



CONCEPT ANALYSIS OF CONTENT OF NATURAL SCIENCES SUBJECT TO THE IMPLEMENTATION JUNIOR CLASS VII-GRADE CURRICULUM 2013 (PEKERTI COMPETITION OF DIKTI)

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ABSTRACT

Content analysis concept of natural science in the Junior aims to map out the necessary props which will then be developed props in question. This analysis started from the competence of graduates, basic competencies and core competencies. This analysis is provided in a descriptive and qualitative. The material analyzed is the material science to students in the junior class VII. Documents used in this study is the result of discussions with the research team partner, Permendiknas document no. 54 of SKL, Permendiknas document no. 68 on curriculum junior 2013, the book teacher, student books, and minutes of meetings. Themes that exist in material science VII grade junior based curriculum in 2013 are: Measurements, Beings, Creatures Classification Life, Life Organization Systems, Energy and Matter, Heat, Interactions with Living Environment.

Keywords: analysis, content concept, natural science, Curriculum 2013

INTRODUCTION

The development of educational curriculum recently, hinted to educators that learning materials and tools have been prepared by the government. Curriculum policy that puts a measure of the quality of the curriculum changes were initially curriculum 1994 to KTSP. Even KTSP was developed into the curriculum in 2013 which put into effect from the academic year 2013-2014.

Curriculum implementation in 2013 is expected to provide convenience to teachers with the availability of learning tools include: syllabus, lesson plans (in which includes learning model and the evaluation), so that teachers are not preoccupied with matters of an administrative nature only. This allows all teachers in Indonesia can be uniform in terms of delivery of materials so that students are expected to have a material achievement of a uniform concept anyway. But on the other hand, not all students have the skills to understand the material. It required an innovation in learning. Their props in the study is expected to help the teachers in the delivery of material and help students in terms of understanding the concept. According Sanaki (2008) props is a tool used by teachers to demonstrate subject matter. Props can be shaped objects or actions. Thus

procurement of props should be present in every lesson, especially science so that students can understand the concepts being taught.

The use of props in the new curriculum has not been fully regulated by the center. Needs props seen as very helpful to optimize learning, especially science subjects. Availability props still not evenly distributed, it is becoming a science teacher complaints of the field. Whereas the function of props is to visualize something that can not be seen or difficult to see, until it is clear and can cause or enhance the perception of one's understanding. (Maftuh, 2012) therefore still need to supply the props. With props expected the teacher can provide a deeper understanding for students when learning takes place. For that we need to identify the development and use of props, in order to assist the government in the success of the curriculum in 2013.

Natural science, is the science dealing with natural phenomena and systematic material systematically arranged, generally accepted in the form of a collection of observations and experiments (Usman Samotawa, 2011: 3). Natural science is also called the science, has three components that can not be separated, namely products, the scientific process, and scientific attitude. Science as meaning the product has an organizational science facts, concepts, procedures, and

laws of nature. Science as a process explains that science findings obtained from scientific process or scientific work. While science as a gesture has a meaning that underlies the scientific attitude scientific processes that are useful in producing science (Tim, 2014: 1). The Junior High School is expected to have an emphasis "Salingtemas" learning (science, environment, technology, and society) in an integrated manner that is directed at the learning experience to design and create a masterpiece through the application of science concepts and scientific work wisely competence (Department of Education, 2013: 377)

Natural science is not only contains a collection of facts and concepts alone but natural science is also a mindset in dealing with natural phenomena around. Natural science as a human attitude, is the application of process skills. Science process skills include: observing, measuring, draw conclusions, controlling variables, formulating hypotheses, create graphs and data tables, create operational definition and conduct experiments. Natural science as a process / method, Natural science implementing the stages of scientific methods in the implementation of science learning. Natural science as a product, is a collection of the results of the empirical and analytic activities conducted by scientists for centuries.

In the end, the natural science is the provision of learning that is meaningful to the student, the student will learn the natural science then used to have a good attitude, skills properly apply the scientific method that will eventually berpegaruh on the personality of the students, so it is very appropriate lessons are taught in junior high.

Natural science content analysis aims to analyze each item contained in the 2013 curriculum content analysis is then used to map the needs of the props in the implementation of the curriculum in 2013 for teaching science in junior high.

METHODS

The method used in this study is a qualitative research, dipeoleh where data from various sources, using data collection techniques assortment (triangulation). For the purposes of data and data sources, using documentary study, in which data collection techniques are not langsung in a study, but through the document (Hasan, 2002). Documents used in this study is the result of discussions with the research team partner, Permendiknas document no. 54 of SKL, Permendiknas

document no. 68 on curriculum junior 2013, the book teacher, student books, and minutes of meetings.

The measures used include two things: collect data and menganilis data so that researchers can infer about the issues that were examined. While the analysis used descriptive analysis, the data collected in the form of words, pictures, and not numbers. The research report has excerpts of data and data processing.

RESULT AND EXPLANATION

Analysis of the concept of science in junior high school begins with analysis a core competence (CC) and basic competence (BC) it. Based attachment ministerial decree No.68 of 2013, there were 2 BC on core competencies 1 (CC-1), 4 BC on core competencies 2 (CC-2), 10 BC on core competencies 3 (CC-3), and 13 BC on core competencies 4 (CC-4). Based on the book of teachers teaching science class VII, on the basis of competence there are 9 subjects, namely (1) The object of science and observations, (2) classification of objects, (3) Classification of Living Beings, (4) Systems of Life Organization, (5) change objects around Us, (6) Energy and Life System, (7) Temperature and Change, (8) Heat and displacement, and (9) Interaction with the Environment Living Beings. Each subject is always combining all four core competencies that have been determined. Explanation of each in the analysis curriculum for science subjects in 2013:

(1) The object of science and observations

The subject matter included in the group of large theme "Materials". Essentially, learning on this topic introduces learners to the object being studied in science and the scientific method is simple (observation, measurement, and start trying to make linkages-linkages terhadap observations. For the implementation pembelajaran, CC and BC in the subject matter and the observations natural science Objects is as follows:

a. Core competence 1 (CC-1), the competence of the basis used is BC 1.1, which reads admire the order and complexity of God's creation on the physical and chemical aspects of life in the ecosystem, and the role of humans in the environment and bring them into the experience of the teachings of their religion.

b. Core competence 2 (CC-2), the competence of the basis used 2.1. Show scientific behavior (curiosity; objective; honest; rigorous; meticulous; diligent; careful; be responsible; open; critical; creative; innovative and caring environment) in their daily activities as a form of implementation of the attitude in conducting experiments and discussion.

c. Core competency 3 (CC-3), using the BC 3.1, namely: Understanding the concept of measurement of various magnitudes that exist in living things, and the surrounding physical environment as part of the observation, as well as the importance of the formulation of a standardized unit (standard) in the measurement

d. Core competence 4 (CC-4), the basic competencies that are used are 4.1 Presenting the results of measurements of magnitudes in themselves, living things, and the physical environment by using non standard units and standard unit

Sub subjects in this material include: natural science object and observations, measurements as part of the observation, the principal amount as well as the measurement, and the amount of the derivative. Based on the results of focus group discussions, props that will be developed on this subject is the caliper to the specifications made of wood in a large size that can be displayed on the board. So that students can move it visually to be observed. Size caliper 100 x 30 cm.

(2) Classification Objects

Essentially, the study on this topic to introduce learners to the various objects around us, identify characteristics of living beings and inanimate objects as well as the classification procedure. Learning activities include observation of objects around, analyzing the differences of living creatures with no living creatures, discuss and discuss the form of inanimate objects consisting of a form of solid, liquid and gas, distinguishing elements, compounds and mixtures, as well as conducting investigations to analyze the various types of solutions using natural indicators and custom indicators. Core competencies (CC) and the Basic Competency (BC) on this matter is as follows:

a. Core competencies 1 (CC-1), BC 1.1 Admire the order and complexity of God's creation on the physical and chemical aspects of life in the ecosystem, and the role of humans in the environment and make it happen in practice the teachings of their religion.

b. Core competencies 2 (CC-2), all within the competence BC is used, namely 2.1 Demonstrate scientific behavior (curiosity; objective; honest; rigorous; meticulous; diligent; careful; be responsible; open; critical; creative; innovative and caring environment) in their daily activities as a form of implementation of the attitude in conducting experiments and discussions, 2.2 Appreciating the work of individuals and groups in their daily activities as a form of implementation carry out experiments and report the results of the experiment, 2.3 Demonstrate thoughtful and responsible behavior in the

daily activities -day, and 2.4 Showing the others in daily activities

c. 3 core competencies (CC-3), BC used in this material is 3.2 Identify the characteristics of animate and inanimate objects and living beings that exist in the environment, and procedures 3.3 Understanding the classification of living things and things not-life as part of scientific work, and classify a variety of living creatures and objects of non-life based on patterns observed.

d. Core competencies 4 (CC-4), BC used is twofold: 4.2 Presenting the results of the analysis of observational data to objects (things) and inanimate, and 4.3 Collect data and conduct classification of the objects, plants, and animals that exist in the neighborhood

Sub-topics on this matter is to identify objects around; distinguishes living beings with inanimate beings; solids, liquids and gases; elements, compounds and mixtures; alkaline solution, acid, and indicators. On this subject there are no props are developed. Direct students make observations and classification of objects through the worksheet developed by teachers.

(3) Classification of Living Things

Essentially, learning on the topic classification of living organisms introduces students to the diversity of life on earth and one effective way of delivering to learn is to classify according possessed similarities and differences. The following Core Competence and Basic Competence for this Topic:

a. Core competence 1 (CC-1), includes BC 1.1 Mengagumi regularity and complexity of God's creation on the physical and chemical aspects of life in the ecosystem, and the role of humans in the environment and make it happen in practice the teachings of their religion.

b. Core competence 2 (CC-2), covering all existing BC from CC-2, namely: 2.1 Indicates scientific behavior (curiosity; objective; honest; rigorous; meticulous; diligent; careful; be responsible; open; critical ; creative; innovative and caring environment) in their daily activities as a form of implementation of the attitude in conducting experiments and discussions, 2.2 Appreciating the work of individuals and groups in their daily activities as a form of implementation carry out experiments and report the results of experiments 2.3 Demonstrate thoughtful and responsible behavior daily activities 2.4 Demonstrate appreciation to others in daily activities.

c. 3 core competencies (CC-3), BC which includes no 2, namely: 3.2 Identify the characteristics of animate and inanimate objects and living beings that exist in the

environment, and procedures 3.3 Understanding the classification of living things and objects non-life as part of scientific work, as well as to classify various living creatures and objects non-life based on patterns observed

d. Core competence 4 (CC-4), BC in these two core competencies, namely: 4.2 Presenting the results of the analysis of observational data to objects (things) and inanimate, and 4.3 Collect data and conduct classification of the objects, plants, and animals in the neighborhood

Subtopic in this material is the introduction of classification, how to classify plants and animals, plant classification, and classification of animals. The subject matter is also not developed a tool props.

(4) Systems of Life Organization

This topic included in the theme of the systems. Learning this topic deliver students to understand the nature of the system. The system as a collection of interrelated components and has a dependency. The system has parts that are smaller (subsystems) and the system is part (subsystem) of a larger system and disturbance at a unit of the system / subsystem will give effect to all members of the system. Core competence and competence are essentially the following:

- a. Core competence 1 (CC-1) and 1.1 Admire Competence is essentially God's creation order and complexity of the physical and chemical aspects of life in the ecosystem, and the role of humans in the environment and make it happen in practice the teachings of their religion.
- b. Core competencies 2 (CC-2) and 2.1 Demonstrate competence is essentially scientific behavior (curiosity; objective; honest; rigorous; meticulous; diligent; careful; be responsible; open; critical; creative; innovative and caring environment) in daily activities as a form of implementation of the attitude in conducting experiments and discussions, and 2.2 Appreciate the work of individuals and groups in their daily activities as a form of implementation carry out experiments and report the results of the experiment
- c. 3 core competencies (CC-3), is essentially the competence of 3.4 Describe diversity in the system of organization of life starting from the cell to the organism, as well as the main constituent of the cell composition
- d. Core competencies 4 (CC-4), is essentially the competence 4.4 Conducting observations with the help of a tool to investigate the structure of plants and animals, and 4.5 Creating and presenting a poster about the cell and its parts

Subtopic in this matter is the concept of organization of life, the cell as a structural and functional unit of life, practical observing plant and animal cells, tissues, lab

tissue, organ; organ system, organism, and project presentations cell models. Props are developed in this matter is a model of the parts of cells in plants and animals that can be assembled.

(5) Changes Objects Around Us

This topic is included in the theme of "Change", in essence, learning on this topic introduces learners to the various changes in the material around, and various methods of separation of mixtures. Core competencies and competency is essentially as follows:

- a. Core competencies 1 (CC-1), for BC only one that is 1.1 Mengagumi regularity and complexity of God's creation on the physical and chemical aspects of life in the ecosystem, and the role of humans in the environment and make it happen in practice the teachings of their religion
- b. Core competencies 2 (CC-2), for BC No 2, namely: 2.1 Indicates scientific behavior (curiosity; objective; honest; rigorous; meticulous; diligent; careful; be responsible; open; critical; creative; innovative and care for the environment) in their daily activities as a form of implementation of the attitude in conducting experiments and discussions; and 2.2 Appreciating the work of individuals and groups in their daily activities as a form of implementation carry out experiments and report the results of the experiment.
- c. 3 core competencies (CC-3), is essentially the competence of BC 3.5 Understanding the characteristics of the substances, as well as physical and chemical changes in substances that can be used for everyday life
- d. Core competencies 4 (CC-4), basic competence in CC are: 4.6 Doing separation mixture by physical and chemical properties; and 4.7 Conducting an investigation to determine the nature of the solution that is in the neighborhood using artificial or natural indicators.

In this subject developed simple props such as the separation of the mixture which is chromatography.

(6) Energy and Life Systems

This topic is still considered the theme of "perubahan". Learning on this topic lead learners to understand the concept of energy, energy sources, perubahan / energy transformation that occurs in the cells, metabolism (catabolism and anabolism) that occur in living organisms in the event of photosynthesis and respiration of living organisms with their environment, as well as the breakdown of large molecules in the form of carbohydrates, protein, and fat to produce energy ATP.

A list of core competencies and competency essentially, as follows:

- a. Core competencies 1 (CC-1), there is only one, namely: 1.1 Admire the order and complexity of God's

creation on the physical and chemical aspects of life in the ecosystem, and the role of humans in the environment and make it happen in practice the teachings of their religion

b. Core competencies 2 (CC-2), there are three basic competencies 2.1 Demonstrate scientific behavior (curiosity; objective; honest; rigorous; meticulous; diligent; careful; be responsible; open; critical; creative; innovative and caring environment) in their daily activities as a form of implementation of the attitude in conducting experiments and discussions; 2.2 Appreciating the work of individuals and groups in their daily activities as a form of implementation conducting experiments and report the results of the experiment; and 2.3 Demonstrate thoughtful and responsible behavior in daily activities

c. Core competency 3 (CC-3), there is only 1 BC used are: 3.6 Understanding the concept of energy, a variety of energy sources, energy from food, energy transformation, respiration, digestive system, and photosynthesis

d. Core competence 4 (CC-4), which used existing Basic Competence 2, ie 4.8 Conducting simple observation or experiment to investigate the process of photosynthesis in green plants; and 4.9 Conduct observations or experiments to investigate respiration in animals.

Props are developed is respirometer in animals.

(7) Temperature and Change

Sub topic is included in the theme of "change", is part of the subject matter "Temperature, Heat, and Heat Transfer". Essentially, learning on this subtopic introduce students in the cold heat level objects (both living and non-living) and due to changes in body temperature (expansion). Core competencies and competency is essentially as follows:

a. Core competence 1 (CC-1), with the basic competencies 1.1 Admire the order and complexity of God's creation on the physical and chemical aspects of life in the ecosystem, and the role of humans in the environment and make it happen in practice the teachings of their religion

b. Core competencies 2 (CC-2), only one basic competencies used, namely: 2.1 Indicates scientific behavior (curiosity; objective; honest; rigorous; meticulous; diligent; careful; be responsible; open; critical; creative ; innovative and caring environment) in daily activities

c. Core competencies (CC-3), there is only one competency is essentially as follows: 3.7 Understanding the concept of temperature, thermal expansion, heat, heat transfer, and their application in the mechanism of

safeguarding the stability of body temperature in humans and animals as well as in everyday life

d. Core competencies 4 (CC-4), only one basic competencies used, namely: 4.10 Conducting an experiment to investigate the effect of temperature and changes as well as heat to changes in temperature and changes in states of matter

Some props are developed are: heat transfer by conduction, heat transfer in a variety of materials, gas convection.

(8) Heat and Displacement

Subtopic is also still on the theme of "Change", is part of the subject matter "Temperature, Heat, and Heat Transfer". Essentially, learning on this subtopic introduce learners to the heat, impact, displacement, and its application both in living beings as well as in everyday life. The following core competencies and competency essentially:

a. Core competence 1 (CC-1), KD is used only one, namely 1.1 Admire the order and complexity of God's creation on the physical and chemical aspects of life in the ecosystem, and the role of humans in the environment and make it happen in practice the teachings of their religion

b. Core competencies 2 (CC-2), the basis used kompetensi KD 2.1 Demonstrate scientific behavior (curiosity; objective; honest; rigorous; meticulous; diligent; careful; be responsible; open; critical; creative; innovative and caring environment) in daily activities

c. Core competencies (CC-3), the competence of the basis used is 3.7 Understand the concept of temperature, thermal expansion, heat, heat transfer, and their application in the mechanism of safeguarding the stability of body temperature in humans and animals as well as in everyday life

d. Core competencies 4 (CC-4), the basic competencies that are used there are 2, namely: 4.10. Conducted an experiment to investigate the effect of temperature and changes as well as heat to changes in temperature and changes in states of matter; and 4.11 Conducting the investigation of the propagation characteristics of heat by conduction, convection, and radiation

Props are developed in the form of a simple thermistor, simple microscope

(9) Interactions with Living Environment

The subject matter included in a large group of "interaction". Learning this topic lead learners to understand the concept of interaction of living beings with the environment. This topic discusses the concept of the environment and what is contained in the environment. Interactions that occur in an environment or

ecosystem form a pattern and dependence components. The impact of human interaction with lingkungannta form of environmental change, pollution, and global warming. The following core competencies and competency Essentially for this topic are:

a. Core competence 1 (CC-1), basic competences are used 1.1 Admire the order and complexity of God's creation on the physical and chemical aspects of life in the ecosystem, and the role of humans in the environment and make it happen in practice the teachings of their religion

b. Core competencies 2 (CC-2), the basic competencies that are used include: 2.1 Indicates scientific behavior (curiosity; objective; honest; rigorous; meticulous; diligent; careful; be responsible; open; critical; creative; innovative and care for the environment) in their daily activities; and 2.2 Appreciating the work of individuals and groups in their daily activities as a form of implementation carry out experiments and report the results of the experiment

c. 3 core competencies (CC-3), the competence of the basis used is 3.8 Describe the interaction between living things and their environment; 3.9 Describe the pollution and its impact on living organisms; and 3.10 Describe about the causes of global warming and its impact on the ecosystem.

d. Core competencies 4 (CC-4), the basic competencies that are used are 4:12 Presenting the results of observation of the interaction of living organisms with the surrounding environment, and 4:13 Presenting data and information on the global warming problem and propose countermeasures

Props are developed in the form of a chart of interaction between living organisms in ecosystems and global warming scheme

Overall props required in the implementation of the 2013 curriculum for science subjects junior class VII contentnya based analysis, shown in the following table:

Table 1. Requirement Viewer tool in the implementation of the natural science curriculum 2013 class VII junior school

No.	Subject Matter	CC	BC	Props
1	The object of science and observations	1	1.1	Caliper measurement tools, made of wood large size that can be affixed on the board / wall
		2	2.1	
		3	3.1	
		4	4.1	
2	Classification of objects,	1	1.1	No props
		2	2.1,2.2, 2.3,2.4	
		3	3.2,3.3	
		4	4.2,4.3	
3	Classification of Living Beings	1	1.1	No props
		2	2.1,2.2, 2.3,2.4	
		3	3.2,3.3	
		4	4.2,4.3	
4	Systems of Life Organization	1	1.1	Model of animal cells
		2	2.1,2.2	Model of plant cells
		3	3.4	
		4	4.5, 4.6	
5	Change objects around Us	1	1.1	Water purification, simple chromatography, simple microscope
		2	2.1, 2.2	
		3	3.5	
		4	4.6, 4.7	
6	Energy and Life System	1	1.1	No props
		2	2.1,2.2, 2.3	
		3	3.6	
		4	4.8, 4.9	
7	Temperature and Change	1	1.2	Thermistor heat
		2	2.2	

		3	3.7	
		4	4.10	
8	Heat and displacement,	1	1.1	Some props are developed are: heat transfer by conduction, heat transfer in a variety of materials, gas convection.
		2	2.1	
		3	3.7	
		4	4.10,4.11	
9	Interaction with the Environment Living Beings	1	1.1	A chart of interaction between living organisms in ecosystems and global warming scheme
		2	2.1, 2.2	
		3	3.8,3.9,3.10	
		4	4.12,4.13	

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CONCLUSION

IPA concept of content analysis results in science subjects Class VII SMP obtained, in accordance with annex Permendiknas no 68 of 2013 there were two basic competencies to core competencies 1, there are four basic competencies in KI 2, there are 10 basic competence in KI-3, da tone 12 basic competence in KI-4. Based on the book of teachers, then of the core competencies and the core competencies there are 9 subjects, namely: (1) The object of science and observations, (2) classification of objects, (3)Classification of Living Beings, (4)Life Organization Systems, (5)Change Objects Around Us, (6)Energy and Life Systems, (7)Temperature and change, (8)Heat and Displacement, (9)Environment interactions with Living Beings.

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