

SCIENCE COLABORATION APPROACH SOCIETY – TEACHER AND STUDENT

Abstract

Many events in daily life is interesting, in the sense that many scientific phenomena and objects can be directly sensed or observed. Indonesia is a country with hundreds of ethnic groups and each ethnic group has a long history of traditional technology. The various ethnic groups are spread out in various geographical areas and all of them rise from complexity in facing their basic need problems. We are rational beings who should be aware of what is going on around us. Therefore reasoning in order to bring home scientific thinking into our mind is important. In the present scientific era many new results not only have come from across geographic national borders very rapidly, but more importantly, they bring excitement and, sometimes, wealth and comfort. Furthermore the information to be able to anticipate their daily problems. The peoples have various experiences, who they grown in their daily life from natural environment and their cultural life. Could their experiences in solving our basic need problems to be a source of science learning?

The objective of study is to find a local input and overcoming life problems through using technology. The transmission of scientific knowledge would find good and long lasting impact when the learning of science is bundled as a process of the basic need problem solution. Integrated science dimension as a basic learning science resource considering the technological phenomena has colored in our life. This pattern has taken up cooperatively and collaboratively among experts who has a wide conception and planning among the teachers, who practically has many experiences to rise social problems. Science is cultivated by mankind through answering and solving their basic need problems in the daily life. Therefore the process of finding basic need should be part of the general education. Many examples of solving food problem can be cited from a day-to day experience as source of learning. Choosing this alternative input it is hope would give multiple benefits. The first to bring science aspects at school for the students in accordance with solving the life routinely was done. Secondly, the learning process and situation in the school could be taken to society in the form of application through the cooperatively and creatively approach as a source of learning. Thirdly, the children who already have acquired scientific logic and principles may easily accept new information about science as a cultural enrichment, to be integrated in his or her world view. Relationships between various aspects of school-sciences and practice, which aims at making our children scientifically oriented although there are a lot of obstacles in supplying those alternative input however it is heeded to try the innovation gradually.

Key word 1. Collaborative learning 2.Science in public.

Introduction

The birth of human being in their life, firstly, is dominated by biological basic requirement rather than social problems. Furthermore, in accordance with historical development society, either in the modern countries or in the development countries, they, firstly, holding in fulfilling basic

requirements. Many events in daily life is interesting, in the sense that many scientific phenomena and objects can be directly sensed or observed. Some experiences have recorded that almost every cultural and ethnic in Indonesia has a traditional technology and modern technology in their own level. The type of technologies which they develop are the technology to overcome their society problems. For instance, the multiple crops cultivated system (Tumpang Sari) in Gunungkidul because they have very limited water supply. "Sistem Surjan" or cultivated system is an effort to sustain the food supply through farming system at the region which has much water in wet season. "Subak" system in Bali, is an effort to distribute water supply according to the pattern of wet and dry season. Producing drying cassava (gaplek), drying bananas (pisang sale) sugar palm (gula aren), or other dry food is an evidence of human effort in fulfilling their basic requirement.

The technological actually, has a process and science product, but their understanding and science literacy have not developed yet. This model seems as traditional attitude, and what they had reached by our ancestor and forefather, it seems stagnates. The last masterpiece, nowadays, it never grows again. Those reality means that technological aspects spread out in the society, developed, and adopted according to the social condition by geo-physic, social, economy, cultural, and security. In this case, technological aspects it comes earlier, as an effort to fulfill basic requirement. There is actually, the infrastructure of inherent science learning that has by students as learners, teacher as instruction facility, society as the sources and the application of technological in overcoming the social problem and science aspects. There is intersection between teacher experiences and student's experiences, and intersection between science aspect in syllabus and science aspects in the technological social life. It could be possible the collaboration framework between scientists, teachers and students is used to raise social technological aspects in science learning?

Objectives

1. To find the possibility of scientific learning in which grows and develops from their social problem into scientific structure
2. To find possible approach, cooperatively and collaboratively between teachers and students, as a bridge between syllabus and objectively problems in their environmental.

Culture and Scientific Study

Now in the scientific era we are facing with many new results of technology. Their products not only have come from across geographic national borders very rapidly, but more importantly, they bring excitement and, sometimes, wealth and comfort. The transmission of scientific knowledge would find good and long lasting impact when the teaching of science is bundled as a process, rather than exposing information. Memorizing numbers of information is, of course, important but it will not present the process of acquiring knowledge and aspirations. Science should be regarded as culture and therefore in order to ensure the successful transmission of culture one should not forget that it is the heritage legacy of mankind which has been developed through ages. On many occasions it need be transplanted from one segment of the society to another; from one science center to other centers (Hidayat, 2005). We are rational beings who should be aware of what is going on around us. Therefore reasoning on order to bring home scientific thinking into our mind is important. Science is cultivated by mankind through reasoning and questioning. Therefore the process of finding new things should be part of the general education.

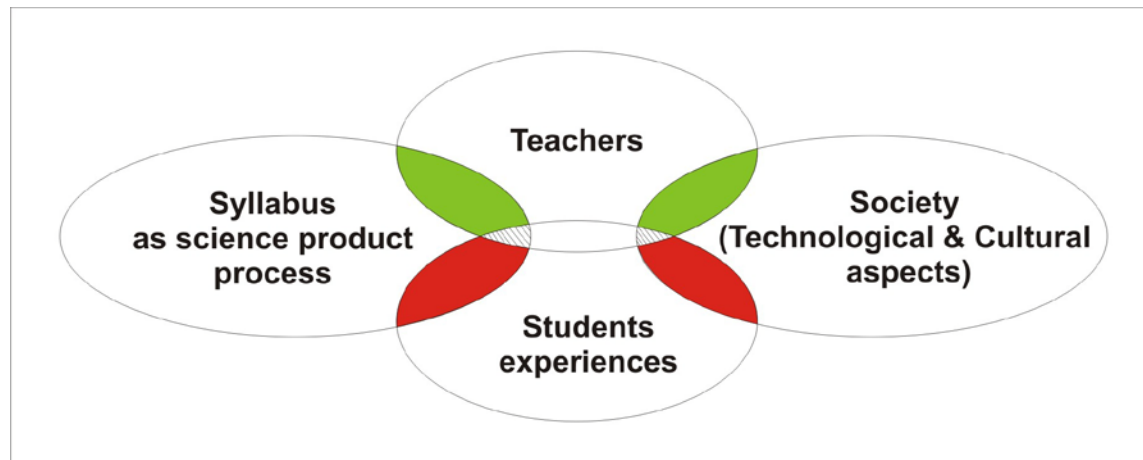
The characteristics activity of living things, what might be called the principles of life itself, is called psyche or soul (Aristotle, in Jardins, 1992). Aristotle described three powers of fundamental activities of life, nutrition, sensation and thinking. The animals has its happiness in the senses, the man in his intellect and a god in spiritual contemplation (Vivekanda, in Yesudian, 1989). Humans are thinking beings, with long memories, oral and written record, and the ability to investigate the distant past by applying a variety of techniques learning from the nature. The teaching process needed develop the heart to feel, a brain to conceive and strong arm to work. Therefore, to understand it, in which could be done and experienced at any chances, any time, and any place, because each experience has to be creates with great sensitivity.

Why Collaboration?

Processional teacher should be able to comprehend things on the base of general principles of science. Therefore building up the sense of appreciation and comprehension for natural phenomena should be best taught through the basic sciences. How the teacher promoting

the relationships between various aspects of school-sciences and practice, which aims at making our students scientifically oriented.

To expand intersection opportunity between the social-cultural aspect and the instruction school program, therefore teachers should involve with students gradually. It could be done by recognizing social issues in the society. The best choices that are very conducive are cooperation, collaboration, either offering the instruction program, gaining issues in the society. This model, basically, needs many things, such as teacher's conception for scientific social problems, availability of its medium, supporting either from school or from parents. The direct collaboration it's needed other institution while has many experiences to support this program. In this case, collaboration is happened between: a lecturer from the field study who has wide conception and material competences, but he has no practical experiences at elementary school.

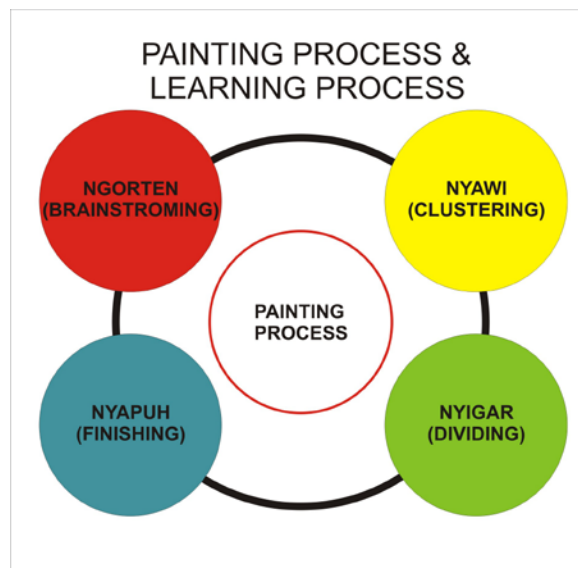


Considering the general Indonesian society characteristics, and history of education in the development countries, that it comes after finishing society problems, wealth of macro environment variety, limitation of indoor laboratory either mediums or infrastructures. Consequently, there are some choices to be done.

Science Technology and Cultural Approach

It is possible by considering that Indonesian society has a lot of action technologies in facing various problems of social life and cultural aspect their life. For instance, the “tumpangsari” system at places which have limited water supply in Gunung Kidul Yogyakarta, and the “Subak” system in Bali. Technological and cultural aspects to face limitation of natural factors in defending the food limitation, have involved various science processes and products. It

is suitable with the conception of science technology and cultural. It is attributed by daily problems which involve natural science, technology and cultural activity according to learner's perspective. It's hoped to anticipate appropriately and critically to solve the problem and to take decision as how science and technology used as good as possible to change society. The scientific process equated with the painting process in cultural activity. The master painter Dewa Batuan (2009) in Ubud Village said the painting process consists of four steps. The hierarchic are *ngorten*, *nyawi*, *nyigar* and *nyapuh*. *Ngorten* means putting all of ideas, like brainstorming process. *Nyawi* means clustering that how many part of idea you will be used. *Nyigar* means all ideas divided into two parts, like black and white and *Nyapuh* means finishing touch (Figure 2).



Nowadays, it at least, could be applied for the elementary school teacher or the headmaster, and other elementary school levels. This model should be applied, considering the objectively condition of Indonesian people in view of cultural aspects, geography, and the level of the social economy development. Therefore, the choice of social technological science and the project method are an alternative approach with wide dimension. Collaborative learning models and involving cultural experiences could give enforcement, considering that the first experiences is relevant and appears as finding problems. Students could learn from daily life experiences and its experiences might be used by teacher to improve science structure. While the society would get the learners competences scientifically at school, that what they have done technically would have fulfilled scientific criterion. In this case, it would give multiple advantages among school, society, and learners.