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# Integrating Character Education Model With Spiral System In Chemistry Subject

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**Abstract.** Integrating character education is the responsibility of all subject teachers including chemistry teacher. The integration of character education is just administrative requirements so that the character changes are not measurable. The research objective 1) describing the actual conditions giving character education, 2) mapping the character integration of chemistry syllabus with a spiral system, and 3) producing syllabus and guide system integrating character education in chemistry lessons. Of the eighteen value character, each character is mapped to the material chemistry value concepts of class X and repeated the system in class XI and class XII. Spiral system integration means integrating the character values of chemistry subjects in steps from class X to XII repeatedly at different depth levels. Besides developing the syllabus, also made the integration of characters in a learning guide. This research was designed with research and development [3] with the scope of 20 chemistry teachers in Semarang. The focus of the activities is the existence of the current character study, mapping the character values in the syllabus, and assessment of the integration guides of character education. The validity test of Syllabus and Lesson Plans by experts in FGD. The data were taken with questionnaire and interviews, then processed by descriptive analysis.

The result shows 1) The factual condition, in general, the teachers designed learning one-time face-to-face with the integration of more than four characters so that behaviour changes and depth of character is poorly controlled, 2) Mapping each character values focused in the syllabus. Meaning, on one or two basic competence in four or five times, face to face, enough integrated with the value of one character. In this way, there are more noticeable changes in students behaviour. Guidance is needed to facilitate the integration of character education for teachers integrating systems. Product syllabus and guidelines validated by experts and the syllabus results averaging 4.37; guidebooks integrating character education in chemistry learning 4.36 with a maximum score of 5. Thus the device is declared valid. Through focus group discussions, each expert gave input for the improvement of learning modules of character education.

## 1. Introduction

Not yet deepen and well-cultured behaviour in daily life, caused by very few examples of exemplary and honesty from their parents, friends, teachers, authorities, or law enforcement. Improvements that can be made by education is by evaluating the educational curriculum that emphasises character education. Regulation of the Minister of Education and Culture Nomor 22 Tahun 2016 about Standard Elementary and Secondary Education which states that education units do lesson planning, implementation of a learning process and learning assessment to improve efficiency and



effective achievement of competencies of graduates [5]. From the basic rules, researchers to develop a training plan development of teaching materials in the form of a syllabus and guide the integration of character education in the chemistry subject. The research objective 1) describing the actual conditions giving character education, 2) mapping the character integration of chemistry syllabus with the spiral system, and 3) producing syllabus and guidance integration system of education character in chemistry lessons.

Character education is a character related to the moral concept (moral knowing), moral attitudes (moral feeling) and moral behaviour. Based on the National Education curriculum centre there are 18 character values. These 18 character values of the Curriculum Center, namely: religious, honest, tolerance, discipline, hard work, creative, independent, democratic, curiosity, national spirit, love the homeland, rewarding achievements, friendly/communicative, love peace, fond of reading, care for the environment, social care and responsibility [1].

The integration with spiral system [2] explains that the curriculum development should go back to the basic idea repeatedly and profoundly. Spiral system as a model of character education integration is done by selecting the appropriate character values characteristic of chemistry material and student characteristics. The learning approach characterised through subjects combination, assuming that any learning process presupposes a broad range of knowledge [6].

Ministry of National Education [7] defines teaching character education that integrated into the learning process as the values introduction and the facility gained awareness of the importance of the value, and integration values into students behaviour daily through a learning process, both of which take place inside and outside the classroom in all subjects. The combination is very useful as part of the achievement of aspects of attitudes and skills [10].

System integration of character education designed as a learning strategy. A teacher requires effective teaching strategies to stimulate students to engage in material and severe thought [4,5]. The approach used to integrate character education in chemistry subjects are eighteen grades characters mapped to one school year, with step one or two basic competence, the 10th class materials assigned to one character value. This is repeated from 10th level to 12th.

Spiral system intended so that eighteenth-character value spread over a one-year lesson repeated according to the nature spiral. This spiral system is designed to prevent repetition and emphasis on only one character only.

## 2. Methods

This study uses a model of Research and Development (R & D) from [3]. Results of research and development in the product that has the characteristics blend of concepts, principles, assumptions, hypothesis, and procedure that found in basic research.

Of 10 steps of this research and development, in this study only apply the six steps, namely:

**Stage 1:** Research and data collection, analysis of chemistry learning problems, analytical needs of students to an education of character, levelling indicator character assessment, and spiral system integration guides.

**Stage 2:** Planning, mapping the character values in the syllabus, preparation of guidelines for the integration of character education in chemistry, determination of the format and guidance components.

**Stage 3:** Development of products draft, an arrangement of syllabus and guidelines (first draft) and instruments of research.

**Stage 4:** The initial field trials, conducted syllabus validation and guidelines (first draft) and research instruments. The device validation performed by a team of experts.

**Stage 5:** Reviewing the test results, the revised syllabus and guidelines (first draft) into draft two to improve based on a team of experts input. The study was made to obtain logical devices.

**Stage 6:** Field test, conducted limited testing to 20 chemistry teacher, to determine the practicality learning devices. At this stage, the learning model is done that integrates in-class character. Continued focus group discussions involving character education experts, chemistry

education specialists and teachers as practitioners. At this stage, the refinement of the syllabus and guides are ready to be used for learning in the classroom.

Data analysis techniques: descriptive data analysis of quantitative and qualitative descriptive. The quantitative descriptive analysis method of grouping category score data based on the guideline-scale conversion of five (Likert scale). While descriptive qualitative data analysis techniques, use stage data display, data reduction, data verification and conclusion.

### 3. Results and Discussion

#### 3.1 The factual conditions

In general, teachers integrate character education by incorporating 4 to 8 character values in one face-to-face meeting advance in the lesson plan (RPP). With such system, the teachers have difficulty by observing the change in the behavior of students during the learning process.

#### 3.2 The character education integration system with spiral system

The character education integration system with a spiral system is done by mapping one character value adjusting material characteristics and conditions of the students with one or two basic competence. With this system, the syllabus will be produced with the mapping of character values. The mapping system outlined in the character education integration guidance which contains indicator levels of character and a rubric character assessment as elemental assessment.

#### 3.3 Syllabus validity test and practical guidebooks integrating character education

Syllabus validity test and practical guidebooks integrating character education are done through group discussion forum with experts. Based on interviews with the respondents, obtained input that integrating character education training focused on the character value responded very positively by 86.67% of respondents. A total of 90.67% respondents said that the spiral system used to integrate character education in chemistry is a solution with indication character levelling system.

#### 3.4 The Analysis of Lecturer and Students' Activities

Fundamental changes in 10<sup>th</sup> class behaviour focused on the training process. This is characteristics by habituation, and accompanied by rules, obtained an average score of 67%, the 11<sup>th</sup> level leads to habituation with consciousness but not by coercion is gained 65%, while the 12<sup>th</sup> class leads to demands for habituation, with awareness so as to take the value gained 71%. Rating affective aspect of characters based on the guidelines in the indicators and real assessment rubrics approved by 88% of respondents. How to motivate the students to reflect the behaviour of the character value is by exemplary of the teachers, and all school component responded well by 83.33%, giving a direct example of doing good things approved 93.33%. For system control, as much as 90% of respondents agree at the beginning of the syllabus, lesson plans, and chemistry book.

The results of the validation syllabus, lesson plans, and conducted by Delphi obtained a mean value as Tabel 1.

**Tabel 1.** Learning Tools Validation

No.	Development Tools	Validation Result	Criteria
1	Syllabus	4,37	Very well
2	RPP	4,36	Very well
3	Indicator Levelling Character Values	4,56	Very well
4	Instructor Guidance	4,47	Very well
5	Character Education Integration	4,43	Very well

Learning tools validation applied in the learning process and the results show that teachers have been objective based on student behaviour changes assessment.

#### 4. Conclusion

Analysis of actual conditions showed chemistry teachers integrate character education with four to eight characters in one face-to-face meeting. There are no levelling system indicator character values at class 10th, 11th, and 12th. Training with the system integration of character education in chemistry spiral generated learning device, a valid evaluation instrument based on experts and practitioners.

Selection of one character value focused in learning design needs to consider the characteristics of teaching materials and students. Observation of student behaviour changes based on the assessment sheet used by teachers as an effective evaluation base. Teachers have been able to manage learning integration with character education and the subject material.

#### References

- [1] Balitbang Depdiknas. 2002. Kurikulum dan Hasil Belajar. Pusat Kurikulum Jakarta.
- [2] Boehm, B. 1988, "A spiral Model of software Development and Enhancement" IEEE Computer 21,5,61-72.
- [3] Borg, W.R, and Gall, M.D. 2007. Educational Research. Eighth Edition. Michigan: Pearson Education.
- [4] Lickona.(1991).Educating for Character;How Our School Can Teach Respect and Responsibility.Bantan Books,New York
- [5] Lickona Thomas. 2013. *Educating for Character: Mendidik untuk Membentuk Karakter*. Terjemahan Juma Abdu Wamaungo. Jakarta: Bumi Aksara.
- [6] Peraturan Pemerintah Departemen Pendidikan dan Kebudayaan (Permendikbud) Nomor 22 Tahun 2016.
- [7] Koesoema, D. 2012. Pendidikan Karakter Utuh dan Menyeluruh. Yogyakarta: Kanisius.
- [8] Departemen Pendidikan Nasional. 2013. *Kurikulum 2013 untuk Tingkat Sekolah Menengah Atas/ Madrasah Aliyah*. Jakarta: Binatama Raya.
- [9] Eliasa, Eva Imania. 2014. Increasing Value of Teamwork and Responsibility of The Students Through Games: Integrating Education Character in Lectures. *Procedia-Social and Behavioral Sciences* 123 (2014) 196-203.
- [10] Kupperminc.2001.School Social Climate and Individual Differences in Vulnerability to Psychopathology among Middle School Students. *Journal of Social Psychology*.Vol 39.