

Implementation of Character Education in Chemistry Learning

Krisna Merdekawati

Chemistry Education, Faculty of Mathematics and Natural Sciences
Islamic University of Indonesia
Email: krisna.merdekawati@uii.ac.id

Abstract

The aim of research to study the real and ideal implementation of character education in chemistry learning. The research use phenomenology method in qualitative approach. This research is conducted in two step. The first step aims to describe the real condition of character education implementation in chemistry learning. The respondents are chemistry teachers. The second step aims to conceptualization and construction of ideal condition of character education in chemistry learning. The respondents are chemistry education experts. The result showed that the implementation of character education in chemistry learning requires improvement and reinforcement. Teacher has been know about the urgency of character education, but it's not integrated in implementation. The character education requires the teacher's awareness to give exemplary. The character education in chemistry learning should be held in the integration involving the purpose and the process that is developed by essence of chemistry: product, process, attitude. Implementation of character education in teacher college also needs improvement. It requires design of curriculum that involving character education and exemplary of academic community.

Keywords: character education, chemistry leaning

Introduction

A number of events that lead to moral decadence shows that Indonesia is experiencing a degradation of character. While the education system seems not yet ready to choose a character education as the performance of cultural and religious in public life (Jalaludin, 2012). The existence of a nation is determined by the character possessed. Character education has actually been pursued since the beginning of independence until now, but have not shown optimal results. National Education Minister Mohammad Nuh said that "there is no denying about the importance of character, but the more important is how to compile and estimate it" (MONE, 2010). MONE has

compiled directions, phases, and the character of the nation's education priorities in 2010-2025. The implementation of character education is very important to be pursued. Character education is actually not a new concept in education. Attention to character education increased due to the increase in criminal activity and a teenager deviant behavior (Williams, et al., 2003). Beforehand, character education in the formal subjects included in Civic Education, Religious Education, Moral Education Pancasila, and so on. But so far has not been able to develop the character of students. Actual character education can not be separated from any learning material. Character education requires a commitment of educators to be good examples and readiness to give the learning experience loaded with character

According to Khusniati (2012), the inclusion of the character through the study of religion and nationality is not enough. This is because both the new subjects encompass cognitive knowledge about values. Religion and nationality learning activities not encourage internalization of values. Character education needs to involve all disciplines. However, teachers are still lacking in attention to character development, especially high school teacher. High school teacher only focus on the material that they teach (Leming, 2006)

According to Ibrahim (2012), the character will be quickly constructed through the observation of the model and is transmitted through the sample and habituation. Character and other learning outcomes should be simultaneously built, integrated with learning all subjects. From this it can be understood that the character education can be given through learning chemistry, as well. Chemistry as part of science has the potential to teach character education.

Science with a phenomenon that has the potential to be a model of behavior, attitude, and character. Every phenomenon in science (IPA) can be used as a model and many phenomena in science can even explain human behavior and characteristics. The process of science activities such as observing, measuring, classifying, analyzing, experiments can develop character. So teachers must give as many opportunities as

possible for students to think and be involved in the process of science (Mundilarto, 2013)

Character education according to Effendy (2013) is a well-planned effort to realize students know, cares and internalize the values so that the students behave as a perfect man. By this definition it is understood that character education should cover the entire potential of the individual, which includes cognitive, affective, psychomotor. Character education that only concerned with the cognitive aspects, will not produce the internalization of values within the individual.

Research carried out by Izfanna et al, (2012) showed that the character education requires an environment and conditions that support, and the opportunity to apply. So that the culture of schools or a university culture is very important to develop the character of students. Intergratif efforts are needed in the implementation of character education. Research carried out by Depiyanti (2012) stated that the method of habituation and experience directly became the main method in the implementation of character education. Character education should take place in the whole process of education (Rukiyati, 2013).

Research carried out by Ikhwanuddin (2012) showed that the implementation of character education can increase learning achievement. Implementation of character education in chemistry learning can be done with a variety of approaches. There has been a research and study that discusses the implementation of character education in learning science and chemistry specifically, such as by a contextual approach (Khusniati, 2012), cooperative learning (Ikhwanudin, 2012), meaning learning model (Ibrahim, 2012).

Growing and development of the character will be difficult to do immediately. Learning should be designed to be able to organize the education of character (Pala, 2011). In order for the implementation of character education can be effective, it needs a clear understanding of the definition of the character and practical understanding of the theory by all players in education (Bajovic, et.al, 2009). It required a study of the

implementation of character education in chemistry teaching. Chemistry has potential in growing effort and character development. The purpose of this study was to determine the condition of the real and the ideal implementation of character education through chemistry learning at the high school and the Institute of Education Personnel (LPTK). LPTK authorized as the delivery of professional education for teachers should be designed in an integrated manner in order to produce a professional teacher and character (Hasnah, 2013).

Method

The study was conducted in two step. The first step is a description of the implementation of character education in chemistry learning at high school. The results from this step is drafting a description of the condition of the real implementation of character education. The second step is the conceptualization and construction of the character education through learning chemistry. The results of the second step is the drafting of descriptions, concepts, strategies, under ideal conditions the implementation of character education in chemistry learning. This study use qualitative approach with phenomenological method, the deciphering of person's life experience about a phenomenon or a concept, in this research that is character education.

First Step

The first step focused on data collection implementation of character education through high school chemistry teaching. From the data will be obtained descriptions of real implementation of character education. Data collected by questionnaires. Indicators in the preparation of the questionnaire is as follows: (1) the description, (2) the urgency of the application, (3) the intensity of application, (4) implementation strategy, (5) contributions LPTK in character education. Data from the questionnaire, carried description real condition of character education.

Respondents are high school chemistry teacher. The number of respondents were 58 teachers from 22 MGMP. Expected from 22 MGMP (Subject Teacher Council) can

give a description of the real implementation of character education through learning chemistry.

Second Stage

Collecting data on the second stage also uses a questionnaire. The questionnaire focused on the conceptualization and construction efforts of character education in chemistry teaching. Descriptions obtained from this phase, learning strategies chemistry oriented character education, expert opinion on the condition of ideal character education through learning in high school chemistry and LPTK. Indicators in the drafting of the question is as follows: (1) the description, (2) the urgency of the application, (3) implementation strategy, (4) constraints of the application, (5) the application of high school, (6) the application in LPTK.

Respondents second stage is an expert in chemical education. Selected 2 respondents Prof. Dr. Ashadi, Professor of the Department of Chemical Education FKIP UNS as respondents 1 and Prof. Dr. Nurfina Aznam, SU. Apt, Professor of Mathematics and Natural Sciences Department of Chemistry Education UNY as respondents 2. The selection of respondents is based on a consideration of aspects of expertise in the field of chemical education.

Result and Discussion

First Stage

From stuffing questionnaire respondents teacher, obtained a description of the real implementation of character education through learning chemistry. In the description indicator understanding of character education, some 82.7% of respondents understood the character education. While 10.3% of respondents did not understand. Description of teacher respondents regarding character education can be categorized into 4 groups. Grouping based on shared keywords and core answer. A number of 40.6% of respondents said that character education is an education that integrates the values of virtue (character) in the learning process. Planting in the learning values, such as discipline, honesty, responsibility. A number of 33.7% of respondents believe that

character education is an education that aims to establish and develop the character of students. Expected to be produced students who are faithful, devoted, noble have a certain character. The characters are composed of the high-minded, resilient, honest, disciplined, critical, tolerant. A number of 21.5% of respondents believe that the character education consists of two aspects, processes and objectives to be achieved (results). Character education is integrated in the learning values that aims to establish and develop the character of students. 4.2% of respondents believe a number of character education is education in accordance with the curriculum of 2013.

In the urgency of implementing the indicators, all of the respondents said the need for the implementation of character education in the classroom. However, only 46.6% of respondents always instill character education. A number of 37.9% of respondents frequently, 15.5% of respondents rarely.

Strategy implementation of character education through learning chemistry, respondents use a variation of the 5 strategies, namely through learning methods, exemplary, habituation, chemical materials, curriculum. Planting character through the selection of instructional methods used by 53.4% of respondents. Learning methods can be used to instill character in students. For example, through the study of chemistry with cooperative learning can instill character appreciate differences, to lend a hand, and cooperation. Through a chemistry lab (experimental method), students are educated to not manipulate the data, so as to foster an honest character, objectively. Chemistry lab can also foster curiosity, hard work character, communicative, responsibility, cooperation. In a class discussion, students learn to respect the opinions of others, communicative.

Growing character through a chemical material used by 50.0% of respondents. According to respondents, in transfer of chemical material can be associated with the values of the characters. For example, the material elements of the periodic system, students are directed to explore the greatness of Allah SWT through the regularity properties of the elements.

Growing character through habituation is used by 36.2% of respondents. Habituation is an activity that is carried out continuously between teachers and students. These activities include learning begin and end with prayer, to inculcate religious character. Each meeting familiarized teachers say hello or shake hands, to instill respect other people's character and manners. In addition, students are conditioned to not cheating during replay, working on individual tasks honestly and independently. Habituation discipline can be done by applying rules such schools should not be late for class.

Growing character through the example used by 12.1% of respondents. According to respondents teacher holds an important position in the cultivation of students' character. Exemplary teachers are indispensable in the cultivation of character. Students will be borne observe, assess, and eventually mimic the actions of teachers. Teachers should be able to be a role model and example.

Growing character through the curriculum used by 6.9% of respondents. According to respondents planting characters do not stand alone, must be thorough in the learning process. In the preparation of curriculum, syllabus, lesson plans should clearly define what character will be established on the student. Methods, materials, and assessment systems attention and include characters to be achieved.

On the indicator contributed LPTK in character education, some 37.9% of respondents answered already, but not optimal, 36.2% of respondents answered already, 13.8% replied yet, 12.1% did not know. Respondents who stated in a briefing LPTK not optimal character education, argues that there are still many LPTK graduates who do not have the character as an educator, in fact it is often a bad example to the students. Education in LPTK still theoretical in character education. Still less provide a real experience. Although there have been courses that discuss the teaching profession, but there is no special material that discusses character education. There are still many teachers in LPTK less cultivate the character of students. Respondents who stated already, found many LPTK who have the vision and mission form the teacher character. Besides the courses are designed to form a teacher characterized as

Professional Education, Educational Psychology, Teaching and Learning Strategies. Regulation is applied as a way to dress also indirectly shape the character of prospective teachers. Of respondents stated that education LPTK not equip chemistry teacher candidates with character education, found only LPTK emphasis on cognitive abilities. Focus cultivated is how to form an intelligent teacher. When confronted on character education, teachers become not know how it is applied.

Respondents provided input on LPTK that LPTK as an educational institution for prospective teachers hold an important position in shaping the character of the teacher. Teachers as the spearhead of education in Indonesia, should be established as a man of character and understanding about how the character education. Should be organized special course that discusses character education. So the teacher had no trouble when it must develop a curriculum that includes character education. Difficulties often experienced teacher is when should create a syllabus, lesson plans, selecting methods, integrate character education in chemistry teaching, and evaluation systems. In chemistry learning, faculty need to provide a description of the characters that can be embedded in each chemical material. Difficulties experienced teacher is when should relate to the character of chemical material that can be implanted. Teachers still think about the character of what can be implanted through the material being discussed. LPTK also participated in the development of high school chemistry curriculum. LPTK should be able to as a source of reference in the development of chemistry curriculum that includes character education. In the process of education, the character became one of the aspects of evaluation. In fact, there are respondents argue that when a student has not appeared character educators should not be passed in advance of LPTK. Modeling the entire academic community LPTK very important in establishing the character of prospective teachers. For that LPTK need to implement regulations supporting character education, both for faculty, staff, and students. Summary of Phase 1 research data can be seen in Table 1.

Tabel 1. Summary of Phase 1 Research Data

No	Aspect	Responce	Percent
1	Understanding	Understood	82,7%
		Did not undestand	10,3%
2	Description	An education that integrates the values of character in learning process.	40,6%
		An education that aims to establish and develop the character.	33,7%
		Consists of process and objective to develop the character.	21,5%
		The curriculum of 2013	4,2%
3	The urgency of implementation	of Need for implementation of character education	100%
4	The frequen implementation	of Always	46,6%
		Frequently	37,9%
		Rarely	15,5%
5	Stategy of implementation	of Instructional methods	53,4%
		Content	50,0%
		Habituation	36,2%
		Give example	12,1%
		Curriculum	6,9%
6	The contributed LPTK in character education	Optimal	37,9%
		Did not optimal	36,2%
		Did not contributed	13,8%
		Did not know	12,1%

Second Stage

Respondents 1 and 2 of the opinion that the implementation of character education through the study of chemistry is important. According to respondent 1, the character is the target of educational goals to be achieved. In the Republic Act number 20 of 2003 on National Education System clearly mentioned that the character or characters into one national education goals. Target formation and character development will be contributed by all subjects in the curriculum, including the chemical. Chemistry can contribute to the formation of character given regarding chemical products, processes and attitudes. Chemical products containing among others the abundance of elements in nature that a lot of benefit in humans. From here can bring people to admiration for the creator of this nature, gratitude-faith. Chemical products also contain principles, laws, theories can guide before the Creator of man that man is very small why should overbearing and so on. Studied chemistry also means learning the manner in which the experiment-experiment demanded honesty, objective, good cooperation with friends, respect the opinions of others, so that the chemical can familiarize people learn to be honest, objective, and so on. Thus chemistry education can contribute to character education. In line with the first respondent, respondent 2 also argued that the chemical is suitable for the cultivation of character education. This is because chemistry is a science that can be seen and felt in everyday life. Can be used to instill a sense of gratitude for God's creation. In the process of teaching and learning chemistry is certainly no observation or experiment, this process can be used as a vehicle to train, among others, honesty, responsibility, and cooperation. Character education should be organized in a chemistry lesson, it is to equip the students have a comprehensive understanding of the chemistry that can give insight into the chemistry for the widest possible utilization for the benefit of the community, state and nation.

The implementation of character education in high school today, according to the respondents 1 and 2 are still lacking.

Chemistry education can actually be used to embed. The issue is whether teachers of chemistry now understand and realize the link between chemistry with characters that should be implanted. In addition there is a tendency chemistry teacher just taught chemistry knowledge, lacking in character cultivation. For that we need a strong debriefing about: 1) the chemical and also 2) the character of a good man.

The implementation of character education in LPTK according to respondents 1 can be done in two ways, namely education affixed character inherent in chemistry learning (embedded) and given a standing of its own, apart from learning. The second way is necessary because the chemical can not cover all aspects of the personality of the teacher desired. Character educators who wish to be implanted and developed structured curriculum. Syllabus character for prospective teachers may be slightly different from the prospective accountant or lawyer, but there are the basics of the same subject that must be mastered by the students. Thematically structured syllabus, the syllabus good arrangement applied by lecturers of the graduate LPTK appropriate in addition to master the science of the field of study also has its own character.

According to respondents 2, LPTK must prepare lecturers character, aware he becomes a role model for students and surroundings, and can teach chemistry at the same time instill good character education without feeling forced or tacked carelessly. LPTK also must prepare systems, infrastructure (programs and facilities for physical and non-physical) that support the implementation of character education.

The implementation of character education in chemistry teaching according to the respondents 1 and 2, relating the chemical nature itself, which includes products, processes, and attitudes. Chemistry learning aimed at planting and character development can be done through chemical materials, the learning process, and attitudes that are taught in chemistry. In the implementation of exemplary character education is absolutely necessary.

Constraints implementation of character education through the study of chemistry according to the respondents 1 and 2 are exemplary aspect. Character education was

not enough talking or informed. Educators should be able to give examples of good role models. This is not an easy job. For example lecturers to go to class and out of class on time, diligent lecturer accessing new information, diligent discussion and research with peers, an honest assessment. Often, professors and teachers are less able to embed, implement character education in learning. Lecturers and teachers are less aware that they should be role models for students

Discussion

Data from this research is that respondents and respondents' expert teachers have the same views on the urgency of character education. Character education in chemistry teaching is important and needs to be held. Respondents' opinions regarding the description of the character education teachers vary. Character education by a minority of teachers (4.2%) is still viewed narrowly, namely as education according to curriculum Curriculum 2013. 2013 is just one of the means for the implementation of character education. According to respondents experts, the characters must be a goal or target in learning. Chemistry can greatly contribute the sight of the role in the implementation of character education. Chemical covering products, processes, and attitudes may contribute to the planting of the values on learners. Character education according to respondents experts, covering the objectives and processes. Character must be target in learning. In its application can be through chemical nature as the products, processes, and attitudes. Respondents teachers who see education as a character.

According to respondents experts, character education in chemistry learning can be organized through the nature of the chemical itself, which includes products, processes, and attitudes. Chemical products which include principles, laws, and theories can foster a sense of awe at God. Chemical products reveal about regularity, equilibrium processes, and benefits for life. A sense of awe in God can develop religious character, the character of the subject to be possessed learners. According to Effendy (2013), the chemical process is a procedure in solving problems that include: (1) identification of

the problem, (2) the formulation of a hypothesis, (3) designing an investigation, (4) investigation, (5) data collection and analysis, (6) drawing conclusions, (7) the communication results of the investigation. Chemical process can introduce learners among other things about the character of an honest, curious, objective, able to work, logical thinking, critical, creative, and innovative. Attitudes can be curiosity be a natural phenomenon, causality can be solved through proper procedures

Respondents teachers have not looked through the cultivation of character chemical integrative. Some consider planting a character through the material or chemical products, in part through a chemical process. So it is still necessary socialization about how the chemistry learning organized for the establishment and development of character.

The main obstacle in the implementation of the expert respondents character education is exemplary. Teachers often do not realize that the teacher's behavior is observed and modeled by students. Teachers do not simply provide information to students, but also have to give the example of what has been presented in class. Expert opinions of respondents supported by data from the questionnaire respondents teacher. Modeling is only chosen by 12% of respondents in an effort to provide education teacher character. Still needed socialization and strengthening the ideals that must be held by teachers. In the design of Ministry of National Character Education Parent mentioned that the character formation can be done through exemplary strategies.

LPTK about character education, teacher and expert respondents varied. However, it can be summarized that still needed improvement in the supply of candidates LPTK chemistry teacher educators with character and a good understanding of character education. LPTK need to prepare curriculum integrative. The education system must accommodate the character education. LPTK also participated in the development of high school chemistry curriculum. LPTK should be able to as a source of reference in the development of chemistry curriculum that includes character education. Exemplary aspect must be raised in the implementation of character education in LPTK.

Conclusion

The implementation of character education through the study of chemistry is still in need of repair and reinforcement. Teachers already know the urgency of character education, but the implementation has not been carried out in an integrated manner. Needed awareness and preparedness of teachers to provide exemplary. Character education through the study of chemistry should be done in an integrated manner. Character education in chemistry learning includes objectives and processes developed through chemical nature covering products, processes, and attitudes.

Still needed improvement in LPTK in terms of character education for prospective teachers. In the operation of the character education curriculum that includes the necessary design and exemplary character education academic community.

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