JPII 7 (2) (2018) 172-180

Jurnal Pendidikan IPA Indonesia

http://journal.unnes.ac.id/index.php/jpii

CHEMOENTREPRENEURSHIP WITH COOPERATIVE INTEGRATED PROCESS INQUIRY STRATEGY TO INCREASE ENTREPRENEURIAL INTEREST AND LEARNING MOTIVATION

S. S. Sumarti*[1], S. R. S. Aris[2], R. N. Aini[3]

[1]Chemisty Department, Universitas Negeri Semarang, Indonesia
[2]Faculty Of Education,Universiti Teknologi MARA Shah Alam Selangor Malaysia
[3]SMA N 1 Mijen Demak, Indonesia

DOI: 10.15294/jpii.v7i2.12206

Accepted: February 4th, 2018. Approved: May 12th, 2018. Published: June 30th, 2018

ABSTRACT

Colloid chemistry learning at SMAN 1 Mijen Demak had a less useful impact as it has not integrated the process of making with the products needed in everyday life. The lesson also did not equip students with the skills in entering the entrepreneurship world. The observation results indicated that the XI IPA1 grade students in SMAN 1 Mijen Demak had low entrepreneurial interest and motivation. This was due to the tedious and less-motivated chemistry learning. Therefore, this study aimed to increase the students' entrepreneurial interest and learning motivation on colloid materials through Integrated Cooperative Inquiry Process strategy. A classroom action research applied in this research consisted of three cycles. Each cycle had several stages which were planning, implementation, observation, and reflection. The data on the students' entrepreneurial interest and learning motivation were collected through observation and questionnaire. The descriptive analysis was adopted in this research. The data were analysed using the average mastery and proportion. Based on the analysis of cycles I, II and III, the percentage of the students' entrepreneurship interest increased from 47.64% to 51.17%; 72,16% and 81,10% having 38 students achieved the mastery learning. While the learning motivation increased from 49.55% to 56.08%; 68.21% and 76.32% having 37 students reached the mastery learning. It concluded that the CIPI (Cooperative Integrated Process Inquiry) with CEP (Chemo entrepreneurship) approach could increase the students' entrepreneurial interest and learning motivation.

Keywords: Chemoentrepreneurship, CIPI, interest, motivation

INTRODUCTION

The colloid is a heterogeneous mixture of two or more substances in which each particle substance measures between 1 and 1000 nm and are dispersed (distributed) evenly in the medium of another substance (Bergstrom, 2017). Colloidal systems are commonly found in everyday life, such as in nature (land, water, and air), industry, medicine, living systems, and agriculture. In the industry itself, the application of colloids for production is wide enough. This is due to the important characteristic properties of colloids, which can be used to mix substances that cannot be mutually homogeneous and stable to each other for large-scale production. In this study, we applied to learn the chemistry of colloid material with the chemoentrepreneur approach. The selection of colloid materials intended to train students in making industrial products. Students chose industrial products such as soap and water purification.

Heretofore, the learning process has not given any access to students to independently

***Correspondence Address**
E-mail: srisusilogatisumarti@mail.unnes.ac.id

develop through innovating and thinking process (Arinda, 2014). SMA Negeri 1 Mijen Demak already has adequate learning facilities such as Science laboratory, ICT, and library but it was not optimally utilized. Based on observations and interviews with the chemistry teachers, 30% of the students did not join chemistry lessons, especially in the last-school hour. Though the teachers have given learning models, there were some students who did not pay attention. This was due to the students' lack of learning motivation. The teachers have not assigned the practicum courses to the students to make products, while chemistry is very close to human needs products and this, at the same time, could cultivate the students' entrepreneurial spirit. Therefore, the researchers observed the students' entrepreneurial interest and learning motivation using questionnaires. The obtained initial results of the entrepreneurial interest and learning motivation were 47.64% and 49.55% respectively. The low motivation to learn would affect the students' learning outcomes and learning objectives, which are not expectedly achieved. Suprihatin (2015) stated that teachers are very interested in improving motivation to learn through the use of varied learning methods and provide learning experiences. The statement is supported by research results from Tukiran (2017) that chemical-based learning would improve students' life skill. To overcome this problem, a research on the CEP (Chemoentrepreneurship) approach in combination with CIPI (Cooperative Integrated Process Inquiry) strategy has been established to increase the students' entrepreneurial interest and learning motivation (Supartono, 2009; Wijayanti et al., 2015).

The CEP orientates to express the skills of students. Therefore, it is possible to learn the techniques of a material processing into a useful product that have economic value as also embracing the entrepreneurial spirit. The CIPI strategy is to develop the CI (Cooperative Inquiry) learning model which aims to improve professionalism and builds meaningful relationships among individuals in groups, emphasizing practice and action. The steps included research focus list research focus list, agreeing the research focus through discussion, problem analysis, designing and prioritizing solutions to a problem, defining the implementation process and outcomes for solutions, enacting solutions, reflecting effectiveness and repeating processes if necessary (Mardis, 2013). Saputra (2016) showed the result that an effective inquiry study improved critical thinking skills and the mastery of the concept of colloid material. Susanti (2016) conducted a study indicating that inquiry model learning could improve the science process skill in junior high school students.

The CEP approach intends to increase students' entrepreneurial interest from 5 indicators, which are the feeling of pleasure or interest to a product, participating in making products, awareness of the efforts conducted, willingness to deepen science and paying attention to a target object. These are the development of the students' learning interest indicators of pleasure, participation, awareness, willingness, and attention to an object (Aritonang, 2008; Rosmiati et al., 2015). On the other side, the CIPI strategy aims to improve students' learning motivation assessed from 5 indicators of learning persistence, tenacity in facing difficulties, interests and attention to learning, achievement, and learning independence (Agustina, 2011).

In addition, here are some prior research relating with this colloid inquiry-based chemo-entrepreneurship. Project and inquiry-based learning activities were appropriately efficient and effective, therefore, science teachers could implement both teaching methods in the organization of activities appropriate for learners (Panasan & Nuangchalerm, 2010; Abdi, 2014; Carnawi, 2017; Utomo et al., 2016). The chemo-entrepreneurship (CEP) learning approach is applicable in learning to develop students' cooperation and communication since it requires students to work together to achieve the mastery learning and good communication skill (Paristiowati et al., 2105; Sadraei et al., 2017). The use of CEP approach in combination with SETS (Science, Environment, Technology, and Society) could increase the students' learning result, also, boost motivation, and interest in learning chemistry (Rohmadi, 2011). The findings showed that it was possible to achieve higher science concept learning when the scientific inquiry process was integrated into a designed setting, motivated by each meeting needs that the students articulated themselves (Mehalik et al., 2008). Our study supported these claims: inquiry lab students demonstrated a small but significant gain in science literacy and science process skills compared to students enrolled in the traditional cookbook labs. However, Instructors following in our footsteps should be aware of the challenges. Also, our inquiry lab students had their experience rated lower on course evaluations but exhibited an interesting trend toward a more honest appraisal of their own abilities and an increased appreciation of their accomplishments (Gormally et al., 2009). We believe that they are some key findings of this meta-analysis.

First, our synthesis of a historical sample of studies from the years in which inquiry-based teaching is returning to prominence indicates a positive effect of this teaching approach on student learning, with a particularly large effect of students engaging in the epistemic domain of inquiry and the procedural, epistemic, and social domains combined. Second, the meta-analysis also indicates higher effect sizes for studies that involved teacher-led activities (Furtak et al., 2012; Lazonder et al., 2016; Qureshi et al., 2017).

METHODS

This was a Classroom Action Research consisting of three cycles having four stages each: planning, implementation, observation and reflection (Sumini, 2010). This research was conducted at SMA Negeri 1 Mijen Demak, with 39 students joined as the research sample. At the planning stage, the researchers constructed the colloid material learning device with the CEP approach and CIPI strategy. Furthermore, the design was implemented in the learning process. The next stage was to observe the interests of entrepreneurship. The reflection results on the first cycle were used as the basis for preparing the draft stage in cycle II to obtain the observation results from each cycle which was in the form of the students' entrepreneurial interest description. It was said successful if more than 30 students or above 75% of 39 students reached the good and/or excellent criteria.

RESULTS AND DISCUSSION

The results showed that there was an increase in learning motivation and entrepreneurial interest before and after the action. The cycles I, II, and III showed the improvement as presented in Table 1. This increase was due to the learning of colloid material applying the CEP approach with CIPI strategy. The CEP approach gave the students opportunities to practice making products having low economic value to products with a high economic value. The increased motivation affected the success of entrepreneurship. This is supported by research from Barba-Sánchez & Atienza-Sahuquillo (2017), revealing that business is not only influenced by ability and attitude but entrepreneurial motivation. Attitudes, motivations, and interests are needed for entrepreneurial students to be able to identify business opportunities to create new job opportunities (Rosmiyati, 2015). The CIPI's strategy provided the students time to choose, discuss, present, create and sell products, make reports, and write the motto of individual activities in the diary. The application of these strategies fostered the students to be actively and independently learning, solve problems, innovative, and acquire life skills. As the results of research conducted by Nur (2016), inquiry learning improved the students' characters and science skills. This study consisted of three cycles over three weeks. Each week included one cycle with six hours of lesson time. The observation sheet of the students' entrepreneurial interest and motivation in the cycle I, II and III assessed by the observers is presented in Table 1.

Table 1. The Observation Results in Cycle I, II and III

Observation sheets	Information	Cycle I	Cycle II	Cycle III
Entrepreneurial interest	Pleasure or interest (%)	50,77	69,77	82,62
	Participation (%)	62,30	83,01	81,41
	Awareness (%)	50,21	75,68	86,71
	Willingness (%)	45,71	63,08	77,82
	Attention to an object (%)	46,86	69,26	76,96
	Average score	51,17	72,16	81,10
	Students achieving the mastery learning threshold	5	34	38
Learning motivation	Learning persistence (%)	59,71	66,99	79,55
	Tenacity in dealing with problems (%)	47,76	68,59	80,77
	Interest and attention to learning (%)	57,05	69,23	74,36
	Learning achievement (%)	64,42	71,03	73,08
	Learning independency (%)	51,47	65,22	76,32
	Average score	56,08	68,21	76,32
	Students achieving the mastery learning threshold	8	25	37

In the first cycle of the first meeting, the students picked products from the Student Worksheet, discussed how to make products, presented and provided guidance. On the second meeting, the students made the products in the laboratory and sold it. On the third meeting, the students worked on questions, submitted reports, diaries, notebooks, repeated the materials learned and filled in the questionnaires. This indicated that the students were the center of activities during the learning process (Mandal, 2009). The entrepreneurial interest and learning motivation were assessed by five observers. The Cycle I has not fulfilled the 'successful' indicators based on the results presented in Table 1. The average scores of entrepreneurial interest and learning motivation in the Cycle I were 51.17% and 56.08% respectively. Inasmuch as the scores had not fulfilled the 75% of the completeness criteria, then reflection was done. Problems identified that the students have not been able to create product ideas, responsive, cooperative and confident while offering the product. They came late, considered products made as the schoolwork, had passive presentations, completed and submitted assignments late. Also, they were lack of reference sources, less paid attention to teachers, brought incomplete tools, practicum materials, and learning tools, lack of supervision, late in arranging reports and presentation, and had bad time-management to study chemistry.

In the second cycle, the learning process was carried out in the library. The activities were conducted in accordance with the reflection of cycle I that teacher re-explained the CEP approach with CIPI strategy, asked questions to students who did not pay attention, applied the jigsaw method (aiming to repeat the material) to attract attention, provided direction about the learning equipment, data tools and materials for lab, community needs, and supervision schedules, elucidated the content and format of reports and presentation materials, gave direction for product offers, reminded the students to fill in the diaries and score reductions for those who did not complete the tasks on time. The learning cycle II has not met the 'successful' indicator as seen in Table 1. The cycle II got the average score for entrepreneurship interest and learning motivation of 72.16% and 65.22% respectively. Since it has not accomplished the 75% completeness criteria, then reflection was done. The identified problems were that the students were absent and/or late, lack of reference sources, supervision, report arrangement, time-management skill, responding skill to opinions, and delayed the task and submission.

In the Cycle III, the learning process was conducted in the ICT room having sufficient internet connection. On this cycle, the activities performed on the basis of cycle II reflection which was scheduling the supervision at least twice for each cycle, elucidating the content and format of the report, taking time to fill the diary, changing the lab, and creating a brochure to introduce the products. The learning process of cycle III has met the 'successful' indicator based on Table 1. The average scores of Cycle II on the students' entrepreneurial interest and learning motivation were respectively 81.10% and 76.32%. The indicators have fulfilled the mastery learning completeness of more than 75%, then the cycle was stopped.

The students' responses to learning were measured by questionnaires. The results are presented in Table 2 and Table 3.

Table 2. The Questionnaire Results of Entrepreneurial Interest in Cycle I, II, and III

Information	Cycle I	Cycle II	Cycle III
Students achieving the mastery learning threshold	39	24	39
Students not aachieving the mastery learning threshold	0	15	0
Mastery learning percentage (%)	100	61,54	100
Pleasure or interest (%)	87,31	71,79	88,85
Participation (%)	85,58	69,55	88,78
Awareness (%)	91,48	73,26	91,85
Willingness (%)	81,55	61,67	83,46
Attention to an object(%)	85,98	67,71	87,50
Classical mastery (%)	86,30	68,80	88,09

Table 2 indicates that the students' response to the CEP learning with CIPI strategy, in terms of entrepreneurship interest, decreased by 15 students from the cycle I of 39 students to 24 students. While in the Cycle II to cycle III it enhanced by 15 students to 39 students.

Table 3. The Questionnaire Results of Learning Motivation in Cycle I, II, and III

Information	Cycle I	Cycle II	Cycle III
Students achieving the mastery learning threshold	36	22	37
Students not achieving the mastery learning threshold	3	17	2
Mastery learning percentage (%)	92,31	56,41	94,87
Learning persistence (%)	85,26	66,03	90,49
Tenacity in dealing with problems (%)	79,49	58,55	86,97
Interest and attention to learning (%)	64,90	64,74	71,96
Learning achievement (%)	84,62	66,54	90,90
Learning independency (%)	66,51	62,82	72,28
Classical mastery(%)	76,15	63,74	82,52

Table 3 reveals that the students' response to CEP learning with CIPI strategy on learning motivation decreased by 14 students from cycle I of 36 students to 22 students. While in the Cycle II to cycle III, it expanded by 15 students to 37 students.

The entrepreneurial interest was assessed from five indicators which expanded into 18 sub-indicators and summed up in statements on the observation sheet. (1) The indicator of pleasure and/or interest. For the sub-indicator of looking for reference sources, there were nine students in the Cycle I who completed searching the reference sources through observation and library research. After the teacher conducted reflection by inviting the students to study in the library, the number rose to 16 students. The reflection was done then by studying in the ICT room, which increased the number of the students to 24 students. For the sub-indicator of preparing tools and materials in the Cycle 1, there were 19 students brought tools and materials in accordance with the plan. This was a result of the reflection activity in which teacher invited the students to examine the workings of making the product so that the appropriate tools and materials were known. Therefore, all students completed the stage during the second and third cycles. The sub-indicator of supervision conducted in pre and while the product was made, there was one student having two times supervision completed the sub-indicators. This occurred after the teacher held the reflection activity in which teacher invited the students to have supervision. As a result, the number of students completing the sub-indicator rose to 21 students in the Cycle II and 36 students in the Cycle III. For the sub-indicator of human need problems, there were 10 students completed in the Cycle I having their products used to meet the needs and earn money. A reflection was carried out to observe the products for its health impacts. In the Cycle II, the completed students increased by 29 students, and 37 students in the Cycle III. For the sub-indicators of creating product ideas, there were 10 students achieved the mastery learning by making an innovation to their own products. The reflection was carried out by re-explaining the CEP approach with CIPI strategy for observation and innovation on the products, resulting in 18 students completed the sub-indicators. Since it has not fulfilled the mastery learning threshold, the further reflection was undertaken by making posters, resulting in 28 completed students in the Cycle III.

Second, the indicator of participation. The sub-indicators included making notes about the products, of which there were 18 students in the Cycle I completed by recording materials and having a print out of the product. A reflection was taken by assigning students to find other sources than the Student Worksheet and record it since the sources provided was insufficient. The students reaching the sub-indicator in the Cycle II were 31 one and got down in the Cycle III to 22 students. This was due to the third cycle's assignment of only making posters. For the sub-indicator of references for making products, there were 21 students in the Cycle I who completed by carrying their reference books, notes, Student Worksheet, Chemistry books, and internet printout. Assigned were the students to find other sources, resulting in the rising completed students to 35 ones in the Cycle III.

Third, the indicator of awareness. The sub-indicator of business was performed when the product was less perfect. In the Cycle 1, there were 11 students completed by examining the products, asking the teacher, and discussing with

friends. A reflection was conducted by discussing products together with consumers and providing innovation (Susilogati, 2008). 34 students accomplished in the Cycle II, and 38 students in the Cycle III. For the sub-indicator of product planning accuracy, there were 21 students in the Cycle I completed by creating and innovating the products as presented. A reflection was carried out to make decisions, resulting in all students achieved the sub-indicator in the Cycle II and III. For the sub-indicator of accuracy in making the report, there was no student completed because no one achieved the score of 80-100. This was due to the students' inexperience in report making. The reflection on how to arrange a report was done. Finally, 19 students in the Cycle II and 35 students in the Cycle III had accomplished the sub-indicators.

Fourth, the indicator of willingness. For the sub-indicator of analyzing financial products, there were 17 students on the Cycle I completed by getting all the tools and materials purchased or rented, finding out the price in the market and calculating it whether or not they would make a profit. The reflection on re-explaining how to analyze costs was done. On the cycle II, there were 33 students and up to 37 students achieved on the next cycle. For the sub-indicator of supervision which was undertaken after the products were ready, 9 students completed the sub-indicator on the Cycle I by having supervision twice, at least. As a result, 25 students accomplished the sub-indicator on the Cycle II and 36 students on the cycle III. For the sub-indicator of students' willingness to explore the product, there was no student on the Cycle I achieved the threshold though they were given opportunities to choose products and innovate more on it. The reflection was done by directing the students to select the preferred products which were easy to make and sell. Therefore, 21 students completed the sub-indicator in the Cycle II. The reflection was needed to study the CEP approach in combination with CIPI strategy in depth, resulting in the number of completed students who rose to 29. For the sub-indicator of performance during the presentation, three students reached it in the Cycle I by asking, answering, resulting, daring to speak and express opinions. The reflection was performed by requiring each group to ask questions. In the Cycle II, there were 17 students completed and given a chance for the students to comment. In the Cycle III, the number fell to 16 students due to the limited time of presentation. Hence, the teacher gave a solution to write down the questions and answers submit it to the teacher to be assessed.

Fifth, the indicator of attention to an object. For the sub-indicator of marketing, only eight students completed since their products were sold out. This low result was because of their lack of confidence. The reflection was done, deciding to sell the product collectively, and there were 18 students achieved it in the Cycle II. In as much as the products were less popular and attractive, a reflection on how to make it familiar was conducted by creating brochures. As a result, there were 26 achieved the mastery learning threshold of the sub-indicators.

The reflection was given to the students to be more spirited in promoting the products to consumers. For the sub-indicator of marketing tricks, 14 students completed by offering the products to their classmates, friends of different classes, teachers and sell it in the school canteen or cooperative. This happened since the students had no idea where to sell the products. In the Cycle II, 33 students completed and went up to 37 students in the Cycle III. The students created posters in the Cycle III and distributed it to wider area including the school's wall magazine. This is in line with the purpose of CIPI that is to engage students in a study that they find themselves and work in a team to document, describe and disseminate their insights from the experiences. For the sub-indicator of examining the tools and materials used for the lab, there were 10 students in the Cycle I who completed it by arranging the tools and materials on the table completely, neatly, and cleanly before the lab begins. This result was due to the less conducive learning so that they were busy with their respective jobs. As a result, they did not have time to prepare the tools and materials. The reflection was carried out by providing direction to prepare tools and materials and place it on the table so that the observers can directly assess. In the Cycle II, 34 students completed and were up to 35 students in the Cycle III. For the sub-Indicator of responding to opinions, there were 10 students accomplished the Cycle I, seen from their ethics in responding, for instance, by rising up a hand, standing, mentioning names and numbers, expressing opinions and thanking. A lot of students did not achieve the sub-indicator because of their lack of confidence. In addition, they used to ask before the teacher's invitation. The reflection was performed by directing the students to ameliorate their ethics. As a result, 12 students succeeded and the number went up to 15 students in the Cycle III. Nevertheless, the limited time allotment prevented them to convey their opinion since it took longer time

to boost their confidence. This is in accordance with research by Ospina (2008), that the activities can improve students' confidence in the learning process done in groups.

Learning motivation was assessed from five indicators expanded into 12 sub-indicators and summed up in statements on the observation sheet. First, The indicator of learning persistence. For the sub-indicator of attendance, 19 students succeeded by attending the chemistry class while the others did not. It happened since the chemistry was in the last-school hour and the teacher did not provide an interesting method. The reflection was carried out by suggesting the CEP approach with CIPI strategy to draw the students' attention. 33 students attended the class in the Cycle II and all of them were present in the Cycle III. For the sub-indicator of following the learning process, there were 4 students succeeded by coming to the class 10 minutes earlier. The cause and reflection of this sub-indicator were similar to the previous one. In cycle II, 15 students completed and increased to 35 students in the Cycle III. For the sub-indicators of owning the learning devices, there were 20 students succeeded in the Cycle I by completing their learning tools such as Student Worksheet, chemistry books, stationery, and notebooks. Most students thought that the Student Worksheet is sufficient for learning source. The teacher then gave a reflection on why they should look for other sources like chemistry books, or internet sources. In the second cycle, the number rose to 30 students and 33 students in the Cycle III. For the sub-indicator of home study, 23 students completed by studying at home like deepening the material, doing the assignments, learning before having tests, and reading the materials. Most of them used to study only when they had an assignment. The reflection was about the teacher multiply the assignment and informed the next topic for the next lesson. However, only 10 students succeeded because they did the tasks at school and forgot to fill their diary. The given reflection emphasized on the diary filling at the end of each meeting. In the third cycle, 20 students completed but the same problem remained. Therefore, the teacher should check every student's diary about the tasks assigned.

Second, the indicator of tenacity in dealing with problems. For the sub-indicator of attitudes toward difficulties, 9 students in Cycle I completed by being responsive in asking and responding opinions from teachers or friends when having difficulty in understanding the materials. Most students were accustomed to passively following the class, so, the reflection was done by encouraging the students to actively involved in the classroom activities. In the Cycle II, there were 17 students succeeded. The rests were hesitant and afraid of making mistakes while either responding or asking questions. The teacher provided reflection so that the students could respond both intentionally and spontaneously. Thus, the observers and teacher knew the development of passive students. In the Cycle III, there were 28 students completed. For the sub-indicator of effort to overcome difficulties, 10 students succeeded in the Cycle I by discussing with friends in a group, different groups, different classes and teachers, then looking for reference sources from books or the internet. Nevertheless, many of them were silent and passively waited for their friends to be active in overcoming difficulties. The reflection was given to direct students enlivened the class discussion, resulting in 28 students succeeded on the Cycle II. However, silent students remained there. The teacher then suggested the active students help the passive ones in the discussion. Finally, 36 students succeeded in the Cycle III.

Third, the indicator of interest and attention to learning. For the sub-indicator of classroom habits, there were 25 students in the Cycle I succeeded by sitting and paying attention to the teacher who explained the materials for the lab activities. However, a lot of them only paid attention to the communication device they brought instead of the teacher. The teacher then gave a reflection by inviting the students to listen and respect to the person in front. 30 students succeeded in the Cycle II and all of them succeeded in the Cycle III. For the sub-indicator of spirit in following learning, 14 students completed by having two-way discussion extended by a question and answer session. Nevertheless, many students did not join the presentation and the presenting group only had one representation to speak while the others are silent. Therefore, the reflection was given to encourage all the presenting group members to actively involve in the presentation. In the Cycle II, 25 students completed. The Q and A session was quite good but lacked responses. The reflection was carried out in order to inspire the students to add or refute answers, resulting in livelier Q and A session. Finally, 31 students succeeded in the Cycle III.

Fourth, the indicator of learning achievement. For the sub-indicator of achievement willingness, 25 students in the Cycle I completed the threshold by doing assignments, submitting on time, doing individual and group assignments, and actively asking or answering questions eit-

her from the teacher or friends. The result was due to many students did not complete and submit the tasks on time. The teacher reflected on reducing the score for those who did not do the assignments and submit them on time. In the cycle II, 31 students completed and went up to 36 students in the Cycle III. For the sub-indicator of learning outcomes obtained in the Cycle I, 19 students completed having their score ranging from 80-100 on deepening the colloid topic. They got their answers wrong on the conclusion part, thus, a further discussion on the matter was done. There were 23 students in the Cycle II completed. The students found it difficult to answer the questions of colloid properties and the use of colloid for industrial field. The reflection was conducted through remedial, resulting in 21 students succeeded in the Cycle III.

Fifth, the indicator of learning independence. For the sub-indicator of tasks completion, there was no student in the Cycle I completed it. They could not score 80-100 on the presentation made. This was because they have never made presentation materials before. Therefore, the teacher performed the reflection by explaining each format and terms given. In the Cycle II, 20 students completed it. The same reflection was done and the number went up to 35 students completed in the Cycle III. For the sub-indicator making use of the out-of-class time, there were 6 students succeeded by taking the time to study chemistry through discussion, working on and practicing chemistry question and going to the library to borrow chemistry books. But, most students chatted in the classroom rather than read chemistry books. The teacher then gave the reflection by asking the students questions about their preparation at each meeting. In the cycle II, 17 students completed. They forgot to fill in the diary and discuss the assigned tasks at home. The reflection emphasized on the importance of filling in the diary about their daily classroom activities and submitting it at the end of the lesson. Finally, 22 students succeeded in the Cycle III, in which the teacher did not assign many tasks and only improve the products in the cycle II. Thus, the students just made notes and went to the library to borrow chemistry books.

CONCLUSION

Based on the result of research and discussion, it concluded that the CEP and CIPI strategy could increase the students' entrepreneurial interest in the Cycle I 51,17% to 72,16% in the Cycle II and 81,10% in the Cycle III, and learning motivation in the Cycle I 56,08% to 68.21% in the Cycle II and 76.32% in the Cycle III. Therefore, all the indicators studied such as the pleasure of interest, participation, awareness, willingness, attention to an object there has been a significant improvement in the ability of students.

REFERENCES

Abdi, A. (2014). The Effect of Inquiry-Based Learning Method on Students' Academic Achievement in Science Course. *Universal journal of educational Research*, *2*(1), 37-41.

Agustina, L. (2011). Pengaruh Motivasi Belajar Siswa Terhadap Prestasi Belajar IPA di Sekolah Dasar. *Jurnal Penelitian Pendidikan*. 12(1): 81-86

Aritonang, K. (2008). Minat dan Motivasi dalam Meningkatkan Hasil Belajar Siswa. *Jurnal Pendidikan Penabur, 2*(2), 101-110.

Asmorowati, D. S. (2009). Pembelajaran Kimia Menggunakan Kolaborasi Konstruktif dan Inkuiri Berorientasi Chemo-Entrepreneurship. *Jurnal Inovasi Pendidikan Kimia, 3*(2), 46-57.

Barba-Sánchez, V., & Atienza-Sahuquillo, C. (2017). Entrepreneurial Motivation and Self-employment: Evidence from Expectancy Theory. I*nternational Entrepreneurship and Management Journal*, *13*(4), 1097-1115.

Bergstrom, L. (2017). *Surface and Colloid Chemistry in Advanced Ceramics Processing*. Routledge.

Carnawi, C., Sudarmin, S., & Wijayati, N. (2017). Application of Project Based Learning (PBL) Model for Materials of Salt Hydrolysis to Encourage Students' Entrepreneurship Behaviour. *International Journal of Active Learning*, *2*(1), 50-58.

Furtak, E. M., Seidel, T., Iverson, H., & Briggs, D. C. (2012). Experimental and Quasi-Experimental Studies of Inquiry-based Science Teaching: A Meta-analysis. *Review of educational research*, *82*(3), 300-329.

Gormally, C., Brickman, P., Hallar, B., & Armstrong, N. (2009). Effects of Inquiry-based Learning on Students' Science Literacy Skills and Confidence. *International journal for the scholarship of teaching and learning*, *3*(2), 1-22.

Lazonder, A. W., & Harmsen, R. (2016). Meta-analysis of Inquiry-based Learning: Effects of Guidance. *Review of Educational Research*, *86*(3), 681-718.

Mandal, R. (2009). Cooperative Learning Strategies to Enhance Writing Skills. *The Modern Journal of Applied Linguistics*, *2*(1), 35-43

Mardis, M. A. (2013). Stakeholders as Researchers: Cooperative Inquiry and the Leadership Role of School Librarians Qualitative and Quantitative Methods in Libraries (Qqml). *Eurasia Journal of Mathematics, Science & Technology Education, 6*(4), 271-285.

Mehalik, M. M., Doppelt, Y., & Schuun, C. D. (2008). Middle-school Science through Design-based

Learning Versus Scripted Inquiry: Better Overall Science Concept Learning and Equity Gap Reduction. *Journal of Engineering Education*, *97*(1), 71-85.

Nur, A. H., Sopandi, W., & Mustapha, I. (2016). Analisis Pengembangan Karakter, Keterampilan Proses Sains, dan Penguasaan Konsep Siswa Pada Topik Koloid Melalui Pembelajaran Inkuiri Terbimbing. *Edusains UIN Syarif Hidayatullah, 8*(2), 157-165.

Ospina, S., El Hadidy, W., & Hofmann-Pinilla, A. (2008). Cooperative inquiry for learning and connectedness. *Action Learning: Research and Practice, 5*(2), 131-147.

Panasan, M., & Nuangchalerm, P. (2010). Learning Outcomes of Project-Based and Inquiry-Based Learning Activities. *Online Submission*, *6*(2), 252-255.

Paristiowati, M., Slamet, R., & Sebastian, R. (2015). Chemo-entrepreneurship: Learning Approach for Improving Student's Cooperation and Communication (Case Study at Secondary School, Jakarta). *Procedia-Social and Behavioral Sciences*, *174*(2015), 1723-1730.

Qureshi, S., Vishnumolakala, V. R., Southam, D. C., & Treagust, D. F. (2017). Inquiry-based Chemistry Education in a High-Context Culture: A Qatari Case Study. *International Journal of Science and Mathematics Education*, *15*(6), 1017-1038.

Rohmadi, M. (2011). Pembelajaran Dengan Pendekatan Cep (Chemo-Entrepreneurship) Yang Bervisi SETS (Sceince, Environment, Technology and Society) Guna Meningkatkan Kualitas Pembelajaran. *Educatio*, *6*(1), 17-37.

Rosmiati, R., Junias, D. T. S., & Munawar, M. (2015). Sikap, Motivasi, dan Minat Berwirausaha Mahasiswa. *Jurnal Manajemen dan Kewirausahaan, 17*(1), 21-30.

Sadraei, R., Rezaei, E., & Sadraei, R. (2017). International Chemo-Entrepreneurship in Biotechnology: Factors Limiting Transfer of Biotechnology from Academic Entrepreneurship to Industrial.

Saputra, Z. A. H., Yuanita, L., & Ibrahim, M. (2017). Pengembangan Perangkat Pembelajaran Kimia Model Inkuiri untuk Meningkatkan Penguasaan Konsep dan Melatih Keterampilan Berpikir Kritis Siswa SMA. *JPPS (Jurnal Penelitian Pendidikan Sains), 6*(1), 1218-1223.

Sumini, T. (2010). Penelitian Tindakan Kelas dan Pengembangan Profesi Guru. *Jurnal Pendidikan dan Kebudayaan, 15*(1), 225-236

Supartono. (2009). Pembelajaran Kimia Menggunakan Kolaborasi Konstruktif dan Inkuiri Berorientasi Chemo-Entrepreneurship. *Jurnal Inovasi Pendidikan Kimia., 3*(2), 476-483.

Suprihatin, S. (2015). Upaya Guru dalam Meningkatkan Motivasi Belajar Siswa. *Jurnal Pendidikan Ekonomi UM Metro, 3*(1), 73-82.

Susanti, R., Supardi, Z. I., & Indana, S. (2017). Pengembangan Perangkat Pembelajaran IPA Model Inkuiri Terbimbing untuk Melatihkan Keterampilan Proses Sains Siswa SMP. *JPPS (Jurnal Penelitian Pendidikan Sains), 6*(1), 1255-1264.

Sumarti, S. S. (2008). Peningkatan Jiwa Kewirausahaan Mahasiswa Calon Guru Kimia dengan Pembelajaran Praktikum Kimia Dasar Berorientasi Chemoe-Ntrepreneurship. *Jurnal Inovasi Pendidikan Kimia, 2*(2), 38-50.

Hidayati, N. (2017). Developing Teaching Materials of Natural Product Chemistry to Increase Student's Life Skills. *Journal of Turkish Science Education (TUSED), 14*(2), 27-41.

Utomo, A. B., Widodo, J., Supartono, S., & Haryono, H. (2016). The Development of Training Management Model of Soft Skill Learning Integrated With Chemo-Entrepreneurship (CEP) For High School Chemistry Teachers in Semarang. *The Journal of Educational Development*, *4*(1), 83-90.

Wijayanti, A. D., & Susatyo, E. B. (2015). Penerapan Pembelajaran Group Investigation Berbasis Inkuiri Terbimbing untuk Meningkatkan Hasil Belajar Koloid. J*urnal Inovasi Pendidikan Kimia, 8*(1).