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Development Of Islamic Ethnoscience Learning Model In Madrasah Ibtidaiyah

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Abstract

This research departed from facts of a science learning workshop using used goods for Madrasah Ibtidaiyah (MI) teachers. The purpose of this study was to produce an Islamic ethnoscience learning model product that was validated by experts and received responses from MI teachers in Bandar Lampung City. The research and development model uses Borg and Gall theory. The data collection technique used a questionnaire and was assisted by observation techniques, interviews, and madrasah documentation analysis. The results of validation data, then analyzed quantitatively and qualitatively. To maintain the credibility of the research results, data validity testing was carried out by 1) observation and interviews, 2) triangulation, and 3) Q&A with peers. The conclusions is Islamic ethnoscience learning model products, validated by learning model experts with a final total score of 3.3 "Valid" assessment categories (without revision). revision). Indonesian grammar experts with a final total score of 3.6 in the "Valid" assessment category (without revision), and received good responses from teachers.

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INTRODUCTION

Learning that is active, effective, and fun is the hope of all teachers. For this reason, in order to help teachers realize it, since the beginning of learning, teachers must design it with full planning and systematic. The activity of planning learning activities is simply called designing a learning model. Syaiful Sagala (2011) defines a learning model as a path that teachers and students will take in achieving instructional goals for a particular instructional unit. The instructional unit referred to here certainly has a teacher dimension as a conceptualizer and facilitator, and students as "actors" or the main subject of learning.

It is important to instill the principle in planning learning models that the main purpose of learning is to facilitate the learning process of students, build enthusiasm, curiosity, and interest of students to continue learning. The curiosity that is explored and the achievement motivation

that is built, of course, is very good in developing students' minds-on and hands-on, because students will learn a lot and the learning activities they do are more varied, and will be more productive in producing creative work ideas that play an important role in shaping them into a Muslim scientist character with personality. Not only that, can even encourage students to more actively pursue the learning process to a higher stage (Andriyani & Suniasih, 2021; Febbriana, et al., 2019).

In the perspective of Islam, there is a lot of guidance in designing learning models that must be appropriate and wise. As Allah SWT says in Qs. An-Nahl verse 125, that the main purpose of designing a learning model is to make it easier for teachers to guide students according to the process of good learning activities. That way students can easily absorb the wisdom and lessons (knowledge) conveyed by the teacher. In line with that, there is a Prophetic hadith that says the same thing: It means: From Anas bin Malik from the Prophet SAW said "make it easy and don't make it difficult. Encourage and do not make you run away". (HR. Abu Abdillah Muhammad bin Ismail al-Bukhori al-Ju'fi). This hadith explains that the learning process must be made easy as well as fun so that students are not psychologically depressed and do not feel bored with the atmosphere in the classroom, as well as what the teacher teaches.

In this regard, it is very necessary to design learning models that are planned, structured, and organized to assist students in carrying out clear and purposeful learning activities. It can be said that the chosen model determines student learning activities according to the goals to be achieved (Darmuki & Hariyadi, 2019). Sabandi (2013) mentions that one way to improve teacher competence in designing learning models is to foster a learning culture. Liakopoulou (2011) explains that this means choosing teaching methods that can revive the spirit of learning and build communication and interaction with students. Furthermore, Kulshrestha & Pandey (2013) also revealed that in this case teachers must always try new methods in teaching and take risks to innovate.

Related to teaching Natural Sciences in MI, the science learning model in question must have a description that can explain the universe and its contents, as well as events developed through research with the scientific process (Hartini, et al., 2014; Mutakinati, et al., 2018; Redhana, 2019). This correlates with the way teachers deliver material in a more varied way (Azimi, et al., 2017: Devi & Bayu, 2020), not only using the lecture method (Dewi, et al., 2017; Mulyantini, et al., 2019). In this study, the design of this learning model refers to the concept of Joyce and Weil's theory, where the components of the learning model consist of: (1) syntax, (2) social system, (3) reaction principle, (4) support system, and (5) learning impact. In its implementation, it is varied with the Children Learning In Science (CLIS) science learning method. Then, in order to create a more meaningful and joyful learning concept, the design of the learning model is synergized with the concept of Islamic ethnoscience by taking sub-cultures in the Lampung region.

Its significance in the current era, the advantages of designing a science learning model with an Islamic ethnoscience framework really contribute positively to building science literacy and attracting students' attention and curiosity (Suryanti et al., n.d., 2021). It can also foster character, such as love and pride for the region in students from an early age, while instilling a sense of responsibility for the preservation of the natural environment (I.W. Suastra, et al., 2017). In addition, it helps teachers to teach students to make simple scientific syntheses between various

natural phenomena and symptoms that appear to occur in the surrounding environment with the formation of local culture and wisdom (indigenous science) in the area where they live, so that it can improve scientific work skills and critical thinking in students (Aji, 2018). The term, forming a character like a scientist but also has high cultural knowledge (Andayani et al., 2021). Of course, this goal is very coherent with the learning objectives of science in MI, namely "participating in maintaining, maintaining and preserving the natural environment, and fostering an attitude of gratitude for the various kinds of God's creations in this universe" (Sri Sulistyorini, 2007).

In addition to the above rational reasons, another objective consideration for the development of Islamic ethnoscience model learning products is considering that the Lampung is known to be a very heterogeneous province (plural / plural), both in terms of ethnicity, tribe, language, religion, and customs.. This area is very famous with the nickname "Indonesia Mini" because in this area there are most ethnically diverse tribes ranging from Javanese, Betawi, Sundanese, Balinese, Madurese, Padang, Semendo (Palembang), Batak, Aceh, Bugis, and Dayak, as well as Papua. Although different, they are one in the same "Bhineka Tunggal Ika". Reflecting this diversity, the region also has the motto "Sang Bumi Ruwa Jurai", meaning "one earth two kinds", which tells the story of a great household inhabited by two traditional communities, namely the Pepadun traditional community and the Saibatin traditional community. This philosophy is full of meaning in telling how in this area can coexist peacefully with various indigenous peoples.

Thus, philosophically constructing an Islamic ethnoscience framed science learning model by taking place in Lampung province, makes students no longer view science as a foreign culture that they must learn, but view it as a culture and local wisdom that already exists and they recognize in their daily lives (Parmin, 2017; Ningrum, 2018). In the context of learning, it also means making education a vehicle for back to nature, making nature a learning laboratory, and at the same time playing a role in fostering an attitude of spirituality in building students' awareness of how nature is a very large gift created by Allah SWT which must always be maintained and preserved. It is in awareness of this position that students are expected to grow into smart, noble individuals and become a generation that has an awareness of the environment.

METHOD

The type of research used is Research and Development by adapting and modifying the model from Borg and Gall (1983) which has 10 (ten) steps into 7 (seven) steps (Sukmadinata, 2012). This is because this research aims to test product validation and test its practicality, so it does not carry out dissemination activities. The product validation test is to determine the feasibility of the ethnoscience learning model that the researcher developed, then the practicality test is to determine the usefulness and practicality of the product for teachers and students to use in the science learning process in public and private Madrasah Ibtidaiyah in Bandar Lampung city which is the place of this research. To assess the feasibility of the product, suggestions and criticisms from validators consisting of learning model experts, design experts, and Indonesian grammar experts are needed. Meanwhile, suggestions and criticisms from teachers and students as users of this product are also needed for the results of the practicality test. Validators, teachers, and students were given a questionnaire containing a number of statements with assessment options with the categories "Very Good (4), Good (3), Fair (2), and Not Good (1)". To be more stable in the data displayed, the assessment of the development product is also described from the

implementation of the lesson plan observed from the science learning process in the classroom whose assessment follows the existing instructions and calculates the final value of the average score, the results of which are then matched with the category table (Widoyoko, 2017).

Thus, the data collection techniques in this study used observation, interviews, documentation, and questionnaires. Therefore, the data presented are quantitative and qualitative. The whole instrument is used starting from the initial data collection during pre-research, the validation test process and the practicality test, to describe the conditions of learning implementation in the classroom. The learning model expert validators assessed the components of the model following Joyce and Weil's theory, the steps of learning science with CLiS, and Islamic insights (al-Qur'an and hadith) on the discussion of ecosystem science. Design expert validators assessed the aspects of grammar and presentation. The graphical aspect is the aspect used to provide an assessment of the size, cover, and content. Meanwhile, the presentation aspect is an aspect that includes presentation techniques, presentation support, and presentation completeness. Indonesian grammar expert validators are used to provide an assessment in the aspect of language and sentences in accordance with the level of thinking development and standard Indonesian language rules or EYD format. Product users are teachers and students in Class V in public and private MI in Bandar Lampung City who were selected as sampling to provide an assessment in the aspects of usefulness and practicality. The question items submitted to the learning model expert validators were 20 items, design expert validators were 22 items, Indonesian grammar expert validators were 15 items, and product users were 22 items.

Data analysis techniques, on the calculation of validity is done by calculating the percentage and matching it with the validity criteria table (Novitasari, 2014). The results of the calculations from validators and product users will be sought averaged and converted to statements to determine the feasibility of the prototype learning model of Islamic ethnoscience that researchers have developed. Meanwhile, qualitative data is data in the form of descriptions in the form of sentence information obtained from the results of preliminary surveys, discussions during product validation with validators and product users (teachers and students). Specifically, qualitative data in this study is in the form of analysis and interpretation of the results of quantitative data processing. Because after all, a value/number does not mean anything if it is not given further explanation. To maintain the credibility of the research, 1) observations and interviews were conducted by researchers in pairs, 2) triangulation was revealed through a process of reflection and focused discussions involving expert teams and teachers, 3) Questions and answers with peers (peer breafing).

RESULTS AND DISCUSSION

Results

The main product resulting from this research is the development of an Islamic ethnoscience learning model with the Children Learning in Science (CLIS) method in Class V science material on the theme of Ecosystems Sub-Theme: Dependence between Living Things with the study of Lampung cultural studies. This research and development was carried out using the development procedure according to Borg and Gall. The presentation is as follows:

1. Potential and Problems

This *Research and Development* (R&D) research begins with identifying potential and problems related to the quality of science learning in elementary schools. Based on the results of the research study that the description of the science learning model that is often used in explaining about the universe and its contents, as well as events has not been widely developed through research with scientific processes (Hartini, et al., 2014; Mutakinati, et al., 2018; Redhana, 2019). This ultimately correlates with the way teachers deliver material that is less varied (Azimi, et al., 2017: Devi & Bayu, 2020), or uses more lecture methods (Dewi, et al., 2017; Mulyantini, et al., 2019).

Likewise, the results of a science learning workshop using used items for MI teachers in Bandar Lampung City, 2016, as many as 80% of teachers stated that it was still very rare to review science material with regional culture. The KBM process of science is carried out thematically, but the explanation of the theme has not been directly synergized with Lampung regional culture and deepens it with Islamic insights (study of the Qur'anic verses and hadiths of the Prophet).

Every problem that occurs, there is also potential (strength) to overcome it. Based on data collection, the potential (resources) of the madrasah that can be empowered, optimized or utilized to overcome problems, such as the openness of the madrasah and the desire to progress, especially the madrasah head and teachers, were very open when researchers discussed this issue. Teachers' competence is also very adequate because they are generally already civil servants and have the appropriate educational background. Then, madrasah facilities in the form of books, tools, or other science learning resources are sufficient to support problem solving. In addition, the madrasah environment is also very conducive and pleasant, so it is projected that the development of this Islamic ethnoscience learning model can be realized well.

2. Collecting Data/Information

In this process, researchers also tried to examine it from a theoretical perspective and from the results of relevant previous studies. Based on the theoretical review, it is known that must develop *scientific knowledge, scientific process*, and *scientific attitude of* students in a balanced manner, and understand that in the stages of cognitive development, SD / MI students according to Jean Piaget are in the concrete operational phase. A very prominent feature in the learning process is that children are able to carry out logical activities and are able to solve problems well, but it is still difficult to reveal something that is still hidden. The implication is that in science learning, elementary / MI class children will not be able to understand (logical) operations in science concepts without the help of concrete / real objects. In a sense, in learning science they really need concrete objects. Thus, it is very clear that in designing the Islamic ethnoscience learning model, it must also be presented how to design simple props to support science experiments.

Furthermore, based on the opinions of Bassett, Jacka, and Logan, in general, the characteristics of elementary school-age children are:

a. They are naturally curious and interested in the world around them;
b. They love to play and prefer to have fun;

c. They like to organize themselves to handle things, explore a situation and try new ventures;
d. They are usually emotionally moved and driven to achieve as much as they dislike dissatisfaction and resist failure;
e. They learn effectively when they feel satisfied with the situation;
f. They learn by working, observing, taking initiative and teaching other children.

Along with that, the design of the learning model presented must be able to fulfill the rights of children who in the learning process are still happy to play and have fun. Referring to that, analysis of material needs (themes) in the initial exploration, it is known that one of the theme discussions that need to be raised / developed is material about Ecosystems This material for some students is considered easy material but for further understanding it really requires proof. Because the object that is the main target of observation must be observed directly, so that the real level is felt by students. Furthermore, to strengthen data and information, researchers also collected data from document analysis, especially from the Learning Implementation Plan (RPP) that teachers have made and used for learning ecosystem material. In this case, researchers found that the learning design carried out by the teacher was more directed towards conventional lesson plans. That is, the learning design is more dominated by lectures, questions and answers, demonstrations from the teacher, and ends with exercises or answers. This can be seen from the science learning scenarios that are designed not to direct directly and deeply for students in groups to experiment to optimize their science process skills and scientific attitudes.

3. Product Design

This section contains the product design of the Islamic ethnoscience learning model development that will be designed. On the front there is a cover (title), Competency Standards and Basic Competencies on the Theme: Ecosystem Sub-Theme Dependence Between Living Things, concept map, instructions for using the book for teachers, and table of contents. The main part contains a description of the 5 (five) components of the learning model, including syntax, social system, reaction principle, support system, and instructional and accompanying impacts. The presentation is uniquely linked to Lampung culture and most importantly reviewed according to the perspective of Islamic science, by including verses of the Qur'an or hadith related to the material discussed. At the back to complete the presentation of the model, lesson plans with the CLiS model are also included, complete with other supporting attachments, such as the Science Book on Ecosystem material with Islamic Ethnoscience, LKPD, learning media, and evaluation sheets to assess student learning achievement.

In the process of explaining the model, it describes how students as a whole are given learning by balancing 3 (three) aspects of science, namely understanding concepts (scientific knowledge), mastering process skills (scientific process), and cultivating scientific attitudes (scientific attitude). In terms of appearance (graphic lay out), the appropriate type of paper (not too thick and pure white color), paper size and font and spacing are determined. Attention is also paid to the structure and chart of writing, as well as the selection of attractive images and colors.

4. Product Design Validation

Validation was carried out after the product learning model of Islamic ethnoscience was designed. The composition of the validator team in this study, first from the learning model expert. Assessing the feasibility aspects in terms of the content of the design of the Islamic ethnoscience learning model using the CLiS model on the theme of Ecosystems Sub Theme: Dependence between Living Things, studies on Lampung culture. The assessment results obtained a score at stage I of 3.05 assessment category "Quite Valid" (partial revision). Second from the learning design expert. Assessing the aspects of graphics and presentation of the learning design of the Islamic ethnoscience model using the CLiS model. The assessment results obtained a score at stage I of 3.22 assessment category "Quite Valid" (partial revision). Third from the Indonesian grammar expert. Assessing the aspects of suitability for the level of development of thinking, communicative aspects, diagnosis and interactivity of language, as well as the straightforwardness of language in the design of Islamic ethnoscience learning models using the CLiS model. The assessment results obtained a score at stage I of 3.6 assessment category "Valid" (no revision).

5. Product Design Revision

After the design validation process was completed, of course there were suggestions from the validator team regarding the Islamic ethnoscience learning model that the research team developed. Suggestions from learning model expert validators, in the description of the first component of the model, namely syntax, in the core section with the CLiS method to provide examples related to the application of material from the implementation of each CLiS step. Then, in the social system component, detail what kind of system (rules) of social relations that teachers design and build so that the communication process can help students construct their thoughts related to marine ecosystems on Tegal Mas Island Lampung. Based on that, also explain the teacher's efforts so that learning activities can be in accordance with students' cognitive structures. Strengthen the review with interpretation of the verses of the Qur'an and hadith. In the component part of the reaction principle and supporting factors, explain how the description of the real forms of stimuli created by the teacher in order to get a positive and constructive response (response) back for student learning activities, by empowering in such a way the hard and soft facilities owned by the madrasah. Then, the design expert validator's suggestions provide improvements, but only slightly, namely in the setting of paragraphs not too dense and close together, then more designed in such a way that the overall appearance is redesigned by increasing the number of photos / animations. Furthermore, in the aspect of language while also getting good results, there are no significant improvements.

The following are the results of validation after product revision. In stage II, the learning model expert validator gave an assessment of 3.3 with the category "Valid" (no revision). Made in a histogram graph, here is the presentation:

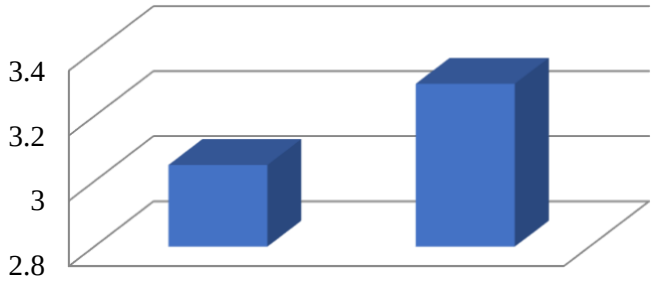

Figure 2. Histogram Graph of Phase II
Learning Model Expert Assessment

Furthermore, in stage II, the design expert validator gave an assessment of 3.4 with the category "Valid" (no revision). Made in a histogram graph, here is the presentation:

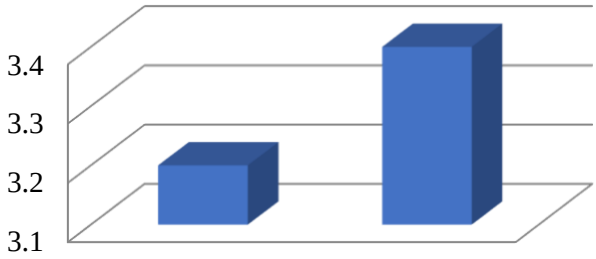

Figure 3. Histogram Graph of Phase II
Design Expert Assessment

Finally, in stage II, the Indonesian grammar expert also gave an assessment of 3.3 in the "Valid" assessment category (no revision). Made in a histogram graph, here is the presentation:

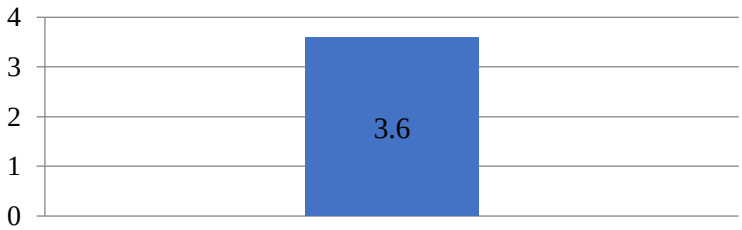

Figure 4. Histogram Graph

Based on the above assessment, it is concluded that the product has received the "Valid" criteria so that it does not need revision/improvement.

6. Product Feasibility Trial

The trial was carried out by asking for responses from teachers who teach in class V at MIN Se-Kota Bandar Lampung. The teacher element provides an assessment of the aspects of ease, practicality, and effectiveness in the use of the Islamic ethnoscience model learning product that the research team developed.

Testing was carried out in two stages, first for small scale and second for large scale. In this first stage, it was tested by 15 teachers and the results obtained by the teachers gave an assessment of 3.26 in the "Quite Valid" assessment category (partial revision). Their revisions or suggestions stated that the description of the learning model should be simplified and the examples shown should be more detailed. It is still very abstract, because not all teachers can understand the intent and purpose of the delivery delivered. Based on this suggestion, another revision was made.

7. Product Revision

Based on the results of the small-scale trial, there were suggestions and input from the teacher. Therefore, at this stage improvements were made. The results of product improvement were then tested again by conducting large-scale testing involving 35 teachers. The results of the study, the teachers gave an assessment of 3.28 in the "Valid" assessment category (no revision). In conclusion, teachers responded that this product is feasible. With this assessment, it can be said that the design of this model has been completed so that it can produce a final product that is ready to be used in the science learning process, especially in MIN Se- Bandar Lampung City.

Based on the description above, the product development carried out in this study only reached the stage of producing expert and teacher validated products with positive responses. The research conducted did not reach the stage of usage testing and mass production of the products that had been produced because researchers only saw the feasibility of the product based on the assessment of validators and science teachers. To get to the stage of trial use and mass production can be done in further research.

Discussion

This research activity has produced a product development in the form of an Islamic ethnoscience learning model with the Children Learning in Science (CLIS) method on science material for Class V theme Ecosystem Sub-Theme: Dependence between Living Things with the study of Lampung cultural studies. The significance of the creation of this product in the current era contributes to preparing human resources (students) who love and are proud of their regional culture, as well as having a sense of responsibility for the preservation of the natural environment. With this awareness of their position, students are expected to grow into smart, noble individuals and become an Islamic generation that has an awareness of the environment.

In addition, this product can be an alternative in overcoming the weaknesses in the implementation of education that only emphasizes the ability to remember (memorizing) or memorize (rote learning) compared to the ability to think with understanding (understanding). With the preparation of the learning model referring to Joyce & Weil's theory and created with the application of the CLiS method, it is very relevant to build students' enthusiasm, interest, and curiosity about the material being taught. Moreover, the characteristics of science learning

materials are factual, concept understanding is formed more effectively through observation, and experimentation is the key to honing students' science process skills (KPS).

In this section, the teacher guides students to connect the theoretical concepts they understand with direct evidence, by conducting field observations and experiments. For this reason, the teacher invites students to backpack by visiting Tegal Mas Island Lampung. Here, while taking a walk, students can gain insight into the typology of an area's ecosystem, learn about new cultures and their uniqueness, and can recognize more closely the signs and evidence of the oneness of Allah SWT. In the view of Islam, backpacker-an is highly recommended because through tadabbur nature can further strengthen faith and piety to Allah SWT. In addition, by seeing firsthand the natural beauty of Allah SWT's creation on this earth will be able to foster religious awareness of how extraordinary and majestic, as well as the greatness and breadth of Allah SWT's knowledge so that it can create all very perfectly. As the word of Allah (al-Qur'an) in the letter QS. Al-Ghoshihah verses 17-20 and QS: Qaaf verse 7 which clearly instructs humans as thinking people to take i'tibar (the wisdom of the creation of the universe). The same philosophy is also contained in the Lampung folk song "Sang Bumi Ruwa Jurai", where the kinship of the two indigenous groups Pepadun and Saibatin are united and respect the motherland by protecting and preserving natural resources such as coffee, pepper, and cloves, etc. that are abundant in the area for mutual benefit. This means that there is a harmonization between nature, the culture of Lampung people, and Islam as the glue.

Thus, cognitive and constructivistic learning theories are truly implemented in the design of this learning model. This is coherent with the views of Piaget, Ausabel, and Vygotsky (1978) as the initiator figures who stated that the learning process in children can only run well, if the new subject matter can be adapted according to the cognitive structure of students. Therefore, what teachers do by providing opportunities and flexibility for students to form their cognitive structures by providing a lot of knowledge and learning experiences in diverse learning activities that stimulate students' minds on and hands on proves that the interactions that occur between teachers and students in the learning process are more focused on students to be more actively involved in the learning process (student centered) and the roles of teachers are only to help and facilitate the formation of conducive, meaningful, and joyful learning conditions for students. Students are placed as active learning subjects and actors in constructing their thoughts and knowledge according to their potential. The interaction relationship created between teachers and students is more dynamic and multi-directional. In learning in this perspective, the rule applied is to respect students as human beings who can develop according to their potential. This idea is very much in line with the view of constructivistic theory which states that learning is an active process of constructing knowledge and shaping learning experiences according to one's own conception through the results of their interaction with the social environment. Therefore, the roles played by the teacher are more to act as a facilitator, mediator, and conceptualizer, to better ensure that the student learning process is in accordance with what has been programmed.

CONCLUSION

The conclusion of this Research and Development (R&D) research is the development of an Islamic ethnoscience learning model with the Children Learning in Science (CLIS) method on science material for Class V theme Ecosystem Sub-Theme: Dependence between Living Things

with the study of Lampung cultural studies is feasible and gets POSITIVE RESPONSE. This assessment is obtained from the results of the assessment of validators and teachers. The suggestion of this study for the next researcher, in order to conduct research up to the stage of usage test and mass production of the products that have been produced, and the material developed is expanded again.

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