

Science Approach to Home Economics Students for Improving Intellectual Social Environment

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ABSTRACT

Students of Home Economics Study Program (IKK) can be from high school education majors IPA and IPS or who come from SMK (vocational School). In the curriculum there are courses that are included in the field of science as a supporting course that must be taken by students. Science subjects include Basic Physics, Basic Chemistry, Anatomy of Physiology and several other subjects concerning the field of science and related to the vocational course of the study. The purpose of lecturing science is to prepare students carefully, competent and social environment skilled in facing the era of digital technology. The attitude of students of IKK clumps to the field of science can be said to be less well that includes the field of interest in the field of science work, the concept of science, pleasure, and behavior in the field of science. Almost evenly the attitude of science in the field. This is in line with the results of a survey study on 214 students said in the questionnaire that the students difficulties in understanding the material so that the learning outcomes tend to be low. In addition, the students also did not expect that in IKK cluster study program there is a science course because most students come from SMA and SMK nonMIPA. Science is the foundation of technology. The field of science is also very important in the process of mastery of theory and practice in each study program. But in fact, more students who after graduating from university continue to work in the field of applied science in science appeal.

Keywords: Science attitude, social environment, intellectual culture

INTRODUCTION



Science is a rational knowledge and investigates the knowledge of natural events with all its contents. The science education described is in line with the educational objectives of each course, the attitude toward science is important to produce students who are not only knowledgeable in science but can apply scientific skills in their daily life (social environment). Therefore, inculcating a positive science attitude is important to promote a more effective science education.

However, the results of the 2015 PISA literature (Program for International Student Assessment) is a test system initiated by the Organization for Economic Coorperation and Development (OECD) to evaluate the education system of 72 countries around the world including Indonesia. The survey results in Indonesia states only 1 out of 7 students or students who are interested in a career in science. Looking at the students' interest in science in Indonesia based on the 2015 PISA survey described above, the importance of science to be mastered by students in order to compete and also to improve PISA survey results in the following year. There are four characteristics of science literacy that have been developed by PISA 2006 namely attitude toward science, science as product and process, scientific context and scientific competence. Of great importance to students is the attitude towards science. Students 'attitudes toward science are important because they can develop students' knowledge of science further, pursue careers in science and use scientific concepts and methods in their social life (intellectual social environment).

At the State University of Jakarta there is the Faculty of Engineering which is the implementing element of some university's main tasks in education and teaching, research, community service in the field of vocational technology and engineering (Academic Guidebook 2013: 131). In the Fakuktas Teknik there is a unique study program and not many found in other universities and there are only a few in Indonesia. Namely Culinary Education Studies Program, Dressmaking Education, Education Makeup and Family Welfare Education are included in the scope of clusters IKK (Family Welfare Science).

Prospective students who enroll in IKK cluster study program can come from high school education majors IPA and IPS or derived from SMK, because IHK cluster study program included in the vocational college class. Based on data from students of IHK clumps coming from SMA / MA level are as many as 403 students. Then students who come from the vocational school are as many as 60 students. Which means only 13% of students who come from SMK level of the total students of IKK clumps. During his study at UNJ, in the

curriculum there are courses that are included in the field of science as a supporting course that must be taken by students. Science subjects include Basic Physics, Basic Chemistry, Anatomy of Physiology, Cosmetic Chemistry, Biochemistry and some other subjects concerning the field of science and related to vocational courses.

Some of the subjects mentioned above are part of the science, so the attitude of the students towards the course is included in the student's attitude toward science. The attitude of college students home economics towards the field of science can be said to be less good. This is in line with the results of the researcher's initial interview with one of the students, where the student said that he has difficulties in understanding the material so that his learning outcomes tend to be low. In addition, the students also did not expect that in the Family Welfare Study study program there is a science course because most of the students come from SMA and SMK nonMIPA.

The Oxford Dictionary defines science as systematic and formulated science, which deals with material phenomena, and is based primarily on observation and induction. Others define science as a kind of theoretical knowledge. The concept of science is the result of the human mind's response to all the symptoms that occur in nature. That science is a type of theoretical science acquired in a special way, then it is observation, experimentation, inference, theorizing, etc. so the hooks connect one way to another. How to acquire knowledge is famous by the name of scientific method.

Meanwhile, science includes courses that must be occupied and mastered by students, because science is the foundation of technology. The field of science is also very important in the process of mastery of theory and practice in each study program. But in fact, more students who after graduating from university continue to work in the field of applied science in science appeal. Seeing the importance of student attitudes toward science subjects, the researchers wanted to do a research on the influence of science on intellectual social environment.

Attitudes developed in science learning are attitudes toward science and scientific attitudes. According to Kobala & Crawley (Morrell and Lederman, 1998: 76) that students' attitudes toward science can have an effect on the motivation, interest and success of the students themselves. Attitudes toward science are a tendency to pleasure and displeasure with science, for example, regard science as difficult to learn, less interesting, boring, and so on. Students' attitudes toward science are influenced by several factors: educators, learning environments,



self-concept, friends and parents. These factors are aspects of the social environment. As stated by Stroz (1987: 76) and Amsyari (1986: 12), what is meant by the social environment is everything that exists around human beings that can have an effect on the human being and other humans around it for growth and its development. In the Test of Science Related Attitudes (TOSRA) by B. J Fraser there are 3 indicators of attitude dimension to science, that is perception and self concept to science, interest and pleasure to science, and behavior toward science.

This research is generally intended to know

(1) the scientific attitude of the students of the Family Welfare Science study program, the Faculty of Engineering, Jakarta State University on the activities or subjects included in the field of science.

(2) The influence of students' attitude in the field of science to intellectual social environment.

RESEARCH METHOD

The place of study is the State University of Jakarta. In order for this research in accordance with what is expected then the authors limit the scope of research, namely Study Program Makeup, Culinary, Clothing and Family Welfare Education. The time of this research started since August 2017. The subjects studied in this research are all students of study program Family Welfare Family who have taken the subject of science field during the lecture of students Family Family Welfare class of 2014 and 2015.

This type of research uses descriptive method or so-called survey research. The research method used is descriptive quantitative research method, The population in this study are students from all forces in the study program Family Welfare Family University of Jakarta who have completed the lectures and graduated in the contract subjects included in the field of science of students class of 2014 - 2015.

Procedures: Data collection procedures include: 1) Preparing and distributing questionnaires and documentation; 2) analyzing the results of questionnaires; 3) conducting interviews and documentation; 4) compiling transcripts and interview results; and 5) reviewing the results of existing documentation and literature.

Table 1 Proportion of Sample



No	Study Program	Students amount		Sample
		2014	2015	Sambro .
1	Cosmetology Vocational Education	55	57	54
2	Fashion and Design Vocational Education	56	58	54
3	Cullinary Vocational Education	68	53	53
4	Family Welfare Vocational Education	60	56	53
		239	224	
Total number		463		214

The instrument used in this research is intended to produce accurate data that is by using Likert scale. In collecting data using primary data and secondary data in research related to this research. The research instrument is the result of the development of the concept of scientific attitude (Stroz, 1987) and the student attitude instrument to science is developed from TOSRA parameter (BJ Frazer, 1981).

In this research, the data analysis technique used is descriptive percentage. This data analysis technique is used to describe attitude variable of student of IKK Cluster Study Program in science field. Data analysis using Miles and Huberman model is data reduction, 2) data presentation, and 3) conclusion (verification). The validity test of data is done by using credibility test by triangulation. In this study, triangulation used is triangulation of data collection techniques, namely questionnaires, interviews and documentation. Triangulation of data collection begins from giving questionnaires to students, documentation that students have such as assignment, and conducting interviews to students.

DISCUSSION

The result of observation of scientific attitude of student at every meeting on lecture of science subject in this basic chemistry as follows:



1. Curiosity. Average presentase scientific attitude of students of IHK clump for curiosity indicator 79.9%. This indicator is developed by using 3 descriptor that is looking for information according to the topic of discussion, ask something that has not been understood, record things that are important. Most of the students seemed enthusiastic to record what the lecturers were saying and read the references due with the material taught through internet and other reading sources. According Yunita (2012) with a curious attitude, students have a new concept of environmental awareness by proving the truth and evaluation of social facts.

2. Discipline attitude. The average percentage of students' scientific attitudes to the discipline indicator is 83.82% assessed by using 3 descriptors ie completing the activities on time, leaving no groups during lectures and not playing games. Thus means the students follow the Basic Chemistry course as one of the subjects of science. The discipline attitude that is always taught in the field of science will be an experience in orderly social life and social norms.

3. Responsibility. The average percentage of students' scientific attitudes for indicators of responsibility is 79.81% assessed by using 3 descriptor that is trying to solve all the tasks assigned, trying to find answers and can express opinion. Based on the results of these observations, showed that students who follow science lectures (Basic Chemistry) have responsibility (79.81%) good category. This is because students are actively involved in lectures and exploring the knowledge they possess and are fully cooperating with students in social environments. According Sardinah, et al (2012) some aspects of scientific attitude can be developed and instilled in the students one of them is with a responsible attitude. This is seen in the attitude of students in completing tasks, such as lab reports and tasks summarize the course material.

4. Careful attitude. The average percentage of students' scientific attitudes for meticulous indicators is 73.58%. This indicator is assessed by using 3 descriptors that are serious in working, doing tasks in accordance with the procedure and not in a hurry in doing the tasks. From the result, the students' accuracy, following the Basic Chemistry is good (73,58%). This is evident with the students before doing the tasks and practicum implementation they read the instructions or guidance instructions.



5. Cooperation attitude. The average percentage of students' scientific attitudes for cooperative indicators is 84.62%. This indicator is assessed by using 3 descriptors that can work together in groups, share information, participate in

doing tasks. The cooperation of students who follow the science course (Chemistry Basic) as a whole or each meeting is categorized well. Cooperation activities related to how students work together in completing their tasks and sharing information. According Jhonson (2007) that cooperation can eliminate mental barriers due to limited experience and a narrow perspective. So it will be more likely to find strengths and weaknesses, learn to respect others, listen with open minds and build joint persecution. According to Suherman (2002), the learning done in the group will make the students can share (sharing) the sense, idea, knowledge, experience, responsibility and mutual help, so that students can learn to collaborate social, communicate and socialize.



Figure 1 Graph of Result of Questionnaire and Observation of Scientific Attitudes of IKK Students

The second domain of the process of science domain, namely the use of some science process skills to learn how scientists think and work (Eugene & Thomas, 2014: 21). The process skills developed for learners in science learning consist of eight aspects: observation skills, measuring, interpreting, forecasting, using tools and materials, classifying or grouping, applying concepts, communicating, and asking questions.

Here is a table from the PISA science literature framework 2006, which shows the attitude aspect.

Table 1 Attitude to Science in PISA 2006



	a.Respect differences of opinion and		
	scientific opinion (open-minded) to conduct		
	further investigation.		
1. Support to	b.Supports use of factual information and		
scientific inquiry	rational explanations to avoid bias.		
	c.Showing the understanding that a biased,		
	critical and meticulous process is necessary		
	in drawing conclusions.		
	a. Confidence in handling scientific issues		
	effectively.		
2. Confidence as a	b.Confidence in handling difficulties in		
science learner.	solving problems.		
	c.Confidence in showing high scientific		
	ability.		
	a. Indicating curiosity about science,		
	science issues and practicing science.		
	b. Demonstrate the desire to gain additional		
3. Interest in science	scientific knowledge and expertise, using a		
	variety of scientific sources and methods.		
	c. Demonstrate the desire to seek		
	information and have continuous links to		
	science, including developing careers related		
	to science.		
	a. Showing a sense of personal		
	responsibility to preserve the environment.		
4. Responsibility to	b. Showing attention to the consequences of		
resources and environment	human activity on the environment.		
	c. Demonstrate the desire to take part in the		
	activities of the preservation of natural		
	resources.		

(Source: OECD, 2006)



According to Chiappetta in Zuhdan (2014: 6) explains that the essence of science is as a way of thinking, a way of investigating and a body of knowledge. As a way of thinking, science is the mental activity of those who cultivate the study of a field. These mental activities are driven by curiosity to understand a natural phenomenon. As a way of investigation, science provides an overview of approaches in composing knowledge and the social environment. Science has values in public life. Those values remain and become an integral part of an educational process. Any education aimed at placing humans in today's world in order to live up to the demands of the modern age. Briefly, the values that can be planted in science education, that is, thinking skills and work according to regular steps, the skills of observation and the use of experimentation tools.

Has a scientific attitude, among others, is not prejudiced in making decisions, tolerant, able to change the conclusions of the results of his experiments if there is convincing evidence true, free from superstition, can distinguish between facts and opinions, make meticulous planning before acting, craved a great , appreciate the opinions and discoveries of scientists and appreciate both the content and the method of science.

There are 4 (four) dimensions of student attitudes toward science lectures developed from TOSRA that is 1) perception of science lecturer, 2) self concept, 3) pleasure to science lesson, 4) career engagement in science. The results of this study indicate the average of students' perceptions of the field of science including how the lecturer teaches science is 80% states good. Lecturers are able to establish scientific communication to students so that students feel happy to receive science lessons. This is also in accordance with the opinion of Ikhsan, et al, 2006) which states attitudes on science teachers will affect student attitudes toward science. The self-concept of IHK cluster students toward science courses has bad category. This category of unfavorable attitude is supported by interviews which say that the ability that students have in understanding science lectures is poor (69%) does not even understand for some science materials such as basic chemistry. This is given that the background of IKK students is mostly from social secondary schools. Science on science is good enough (70.4%). Nevertheless from the interviews, students are less likely to pursue science lessons marked rarely to libraries to better study science or give science books. Students only rely on diktat from lecturers and less actively ask or respond to lecturers' explanations. The interest of students working in the field of science is less good attitude (65%). Students claim to



prefer a career in the field of practitioners such as makeup artists, culinary experts and fashion designers.



Figure 2 Results of Measurement of Student Attitudes of IKK to Science

After getting a science lecture, students who have competence in the field of culinary, cosmetology, clothing, also have the intellectual responsibility of the social environment. Students will appreciate different views and scientific opinions (open-minded) to conduct further investigation. Confidence in handling difficulties in solving problems. Showing a sense of personal responsibility to preserve the environment. Shows attention to the consequences of human activity on the environment. Students demonstrate the desire to take part in the activities of natural resource maintenance.

Nevertheless, the domain of application and connection domains, which includes the realm of application is observing examples of science concepts in everyday life, applying learned science concepts and skills to the problems of everyday technology. The experience of studying competitiveness is able to integrate science with other subjects or the social environment.

CONCLUSION

Based on the descriptive analysis, it can be concluded that (1) scientific attitude toward science lecture is good (78,4%), such as scientific attitude toward material delivery, (3)



curiosity attitude, 79.9%. (4) discipline, 83.82% (5) responsibility, 79.81% (6) meticulous, 73.58%. (7) cooperation. 84.62%.

Based on research of student attitude toward science lecture at group of IKK clumps developed from TOSRA parameter consist of four dimension that is perception to lecturer of science, self concept in science, pleasure to science lesson and interest of career in science field. Two of the four dimensions of IKK group student attitudes (perceptions of science and pleasure teachers) are categorized well. While the other two dimensions (self-concept in the field of science and interest in a career in the field of science) is not good.

ACKNOWLEDGMENT

The results showed how important science science in helping IKK students connect the development of science and technology field of IKK to human culture scientifically. The role of lecturers is needed to develop syllabus and science learning planning that can be mastered or close to the study environment of IKK, so that science science lessons play a role in developing student intellectual social environment. Acknowledgments to students of Family Welfare Sciences and lecturers related to science subjects who have participated in this research.

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