

# Science Teacher's Response on Implementation of Integrated Science Learning in Junior High School

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**Abstract.** This study was aimed to determine the response of integrated learning of science and some factors that affect integrated learning of science especially the factors relate to the teachers. This research is a survey research with data collection technique by giving questionnaire to the 36 science teachers of 14 schools in Bangkalan as subject. The data collection is done by using questionnaire which consists of information about the implementation process of integrated science learning which includes: (1) getting information about integrated science learning model; (2) understanding of integrated science model, (3) implementation of integrated science learning; (4) science teachers self-development; (5) science teachers difficulties on implementation integrated science learning. Data analysis is done descriptive quantitatively by describing and interpreting data from the aspects studied. The results showed that : (1) from aspects of getting information about integrated science learning model, obtained that 75% of teachers have attended training on integrated science learning; (2) about understanding comprehension aspect of integrated science, obtained that 71% of teachers are familiar with integrated model in integrated science learning; (3) from aspects of integrated science learning obtained that 82% of science learning has been integrated; (4) aspects of teacher self-development efforts, obtained that 70% of teachers actively follow the science teacher forum; (5) science teachers still faces some difficulties to implement integrated science learning that 63% of them are still lack of references for accessing integrated teaching materials.

## INTRODUCTION

Standards for Science Teacher Preparation (NSTA) recommended primary and secondary school science teachers to have interdisciplinary trends in science [7]. Regulation of the Minister of National Education of the Republic of Indonesia Number 16 Year 2007 regarding Qualification and Competency Standards Teachers also mentioned that the competence of science teachers of Junior High School one of them is to understand the relationship between various branches of science, and the relationship of science with mathematics and technology. Basic and intermediate must have interdisciplinary skills of science. This underlying the need for science teachers to have competencies in integrated science learning, including integration in the field of science, integration with other fields and integration with attitudes, scientific processes and skills. This integration is demonstrated from the lesson plans that will be implemented. This is why teachers need to have skills in designing plans and learning steps in science lessons in the 2013 curriculum.

Natural Science in the 2013 curriculum was developed as an integrative science subject rather than as an education discipline. Science as an applicative-oriented education, developing thinking ability, learning ability, curiosity, and developing caring and responsible attitude towards the natural environment. Science is also intended for the introduction of the biological environment and the natural surroundings, as well as the introduction of various advantages of the archipelago. Science is a concept of natural learning and has a very wide relationship associated with human life. Science learning is instrumental in the educational process as well as technological developments. In education, science has three disciplines, namely physics, biology and chemistry. Each of these disciplines has its own study, but the material studied in each of these disciplines is interconnected. To improve the understanding of the concept of a comprehensive science needs to be developed integrated science learning. Integrated science is a concept or theme discussed from various aspects of the field of study in the field of science studies, namely physics, biology, and chemistry. Integrated science learning is differentiated by the integration of the material or theme.

The Ministry of National Education has developed guidelines for the development of integrated science learning since 2005, and coupled with the enactment of the 2013 curriculum that strengthens science learning implementation as an integrative science lesson. With the integrity of science this should be able to improve the

quality of learners in Indonesia. Indonesia's education quality must be improved. The results of the PISA (Program for International Student Assessment) research, a study focused on literacy reading, mathematics, and science show that the new Indonesian rankings occupy the top 10 of 65 countries. The results of TIMSS research (Trends in International Mathematics and Science Study) show Indonesian students are at a very low level in ability (1) to understand complex information, (2) theory, analysis, and problem solving, (3) use of tools, procedures and solutions problems and (4) conduct investigations. These results indicate that there needs to be a change of curriculum orientation, by not burdening the learners with the content but on the aspect of the essential ability needed by all citizens to participate in developing their country in the 21st century [3]

One of the main factors determining the quality of education is the teacher. Main key of creating quality human resources. Teachers will be dealing directly with the students in the classroom in the learning process. Especially in science learning is expected teachers are able to implement the learning process to achieve the desired competence. Science teachers who can understand the concepts, laws, and theories of science and its application flexibly. Furthermore, the teacher is able to understand the process of science thinking and can understand the relationship between the fields in science and relationships with other fields of science, especially related to daily life [2].

## RESEARCH METHOD

This research is a survey research that is with the type of descriptive research that is trying to provide an overview of the status of a symptom obtained at the time of the study. The research was conducted at the beginning of the academic year 2016/2017 in Bangkalan. The subject of this research was the Science Teacher at state of Junior High School in Bangkalan. The sample was taken randomly by taking samples of 36 science teachers from 15 schools. The data collection instrument used primary data in the form of data obtained directly based on the questionnaire by the science teacher. The data of the research were collected and analyzed descriptively. Data analysis in this study using descriptive analysis of the results of questionnaires by teachers calculated by average percentage technique. Questionnaires given to teachers include the following indicators (1) obtaining information on integrated science; (2) understanding of integrated model in science learning; (3) the implementation of integrated science learning; (4) self-development of science teachers; (5) obstacles in the implementation of integrated science learning.

## RESULT AND DISCUSSION

The results showed that based on the questionnaire obtained data as summarized in table 1

**Table 1.** Recapitulation of Implementation Results of Integrated science Learning

No	Indikator	(%)
1	Obtaining information on integrated science	75
2	Understanding of the model of integration in science lesson	71
3	Implementation of integrated science learning	82
4	Self-development of science teachers	70
5	Difficulties in the implementation of integrated science	63

Based on the research results obtained that on the aspect of information acquisition about IPA integrated percentage of as much as 75% of science teachers already know information about integrated science. This shows that the majority of science teachers know that the implementation of science learning in schools should be integrated in accordance with in the National Education Minister. Teachers generally give positive responses to the unified learning of science conducted with various learning models. This is in accordance with [2] that teachers state that integrated science learning models can be integrated with innovative learning models.

An understanding of the integrated science learning model is the result that 71% of teachers are familiar with the integration models in science learning, especially four commonly used models that are shared, connected, integrated, and webbed. The ability of teachers in implementing learning is influenced by the level of teacher education determines skills in implementing science learning [3]. Teachers already know but in the

implementation is still not fully able to identify the model of alignment used. Some teachers still have difficulty in teaching planning and authentic assessment [5]. In addition to the assessment of aspects of attitude, especially with the assessment of certain values that want to be implanted to students.

Aspects of integrated learning science learning obtained the result that as many as 82% of teachers have implemented science learning in an integrated manner. [8] stated that this is in accordance with the permendiknas that a teacher should be able to plan the program of science spreading. Teachers should constantly strive continuously to improve the quality of their learning from planning and implementation to evaluation of learning. To transfer the knowledge that the teacher has to the learners then the teacher must be able to plan the learning process by using various strategies in combining the concepts that exist in the learning. Implementation of science learning d implemented by teachers influences students' motivation and achievement. There is a positive correlation between teachers' competence in teaching science with students' perceptions and motivation [6]. [12] states that the teacher's knowledge of learning strategies, attitudes, and motivations have a positive effect on learning outcomes.

Aspects of self-development of science teachers obtained results as much as 70% of teachers follow the teacher association of natural science periodically for self-development and follow the workshop. This suggests that teachers should not only get routines activities but should always develop and empower themselves continuously to improve their qualifications and competencies such as participating in the teacher association of natural science. [9] added that there are various ways teachers to improve the competence of teachers such as discussions with colleagues, attending conferences, workshops, conducting research, writing teaching materials, making learning media so that teachers will better understand the content in integrated science learning.

The identification of difficulties in the implementation of integrated science learning resulted in 63% of teachers still experiencing difficulties in terms of availability of integrated science materials. The teaching materials that circulate in the market still tend to be separated chemical, physics and biology although the cover used is the book of science. teaching materials have benefits are: 1) students can learn without or with the presence of teachers; 2) students can study anytime and anywhere; 3) students can learn at their own pace; 4) the student may study in the order of his or her own choosing; 5) helps the potential to become an independent learner so as to become more active. Therefore, it is necessary to focus the research on the development of integrated science materials, [11] to develop teaching materials in the form of integrated science module characterized by environmental pollution theme.

## CONCLUSIONS

Based on the results of the research, it was found that based on the questionnaire given to the teacher, it can be concluded that the implementation of integrated science learning activities has been going well, although there are still some obstacles that must be related to integrated science materials.

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