

Material Module Development of Colloid Orienting on Local - Advantage-Based Chemo- Entrepreneurship to Improve Student” Soft Skill.pdf

by

Submission date: 02-Oct-2018 09:36AM (UTC+0700)

Submission ID: 1012056504

File name: Material Module Development of Colloid Orienting on Local -Advantage-Based Chemo-Entrepreneurship to Improve Student” Soft Skill.pdf

Word count: 3870

Character count: 22148

2 Material Module Development of Colloid Orienting on Local-Advantage-Based Chemo-Entrepreneurship to Improve Students' Soft Skill

Sri Susilogati Sumarti, Supartono, and Hidayah Hidzyam Diniy

Abstract—The Research and Development approach was used in this research aiming to find material modules of colloid orienting on local-advantage-based chemo-entrepreneurship which are valid and effective as well as improving students' live skill. Besides, this research tried to find students' responses to the module development in their learning processes. Based on the preliminary research conducted in SMA N 2 Kudus, the results showed that the materials they used had not contain the contents or activities which can be applied in students' daily lives. Once the preliminary research completed, the next steps were designing the materials of module and validating the materials to three experts. The average scores of validation assessment conducted by validators were 3.63 which meant it had strong validity. "One pre-test and post-test group design" was employed in assessing the effectiveness of module implementation. The assessment results showed that percentage of students' pass reached 84.9% with Minimum Passing Grade was 78; while the percentage score of students' soft skill reached 78.72%. Besides, the students responded positively to the implementation of modules for 79.42%. Based on these results, it can be concluded that the module of colloid orienting on the local-advantage-based chemo-entrepreneurship which was used in the teaching and learning processes was in the valid and effective category as well as helping students improve their soft skill.

Keywords—Module, Chemo-entrepreneurship, Local Advantage, Soft Skill

I. INTRODUCTION

THE introduction of life skills to the students is a curriculum reorientation step in order to reflect the value of real life, not merely to change the existing curriculum. The existence of life skill is an effort of decreasing the gaps among the curriculum/learning programs and the environment's needs; it, therefore, needs some curriculum/learning program adjustments which have not met the real condition in the environment. One of the live skill education programs is entrepreneurship education. An effective entrepreneurship education prepares the young generations to be responsible, to become the diligent entrepreneur or

entrepreneurship creator and to contribute to the economic development of the society. The value of entrepreneurship is importantly needed to develop since in the early ages; the national education, therefore, will not produce the job seekers instead of leading the job creators. It is needed to reform the education field in order to develop the value of entrepreneurship, innovation, and creativity.

The science learning, including chemistry, should be delivered consciously in the concept and theory of understanding and should be applicative delivered to the students as the young generation of the nation which must be sufficed with skill abilities once finishing the senior high school levels. Among the approaches, *chemo-entrepreneurship* (CEP) approach was considered to be fitted with this problem. *Chemo-entrepreneurship* is an approach of contextual learning in Chemistry, i.e. a Chemistry approach which relates the materials being given to the real objects. Through this CEP approach, the students are expected to be more creative in order to apply the knowledge received at school to their daily lives.

Nowadays, the excellent human resources in the society lives consider the soft skill aspects in addition to the hard skill. Soft skill cannot be achieved instantly through the process of learning and it is time consuming. As the result, soft skill and hard skill integration patterns are needed in learning with its various strategies. The implementation of soft skills to the students is an important aspect to produce the graduates that are competitive and successful in their jobs. Soft skill has an important role to shape one's personality; it is very important for students to achieve the sufficient skills besides the academic and technical knowledge.

SMA N 2 Kudus was chosen as the research site. The vision of this school is to realize the excellences in performances, skills, cultural insights, and faiths and believes. SMA N 2 Kudus initiates to be a role model school with their local-advantage-based education. However, their learning activities have not implemented the integration of local-advantage-based education yet.

One of material in Chemistry for Grade XI semester 2 related to the real implementation in environment is colloid. Colloid is one of topics in Chemistry focusing on the natural phenomena and most implemented in daily lives. The learning materials for colloid at school was still less paying attention to

Sri Susilogati Sumarti is with the Semarang State University Indonesia (corresponding author's phone: +6281575175853; e-mail: susilogati@yahoo.com).

Supartono, is with the Semarang State University Indonesia.

Hidayah Hidzyam Diniy is with the SMA N 2 Kudus, Indonesia.

the competence achievement of learners and relating the materials to the implementation in the surrounding environment. The results of field study conducted in SMA N 2 Kudus showed that teaching learning materials for colloid mostly focus on the theory. This was shown in the questionnaire for grade XII of science program; there were 32 students said that materials for colloid when they were in grade XI were given in theoretical frameworks and they were not given some activities in order to implement in the real lives such as product manufacturing. Therefore, the learning processes can be wrapped by relating the materials to the daily life problems. Besides the students seem to assume and impress that the materials for colloid are full of fact recitations; this situation leads the learning less interesting and tends to be boring. As a result, 60% of 32 students of grade XII of science program stated that materials for colloid are hard to understand. The learning processes for colloid was delivered by the teacher in the previous year using the materials in the students' workbook and compulsory textbook. The textbook merely contains the materials and does not engage the students in the learning processes implementing the knowledge in their daily lives.

The use of materials can help teachers in conducting the learning processes as well as help student understand the materials. The materials can be developed in various types such as printed media, audio visual, audio, visual and multimedia. The survey results conducted to 10 teachers from different SMA/MA in Kudus Regency showed that: 1) there were 4 teachers had developed the materials, 2) there was merely 1 teacher stated that the materials used contained the activities or reading passages orientating the entrepreneurship values, and 3) there were 4 teachers that stated the materials used could help develop students' life skills. Besides, those 10 teachers stated that it needs to include the activities or reading passages orientating the entrepreneurship values as well as the needs of materials that can improve students' life skills.

The achievement of meaningful processes and the results of students' learning will be effective when the tasks and materials are familiar and close with the students. Besides, that local-advantage-based materials give the optimal contribution to improve the results of students' learning. Therefore, it needs to develop the materials which are in line with the teacher and students needs.

The materials that were developed in this research did not only contain the teaching learning materials but also contain the additional information as well as tasks to improve the students understanding to the materials. The research could design the materials for this colloid system concept to be meaningful materials and improve the competence achievement by integrating the entrepreneurship elements. Besides, the implementation of learning for colloid using the local-advantage was hoped to be the strategic solution as the effort to improve learning quality. The materials can be developed in various types, one of them is module. In fact, module is the materials systematically designed using the language that can be easily understood by the students; therefore the students can learn independently with help or guidance from at least one teacher. The material module should be designed interestingly by combining colors, images

(illustrations), font type and size as well as presenting the tasks and exercises for the students.

The research problems found here are (1) how is the material module development of colloid orienting on the local-advantage-based CEP?, (2) is the material module development of colloid orienting on the local-advantage-based CEP valid and effective?, (3) Can the implementation of material module of colloid orienting on the local-advantage-based CEP develop students soft skill?, and (4) and to know the students' responses to the material module of colloid orienting on the local-advantage-based CEP. The objective of this research is to produce the material module of colloid orienting on the local-advantage-based CEP used as the media to improve the students' soft skills. The results of this research have benefits such as: (1) to produce the research product of colloid materials module which can improve students' soft skills; (2) to expose the students with experiences in terms of improving students' soft skills; and (3) to give new information as comparison in developing materials to train the entrepreneurship skills.

II. RESEARCH METHOD

Research and Development method was used in this research. Module development was developed with Plomp self-development research method which has four phases; initial investigation phase, design phase, realization phase, and test, evaluation and revision phase. One group pre-test – post-test design was used in this research, in which the results of research were examined the differences between pre-test or post-test for experiment class.

The subject of trial in this development research is students of SMA N 2 Kudus grade XI of science program in semester 4 of 2012-2013 year academic. Instruments used in this research comprise test instrument and non-test instruments such as module validation, students soft skill observation sheet and student response questionnaire.

III. RESULT AND DISCUSSION

The research activities were initiated with initial investigation phase which was conducted to yield data related to the real condition at school. The activities conducted were analyzing the curriculum, and studying the teacher and student needs. The analysis results later on would be used as the reference frame in developing the products. Based on the results of interview with teacher showed that the learning processes had not used the materials relating the contents to daily lives and had not contained activities related to the entrepreneurship values, and had not been delivered to improve students' soft skills.

While teachers were interviewed, the students were given the questionnaire. The results of students' questionnaire showed that students needed the materials relating the contents to daily lives and entrepreneurship values and contain activities that orientate to improve students' soft skills. Based on the preliminary research, therefore it can be concluded that the materials related to students' needs are

importantly needed.

After conducting the preliminary research and identifying the needs, the next step was designing the initial design for learning module. The material used in this research was about colloid. Colloid is a material studied in grade XI semester 4. Colloid is a material which is mostly found in the daily lives. One of implementation of colloid is the use of colloid system to make *jenang* or *dodol* which comprise the local potential need to be developed. Cultural background students have will bigger in the process of education compared to the effects of learning materials delivery. The learning activities using this module were set in group work type. This module does not only contain the learning materials, but also contain the additional information as well as tasks which integrate the entrepreneurship activities. The entrepreneurship activities in the learning processes can dig deeper the individual skills to combine the self-potential and the existing natural resource potential; in which the activities are done with character to run the business.

The first module (draft 1) was then validated by the expert to know the validity level of the module had been designed before. Besides the module validation, learning equipment and research instruments were also validated. The validation results of module, learning equipment and research instruments from the experts can be seen in Table 1.

TABLE I
THE VALIDATION RESULTS OF MODULE, LEARNING EQUIPMENT, AND RESEARCH INSTRUMENT FROM VALIDATORS.

Draft to Validate	Average Score	Criteria
Module	3,63	Very valid
Syllabus	3,63	Very valid
Lesson Plans	3,71	Very valid
Observation Sheet	3,76	Very valid
Response Questionnaire Sheet	3,62	Very valid

The inputs given by the validator could be the additional aspect of entrepreneurship in the module. The additional aspects could be the additional sentences containing the Chemical concepts related to the entrepreneurship, such as colloid concepts. Those sentences were then put after the material details. It was aimed to lead students understand the Chemical concept related to the entrepreneurship. Besides, the experts also added the product planning format and product assessment criteria which functioned as guidance for students in planning the product they will create later.

Based on the inputs given by the experts in validation phase, the next step was to revise the first draft that would come up to draft 2. After that, the module that had been revised (draft 2) will be used in the simulation class or limited trial class. This was done to get the first description about the use of module in the learning processes as well as to get the information in order to revise the module that had been made. This module was delivered in trial class consisting of 10

students. Those students were given the learning material using the module that had been adjusted to the lesson plan. During the learning processes, the students were divided into two groups of five students.

After being implemented for the learning processes in limited trial class, the module then was tried in bigger trial class using the one group pre-test and post-test design. During the experiment for bigger trial class, the grade XI semester 4 of science program consisting 30 students were chosen. The learning processes conducted used material module of colloid orienting on local-advantage-based chemo-entrepreneurship. In the first meeting, teacher informed the tasks preparing to create a product which the products made later on would have to be submitted in the last meeting. Besides the product creation, students were also assigned to label and pack the product as well as to analyze the cost of production.

Chemo-entrepreneurship (CEP) is a contextual approach in learning Chemistry which is related to the real object therefore besides learning the materials, students will tend to learn the process of meaningful production and economic value products as well as improve the entrepreneurship values. Through contextual learning, indirectly a teacher has conducted the processes: relating (learning which related to the real life contexts), experiencing (learning which emphasized to searching, discovering, and creating), applying (learning in which knowledge is presented in interpersonal communication), transferring (learning through the use of existing knowledge to the new situation or context). By practicing themselves, students could not only understand the Chemical concept as a knowledge but also could give them the real experience, life skill, and could improve students' entrepreneurship.

The learning processes in the classroom was set up in several group of five students, therefore there were six groups. Soft skill integration in the learning processes could be done by providing team work learning and problem solving activities. Ideally, in deciding the group members, it needs to consider the student differences in every aspect. The difference aspects in group such as academic skills, gender, speaking style, confidence, etc. will potentially become a learning forum that can improve students' skill.

During the learning processes for each meeting, some observers were assigned to observe the improvement of students' soft skills using the observation sheet accompanied with scoring rubrics. The in scoring students' soft skills, checklist can be implemented since it has affective or behavior measurement containing several indicators, normally the students' characteristics or behaviors are filled in by the assessor. There are five soft skills observed in the learning processes, namely team work, responsibility, confidence, problem solving skill, and creativity. This research did not merely measure soft skill at whole, but also analyze the whole aspects of soft skill for each meeting. The analysis results of soft skill aspects are drawn in Fig 1.

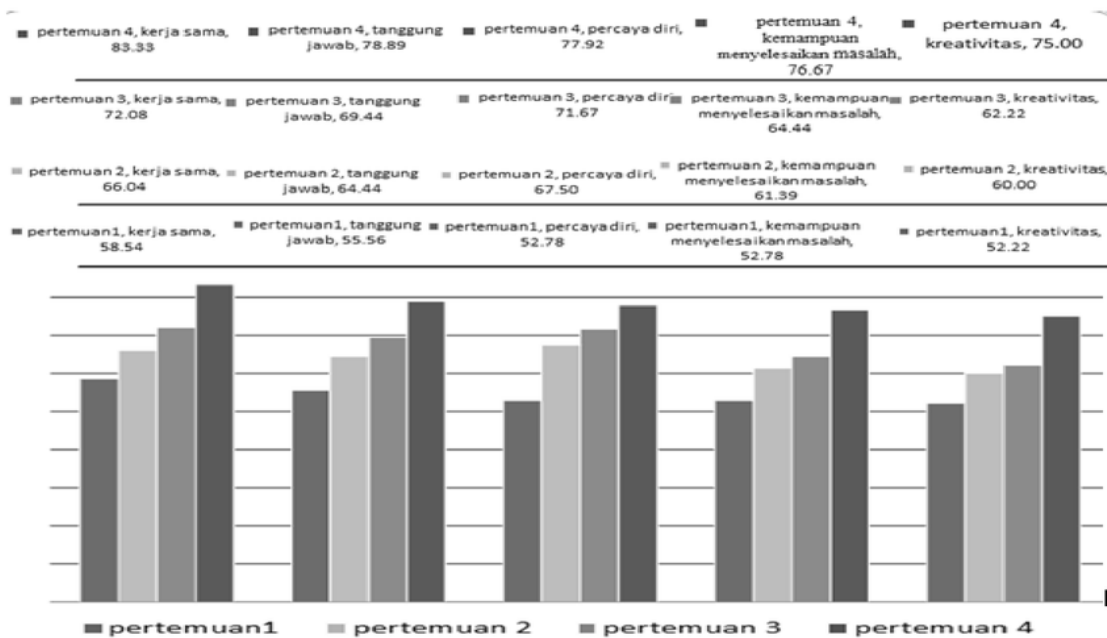


Fig.1 Percentage of Soft Skill Aspects

Fig. 1 showed that each aspect experienced the improvement. Aspects of team work, responsibility, and confidence experienced a good improvement since the first meeting to the fourth meeting. Meanwhile, aspect of problem solving skill and creativity generally experienced an improvement, though in the second and third meeting, both experienced only a little improvement. This was because the students were faced with the problems which were solved by considering the practicum results, in which students had never been faced with problem solving by considering the practicum results and students had not been accustomed before to relate the practicum results and the existing concept.

Generally, aspect of soft skills being observed experienced an improvement. The entrepreneurship-oriented learning by having the business experiences such as production, marketing, and business operation will improve students' soft skill. Besides, that through the learning processes introducing local advantages lead students apply their knowledge and skills now and in the future.

The soft skill observation was conducted thoroughly and assessed using indicators for each soft skill aspect. For aspect of team work, the four indicators namely contribution to the team, team culture, team task, and domination in team experienced the same improvement. However, the more superior indicator was contribution to the team. Aspect of responsibility consisted of three indicators namely commitment, responsible to the task, and high integration. Those three indicators experienced the similar improvement since the first meeting to the fourth meeting. This was because those three indicators were interrelated each other. Aspect of confidence which was observed using the observation sheet

consisted of two indicators namely confident to team task and confident during presentation. The indicator of confident to team task experienced the better improvement compared to the indicator of confident during presentation. This was because the students had not get accustomed to speak in front of their classmates, therefore they tended to be ashamed to during presentation in front of the class. The next aspect of skill to be observed was problem solving. Indicators in this aspect tried to identify the problem, analyze the problem, and give solution to the problem. Those three indicators experienced a quite better improvement, though the indicator of identifying problem had not come up yet in the second and third meetings. The last aspect of soft skill observed was creativity, in which presenting a new approach, simplifying the idea, and modifying the existing concept. Those three indicators experienced a good improvement.

Besides observing the soft skill aspects, this research also assessed the learning outcomes. The passing percentage in the post-test was 84.90%. The rate of improvement in learning outcome between pre-test and post-test after normalization test resulted N-Gain .65 or in moderate criteria. This showed that the success indicators of the research were achieved and the module could be said effective. The success indicators that had been set up in this research was 78 for Minimum Passing Grade with classical passing percentage at 75%. Research about material module development of colloid orienting on the local-advantage-based CEP which could improve the students' learning outcomes and the learning processes employing the material module development of colloid orienting on the local-advantage-based CEP could improve students' life skills. Local-culture-based materials contributed positively to improve students' concept understanding.

The results of the research showed that students had good and positive responses at 79.42%. This indicated that the learning processes employing the material module development of colloid orienting on the local-advantage-based CEP could be interesting for students.

The success indicator of this research was achieved. This was indicated with the material module development of colloid orienting on the local-advantage-based CEP that met the standards of good teaching learning materials. This is based on the results of research showing that the materials used in the research met valid criteria and the learning processes employing the material module development of colloid orienting on the local-advantage-based CEP could improve students' soft skills including aspect of team work, responsibility, confidence, problem solving skill, and creativity.

5 IV. CONCLUSION

Based on the research results, it can be concluded that module which was develop using Plomp model is material module of colloid orienting on local-advantage-based chemo-entrepreneurship. This module has valid and effective criteria and can be used to improve students' soft skills. Besides, students gave positive responses to the material module of colloid orienting on local-advantage-based chemo-entrepreneurship.

REFERENCES

- [1] Anwar, *Pendidikan Kecakapan Hidup*. Bandung: Alfabeta, 2006.
- [2] H. S. Rasheed, Developing Entrepreneurial Characteristics in Youth: The Effects of Education and Enterprise Experience. *International Journal of Entrepreneurship Education*, 1 (1): 1-19, 2005.
- [3] B. Trim, *Kids on Bussiness Vaksin Wirausaha untuk Ananda*. Jakarta: Tiga Kelana, 2010.
- [4] S. Rokhmah, Pengembangan Program Pembelajaran Sistem Koloid dan Keterampilan *Entrepreneurship* bagi Peserta Didik SMA/MA. *Tesis*. Semarang: Program Pascasarjana Unnes, 2011.
- [5] Supartono, Peningkatan Kreativitas Peserta Didik Melalui Pembelajaran Kimia dengan Pendekatan Chemoentrepreneurship (CEP). *Laporan Research Grant PHK A2*. Semarang: Jurusan Kimia FMIPA Unnes, 2006.
- [6] B. Schulz, The Importance of Soft Skills: Education Beyond Academic Knowledge. *Journal of Language and Communication*, 1(1): 146-154, 2008.
- [7] D. Atmono, Potensi Keunggulan Lokal dalam Menunjang Proses Pembelajaran Kecakapan Hidup dan Kewirausahaan pada Sekolah Menengah Pertama di Kalimantan Selatan. *Jurnal Pendidikan dan Pembelajaran*, 6 (1), 11-22, 2008.
- [8] IW. S. Warpala, IW. Subagia, dan IW. Suastra, Pengembangan Bahan Ajar Berbasis Kearifan Lokal untuk Mata Pelajaran Sains SMP. *Jurnal Penelitian dan Pengembangan Pendidikan*, 4(3), 300-314, 2010.
- [9] A. Prastowo, *Panduan Kreatif Membuat Bahan Ajar Inovatif*. Yogyakarta: Diva Press, 2012.
- [10] Wahyudi, Tinjauan aspek budaya pada pembelajaran ipa: pentingnya kurikulum IPA berbasis kebudayaan lokal. *Jurnal Pendidikan dan Kebudayaan No. 040, Tahun ke-9*. Januari 2005
- [11] S. H. Bintari, *et al*, Model Bioentrepreneurship Tempe Hiegenis pada Media Pembelajaran Biologi di Sekolah Menengah Atas. *Laporan Penelitian*. Semarang: UNNES, 2012.
- [12] M. A. Al-Mamun, The Soft Skills education for the Vocational Graduate: Value as Work Readiness Skills. *British Journal of Education, Society, Behavioral Science*, 2(4): 326-338, 2012.
- [13] D. B. Widjajanti, Mengembangkan *Soft Skill* Siswa Melalui Pembelajaran Matematika Berbasis Masalah. *Makalah*. Seminar

Nasional Pendidikan MIPA UNILA. Bandar Lampung, 26 November 2011.

- [14] W. Widhiarso, Evaluasi *Soft Skills* Dalam Pembelajaran. *Makalah*. Kegiatan Seminar dan Sarasehan "Evaluasi Pembelajaran Mata Kuliah Umum Kependidikan" di FIP UNY. Yogyakarta, 14 Februari 2009.
- [15] Z. Akmaliah, and S. Abdullah, Exploring The Entrepreneurial Mindset of Students: Implication for Improvement of Entrepreneurial Learning at University. *The Journal of International Social Research*, 2 (8): 340-345, 2009.
- [16] K. Kraipeerapun, and S. Thongthew, The Development of Ethnobotany Curriculum for Students in Rural Schools: An approach that Incorporates the Needs and Insights of Local Communities. *International Education Journal*, 8 (1): 64-70, 2007.
- [17] E. Kusuma, dan K. Siadi, Pengembangan Bahan Ajar Kimia Berorientasi *Chemoentrepreneurship* untuk Meningkatkan Hasil Belajar dan *Life skill* Mahasiswa. *Jurnal Inovasi Pendidikan Kimia*, 4(1): 544-551, 2010

Material Module Development of Colloid Orienting on Local - Advantage-Based Chemo-Entrepreneurship to Improve Student” Soft Skill.pdf

ORIGINALITY REPORT

10%

SIMILARITY INDEX

9%

INTERNET SOURCES

2%

PUBLICATIONS

5%

STUDENT PAPERS

PRIMARY SOURCES

1

digilib.unimed.ac.id

Internet Source

4%

2

docplayer.net

Internet Source

2%

3

Submitted to Universiti Sains Islam Malaysia

Student Paper

2%

4

Submitted to Universitas Sebelas Maret

Student Paper

2%

5

docobook.com

Internet Source

1%

Exclude quotes On

Exclude matches < 15 words

Exclude bibliography On