

BE -21

**THE DEVELOPMENT OF TEACHING MATERIAL INTERNALIZATION
MODELS ON TOPIC HUMAN REPRODUCTIVE SYSTEM TO CULTIVATE
MORAL SENSITIVITY AND DISCIPLINE**

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Abstract

This research has aimed to develop the teaching materials internalization models on topic Human Reproductive System. Its development uses 4-D model that reduced to 3-D model (Define, Design, and Develop). These teaching materials were implemented for Science 5 class of grade XI in SMAN 13 Surabaya by using One Group Pre test and Post test Design. The quality of the teaching materials resulted were (1) validity is in good category, (2) difficulty level for student learning materials and students worksheets are 10% and 6%, both are categorized very easily (3) their readability are 76% and 79%, both are at the level of free. The implementation processes are (1) applied the lesson plan in teaching-learning process in good category, (2) instructional activities indicate the student-centered activities, (3) the students' responses are good for all components of internalization model. The average of students' learning achievement is not only 85 in cognitive but also 3.5 in moral sensitivity levels for range of categories enough sensitive to sensitive. The discipline level of students have increased their score in four meetings. Based on the results of research discussion, it can be concluded that the teaching materials internalization models on topic Human Reproductive System have developed and cultivated moral sensitivity and discipline well.

Keywords: Teaching materials, internalization model, moral sensitivity, discipline

INTRODUCTION

Law No. 20 Year 2003 on National Education System confirms that the national education serves to develop skills and form the character and civilization of the nation's dignity in order to achieve the life of the nation, aimed at developing the potential of students to become a man of faith and fear of God Almighty, noble, healthy, knowledgeable, skilled, creative, independent, and become citizens of a democratic and accountable. Although the Act explicitly considers the formation of the character of the main priorities in educational purposes, but if you see the phenomena around us lately, apparently the result of a process of character education is not as expected.

Recognized or not recognized at this time of crisis is real and alarming in society involving children. The crisis which include increased sexual promiscuity, widespread violence numbers of children and adolescents, crimes against friend, teen theft, drug abuse, pornography, rape, and destruction of property of others has become a social problem that until now has not been able to completely resolved (Zubaedi, 2011).

Meanwhile, Lickona (1991:13-18) revealed that there are times the signs to look out for if these signs are already there, then it means that the nation is heading the brink of collapse. The

signsin question are: 1) the increasing violence among ramaja; 2) the use of language and words are deteriorating; 3) peer-group influence is strong in violence; 4) increasing self-destructive behavior, such as drug use, alcohol and casual sex; 5) the blurring of good and bad moral compass; 6) declining work ethic; 7) the lower the respect for parents and teachers; 8) lack of a sense of individual responsibility and citizens; 9) membudayanya dishonesty, and 10) the existence of mutual suspicion and hateful among fellow.

The analysis of this phenomenon, at least as what was said by Sulisty (2011), that the increased negative behaviors teens / students into real form of character education concepts have not been successful as expected. Educational practices that should strengthen the aspects of character or virtue, according Koesoema (2004), so far only able to produce a wide range of attitudes and behaviors are actually contrary to what is taught. Exemplified how Pancasila Moral education is a kind of subject values, was less successful instill some moral values and humanism into the consciousness of the student center. Similarly, teaching religious education is dominated by the transfer of science and religion is more textual memorization.

Other aspects in students, for example, and affective aspects of moral virtue have received less attention . The issue of commitment to integrating the education and formation of character is the weak point of national education policy. Musfiroh (2009) adds , too highlight education but minus cognition and moral emotions. Purposing process the material being taught is not considered important . As a result, the educational process does not touch the bottom of the heart , so it provides no contextual experiences that foster awareness of the value . If this situation is not addressed , the Congress Professor of Indonesia on May 16, 2007 (Ibrahim , 2008: 5) worry there will be more serious effects , such as (a) the occurrence of erosion manners , good behavior , and positive behavior , (b) solidarity and low solidarity (frequency of fights and anarchist actions height) , (c) many children managed to memorize but do not understand what is memorized , and in turn, (d) the nation's competitiveness is low . Accordingly, the Congress recommends teaching character , positive attitude , and a noble character in order to be integrated in every subject . This recommendation is in line with reports from several studies showing that character education is implemented in an integrated manner in the school environment generating social and moral behavior better students , as well as schools become more aware of the community (Marshall & Caldwell , 2011) .Therefore, the biology of learning needs to be designed device that intentionally develops the moral aspect. Learning device in question is the meaning of a model biological learning. By learning model interpretation, in addition to teaching academic skills and psychomotor, also put an emphasis on the affective outcomes has not done intentionally but simply aconcomitant effect.

Based on research on the application of learning models of meaning in elementary science subjects, as made by Ibrahim (2008), the results showed that the implementation of the learning model is able to purport cultivate character, a positive attitude and akhlakul karimah learners. The result of the growth of moral values obtained will be used as a mirror for students to door act, both with in the school and in the community. A similar study for the field of study in junior high school physics has been done by Sartika (2010) with the results of the implementation of the learning topic models purport simple aircraft capable of improving learning outcomes processes, psychomotor, cognitive, and moral sensitivitas junior high school students. While Agustina research (2011) stated that the implementation of the learning topic models purport able to teach skills of emotional stress and improve cognitive learning outcomes junior high school students. As similar studies for high school biology field studies , as has been done by Habibi (2009) , the result is the development of learning tools Plant Growth and Development topics can teach cognitive abilities , thinking skills , scientific skills and moral sensitivity to students . Based on the consideration that the moral aspects of teaching should be carried out continuously and sustainable , it is necessary to conduct similar research on another topic , namely the human reproductive system . On that topic there are many concepts that can

be interpreted so as to be a model or an example of noble character . For example, the concept of fertilization , spermatozoa from hundreds of cells surrounding the egg only one who managed to penetrate the protective layer of the egg and finally do the smelting, the spermatozoa are in the right position perpendicular to the egg cell . Only spermatozoa that have ' kedisiplian" in the position of successful fertilization. This phenomenon can be used to teach moral values of discipline . The phenomenon of " timeliness " for the occurrence of fertilization can also be used as modeling the importance of discipline .

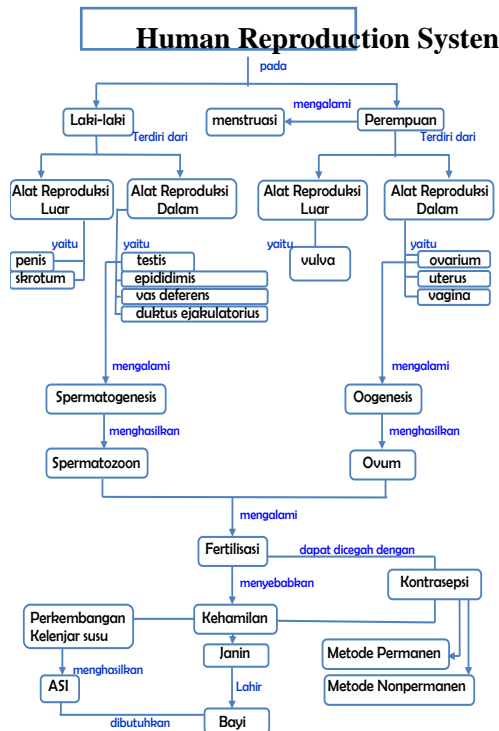
Discipline as a moral value , can be taught and practiced to students as a gradual process . The moral value of the integration process will occur through awareness of the seriousness and moral values taught Based on these considerations , this penelilitian take the title Development of Teaching Material Internalization models on Human Reproductive System Topic, to Cultivate Moral Sensitivity and Discipline.

RESEARCH METHOD

This research was the development research, to generate teaching material oriented high school Biology Learning Model Making of the Basic Competence relationship between structure, function, and process that includes the formation of sex cells, ovulation, menstruation, fertilization, pregnancy, and breastfeeding, as well as disorders/diseases that may occur in the reproductive systems of humans. The results of the implemented teaching material developed to obtain a description of the process and student learning outcomes. The subject of research is the study of human reproductive system model of learning the meaning of the target test 5 students of class XI Science SMAN 13 Surabaya, the number of students 31. The experiment was conducted in the second semester of the 2012-2013 school year. The process of teaching material development was done in three stages, define, design and develop, which is a modification of The Four D Models developed by Thiagarajaan, Semmel and Semmel (1974).

The purpose of the definition phase is to establish and define the terms of learning, which includes requirements analysis, analysis of students, task analysis, concept analysis, and formulation of learning objectives . Concept analysis is presented in the form of a concept map below.

Figure: Concept Map of Human Reproduction



The concepts of the human reproductive system has the potential to be interpreted so that it can serve as a model for teaching moral values and positive character. Here are some examples of the concept of the human reproductive system and its reasoning.

Tabel 1. List of Concepts and Reasoning

No	Concepts	Reasoning
1	Structural differences in there productive organ of men and women carrying consequence of differences in terms of function.	By nature men are different from women. Because of the different men and women in terms of rights and obligations. Each has its own advantages and disadvantages. What is more important is how to exploit the advantages that they have to do something useful and beneficial for himself and for others. Between the two must work together toco-exist and complement. Based on an understanding and awareness of gender like this then comes the women's emancipation movement.
2	Spermatogenesis process begins with a diploid cell that is the precursor of sperm. To become motile sperm cells must go through several stages of early cleavage	Someone before becoming a leader or a role model in his community, he had to learn through the various stages of education that he was a superior man. The advantages of a person is not in-acquired in-booth, but through an educational process that is long enough. Each stage of the

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| <p>repetitive After completing a trip along the canal of the epididymis, the sperm should receive additional gland secretion of the seminal vesicles, prostate, and bulbourethralis. After experiencing a series of these processes can then perform its function of sperm, an egg, a process essential for the preservation of the species.</p> <p>3 Puberty is a period where a child experiencing physical changes, hormonal and sexual and able to conduct the process of reproduction. Puberty is associated with rapid growth And the onset of secondary sexual characteristics.</p> <p>4 Structure and function which support/facilitate fertilization events include:spermatozoa will move with the aid of its tail along the fallopian tube. Spermatozoa movement was also aided by the movement of the wall of the uterus and fallopian tubewall. Cervical mucus also remove fluid or dilute so that the spermatozoa can swim smoothly in the uterus to the fallopian tube stomeet and fertilize the egg. These events can be described as someone who swim in the river in the direction of the water flow in the river, so it</p> | <p>late educator who lived would give him stock in the form of knowledge, attitudes, and skills which will be applied in the lives of society. The more advantages of the growing number of benefits to be given to the surrounding environment. Like a big tree deeply rooted lush leaves provide shade, dense fruit can be eaten.</p> <p>The nature of puberty is change. Changes in the direction of perfection. Changes in the properties for the better. Then it must be interpreted de puberty with changes everything for the better. For example changes in the psychological aspects attitude shown by the more mature, more disciplined, more responsible, honest, think ahead, and work keras.Perubahan kerokhaniaan aspects indicated by earnest effort to engage in religious activities and other activities leads to a process of " mental climbing ".</p> <p>In the struggle of life to achieve their goals, the required seriousness, perseverance, patience and creativity in overcoming obstacles and difficulties that face. Although at first seem difficult, but at every step we will see the presence of easiness that lead to the way out of the problem. Ease among others can be appear brilliant idea, a brilliant idea, or the support and assistance of the surrounding environment. In principle, where there is a problem, there will be no solution, because in there alhardship comes ease. Such an understanding is necessary to cultivate an optimism.</p> |
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No	Concepts	Reasoning
	<p>will be faster swimmers arrive at the destination. With the enzyme prostaglandin contained in the semen can stimulate uterine wall movement. Shortly before terjadinya fertilisasi, the sperm releases digestive enzymes called hyaluronidase to pierce the cloaking egg protein. Once the walls of hollow egg, the sperm cell into the egg cell. Finally there was fertilization.</p>	
5	<p>In the event of fertilization, sperm compete to reach millions / fertilize the egg. Along the female reproductive tract there are many obstacles that sperm sorting, starting from the vaginal canal has a very low pH, cervical sections filled with mucus, even when it is within the fallopian tubes fallopipun must race to penetrate the protective layers of the egg. From the original sperm tens to hundreds of millions, only one who managed to fertilize the egg.</p>	<p>It is a law of nature that for achieving a goal requires a struggle. In the struggle many obstacles and challenges to be faced, and often have to compete with another. Only those who have the advantage that will win in this competition. Similarly, the students' everyday life. To reach the expectations and goals in the future, they have to work hard. In order for the next grade, for example, they must diligently study. To be the best, they have to compete with her. This is called competition in goodness.</p>
6	<p>Fertilization occurs when the secondary oocyte containing the ovum is fertilized by a sperm. Before the spermatozoa can enter secondary oosit, the sperm must penetrate the layers of the corona radiata and zonapellucida. Sperm can penetrate the secondary oocyte and sperm caused either secondary oocyte each other and complain ingark</p>	<p>A job can be done well and quickly if there is cooperation between each other. Therefore, working or helping others in terms of goodness is highly recommended.</p>

No	Concepts	Reasoning
	anenzyme or a certain lives so happens activity of mutual support.	
7	Shortly before fertilization occurs, an egg (secondary oocyte) surrounded by hundreds of sperm that are all trying to fertilize it. When a sudden sperm successfully penetrates the secondary oocyte, the cells gra-nulosit in certain parts of the cortex secrete compounds that cause the zona pellucida can not be penetrated by other sperm. This eliminates the possibility of a single egg is fertilized by two sperm over.	This mechanism gives an example of the value of "loyalty" (loyalty) are indicated by the egg. At first a lot of sperm that will fertilize, but once the sperm has managed to nembusnya the egg soon establish a "blockade denial" terha-dap other sperm. This mechanism once taught that when someone has determined a selection of the many options that exist (eg, choosing a mate, choose a major in college, etc.), then he must be faithful and consistent with the choice and are responsible for the consequences
8	Umbilical cord (funiculus umbilicallis) is a life line to the fetus during pregnancy. The umbilical cord has an important role in the growth and development of the fetus. Food, oxygen, and other nutrients needed by the baby gained through this channel and for the life of the fetus during pregnancy. The umbilical cord has an important role in the growth and development of the fetus. Food, oxygen, and other nutrients that are needed by the baby gained through this channel.	Life for the fetus during pregnancy. The umbilical cord has an important role in the growth and development of the fetus. Eat late, oxygen, and other nutrients needed by the baby gained through this channel.
9	Early Initiation of Breastfeeding (EIB) is the process of breastfeeding infants immediately after birth, where the baby was left	The struggle is absolutely necessary in our lives. In principle, any difficulties and barriers that the Lord will make us stronger. Life without barriers will only make us weak.

No	Concepts	Reasoning
	looking for her own nipples in the sense of not proffered to the nipple. Me-Early initiation of breastfeeding will help in sustainability exclusive breastfeeding (breast milk only) and duration of breastfeeding. Thus the baby needs will be met until the age of 2 years, and prevent child malnutrition	
10	The menstrual cycle consists of the pre-ovulatory phase, Ovulation, post-ovulation and menstruation, which occur alternately. In the stages of the cycle of physiological changes in the body on a regular basis and is influenced by reproductive hormones.	Life and human destiny is like a cycle, sometimes above sometimes below. Joy and sorrow are always side by side, alternately sad and happy, pleasure and distress in tandem. Attitude is important, when we got the pleasure grateful, when we got to be patient distress.
11	At fertilization, the Sperm Of hundreds of cell surrounding the egg only one who managed to penetrate the layers of the egg protector and finally performs melting, which spermatozoa are in the right position perpendicular to the egg cell.	Spermatozoa simply have "discipline" in the right position perpendicular to the successful egg fertilization. To achieve a goal or purpose, discipline is absolutely necessary.
12	Fertilization can only occur when the line of a woman's fallopian tubes are ripe egg. At this moment a woman is said to be the fertile period, which lasts approximately 1-2 days. Therefore, the egg does not have a long life in the reproductive tract, spermatozoa can then order the necessary mem-buahi the right time, because outside these times will not	In everyday life, the terms of timeliness-suk part of the attitude of self-discipline, it is necessary for a wide variety of activities. Some proverbial so teaches us about the importance of discipline problems when, for example, "time is money" and "time is of the sword".

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fertilization occurs.

The formulation of learning objectives is done to convert the results of the task analysis and the analysis of concepts into specific learning objectives are stated more operational nature. This set of goals is the basis to formulate the test and design of learning tools. The preparation was based on a Basic Competence "Explaining the relationship between structure, function, and process that includes the formation of sex cells, ovulation, menstruation, fertilization, pregnancy, and breastfeeding, as well as disorders / diseases that may occur in the human reproductive system". Learning objectives to be achieved are as follows.

The First Meeting

Learning Objectives:

1. Given a number of traits, students can distinguish the secondary sex characteristics of men and women.
2. Given Charta / images, students can identify the parts of the male reproductive organs.
3. Given Charta / images, students can identify the parts of the female reproductive organs.
4. Given Charta / images, students can explain the function of reproductive organs of men.
5. Given Charta / images, students can explain the function of female reproductive organs.
6. Given a phenomenon science, science students can analogize phenomenon shown by certain positive attitude.
7. Involved in the learning process, students can demonstrate discipline behavior.

Second Meeting

Learning Objectives:

1. Given Charta / images gametogenesis, students can determine the stage of spermatogenesis.
2. Given Charta / images gametogenesis, students can determine the stage of oogenesis.
3. Given a number of statements, students can explain the meaning of ovulation.
4. Given Charta / images, students can determine the various forms of follicles in the ovaries.
5. Given the diagram / cycle, students can determine the stage of the menstrual process.
6. Given a phenomenon science, science students can analogize phenomenon shown by certain positive attitude.
7. Engage in the learning process, students can demonstrate discipline behavior.

The Third Meeting

Learning Objectives:

1. Given some key words, students can explain penegrtian fertilization.
2. Given some key words, students can explain the meaning of gestation.
3. Given a number of statements, students can determine the reason for the importance of breastfeeding for the baby.
4. Given the picture, students can determine the name of the designated contraceptives.
5. Given the picture, students can explain the workings of contraception in men and women.
6. Given a phenomenon science, science students can analogize phenomenon shown by certain positive attitude.
7. Engage in the learning process, students can demonstrate discipline behavior.

The Fourth Meeting

Learning Objectives

1. Given a set of tools and materials pregnancy test, students can do a pregnancy Test Pack.
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2. Given a number of statements, students can determine symptoms or disorders or diseases related to the reproductive system.
3. Given a phenomenon science, science students can analogize phenomenon shown by certain positive attitude.
4. Involved in the learning process, students can demonstrate discipline behavior.

Stage of development aims to produce a learning material revised based on input from the validator. This stage includes eight steps, namely: 1) validation of the learning material by the expert, 2) first revision, 3) implementation of a limited class, 4) the second revision, 5) implementation of a normal class, 6) analysis, 7) the third revision, 8) learning material.

Implementation of the device class using pre-experimental research design with the design of One Group Pretest-Posttest Design (Tuckman, 1978) are described as follows.

O₁ X O₂

Description:

O₁ = Test early, aims to determine the cognitive abilities and the level of students' moral sensitivity before treatment was given.

O₂ = final Test, aims to determine the cognitive abilities and the level of students' moral sensitivity after the treatment was given.

X = Treatment with applying learning learning model of meaning.

The operational definition of variables (characteristics) observed in this study consisted of variables related to the quality of learning and the variables related to process and student learning outcomes. Variables related quality of learning devices include the validity of the device, the level of difficulty, and readability level devices. Variables related processes and student learning outcomes include feasibility study, students activity, student responses, cognitive abilities, moral sensitivity, and discipline students.

The research instrument consisted of the quality assessment instruments and instruments of learning and learning outcomes assessment process. Data was collected by observation, written tests, and questionnaire administration. Analysis of the quality of learning, for example, the validity of the analysis carried out by descriptive qualitative, ie by finding the average score of each component. The results of the average score is described as follows.

Table 1. Teaching Material Validity Criteria

score	Catagory	Description
$1,0 \leq SV \leq 1,5$	Not good	Not to be used and still require consultation.
$1,6 \leq SV \leq 2,5$	poorly	Can be used with many revisions.
$2,6 \leq SV \leq 3,5$	passable	Can be used with a little revisions.
$3,6 \leq SV \leq 4$	Good	Can be used without revision

Description:

VS = Validation Score

(Source: Ratumanan& Laurens, 2006)

The level of difficulty of teaching materials and worksheets, which was represented by 15 students, was done by determining the percentage of / many sentences are understood students divided by the number / many sentences are then multiplied by 100%. Values obtained were analyzed descriptively based on the level of difficulty levels as follows.

Table 2. Criteria Level of Difficulty

N o	Percentage (%)	Difficulty Level
1	0,0 – 20,9	Very low / very easy to understand
2	21,0 – 40,9	Low/ easy to understand
3	41,0 – 59,9	Medium/enough to understand
4	60,0 – 79,0	High/difficult to understand
5	80,0 - 100	Very high/very difficult to understand

(Source: Hasanah, 2012)

Readability level of teaching materials and worksheets that are represented by 15 students were analyzed descriptively based on the following criteria readability level.

Table 3. Criteria of readability level.

N o	Persent age (%)	Readability	Description
1	>60	Free level	Easy readability
2	40 – 60	Learning level	Learning readability
3	< 60	Depressed level	Difficult Readability

(Suource: Taylor, 1953 dalam en.wikipedia.org/wiki/ Cloze_test.)

Assessment of student learning processes and outcomes, such as learning realizing analysis, carried out by two observers. For each aspect of assessment is taken the average percentage of the assessment of both the observer, then determined its appropriateness quality category. The adherence to quality categories are as follows (Hasanah, 2008).

Worst	: 0 – 1
Bad	: 1,1 – 2
Good enough	: 2,1 – 3
Good	: 3,1 – 4

If the assessment is done by two people, the results obtained from the two observers were then searched using a reliability level of inter-rater reliability. Because the resulting data is then ordinal data reliability was measured using Spearman correlation coefficient (Tuckman,

1978), with the following formula:

$$r = 1 - \frac{6\sum d^2}{N^3 - N}$$

Description:

r = coefficient of correlation

d = the difference between the two observers

N = number of objects (type of activity) were observed

Having obtained the value of r, for interpretation can be compared with the value chart criticism of Spearman's rho or use a table like the following interpretation of the value of r (Arikunto, 2010: 319).

Tabel 4.r Value Interpretation

r	Interpretation
0,800 – 1,00	High
0,600 – 0,800	Medium
0,400 – 0,600	Easy
0,200 – 0,400	Low
0,000 – 0,300	Very Low

The purpose of the student activity data analysis is to determine how the activity of students in learning activities that use the Making Learning Model. The percentage is calculated based on the number of types of activities that dominate divided by the total number of observed activity multiplied by 100%. The observation of two observers then sought the value of reliability (percentage agreement) by using the formula as suggested Emmer and Millett (in Borich, 1994: 385) as follows.

$$\text{Percentage agreement} = 100\% - 1 - \left[\frac{A - B}{A + B} \right]$$

Description:

A = Frequency aspects of behavior observed by the observer who gives a greater frequency

B = Frequency aspects of behavior observed by the observer who gives a smaller frequency.

Analysis of student response data to the teaching and learning activities performed quantitative descriptive, ie by calculating the percentage of positive and negative responses in the student questionnaire responses sheet. Percentage yield can be described, as according Ratumanan (2003), as follows.

Table 4. Student Response Analysis

Percentage (%)		Conclusion
Positive Response	Negative Response	
0 – 20	81 – 100	Very negative response
21 – 40	61 – 80	NegatifResponse
41 – 60	41 – 60	Medium Response
61 – 80	21 – 40	Positive response
81 – 100	0 – 20	VeryPositifResponse

Analysis of data sensitivity to the material the students moral values is done by providing a qualitative score. Scale refers to the assessment rubric that has been developed. Scores obtained on each question will be averaged to get the students' level of moral sensitivity. Data analysis was performed with student discipline descriptive analysis based on the score obtained by the student discipline indicators for four learning sessions.

RESULT AND DISCUSSION

Development of this research has been carried out successfully developed learning tools which include Lesson Plan Implementation (LPI), student teaching materials, StudentActivitySheet (SAS), the observation sheet and sheet valuation. Learning device has been validated by experts and tested with target 31 students 5 Class XI Science SMAN 13 Surabaya. The purpose of the trial in the normal class is to obtain data on the feasibility study empirically and influence the implementation of learning tools be developed to process and learning outcomes.

The results of the validation study are presented in the following table.

Table 5. Learning Tool Validation Results

No	Jenis Perangkat	Skor Validator			Skor Rata-rata	Kategori	Keterangan
		I	II	III			
1	RPP	4	4	-	4	Baik	Layak digunakan.
2	Bahan Ajar Siswa	4	4	3,5	3,8	Baik	Layak digunakan.
3	Lembar Kegiatan Siswa	4	4	-	4	Baik	Layak digunakan.
4	a. Lembar Pengamatan keterlaksanaan RPP	4	4	-	4	Baik	Layak digunakan.
	b. Lembar Pengamatan Aktivitas Siswa	4	4	-	4	Baik	Layak digunakan.
	c. Lembar Angket Respon Siswa	4	4	-	4	Baik	Layak digunakan.
5	a. THB Kognitif	3,8	3,9	-	3,9	Baik	Layak digunakan.
	b. Angket sensitivitas moral	4	4	-	4	Baik	Layak digunakan.
	c. Lembar Pengamatan Kedisiplinan Siswa	4	4	-	4	Baik	Layak digunakan.

Description:

1.00 to 1.99: No Good 3.00 to 3.49: Good Enough

2.00 to 2.99: Not Good 3.50 to 4.00: Good

Referring to Table 5, it can be seen that the score validation sets consisting of lesson plans, student teaching materials, worksheets, and instrument consisting of feasibility RPP observation sheet, observation of student activity sheet, sheet student questionnaire responses, sheet THB cognitive, moral sensitivity questionnaire, and confirmation sheet discipline students, categorized either without revision.

The mean score of test results the level of difficulty of learning tools that include teaching materials and worksheets are presented in Table 6 below.

Table 6. Percentage Level of Difficulty

Jenis Perangkat	Tingkat Kesulitan (%)															Rata-rata
	Nomor Subyek Sampel															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Bahan Ajar	12	30	5	12	10	10	5	5	3	7	8	10	15	8	10	10
LKS	8	22	2	8	6	5	2	2	2	3	2	5	17	3	5	6

Based on Table 6 it can be seen that the level of difficulty and the Student Instructional Materials Student Activity Sheet, respectively 10% and 6%. The level of difficulty of the

devices is classified as very low, in other words the sentences used in the Student and Instructional Materials Student Activity Sheet is very easily understood by students. The test results readability level of teaching devices are presented in Table 7 below.

Table 7. Percentage Level Readability

Jenis Perang-kat	Tingkat Kesulitan (%)															Rata-rata
	Nomor Subyek Sampel															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Bahan Ajar	76	68	92	80	68	86	72	82	70	90	86	88	54	64	64	76
LKS	82	74	92	82	74	86	78	86	80	84	86	82	62	70	72	79

Based on Table 7 it can be seen that the readability level Instructional Materials Students and Student Activity Sheets are respectively 76% and 79%. Referring to the criteria by Taylor (1953), the percentage of legibility learning devices above 60% means that the material is too easy. This material easy for students likely due to the concepts in this subject, the human reproductive system, are concepts that most of them had met before, when in junior high school. Classroom management classroom atmosphere that is associated with enthusiastic teachers and students during the teaching and learning activities, observation results are presented in Table 8 below

Table 8. Results Assessment of Lesson Plan Completeness

No	Aspek yang diamati	Rata-rata Penilaian Pengamat					Kategori
		RPP 1	RPP 2	RPP 3	RPP 4	Rata-rata	
I	PELAKSANAAN						
	A. PENDAHULUAN						
	Fase 1: Mengorientasikan siswa pada masalah						
	• Memotivasi siswa	4	4	4	4	4	4
	• Menyampaikan tujuan pembelajaran	4	4	4	4	4	
	B. KEGIATAN INTI						
	Fase 2: Merancang proses pemecahan masalah atau menjawab pertanyaan	3,5	3,5	4	4		3,9
	• Menginformasikan konsep						
	• Membagi siswa ke dalam kelompok-kelompok.	4	4	4	4		
	Fase 3: Membimbing penyelidikan						
• Membimbing kelompok dalam pengamatan/eksperimen/tugas lain	4	4	4	4			
Fase 4: Mengkomunikasikan hasil							
• Menunjuk beberapa kelompok untuk melakukan presentasi hasil eksperimen	4	4	4	4			
Fase 5: Negosiasi dan konfirmasi							
• Memberikan umpan balik terhadap konsep yang telah disampaikan.	3	3,5	4	4			
Fase 6: Pemaknaan							
• Memodelkan gejala/fenomena yang terdapat pada konsep yang telah disampaikan dengan sifat/karakter positif tertentu.	4	4	4	4			
C. PENUTUP							
Fase 7: Evaluasi dan refleksi							
• Mereview pembelajaran dengan meminta siswa untuk menyimpulkan materi yang telah dipelajari.	3	4	4	4	3,8	Baik	
II	PENGELOLAAN WAKTU	3,5	3,5	3,5	3,5	3,5	Baik
III	PENGAMATAN SUASANA KELAS						
	• Kesesuaian KBM dengan tujuan	4	4	4	4		4
	• Penguasaan Konsep	4	4	4	4		
	• Antusias Siswa	4	4	4	4		
	• Antusias Guru	4	4	4	4		

Description Category:

4 (good): Do it right and proper.

3 (pretty good): Done right, but not quite right.

2 (less well): Do but not really.

1 (not good): Not done

Based on Table 8, it can be seen that the average score obtained in the preliminary stages of 4; 3.9 core activities; and cover 3.8. This suggests that teachers can implement the learning biology by learning the meaning-oriented learning model, which includes motivating students, deliver learning objectives, concepts informing, guiding students in the observation / experiment / working on worksheets, students practice communicating results, providing feedback, modeling the meaning , and the cover can be expressed either.

Table 9 below presents the summary results of the observations made by the two observers during four meetings.

Table 9. Recapitulation Percentage of Students Activities

Kode Aktivitas	Pertemuan 1			Pertemuan 2			Pertemuan 3			Pertemuan 4			Total Rata-rata
	Pengamat I	Pengamat II	Rata-rata	Pengamat I	Pengamat II	Rata-rata	Pengamat I	Pengamat II	Rata-rata	Pengamat I	Pengamat II	Rata-rata	
1	9,46	9,68	9,57	8,60	9,35	8,98	8,92	9,57	9,25	8,71	9,35	9,03	9,21
2	9,68	7,74	8,71	11,4	10,1	10,8	12,2	10,7	11,4	11,3	10,5	10,9	10,4
3	20,8	18,1	19,4	19,3	17,5	18,4	16,9	16,0	16,5	15,5	16,2	15,9	17,5
4	27,3	27,9	27,6	26,1	28,3	27,2	27,1	28,9	27,9	29,1	27,4	28,3	27,8
5	17,1	21,2	19,1	18,8	18,6	18,7	19,0	18,5	18,8	19,4	20,3	19,8	19,1
6	3,33	3,33	3,33	3,33	3,33	3,33	3,33	3,33	3,33	3,33	3,33	3,33	3,33
7	1,61	1,72	1,67	1,94	2,15	2,04	2,04	2,37	2,20	2,47	2,47	2,53	2,11
8	9,89	9,68	9,78	9,78	9,68	9,73	9,78	9,68	9,73	10,0	10,0	10,0	9,81
9	0,65	0,32	0,48	0,43	0,54	0,48	0,54	0,75	0,65	0,22	0,22	0,22	0,46
10	0,22	0,32	0,27	0,32	0,43	0,38	0,22	0,32	0,27	0	0	0	0,23

Based on Table 9 it can be seen that of the four meetings , the order of activity is the percentage of students ranging from large to small percentage to the activity , respectively are : doing worksheets (27.77 %) , work together or discuss in groups (19.11 %) , record / write (17.53 %) , ask or answer questions teachers (10.44 %) , enthusiasm in the process of meaning (9.81 %) , pay attention to the teacher's explanation (9.21 %) , to report or present the results LKS (3.33 %) , the opinions of others (2.11%) , provide feedback or suggestions on the teaching and learning activities (0.46 %) , and irrelevant activities (0.23 %) . Among the 10 kinds of activities is largely a student-centered activity , which is working on worksheets , work together or discuss in groups , record / write , report or present the results of Worksheet , respect other people's opinions , and provide feedback or suggestions . The types of activity illustrates that this learning model has the characteristics of student-centered , with the overall percentage of 70.3 % .

The tendency of student-centered learning will provide a positive contribution to student achievement, such as the cognitive learning outcomes. This is in accordance with the words of Sudjana (2005) that the characteristics of successful teaching one of them seen in the levels of students' learning activities. The higher the students' learning activities, the higher the chances of successful teaching. Students response to learning the meaning of the human reproductive system models are presented in Table 10 below.

Table 10. Responses to Student Learning

No	Aspek Pertanyaan	Respon Siswa (%)	
		Menarik	Tidak Menarik
1	Pendapat terhadap koomponen pembelajaran:		
	a. Materi/isi pelajaran	100	0
	b. Tampilan sajian bahan ajar siswa	100	0
	c. Bagian/fase pemakaian	100	0
	d. Lembar Kegiatan Siswa	100	0
	e. Suasana belajar	100	0
	f. Cara mengajar guru	100	0
2	Pemahaman terhadap komponen pembelajaran:	Mudah	Sulit
	a. Bahasa bahan ajar siswa	100	0
	b. Lembar Kegiatan Siswa	100	0
	c. Bagian/fase pemakaian ²⁵	97	3
3	Aspek "kebaruan" dalam komponen pembelajaran:	Baru	Tidak Baru
	a. Adanya bagian/fase pemakaian	90	10
	b. Adanya puisi dalam bahan ajar siswa	97	3
	c. Adanya kisah hikmah dalam bahan ajar	90	10
	d. Cara mengajar guru	90	10
4	a. Cara guru menjelaskan konsep materi pada saat kegiatan belajar mengajar.	Jelas	Tidak Jelas
	b. Bimbingan guru dalam mengerjakan LKS selama kegiatan belajar mengajar.	100	0
5	Minat untuk mengikuti pembelajaran dengan model yang sama pada kegiatan belajar mengajar berikutnya.	Berminat	Tidak Berminat
		100	0
6	Ada tidaknya suatu dorongan untuk menjadi pribadi yang lebih baik dgn proses pemakaian.	Ya	Tidak
		100	0
Rata-rata		98	2

Based on the data in Table 10 of the students' response to some of the components in the Making Learning Model is the subject matter, teaching materials, student activity sheets, how to teach teachers, the learning environment, student interest, and the process of interpretation, it can be seen that the Learning Model Making of a positive response from students. Percentage of these responses by Ratumanan (2003) categorized as very positive response because it is in the range 80% - 100%. Students were very positive response can be interpreted that the teacher is able to create a learning environment that is conducive to learning or process. The findings in this learning process according to research conducted by Juarsa (2011) which says that a conducive learning process is said to be accepted if the student learning process was interesting, not boring and the students involved in the learning process

Based on data from student responses to the newness aspect of the learning component which includes phase interpretation, poetry, wisdom stories, and the way teachers teach, students showed some who think that the presence of these components in the learning process is not a new thing. Groups of approximately 8% of students are likely already have experience of engaging in a learning process which in some ways are similar to the learning model of meaning, with one character to relate to the concept of moral values. In connection with the question of whether there is an urge to become a better person with the meaning, all the students who gave a positive response. This realization becomes a sign that the student has grown sensitivity or moral sensitivity, a starting point for the development of student character towards the better.

The positive response of students needed to build student motivation. Motivation is an internal process in a person to continue to maintain a certain behavior (Nur, 2003), therefore, motivation is a most important element in learning. Suitability of the results of this study with the statement can be seen from the results of students' cognitive learning, which will be described below, which shows that the presence of students indicated a positive response motivated. With high motivation spur students to be actively involved in the process pembelajaran. Ketika students active in the learning process he will assemble the experience to construct their own understanding (Ibrahim, 2008).

Learning Outcomes Kogntiif (cognitive ability) was measured by using an instrument

such as a written test with a form of multiple choice questions and a description. As a minimum completeness criteria (KKM) to subject the human reproductive system established by SMAN 13 Surabaya is 75, with classical completeness $\geq 85\%$ of total students should get a value ≥ 75 . Following Table 11 presents the mastery of cognitive learning outcomes, especially regarding the multiple choice.

Table 11. Proportion Item Multiple Choice Questions and Completeness Indicator

No.	Indi- kator	Tujuan Pembelajaran	No. Soal	Proporsi Butir Soal		Ketuntasan Indikator $\geq 0,75$	
				U ₁	U ₂	U ₁	U ₂
1	1	1.1	1	0,45	0,77	Tidak tuntas	Tuntas
2	2	2.1	2	0,48	0,81	Tidak tuntas	Tuntas
3			3	0,58	0,77	Tidak tuntas	Tuntas
4			4	0,45	0,81	Tidak tuntas	Tuntas
5		2.2	5	0,52	0,77	Tidak tuntas	Tuntas
6			6	0,52	0,87	Tidak tuntas	Tuntas
7			7	0,35	0,77	Tidak tuntas	Tuntas
8			10	0,35	0,87	Tidak tuntas	Tuntas
9	4	4.1	11	0,61	0,90	Tidak tuntas	Tuntas
10			8	0,61	0,84	Tidak tuntas	Tuntas
11		9	0,55	0,81	Tidak tuntas	Tuntas	
12	6	6.1	12	0,39	0,77	Tidak tuntas	Tuntas
13	8	8.1	13	0,45	0,84	Tidak tuntas	Tuntas
14	10	10.1	14	0,45	0,81	Tidak tuntas	Tuntas
Rata-rata Proporsi				0,48	0,82		

keterangan:

U₁ : Uji Awal (Pretest)
U₂ : Uji Akhir (Posttest)

Based on the data in Table 11 it can be seen that in the MCQs test results, there has been an increase in the value of the initial test with an average proportion of 0.48 to an average proportion of 0.82 when the final test. Moreover, it can also note that all the indicators on the multiple choice questions is said to have been completed since the proportion of items were valued greater than the specified KKM, which is 0.75. In a matter of description has also been an increase in the average value of proportion. When the initial test average proportion of 0.22, while the end of the test when the average proportion of its value increased to 0.85.

It aims to deliver students to learn significantly, which in turn can optimize student learning outcomes. According to according to Carroll (in Yamin, 2008) with the completion of the concept of learning (mastery learning), each student can achieve full mastery of the material presented or achieve mastery, when the quality of teaching and learning time opportunity is made exactly according to the needs of each student. Behavior intellectual, theoretical aspects, and the level of abstraction of the students showed different mental characteristics of the velocity in terms of seeing meaningful relationship, linking the logical associations, as well as adapting the abstract principles to concrete situations to assess the situation of identical components and generalize. Highly talented students who require relatively little time to achieve the level of mastery of the material than students who have a low aptitude. Referring to this view, students can achieve mastery Ind. when he was given a longer time. Thus, the solution to this is the case ketidaktuntasan provide remediation to students replications concerned to achieve the KKM (Minimum Completeness Criteria). In this case no need for remedial teaching, because in principle the completeness and thoroughness of the class indicator has been reached.

Moral sensitivity questionnaire containing ten items asking about the views or opinions of students about a science phenomenon is associated with moral values or goodness. In each alternative answer scores have different weights different from one another. The mean score

obtained by the students were used as a basis to classify students into a certain level of sensitivity category. Score results of a questionnaire on students' moral sensitivity biology-oriented learning model of learning the meaning of the scores obtained by students of the moral sensitivity of the questionnaire are presented in Table 12 below.

Table 12. Scores Moral Sensitivity and Range Rate Sensitivity

No	Nama Saiswa	Uji Awal		Uji Akhir	
		Skor Rata-rata	Rentang Tingkatan Sensitivitas	Skor Rata-rata	Rentang Tingkatan Sensitivitas
1	Ahm	2,3	Kurang sensitif – cukup sensitif	3,0	Cukup sensitif
2	Aid	3,1	Kurang sensitif – cukup sensitif	3,3	Cukup sensitif - sensitif
3	Aly	2,0	Kurang sensitif	3,2	Cukup sensitif - sensitif
4	Bay	2,9	Kurang sensitif – cukup sensitif	3,8	Cukup sensitif - sensitif
5	Dia	2,4	Kurang sensitif – cukup sensitif	3,8	Cukup sensitif - sensitif
6	Din	2,0	Kurang sensitif	3,1	Cukup sensitif - sensitif
7	Di A	2,1	Kurang sensitif – cukup sensitif	3,7	Cukup sensitif - sensitif
8	Di M	2,9	Kurang sensitif – cukup sensitif	3,6	Cukup sensitif - sensitif
9	End	2,3	Kurang sensitif – cukup sensitif	3,0	Cukup sensitif
10	Erv	2,0	Kurang sensitif	3,9	Cukup sensitif - sensitif
11	Evi	2,7	Kurang sensitif – cukup sensitif	3,3	Cukup sensitif - sensitif
12	Fer	2,1	Kurang sensitif – cukup sensitif	3,0	Cukup sensitif
13	Fir	2,2	Kurang sensitif – cukup sensitif	4	Sensitif
14	Fit	3,3	Cukup sensitif - sensitif	4	Sensitif
15	Her	3,2	Cukup sensitif - sensitif	4	Sensitif
16	Ilm	3,0	Cukup sensitif	3,4	Cukup sensitif - sensitif
17	Ind	2,8	Kurang sensitif – cukup sensitif	3,6	Cukup sensitif - sensitif
18	Ire	3,0	Cukup sensitif	3,3	Cukup sensitif - sensitif
19	Isw	3,2	Cukup sensitif - sensitif	3,8	Cukup sensitif - sensitif
20	Izh	3,3	Cukup sensitif - sensitif	4	Sensitif
21	Muh	2,7	Kurang sensitif – cukup sensitif	3,0	Cukup sensitif
22	Nad	3,1	Cukup sensitif - sensitif	3,8	Cukup sensitif - sensitif
23	Nov	2,6	Kurang sensitif – cukup sensitif	3,2	Cukup sensitif - sensitif
24	Rat	2,8	Kurang sensitif – cukup sensitif	3,1	Cukup sensitif - sensitif
25	Reg	2,3	Kurang sensitif – cukup sensitif	3,5	Cukup sensitif - sensitif
26	Riv	2,5	Kurang sensitif – cukup sensitif	3,9	Cukup sensitif - sensitif
27	Riz	2,9	Kurang sensitif – cukup sensitif	3,4	Cukup sensitif - sensitif
28	Sai	2,6	Kurang sensitif – cukup sensitif	3,2	Cukup sensitif - sensitif
29	Sat	3,2	Cukup sensitif - sensitif	3,6	Cukup sensitif - sensitif
30	Umm	2,6	Kurang sensitif – cukup sensitif	3,6	Cukup sensitif - sensitif
31	Wah	2,5	Kurang sensitif – cukup sensitif	3,7	Cukup sensitif - sensitif
	Rata-rata	2,7	Kurang sensitif – cukup sensitif	3,5	Cukup sensitif - sensitif

Based on Table 12, it can be seen that the average score of students' moral sensitivity of the results of the questionnaire before the study was 2.8 . This score can be interpreted to mean that before learning the range of sensitivity levels between categories of students are less sensitive - sensitive enough , which is called by Fraenkel (1977) as the rational level headed egocentric . This means that some students view a phenomenon just as rational facts goodness in them is limited to scientific goodness , while most of the other students have started to be sensitive to the value of kindness to the phenomena experienced , it's just limited to the goodness that still concerns the good of themselves .

After the learning process , the average score of students' moral sensitivity is 3.7 . These scores are at levels between sensitive enough towards sensitive . That is , some students still had a level of self-centered , while most of the other students had been on a sensitive level . At the level of sensitive , a student with a sense of moral values in every phenomenon encountered , and the moral values that kindness is universal applicable for everyone . The results of this study , particularly regarding the relationship between the model of learning with the meaning of moral sensitivity , according to a previous study conducted by Habibi (2009) and Sartika (2011) which says that the implementation of the learning model of meaning can enhance students' moral sensitivity . Moral sensitivity is an important beginning for moral behavior that exist in a person . In learning to orient one of its goals is moral sensitivity ,ie the meaning of learning models , there will be also an increase in motivation . This is corroborated by research

conducted by Morton and Testerman (2006) which states that moral sensitivity may mediate the development of motivation and reasoning.

Moral sensitivity may change naturally according to the developmental and environmental conditions encountered every day by someone, but can also be deliberately changed through processes such as education. Therefore, as a follow-up to this study, the group of students who are still at the level of self-centered, it is supposed to do is provide activities that can guide students to interpret every phenomenon encountered as habituation exercises. With habituation exercises is expected to reach the levels they are sensitive. As said Narvaez and Rest (1995), after an internal psychological process of moral sensitivity is a moral judgment (moral judgment), moral motivation (moral motivation), and implementation. Or borrow a term used by Bebeau (1995) is moral sensitivity, moral reasoning, moral commitment, and moral perseverance. Observation of student discipline include aspects of order in the classroom, discipline for teaching and learning activities, execution of tasks, and about dressed. Data were collected for 31 students during four meetings. Recapitulation of observations are presented in Table 13 discipline aspect observed in this study include the order in the classroom, discipline took place during a lecture, performance of duties, and about dressed.

Based on Table 4:14 can be seen that at the first meeting, all students receive a score of 3 for during the disciplinary aspects of teaching and learning. This is due to students arriving late during school hours biology that should have been started. This delay appears to be a behavior that often occurs on the same day and hour. Behavior is related to the late hours of the previous lesson, the lesson hour exercise. After each exercise, students require a relatively long time to arrive at a state ready to engage in the learning process in the next hour. While on the other hand, time discipline is fairly determine the effectiveness of a learning process. Subject clothes worn students also need attention. Some students are still wearing the sports uniform when following the teaching and learning of biology.

CONCLUSION

Referring to the results and discussions described above, it can be drawn a conclusion that the development and implementation of the human reproductive system learning internalization model has obtained the proper use and can cultivate moral sensitivity and discipline students.

Based on these results, the advice that can be given is to maintain the continuity of learning that develop intentional affective aspects, it is necessary to develop a learning device with a model similar to that of other subjects, especially the results of this study in accordance with the underlying rationale and philosophy of curriculum 2013.

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