post test is 80,46. This would indicate that the value of post-test better than pre-test. So there is a significant difference of the use of media and textbook learning that have been developed.



## CHAPTER V

### DISCUSSION

This chapter describes the study of product development. Exposure data of the study product development is divided into four subject matter, include 1) Analysis of product development; 2) Analysis results of validation experts; 3) Analysis of the level of effectiveness, efficiency and Interested product 4) Analysis of the influence of product development, 5) Revision of product development.

#### **A. Analysis of The Development of Learning Materials**

Textbook development based this novel is based on the fact that has not been the availability of supported media textbook learning, especially those that have a specification-based learning, novel with interesting pictures in it. Thus these results are intended to meet the availability of textbook-based novel that can increase effectiveness, improve and interest learning science in elementary education in attaining the results that have been specified in the curriculum.

Thus the results of this development are intended to meet the availability of learning materials which can improve effectiveness, efficiency and interest learning natural science in elementary education in attaining the results that have been defined in the curriculum.

These learning materials development procedures taken through several stages, namely:



1. Pre Development Stages by doing a needs assessment and analysis of the curriculum.
2. Development stage by doing the preparation of learning materials.
3. Product test Stage by performing validation experts and teachers of subjects.
4. The revision stage of a product made with revision and implementation towards the learning materials have been developed.

### **B. Analysis of The Results of Validation Experts**

The results of the validation of several experts and field trials converted on a scale percentage based on the rate of validity as well as the basic provisions of the decision to revise the textbook used criteria for qualifying assessment as follows.<sup>1</sup>

**Table 5.1 Qualification Levels Of Validity based on the percentage**

<b>Percentage (%)</b>	<b>Eligibility Criteria</b>
80-100	Valid, No Revision
60 - 79	Quite Valid, No Revision
40 – 59	Less Valid, Partial Revision
0 - 39	No, The Revised Total

#### **1. Data Analysis Expert Validation Material**

Based on a conversion scale set out in the appraisal question form questionnaire items, is as follows:

<sup>1</sup> Arikunto, *Dasar-Dasar Evaluasi Pendidikan* (Jakarta: Bumi Aksara, 2003). Hlm. 313

- a) Score 1 for is not clear, it is not appropriate, not relevant, not systematically.
- b) Score 2 for less obvious, less fit, less relevant, less systematic.
- c) Score 3 for quite clear, quite, quite relevant, quite systematic.
- d) Score 4 for very clear, very fit, very relevant, very systematic.

Exposure data validation results expert content subjects science against Science textbook-based Novel to class III SD are as follows:

Based on exposure data in table 4.1 is as follows:

- 1) Outline of the topics on the development of textbook science is clear.
- 2) The suitability of the material presented on the development of textbook science.
- 3) The relevance of the standard of competence with indicators on the development of textbook science is relevant.
- 4) The formulation of indicators in the development of textbook science is presented in accordance with the outline of the Basic Competencies which have been set out in the 2006 KTSP.
- 5) Description of the contents of the study presented on the development of textbook science is very systematic.
- 6) The scope of the material presented on the development of textbook science is very appropriate to the theme.
- 7) Writing tools and materials the experiment steps on each game on the development of textbook science either.

- 8) The material is presented through this science textbook can provide motivation to students to be more enterprising learning very motivating.
- 9) Difficulty level of the language used, in accordance with the level of understanding of students.
- 10) Evaluation instruments used can measure students ' ability.

From the response of the now filled by Professor PGMI as expert content, can be calculated the percentage level of validity textbook as follows:

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

$$\begin{aligned}
 P &= \frac{38}{40} \times 100\% \\
 &= 95\%
 \end{aligned}$$

Based on the above results, then the retrieved results percentage of 95%. In accordance with the conversion table of scale, the percentage level of achievement of 95% are on a very valid qualification so no need for textbook revision.

### 1. Data Analysis Expert Validation Design

Based on a conversion scale set out in the appraisal question form questionnaire items, is as follows:

- a) Score 1 for is not clear, it is not appropriate, not relevant, not systematically.
- b) Score 2 for less obvious, less fit, less relevant, less systematic.
- c) Score 3 for quite clear, quite, quite relevant, quite systematic.
- d) Score 4 for very clear, very fit, very relevant, very systematic.

Based on exposure data in table 4.4 are as follows:

- 1) The cover design is in accordance with the contents of the material.
- 2) The image on the book according to the material presented.
- 3) The typeface is used in accordance with the grade III MI.
- 4) The size of the fonts used in accordance with the grade III MI.
- 5) The use of color variations.
- 6) Illustration pictures can clarify the matter.
- 7) The design layout is interesting.
- 8) Combination of colors to design right.
- 9) Interesting learning media packaging.
- 10) Effective textbook learning with media.

From the response of the now filled by the Chairman of the Department of Management Studies of UIN Maliki Malang as an expert media design, can be calculated the percentage level of validity textbook and learning media as follows:

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

$$P = \frac{36}{40} \times 100\%$$

$$= 90\%$$

Based on the above results, then the retrieved results percentage of 90%.

In accordance with the conversion table of scale, the percentage level of achievement of 90% are on valid qualification so no need for textbook revision.

## 2. Data Analysis, Validation Teacher IPA Class III SD

Based on a conversion scale set out in the appraisal question form questionnaire items, is as follows:

- a) Score 1 for is not clear, it is not appropriate, not relevant, not systematically.
- b) Score 2 for less obvious, less fit, less relevant, less systematic.
- c) Score 3 for quite clear, quite, quite relevant, quite systematic.
- d) Score 4 for very clear, very fit, very relevant, very systematic.

Based on exposure data in table 4.7 are as follows:

- 1) The suitability of the topic on the development of learning materials
- 2) The suitability of the material that is presented with the development of learning materials
- 3) The suitability of the Standard of competence of graduates with the material
- 4) Suitability of Indicators with the material
- 5) Interested contents materials to motivate students in learning
- 6) The clarity of the presentation of the material
- 7) The accuracy of the election material can cultivate the motivation of students
- 8) The suitability of the material with images
- 9) The suitability of the materials with the given evaluation problem
- 10) The ease of the language used in the development of learning materials



From the response of the now filled by teachers of subjects class III SD Annur as experts study the subjects of natural science, can be calculated the percentage level of validity textbook as follows:

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

$$P = \frac{38}{40} \times 100\% \\ = 95\%$$

Based on the results of the above calculation, then retrieved results percentage of 95%. In accordance with the conversion table of scale, the percentage level of achievement of 95% are on a very valid qualification so no need for textbook revision.

### **C. Analysis Interested of Science Textbook-Based Novel of Material Objects and The Nature Of Class III**

Based on a conversion scale set out in the appraisal question form questionnaire items, is as follows:

- a) Score 1 for is not clear, it is not appropriate, not relevant, not systematically.
- b) Score 2 for less obvious, less fit, less relevant, less systematic.
- c) Score 3 for quite clear, quite, quite relevant, quite systematic.
- d) Score 4 for very clear, very fit, very relevant, very systematic.

Table 4.10 shows the validation results on the textbook test group of individuals towards the development of Novel-based textbook to class III SDI

Annur Tumpang rated well with percentage 92,1% of specified criteria. The results of the assessment of field trials on each component as analyzed quantitatively can be interpreted as follows:

- 1) The ease in learning by using textbook-based novel obtained ratings with percentage of 100%. This shows that the textbook can facilitate students in learning.
- 2) The use of a textbook textbook-based novels can give spirit and raises a sense of curiosity in learning get ratings with percentage amounted to 91,7%. This shows that using natural science textbook, can give the spirit in student learning.
- 3) Textbook textbook-based novel makes it easy for students to understand the lesson material is getting ratings with percentage of 100%. This shows that the textbook the science of this nature can make it easier for students to understand the lesson material.
- 4) Problems in the textbook textbook-based novel is easy, getting ratings with percentage of 87.5%. This suggests that the problems in natural science textbook is in compliance with the material and can be used as it has a degree of effectiveness and a high interest in learning.
- 5) Typeface and font size contained in the textbook-based novel is easy to read get ratings with percentage of 87.5%. This shows that the typeface and size of letter of the natural science textbook ease students in reading.

- 6) The language used in the textbook textbook based this novel get ratings with percentage of 100%. This indicates that the words are used in accordance with the character of students.
- 7) The instructions contained in the textbook textbook-based novels get ratings with percentage of 87.5% were either very easily understand the usage instructions. This shows that students are easy in use the textbook.
- 8) The language used in the textbook-based novels get ratings with percentage of 87.5%. This shows that the language used is in compliance with the characteristics of the students.
- 9) Problems exercises in textbook textbook-based novels get ratings with percentage of 87.5%. This shows that the problems easy to understand exercises students.
- 10) Textbook textbook-based novel of science helps students to collaborate with friends and the environment get the ratings with percentage amounted to 91,7%. This shows that this textbook greatly assist students to collaborate with friends and the environment.

Based on table 4.10, the response of the now filled by 6 trial subjects i.e. grade III SD Annur Tumpang, can be calculated as a whole the percentage level of validity textbook as follows:

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

$$P = \frac{222}{240} \times 100\%$$

$$= 92,1\%$$

Based on the results of the above calculation, then retrieved results percentage of 92,1%. Accordance with the table of conversion rate, the percentage of the achievement scale 92,1% are on a very valid qualification so no need for textbook revision.

#### **D. Analysis of The Influence of Textbook Science-Based Novel Material Objects and To Its Class III**

Product development that are submitted for field trials of learning the IPA is a textbook-based novel. Product development was handed over to the class field trials with a total of 32 correspondents.

Exposure quantitative data from field test results presented in table 5.2 below:

**Table 5.2 Score of Students**

No.	NameOf Student	Score Of Pre-test	Score Of Post-test
1	A.Faiq Abidul L	80	85
2	A.Royhanul A.	80	90
3	Adisty Maulani	45	60
4	Aisyah Syeril Azzahra	90	85
5	Ana Tasya Putri	60	85
6	Bagas Adhiyasta	70	75
7	Baharudin Almisbah	40	75
8	Bima Catur Wicaksana	60	80
9	Chafifah Indana	60	70
10	Danial Hamzah	90	85
11	Ervina Kartika Sari	80	100
12	Fadhilatun Na'imah	80	70
13	Faridatul Abdillah	50	85
14	Kanabi Hanafiyah	75	85
15	Luna Syifa Maharani	85	85
16	M. Defan Qodri A	85	80
17	M. Zidna Mafaza	65	80
18	Manna Ilham Firdaus	100	90
19	Marella Asipatra	75	85
20	M. Nabil Bassalma	80	80

21	M. Zidan Abdul A	60	50
22	Nur M. Faizuddaroini	50	85
23	Nadira Eustacia	60	85
24	Nur M. Fatih Abdul M.	60	80
25	Nuri Azka Sabila	100	90
26	Reva Alfina Ghina	80	85
27	Satria Pambayun	90	80
28	Aditya Marera	50	75
29	Hemalia Putri	80	80
30	Nur A. Maquril Aziz	100	90
31	Valde Rama Al fares	60	70
32	M. Salman Irwansyah	40	75
<b>Jumlah</b>		2280	2575
<b>Rata-rata</b>		71,21	80,46

### t-test steps

#### Step 1. Make the $H_a$ and $H_o$ in the form of a sentence

$H_a$  : there is a difference in the value of students before and after using the textbook-based novel material objects and nature.

$H_o$ : there is no difference in the value of students before and after using the textbook-based novel material objects and nature.

#### Step 2. Looking for a $t_{\text{calculate}}$ with the formula

$$t = \frac{\bar{D}}{\sqrt{\frac{d^2}{N(N-1)}}} \quad \text{and } db = N - 1 = 32 - 1 = 31$$

#### Step 3. Determine the criteria.

$H_o$  accepted if  $t_{\text{calculate}}^2 < t_{\text{table}}^2$

$H_o$  reject if  $t_{\text{calculate}}^2 \geq t_{\text{table}}^2$



**Step 4. Calculation**

No.	NameOf Student	Score Of Pre-test	Score Of Post-test
1	A.Faiq Abidul L	80	85
2	A.Royhanul A.	80	90
3	Adisty Maulani	45	60
4	Aisyah Syeril Azzahra	90	85
5	Ana Tasya Putri	60	85
6	Bagas Adhiyasta	70	75
7	Baharudin Almisbah	40	75
8	Bima Catur Wicaksana	60	80
9	Chafifah Indana	60	70
10	Danial Hamzah	90	85
11	Ervina Kartika Sari	80	100
12	Fadhilatun Na'imah	80	70
13	Faridatul Abdillah	50	85
14	Kanabi Hanafiyah	75	85
15	Luna Syifa Maharani	85	85
16	M. Defan Qodri A	85	80
17	M. Zidna Mafaza	65	80
18	Manna Ilham Firdaus	100	90
19	Marella Asipatra	75	85
20	M. Nabil Bassalma	80	80
21	M. Zidan Abdul A	60	50
22	Nur M. Faizuddaroini	50	85
23	Nadira Eustacia	60	85
24	Nur M. Fatih Abdul M.	60	80
25	Nuri Azka Sabila	100	90
26	Reva Alfina Ghina	80	85
27	Satria Pambayun	90	80
28	Aditya Marera	50	75
29	Hemalia Putri	80	80
30	Nur A. Maquril Aziz	100	90
31	Valde Rama Al fares	60	70
32	M. Salman Irwansyah	40	75
<b>Jumlah</b>		2280	2575
<b>Rata-rata</b>		71,21	80,46

$$d^2 = \sum D^2 - \frac{(\sum D)^2}{N}$$

$$= 8375 - \frac{(325)^2}{32}$$

$$= 8375 - \frac{105625}{32}$$

$$= 8375 - 3300$$

$$= 5075$$

$$t = \frac{\bar{D}}{\sqrt{\frac{d^2}{N(N-1)}}}$$

$$= \frac{10,15}{\sqrt{\frac{5075}{32(32-1)}}}$$

$$= \frac{10,15}{\sqrt{\frac{5075}{992}}}$$

$$= \frac{10,15}{\sqrt{5,11}}$$

$$= \frac{10,15}{2,260}$$

$$= 4,491150$$

**Langkah 5. Compare  $t_{\text{calculate}}$  and  $t_{\text{table}}$**

$$T_{\text{calculate}} = 4,491150$$

$$t_{\text{table}} = 1,67$$

**Step 6. Conclusion**

The results of the above calculation shows that  $t_{\text{calculate}}$  larger  $t_{\text{table}}$  so  $H_0$  is rejected and accepted, so there  $H_a$  of significant difference between the value of students before and after using the textbook IPA-based Novel. Further from the mean is known  $X_2$  more than  $X_1$  ( $80,46 > 71,21$ ) also indicates that the test better

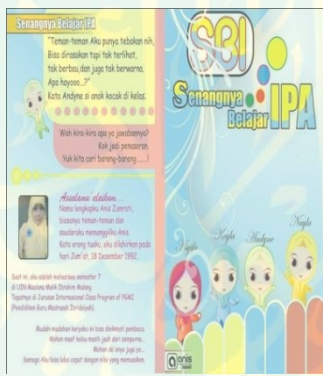



than the post on the pre test. It shows that the textbook-based novel to increase student learning achievement.

## E. Revision Of Product Development

### 1. Design Expert

The revision of textbook development based on feedback on the table 5.3 is presented as follows:

**Table 5.3 Revision textbook based on validation of Design Experts**

No.	The revised point	Description Data	Suggestions/comments
1.	Replace the cover of the book because of the cover does not fit with the material		
2.	Do not have to use frames		
3	The source from http font	Font size font ukuran 12	font size 8

## 2. Expert Content

The revision of textbook development based on feedback on the table 5.4 is presented as follows:

**Table 5.4 Revision textbook based on validation of Content**

No.	The revised point	Description Data	Suggestions/comments
1.	Page 33	Using the word wrong	Word kelsa replaced kelas
2.	Page 43	Using the word wrong	word Kaa replaced kata
3.	Page 48	Misconception	Example concept that melts, should give another example, that is when the chocolate is heated and is left in the open air

## 3. Expert Teacher Majors IPA

Based on the results of the expert assessment or a response indicating that the learning expert commentary is positive (good). So the product development of textbook can be used only a little of the criticism and advice that is lack of images and exercises about. Which criticism and suggestions already revised by the author.

## CHAPTER VI

### CLOSING

This will be described in chapter about two things, which are, 1) Conclusion the results of the development, 2) Advice provided includes advice on utilization of the product, suggestions of dissemination products, and advice on the development of the continuation of the product.

#### A. Development Results Conclusion

Based on the process of the development and assessment of the results of textbook Science-Based Material Objects And Nature Of The Novel To Class III can be presented a few things as follows:

1. Textbook IPA-based Novel Material objects and its nature to III consists of 4 parts. a) pre-preface consists of a front cover, back cover, preface, table of contents; b) introduction consists of the title of the material, the basic standards of competency, the competency; c) content consists of 5 material objects and its packed into the story. The first is a new class that tells the story of various objects and features of solid objects, the second is a glass of milk that tell you about the characteristics of the liquid, is the third balloon of hope about the notion of the object and its properties of gases, the fourth is the story of used and the fifth object that is an educated guess about the surefire material objects and nature.
2. Textbook IPA based Novel Material objects and its nature to III who has developed a good qualification assessment gets, because based on the



results of the validation are retrieved the value of the 95% of subjects which means practical guidebook is very valid and do not need revision, from field trials Learning the IPA-based Novel Material objects and its nature to III obtained value 92,1% which means it gets a very valid qualifications from all subject validation field trials. From the expert content got 97.5% and is very valid qualification so no need revision, of a design media gets value of 97.5% and are valid on qualifying, so the book does not need to be revised, so that the books do not need revision. But, the book will remain fixed on the basis of the suggestions and comments of each subject of validation.

3. Textbook Learning IPA based Novel Material objects and its nature to III proved to be significantly effective for improving learning achievements of the subject matter and nature of material Science at grade III SD Annur Tumpang. This is proven by calculation using the t-test with a significance level of 0.05 obtained results  $t_{hitung} = 4,491150$  IE table  $t_{2} \geq \geq 1.67$  meaning  $H_0$  denied and  $H_a$  is received. Further from the mean is known more than  $X_1 > X_2$  ( $80,46 > 71,21$ ) also indicates that the test better than the post on the pre test. In conclusion, there is a significant difference in the learning achievements of students of class III after using textbook IPA-based learning achievements with the novel before using the textbook novel based on IPA SD Annur Tumpang.

## **B. Suggestions**

Proposed suggestions include advice for the purposes of product utilization, dissemination of products, and needs further development. In detail the suggestions can be explained as follows:

### **1. Suggestions For The Purposes of Product Utilization**

To optimize the utilization of textbook IPA-based novel material objects and the nature of the class III it is recommended the following.

- a. IPA-based textbook material objects and nature of the novel to class III developed this is merely as a book supporting the planting of concepts to students. Referring to the fact that learning science learning science has four main elements, namely, attitudes, processes, products and applications, then at the moment of learning take place should the experiment activities still take place.

### **2. Suggestions For Dissemination Products**

For the dissemination of products on a broader goal then suggested the following points.

- a. Textbook IPA-based novel material objects and their nature to this class III should be used gradually. First, textbook IPA-based novel material objects and the nature of the class III is used for individual learning and later used in the class as a whole.
- b. IPA based textbook material objects and nature of the novel to class III can be used and duplicated more broadly if it turns out that its use is effective and efficient.

### 3. Suggestions For Further Development

For the purposes of further development suggested the following points.

IPA-based textbook material objects and nature of the novel to class III still has some weaknesses as it has been mentioned in the study product development results. Therefore, it is recommended to interested development to address this weakness.

- a. Development of textbook based novel on Material and its nature for the class III, should be given the allocation of time to complete each activity experiments.
- b. Product Development should be developed further with the other materials related to the subjects of IPA and coupled with the appropriate approach to the characteristics of the material

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# APPENDIX

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Miskiyah, Roihatul. “Pengembangan Buku Panduan Praktikum Berbasis Inkuiri Terbimbing pada Materi Benda dan Sifatnya untuk Meningkatkan Motivasi dan Prestasi Belajar Siswa Kelas II MI Bahrul Ulum Ngoro Mojokerto.”Skripsi tidak diterbitkan.Fakultas Tarbiyah UIN Malang. 2012.

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<http://masguruonline.wordpress.com/2013/05/21/hakikat-bahan-ajar/> diakses pada 16 april jam 09.50 WIB).





## FORMAT PENILAIAN ISI MATERI

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**Fakultas** : Ilmu Tarbiyah dan Keguruan  
**Jurusan** : Pendidikan Guru Madrasah Ibtidaiyah  
**Judul Bahan Ajar** : Benda Dan Sifatnya  
**Penyusun** : Anis Zumroti

### A. Pengantar

Berkaitan dengan pelaksanaan pengembangan bahan ajar IPA berbasis novel untuk meningkatkan prestasi belajar siswa kelas III, peneliti bermaksud untuk mengadakan validasi bahan ajar yang telah dicetak sebagai bahan pembelajaran. Untuk itu, dimohon Bapak/Ibu mengisi angket dengan format dibawah, dengan tujuan untuk mengetahui kesesuaian pemanfaatan buku serta sebagai pengukuran bahan ajar sehingga layak digunakan. Atas kesediaannya diucapkan terimakasih.

**Nama** : .....

**Instansi** : .....

**Pendidikan** : .....

**Alamat** : .....

### B. Petunjuk Pengisian Angket:

1. Bacalah setiap item dengan cermat.
2. Instrumen ini terdiri dari kolom pernyataan dan kolom jawaban. Silahkan tandai salah satu jawaban yang sesuai dengan pernyataan anda.
3. Keterangan makna pada huruf pilihan anda adalah sebagai berikut:

<b>Jawaban</b>	<b>Keterangan</b>	<b>Skor</b>
<b>SB</b>	Sangat baik	4
<b>B</b>	Baik	3
<b>TB</b>	Tidak Baik	2
<b>STB</b>	Sangat Tidak Baik	1

### C. Kriteria-Kriteria Angket

NO.	PERNYATAAN	KETERANGAN			
		SB	B	TB	STB
1	Rumusan topik pada pengembangan buku ajar IPA jelas.				
2	Kesesuaian materi yang disajikan pada pengembangan buku ajar IPA sesuai.				
3	Relevansi Standar Kompetensi dengan indikator pada pengembangan buku ajar sains relevan.				
4	Rumusan Indikator dalam pengembangan buku ajar IPA yang disajikan sesuai dengan rumusan Kompetensi Dasar yang telah ditetapkan dalam KTSP 2006 sangat sesuai.				
5	Uraian isi pembelajaran yang disajikan pada pengembangan buku ajar IPA sangat sistematis.				
6	Ruang lingkup materi yang disajikan pada pengembangan buku ajar IPA sangat sesuai dengan tema.				
7	Penulisan alat bahan dan langkah-langkah percobaan pada setiap permainan pada pengembangan buku ajar IPA baik.				
8	Materi yang disajikan melalui buku ajar IPA ini dapat memberikan motivasi kepada siswa agar lebih giat belajar sangat memotivasi.				

9	Tingkat kesukaran bahasa yang digunakan, sesuai dengan tingkat pemahaman siswa.				
10	Instrumen evaluasi yang digunakan dapat mengukur kemampuan siswa .				
<b>JUMLAH</b>					

Berdasarkan penilaian di atas, maka saya menyatakan bahwa bahan ajar ini:

- a. Dapat digunakan tanpa revisi
- b. Dapat digunakan dengan revisi kecil
- c. Dapat digunakan dengan revisi besar
- d. Belum dapat digunakan

Saran:

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Malang, Februari 2015

Validator,

NIP.

## FORMAT PENILAIAN AHLI DESAIN

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**Fakultas** : Ilmu Tarbiyah dan Keguruan  
**Jurusan** : Pendidikan Guru Madrasah Ibtidaiyah  
**Judul Bahan Ajar** : Benda Dan Sifatnya  
**Penyusun** : Anis Zumroti

### A. Pengantar

Berkaitan dengan pelaksanaan pengembangan bahan ajar IPA berbasis novel untuk meningkatkan prestasi belajar siswa kelas III, peneliti bermaksud untuk mengadakan validasi bahan ajar yang telah dicetak sebagai bahan pembelajaran. Untuk itu, dimohon Bapak/Ibu mengisi angket dengan format dibawah, dengan tujuan untuk mengetahui kesesuaian pemanfaatan buku serta sebagai pengukuran bahan ajar sehingga layak digunakan. Atas kesediaannya diucapkan terimakasih.

**Nama** : .....

**Instansi** : .....

**Pendidikan** : .....

**Alamat** : .....

### B. Petunjuk Pengisian Angket:

1. Bacalah setiap item dengan cermat.
2. Instrumen ini terdiri dari kolom pernyataan dan kolom jawaban. Silahkan tandai salah satu jawaban yang sesuai dengan pernyataan anda.
3. Keterangan makna pada huruf pilihan anda adalah sebagai berikut:

Jawaban	Keterangan	Skor
<b>SB</b>	Sangat baik	4
<b>B</b>	Baik	3
<b>TB</b>	Tidak Baik	2
<b>STB</b>	Sangat Tidak Baik	1

### C. Kriteria-Kriteria Angket

NO.	PERNYATAAN	KETERANGAN			
		SB	B	TB	STB
1	Desain cover sesuai dengan isi materi.				
2	Gambar pada buku sesuai dengan materi yang disajikan.				
3	Jenis huruf yang digunakan sesuai dengan Student ClassIII MI.				
4	Ukuran huruf yang digunakan sesuai dengan Student ClassIII MI.				
5	Penggunaan variasi warna sesuai.				
6	Ilustrasi gambar dapat memperjelas materi.				
7	Desain <i>layout</i> menarik.				
8	Kombinasi warna untuk mendesain tepat.				
9	Pengemasan media pembelajaran menarik.				
10	Buku ajar efektif dengan media pembelajaran.				
<b>JUMLAH</b>					

Berdasarkan penilaian di atas, maka saya menyatakan bahwa bahan ajar ini:

- a. Dapat digunakan tanpa revisi
- b. Dapat digunakan dengan revisi kecil
- c. Dapat digunakan dengan revisi besar
- d. Belum dapat digunakan



Saran:

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Malang, Februari 2015

Validator,

NIP.

## FORMAT PENILAIAN AHLI PEMBELAJARAN UNTUK GURU BIDANG STUDI IPA KELAS V SD/MI

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**Fakultas** : Ilmu Tarbiyah dan Keguruan  
**Jurusan** : Pendidikan Guru Madrasah Ibtidaiyah  
**Judul Bahan Ajar** : Benda Dan Sifatnya  
**Penyusun** : Anis Zumroti

### A. Pengantar

Berkaitan dengan pelaksanaan pengembangan bahan ajar IPA berbasis novel untuk meningkatkan prestasi belajar siswa kelas III, peneliti bermaksud untuk mengadakan validasi bahan ajar yang telah dicetak sebagai bahan pembelajaran. Untuk itu, dimohon Bapak/Ibu mengisi angket dengan format dibawah, dengan tujuan untuk mengetahui kesesuaian pemanfaatan buku serta sebagai pengukuran bahan ajar sehingga layak digunakan. Atas kesediaannya diucapkan terimakasih.

**Nama** : .....

**Instansi** : .....

**Pendidikan** : .....

**Alamat** : .....

### B. Petunjuk Pengisian Angket:

1. Bacalah setiap item dengan cermat.
2. Instrumen ini terdiri dari kolom pernyataan dan kolom jawaban. Silahkan tandai salah satu jawaban yang sesuai dengan pernyataan anda.
3. Keterangan makna pada huruf pilihan anda adalah sebagai berikut:

<b>Jawaban</b>	<b>Keterangan</b>	<b>Skor</b>
<b>SB</b>	Sangat baik	4
<b>B</b>	Baik	3
<b>TB</b>	Tidak Baik	2
<b>STB</b>	Sangat Tidak Baik	1

### C. Pertanyaan-pertanyaan angket

NO.	PERNYATAAN	KETERANGAN			
		SB	B	TB	STB
1	Kesesuaian rumusan topik pada pengembangan bahan ajar.				
2	kesesuaian materi yang disajikan pada pengembangan bahan ajar.				
3	Kesesuaian Standar Kompetensi dengan Indikator.				
4	Kesesuaian Indikator yang disajikan dengan Kompetensi Dasar.				
5	Kesesuaian sistematika uraian isi pembelajaran.				
6	Kejelasan paparan materi.				
7	Ketepatan materi yang disajikan dapat memberikan motivasi kepada siswa.				
8	Kesesuaian rangkuman materi dengan pembahasan.				
9	Ketepatan instrumen evaluasi yang digunakan dapat mengukur kemampuan siswa.				
10	Kemudahan bahasa yang digunakan dalam bahan ajar.				
<b>JUMLAH</b>					

Berdasarkan penilaian di atas, maka saya menyatakan bahwa bahan ajar ini:

- a. Dapat digunakan tanpa revisi
- b. Dapat digunakan dengan revisi kecil
- c. Dapat digunakan dengan revisi besar
- d. Belum dapat digunakan

Saran:

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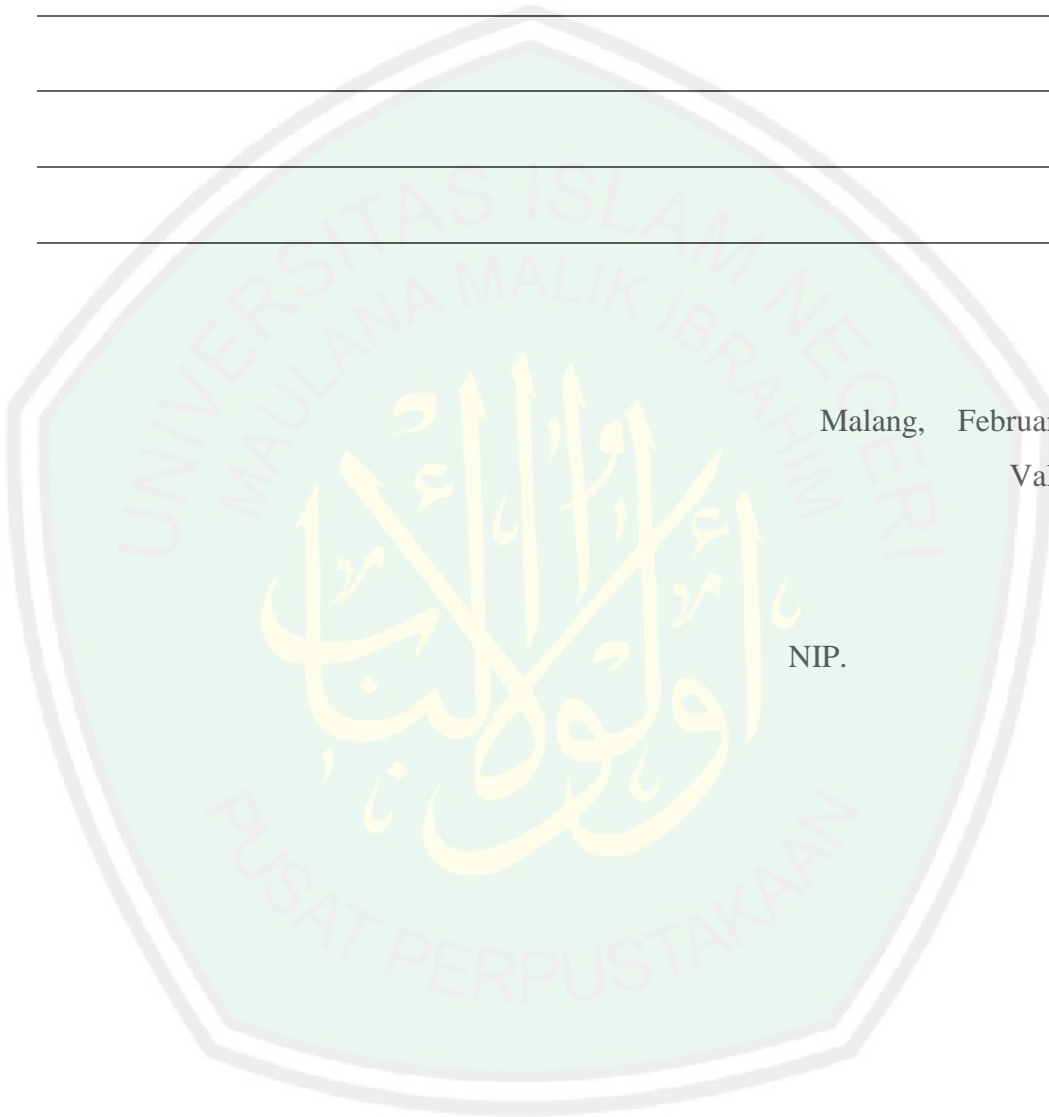
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Malang, Februari 2015

Validator,

NIP.



## INSTRUMEN PENILAIAN BAHAN AJAR UNTUK SISWA

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**Fakultas** : Ilmu Tarbiyah dan Keguruan  
**Jurusan** : Pendidikan Guru Madrasah Ibtidaiyah  
**Judul Bahan Ajar** : Benda Dan Sifatnya  
**Penyusun** : Anis Zumroti

### A. Pengantar

Adik, selain buku pelajaran yang sudah kamu kenal sebelumnya, masih ada banyak buku penunjang pelajaran lain yang bisa adik gunakan sebagai bahan ajar di sekolah maupun di rumah, salah satunya adalah buku ajar. Buku ajar merupakan bahan ajar yang dapat membantu adik belajar secara mandiri. Setelah ini adik akan diberi contoh bahan ajar secara langsung.

Berkaitan dengan pelaksanaan pengembangan bahan ajar Berkaitan dengan pelaksanaan pengembangan bahan ajar IPA berbasis novel untuk meningkatkan prestasi belajar siswa kelas III, peneliti bermaksud untuk mengadakan validasi bahan ajar yang telah dicetak sebagai bahan pembelajaran. Untuk itu, dimohon Adik-adik mengisi angket dengan format dibawah, dengan tujuan untuk mengetahui kesesuaian pemanfaatan buku serta sebagai pengukuran bahan ajar sehingga layak digunakan. Atas kesediaannya diucapkan terimakasih.

**Nama** : .....

**Kelas** : .....

**Sekolah** : .....

### B. Petunjuk pengisian angket

1. Sebelum mengisi angket ini, mohon terlebih dahulu adik membaca atau mempelajari bahan ajar yang dikembangkan.
2. Berilah tanda silang (x) pada salah satu huruf a, b, c, atau d pada jawaban yang sesuai dengan penilaian yang adik anggap paling tepat.
3. Kecermatan dalam penilaian ini sangat diharapkan.



### **C. Pertanyaan-Pertanyaan Angket**

1. Apakah buku ajar Ilmu Pengetahuan Alam ini dapat memudahkan adik dalam belajar?
  - a. Sangat mudah
  - b. Mudah
  - c. Kurang mudah
  - d. Sulit
2. Apakah dengan penggunaan buku ajar Ilmu Pngetahuan Alam ini dapat memberi semangat dalam belajar adik?
  - a. Sangat memberi semangat
  - b. Memberi semangat
  - c. Kurang memberi semangat
  - d. Tidak memberi semangat
3. Apakah adik mudah memahami bahan pelajaran yang ada di dalam buku ajar Ilmu Pengetahuan Alam ini?
  - a. Sangat mudah
  - b. Mudah
  - c. Kurang mudah
  - d. Sulit
4. Menurut adik, bagaimana soal-soal pada buku ajar Ilmu Pngetahuan Alam ini?
  - a. Sangat mudah
  - b. Mudah
  - c. Kurang
  - d. Sulit
5. Bagaimanakah jenis huruf dan ukuran huruf yang terdapat dalam buku ajar Ilmu Pngetahuan Alam ini?
  - a. Sangat mudah dibaca
  - b. Mudah
  - c. Kurang

- d. Tidak
6. Selama mempelajari buku ini, apakah adik menemui kata-kata yang sulit?
- Tidak menemukan
  - Cukup banyak menemukan
  - Jarang menemukan
  - Sering menemukan
7. Bagaimana petunjuk yang terdapat dalam buku ajar Ilmu Pngetahuan Alam ini?
- Sangat mudah
  - Cukup mudah
  - Kurang mudah
  - Tidak mudah
8. Apakah bahasa yang digunakan dalam buku ajar bisa dipahami?
- Sangat mudah dipahami
  - Cukup mudah dipahami
  - Kurang mudah dipahami
  - Tidak mudah dipahami
9. Setelah membaca soal-soal latihan, bagaimana soal-soalnya?
- Sangat mudah dipahami
  - Cukup mudah dipahami
  - Kurang mudah dipahami
  - Tidak mudah dipahami
10. Selama menggunakan buku ajar, apakah kalian memerlukan bantuan orang lain seperti teman, guru, atau orang tua untuk mempelajarinya?
- Sangat memerlukan bantuan orang lain
  - Sering memerlukan bantuan orang lain
  - Kadang-kadang memerlukan bantuan orang lain
  - Tidak memerlukan bantuan orang lain

Terima Kasih

No.	NameOf Student	Score Of Pre-test	Score Of Post-test
1	A.Faiq Abidul L	80	85
2	A. Royhanul A.	80	90
3	Adisty Maulani	45	60
4	Aisyah Syeril Azzahra	90	85
5	Ana Tasya Putri	60	85
6	Bagas Adhiyasta	70	75
7	Baharudin Almisbah	40	75
8	Bima Catur Wicaksana	60	80
9	Chafifah Indana	60	70
10	Danial Hamzah	90	85
11	Ervina Kartika Sari	80	100
12	Fadhilatun Na'imah	80	70
13	Faridatul Abdillah	50	85
14	Kanabi Hanafiyah	75	85
15	Luna Syifa Maharani	85	85
16	M. Defan Qodri A	85	80
17	M. Zidna Mafaza	65	80
18	Manna Ilham Firdaus	100	90
19	Marella Asipatra	75	85
20	M. Nabil Bassalma	80	80
21	M. Zidan Abdul A	60	50
22	Nur M. Faizuddaroini	50	85
23	Nadira Eustacia	60	85
24	Nur M. Fatih Abdul M.	60	80
25	Nuri Azka Sabila	100	90
26	Reva Alfina Ghina	80	85
27	Satria Pambayun	90	80
28	Aditya Marera	50	75
29	Hemalia Putri	80	80
30	Nur A. Maquril Aziz	100	90
31	Valde RamaAlfares	60	70
32	M. Salman Irwansyah	40	75

1. Student class III SDI Annur Tumpang Name Is A.Faiq Abidul L,
2. Student ClassIII SDI Annur Tumpang Name Is A.Royhanul A,
3. Student ClassIII SDI Annur Tumpang Name Is Adisty Maulani,
4. Student ClassIII SDI Annur Tumpang Name Is Aisyah Syeril Azzahra,
5. Student ClassIII SDI Annur Tumpang Name Is Ana Tasya Putri,
6. Student ClassIII SDI Annur Tumpang Name Is Bagas Adhiyasta,
7. Student ClassIII SDI Annur Tumpang Name Is Baharudin Almisbah,
8. Student ClassIII SDI Annur Tumpang Name Is Bima Catur Wicaksana,
9. Student ClassIII SDI Annur Tumpang Name Is Chafifah Indana,
10. Student ClassIII SDI Annur Tumpang Name Is Danial Hamzah,
11. Student ClassIII SDI Annur Tumpang Name Is Ervina Kartika Sari,
12. Student ClassIII SDI Annur Tumpang Name Is Fadhilatun Na'imah,
13. Student ClassIII SDI Annur Tumpang Name Is Faridatul Abdillah,
14. Student ClassIII SDI Annur Tumpang Name Is Kanabi Hanafiyah,
15. Student ClassIII SDI Annur Tumpang Name Is Luna Syifa Maharani,
16. Student ClassIII SDI Annur Tumpang Name Is M. Defan Qodri A,
17. Student ClassIII SDI Annur Tumpang Name Is M. Zidna Mafaza,
18. Student ClassIII SDI Annur Tumpang Name Is Manna Ilham Firdaus,
19. Student ClassIII SDI Annur Tumpang Name Is Marella Asipatra,
20. Student ClassIII SDI Annur Tumpang Name Is M. Nabil Bassalma,
21. Student ClassIII SDI Annur Tumpang Name Is M. Zidan Abdul A,
22. Student ClassIII SDI Annur Tumpang Name Is Nur M. Faizuddaroini,
23. Student ClassIII SDI Annur Tumpang Name Is Nadira Eustacia,
24. Student ClassIII SDI Annur Tumpang Name Is Nur M. Fatih Abdul M,
25. Student ClassIII SDI Annur Tumpang Name Is Nuri Azka Sabila,
26. Student ClassIII SDI Annur Tumpang Name Is Reva Alfina Ghina,
27. Student ClassIII SDI Annur Tumpang Name Is Satria Pambayun,
28. Student ClassIII SDI Annur Tumpang Name Is Aditya Marera,
29. Student ClassIII SDI Annur Tumpang Name Is Hemalia Putri,
30. Student ClassIII SDI Annur Tumpang Name Is Nur A. Maquril Aziz,
31. Student ClassIII SDI Annur Tumpang Name Is Valde Rama Al fares, dan
32. Student ClassIII SDI Annur Tumpang Name Is M. Salman Irwansyah.



### Identity of Researcher

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### Level Of Education:

#### a. Formal Education

1. Kindergarten Muslimat 1pulung Dowo 1999.
2. Elementary School 2 Pulung Dowo 1999 Until 2005.
3. Islamic Junior High School Tumpang, 2005 Until 2008.
4. Senior High School Of Diponegoro Tumpang, In 2008 Until 2011.
5. Undergraduate Faculty Of Tarbiyah/PGMI Maulana Malik Ibrahim Malang In 2011 Until Now.

#### b. Non Formal Education

1. Madrasah Diniyah, Pulung Dowo Tumpang.
2. Islamic Boarding As-syafi'iyah Pulung Dowo Tumpang
3. Ma'had Sunan Ampel Al-Aly (MSAA) UIN Maulana Malik Ibrahim Malang.

#### c. Mandate Ever Administered:

1. Executive Board (Muharikah), Ma'had Unit Asma' Binti Abi Bakr UIN Maliki Malang 2011-2012
2. The Committee of Competition SKI KOSKI SD/MI semal in 2012/2013 At UIN Malang
3. Ever Go International To Interenship at Pattani Thailand

*Allah always give us the beautiful scenario*