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Hi-CEP Project Student Worksheet Increases Social Life Skills, Entrepreneurial Interest, and Learning Outcomes

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Abstract

Chemistry student worksheet (LKPD) generally contains summary, excercises, and practical procedures which does not guide students in manufacturing and marketing product. This study purposes to determine the effectiveness of Hi-CEP LKPD project towards: social life skills (SLS), entrepreneurial interests, and student learning outcomes. The benefits of this study are to find out the increasement of SLS, entrepreneurial interests, and student learning outcomes after Hi-CEP LKPD project was implemented in CEP project based learning activities. This research design used pre-test and post-test control group design. Data collection is done by observation, documentation, questionnaire, and tests. The t value of SLS, entrepreneurial interest, and learning outcomes respectively are 6.111; 6.162; and 2.386; with the value of t table is 1.667, therefore the experimental class has a significant change compared to the control class. Each Sig. (2-tailed) of SLS, entrepreneurial interest, and learning outcomes results ≤ 0.05, therefore the experimental class has significant differences compared to the control class. Based on the result, the conclusion of this study is Hi-CEP Project LKPD effectively increases SLS, entrepreneurial interests and student learning outcomes. The suggestion of this study is the teacher should be able to make CEP project LKPD. The increasing of entrepreneurial interest of the students is useful for student life after graduating later because not all the students can continue to the college. The implementation of Hi-CEP Project LKPD also increases the SLS and learning outcomes of the students after they carry out the preparatory activities for product manufacturing until marketing.

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INTRODUCTION

Education has a very important role as the spearhead of the development and development of a nation (Makhin et al., 2014). Education has a high correlation with a country's economic growth. Someone needs to make choices and decisions based on scientific information to solve everyday problems (Fakhriyah et al., 2017). One of the challenges for the younger generation who are still in high school is competition in the world of work after graduating from school. A graduate from Vocational High School which is prioritized for entering the world of work with the ability he has in accordance with the vocational training he pursues after taking his education. The teacher is expected to design the learning process instinctively, knowing that he must focus on the needs of each student. The teacher starts where and helps progress as far as he can (Fatmasuci, 2017; Richburg & Nelson, 1998).

Based on the results of observations at the MA Mu'allimin Mu'allimat Rembang, information was obtained: (1) most students did not do to Higher Education, but sought employment or continued to study at boarding schools; (2) teaching materials used in chemistry learning are textbooks and student worksheet from publishers which does not guide students in manufacturing and marketing product; (3) there has never been an SLS study of MA Mu'allimin Mu'allimat students; amd (4) the learning outcomes of students have not been maximal, this is indicated by the average grade of the odd semester final examination (UAS) of class X MIA in 2017/2018 school year still below the KKM 70. The solution to learning meaningful needs a learning method which can increase student learning outcomes (Qudsiyah et al., 2014).

Motivation to learn and family economic conditions influence the interest in continuing education to college (Umma & Margunani, 2015). One way to equip high school graduates is to insert entrepreneurial skills related to the material learned on the CEP project based student worksheet. Entrepreneurial skills are a part of human capital that is needed without looking at education and business experience (Iddrisu et al., 2012). The teacher must look for alternative models and teaching materials to increase student learning outcomes (Andani & Yulian, 2018). Teaching materials differ from textbooks of the format, layout, appearance, orientation and approach (Ellianawati & Wahyuni, 2012). Teaching materials are one of the tools that need to be considered to support learning (Ardina & Sa'dijah, 2016).

Teaching materials used by schools are teaching materials from publishers such as textbooks and student worksheet containing character education and creative economics, but the content in these teaching materials has no practice guiding in making chemical products and training to sell them (Prayitno et al., 2017). Student learning activities can be guided using student worksheets (Yustina & Kapsin, 2017). Worksheets that contain expected contextual problems are problems that are simultaneously related to the growth of entrepreneurial interest in chemistry (Wahyuni & Widiarti, 2010).

Chemoentrepreneurship (CEP) is a chemical approach that links learning the material being studied with real objects (Supartono, 2009). CEP approach is a method of chemistry teaching by correlating theories objects in daily life. In this approach, the students are also provided a knowledge and skill in turning raw material into valuable product by applying chemistry theories It is a way of visualization that is expected to enhance students' understand-ing in chemistry concepts (Wijayati & Rengga, 2009).

Through CEP based learning, students are expected to be more creative to apply knowledge received at school in their daily lives and increase students' entrepreneurial interest and learning motivation (Sumarti et al., 2014; Sumarti et al., 2018). The CEP approach is not only oriented to mastery of chemical theories, but also oriented to the formation of entrepreneurial interests and social life skills (SLS) of students that can be implemented in a learning with the project based learning (PjBL) learning model.

Social life skill (SLS) is an individual ability that consists of a series of behaviors to interact with other people and the environment around them to be positively accepted in the environment (Jamali, 2013). Social life skills are a concern of the public so far because the incompatibility of ideas among children tends to cause conflict (Ayriza, 2010). SLS provides opportunities for

students to develop self concept as a decent and dignified person, providing ability and courage on facing life problems, and encouraging students to be creative on demands and challenges in life (Mahmoedi, 2012; Monteiro & Shetty, 2016). SLS needs to be owned by students as a provision for independence at the next level of life so that it is useful to help adaptation to their social environment.

Adolescent failure in mastering SLS will cause difficulty in adjusting to the environment so that it can cause feelings of inferiority, isolation in association, tend to behave that is less normative (eg social and anti social), even in more extreme developments can cause mental disorders, delinquency teenagers, criminal acts and acts of violence (Jamali, 2013). This study purposes to find out the effectiveness of the Hi-CEP Project student worksheet on Social Life Skill, entrepreneurial interests, and learning outcomes of the students. The teacher should be able to make CEP project student worksheet. The increasing of entrepreneurial interest of the students is useful for student life after graduating later because not all the students can continue to the college. The increasing of SLS and learning outcomes of the students are seen after the students carry out preparatory activities for product manufacturing until marketing.

METHODS

This study uses the true experimental design technique. Two classes were used in this study as the experimental group and the control group. The study design used a pretest-posttest control group design. The population of this study was all students of class XI MIA at MA Mu'allimin Mu'allimat Rembang Academic Year 2018/2019 with a total of 49 students. The sample in this study were students of class XI MIA 1 as an experimental class, and class XI MIA 2 as a control class determined by purposive sampling technique. The purposive sampling technique was used with the consideration that class XI specialization of science at the MA Mu'allimin Mu'allimat Rembang only consisted of two classes (XI MIA 1 and XI MIA 2). Both classes were classes that contained chemistry subjects in accordance with the material in this study.

Data collection techniques in this study used documentation techniques, tests, observations, and questionnaires. The instruments used in this study were learning tools, question sheets, observation sheets, questionnaire sheets, validation sheets. Data analysis is done to test the collected data. Data is tested for validity, reliability test, comparison test, item validity test, difficulty level test, different power test.

RESULTS AND DISCUSSION

Results

Observation sheet Social life skill before being used to collect data, the content validity test was carried out by experts. Observation sheet Social life skills are tested by three experts. Based on expert test, it can be concluded that the valid social life skill observation sheet instrument in general with aiken's V value is 0.80 because ≥ 0.3 with Medium criteria. Based on expert judgment, reliability testing was conducted. Reliability testing is done to see the consistency of assessment between experts.

Expert reliability testing will show the accuracy of experts in conducting assessments when compared with other experts. Empirical data on the social life skill observation sheet was carried out data reliability test. The reliability test of the data shows that the assessment using the instrument of the social life skill observation sheet has a value of $0.707 \geq 0.70$, so that the instrument is declared reliable.

Observation sheet social life skill is analyzed to compare treatment results for experimental class and control class. Analysis of social life skills data of control group students with experimental groups was carried out using N-gain analysis followed by t test. The analysis shows that M control class is 1.7391 and M experimental class is 4.6923, so the experimental class has a higher change than the control class. The results of the t test of the social life skill observation sheet show an F value of $1.470 \geq 0.05$ indicating that there is no variation between the control class and the experimental class. Followed by seeing the equal variances assumed with the value t

-6.111 ≤ -t table (-1.677) or 6.111 ≥ t table (1.677), therefore the experimental class has a significant change compared to the control class. The p-value Sig. equal to 0.000 ≤ 0.05 so that both classes have significant differences. The conclusion is that the Hi-CEP Project student worksheet is effective based on the assessment of social life skill observations in experimental class.

The results of the compilation of interest questionnaires were validated by experts. The results of the validity test show that the questionnaire instrument has an aiken's V value of 0.9 ≥ 0.5 so that the instrument is declared valid by content by the expert. Expert assessment data is carried out reliability test to see the suitability of experts in assessing entrepreneurial interest questionnaire instruments. The reliability estimate of the ICC shows a value of 0.833 ≥ 0.7, so it is stated that the expert conducts an assessment in accordance with the assessment between experts.

Entrepreneurial interest questionnaire data that has been filled in by the control class students and the experimental class is carried out by a t test to see the comparison between the two groups. The test results show M control class is 1.7391 and M experimental class is 4.6538, so it is known that the experimental class has a higher change compared to the control class. The equal variances assumed t value is -6.162 ≤ -t table (-1.677) or 6.162 ≥ t table (1.677), therefore the experimental group has a significant change compared to the Sig control group. amounting to 0.000 ≤ 0.05, so that both groups had significant differences. The t-test results is the Hi-CEP Project student worksheet is effective based on the assessment of entrepreneurial interests questionnaire in experimental class. The test results for questionnaire of entrepreneurial interests can be seen on Table 1.

Table 1. The Test Results of Entrepreneurship Interests Questionnaire

	Control	Experiment		
Normalily Shapiro-Wilk	0.354	0.71	≥ 0.05	Normal
Homogeneity F	1.191		≥ 0.05	Homogenous
Mean	1.7391	4.6538		Different
t-Test for Equality of Means	-6.162		≤ -1.677	Significant differences
Sig. (2-tailed)	0.000		≤ 0.05	Significant differences

The experimental class questionnaire of entrepreneurial interest was conducted for reliability testing. The reliability estimation of empirical data on entrepreneurial interest in the experimental class can show the consistency of filling out the questionnaire. Students are suitable in filling out entrepreneurial interest questionnaires. The reliability estimation results show a value of 0.815. Estimated value of entrepreneurial interest questionnaire reliability ≥ 0.7, so that it is known that filling in questionnaires is reliable.

Test instruments to measure learning outcomes using student worksheet validity testing by experts. Experts validate items that will be used to measure learning outcomes. Based on the results of expert validation, it is known that the instrument about the test has an Aikens'v value of 0.76 ≥ 0.3, so that the test instruments are declared valid by content by experts. The test is continued by estimating expert reliability. The expert reliability test on the test instrument will produce expert consistency value data in evaluating the test instrument against the assessment between experts. The value of the estimated reliability of the ICC instrument test was 0.761 ≥ 0.70, so that experts were known to be in carrying out the assessment between experts.

The data on the pretest and posttes of the control class and the experimental class which were known to be normally distributed and homogeneous were continued by the comparative test. Based on the comparative test, it is known that the M control class is 33.83 and the experimental class M is 43.92, so it is known that the experimental class has a higher change

compared to the control class. Based on the comparative test shows the F value of 0.260 ≥ 0.05, so the data is indeed homogeneous. Equal variances assumed t value is 2.386 ≥ 1.677, teherefore the experimental group has a significant change compared to the control group. Sig value. (2-tailed) of 0.021 ≤ 0.05, so that the control class and experimental class data have statistically significant differences can be seen on Table 2.

Table 2. The Test Result of Learning Outcomes Data

	Control	Experiment		
Homogeneitys F	0.260		≥ 0.05	Homogeneous
Mean	33.83	43.92		Difference
t-Test for Equality of Means	2.386		≥1.677	Significant differences
Sig. (2-tailed)	0.021		≤0.05	Significant differences

Empirical data on the students' answers in the test was carried out by estimating reliability. Reliability results will show consistency in the assessment using a test instrument. The reliability estimation produces a value of 0.891 ≥ 0.70, so the assessment using a test instrument is declared reliable.

Based on the response data of the answers to the experimental class and control class students tested the validity of the item, the level of difficulty, and the difference in power to analyze the characteristics of the items used. Test the validity of the item produces 30 items declared valid because it has a value of ≥ 0.3. The results of different power test questions show that the instrument is able to differentiate the abilities of students, so that it is stated that 25 items with accepted categories and 5 questions with accepted categories need increasement can be seen on Table 3.

Table 3. Test Results Validity of Items

Item	Person Correlation		discrimination index	Item	Person Correlation		discrimination index
1	0.460	Valid	Accepted	16	0.663	Valid	Accepted
2	0.491	Valid	Accepted	17	0.339	Valid	Accepted, Revision
3	0.397	Valid	Accepted, Revision	18	0.491	Valid	Accepted
4	0.491	Valid	Accepted	19	0.397	Valid	Accepted, Revision
5	0.460	Valid	Accepted	20	0.636	Valid	Accepted
6	0.543	Valid	Accepted	21	0.546	Valid	Accepted
7	0.491	Valid	Accepted	22	0.447	Valid	Accepted
8	0.447	Valid	Accepted	23	0.491	Valid	Accepted
9	0.336	Valid	Accepted, Revision	24	0.663	Valid	Accepted
10	0.397	Valid	Accepted, Revision	25	0.531	Valid	Accepted
11	0.491	Valid	Accepted	26	0.435	Valid	Accepted
12	0.447	Valid	Accepted	27	0.460	Valid	Accepted
13	0.460	Valid	Accepted	28	0.533	Valid	Accepted
14	0.663	Valid	Accepted	29	0.519	Valid	Accepted
15	0.504	Valid	Accepted	30	0.636	Valid	Accepted

The results of empirical data of test instruments were tested for difficulty level. Difficulty level test will show the level of difficulty of the question when used by students. The results show that from 30 items known to 14 questions with medium criteria and 16 questions with difficult criteria can be seen on Table 4.

Table 4. Test Result Difficulty index

Item		Category	Item		Category
1	0.35	Moderate	16	0.27	Difficult
2	0.23	Difficult	17	0.15	Difficult
3	0.35	Moderate	18	0.23	Difficult
4	0.23	Difficult	19	0.35	Moderate
5	0.35	Moderate	20	0.19	Difficult
6	0.31	Moderate	21	0.19	Difficult
7	0.23	Difficult	22	0.35	Moderate
8	0.35	Moderate	23	0.23	Difficult
9	0.38	Moderate	24	0.27	Difficult
10	0.35	Moderate	25	0.19	Difficult
11	0.23	Difficult	26	0.23	Difficult
12	0.35	Moderate	27	0.35	Moderate
13	0.35	Moderate	28	0.46	Moderate
14	0.27	Difficult	29	0.08	Difficult
15	0.31	Moderate	30	0.19	Difficult

Discussion

The results showed that social life skills, entrepreneurial interests, and cognitive learning outcomes of students learning with the Hi-CEP Project student worksheet were better than social life skills, entrepreneurial interests, and learning outcomes of students who learned to use teaching materials other than CEP. The results of the analysis of t-test for social life skills of students obtained a value of 0.000 <0.05 and t value -6.111 ≤ -t table (-1.677) or 6.111 ≥ t table (1.677), therefore both groups had significant differences. The t-test results is the Hi-CEP Project student worksheet is effective based on the assessment of social life skills observation in experimental class.

The analysis showed that the increasement in social life skills of the experimental group students (4.6923) was higher than the control group (1.7391). This means that the chemistry study with CEP approach can increase the social life skills of students which better than learning activities by non-CEP teaching materials implemented. One of the chemistry learning causes that can increase students 'social life skills better because CEP based learning is really ready to equip students' social life skills compared to teaching materials used in general, so students feel interested and challenged in making products that can generate profits.

CEP based learning is one of learning by involving students directly to do something (learning by doing). This kind of learning will be felt interesting by students because they can freely create and issue ideas in the manufacture, packaging, and marketing of products. Learning with the CEP approach not only invites students to understand the theory but also invites students to make products related to the theory, so that students feel that science is not only studied, but also applied in daily life (Hunde, 2010). CEP is in line with project based learning model, which provides opportunities for teachers to manage classroom learning involving project work.

Project work contains complex tasks based on the problems given to students as a first step in collecting and integrating new knowledge based on their experience in real activities, and requires students to carry out designing, conducting investigations, solving problems, making activities decision, providing opportunities for students to work independently or in groups (Mulyadi, 2015). Learning by making students as learners (student oriented) will make learning more enjoyable. Pleasant learning will create a positive impression for students on the lesson, so that it can foster learners' motivation, which in turn affects the learning outcomes of students.

The results of the N-gain calculation of entrepreneurial interest from the control group and the experimental group showed that the N-gain value of the experimental group was higher than the control group. This shows that learning with the CEP approach can influence students' entrepreneurial interest in developing a business even though the effect on students is not significant. The higher N-gain value of the experimental group compared to the control group showed that Chemistry learning with the development worksheet with the CEP approach could increase the entrepreneurial interest of students, as stated by Addiani et al. (2014); Prayitno et al. (2016); & Mulyani et al. (2014) which states that project-based learning models with CEP oriented teaching materials are more effective in increasing social life skills,

entrepreneurial interests, entrepreneurial attitudes, and student learning outcomes.

LKPD is arranged in an interesting way and there are practical activities that can increase students' knowledge in making products. The increase in student learning outcomes is a positive impact of learning Chemistry with the CEP approach that is felt fun, innovative, and full of challenges by students. Learning with the CEP approach is a Chemistry learning approach that is associated with real objects as a source of learning, so that besides conveying information about Chemistry, the CEP approach indirectly trains skills (Hands on) through the creation of useful and economically valuable products (Agustini, 2012).

Learning using the Hi-CEP Project student worksheet effectively will be able to change the conceptions of students towards scientific concepts, so that in turn their learning outcomes can be optimally increased both in terms of quality and measure (Indriyanti 2010: 3), so that they can ultimately increase learning outcomes and a positive attitude towards the world of entrepreneurship, and special life skills (Syukri, 2009; Kusuma & Siadi, 2010).

Learning with the CEP approach can change students to be more active in learning, creative in analyzing problems and making products, practicing as entrepreneurs by calculating profit or loss, and dare to offer products that they have produced, so as well as providing understanding of Hydrocarbon concepts, participants students also gain knowledge about good ways of coöperation and communication, so that they can become provision in the community after graduating later.

CONCLUSION

The t value of SLS, entrepreneurial interest, and learning outcomes respectively are 6.111; 6.162; and 2.386, so the experimental class has a significant change compared to the control class. Each Sig. (2-tailed) of SLS, entrepreneurial interest, and learning outcomes are ≤ 0.05, so the experimental class has significant differences compared to the control class. The students' Social Life Skills, entrepreneurial interest and learning outcomes increased after the Hi-CEP Project LKPD implemented, which indicated by the comparison of average experimental class higher than the control class. Therefore, The hydrocarbon LKPD based on chemoentrepreneurship which implemented in a project based learning (Hi-CEP Project LKPD) effectively increases students' Social Life Skills, entrepreneurial interest and learning outcomes.

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