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THE EFFECT OF CHEMO-ENTREPRENEURSHIP-BASED CHEMISTRY LEARNING INTEGRATED WITH VALUES EDUCATION ON ELEVENTH-GRADE STUDENTS' LEARNING OUTCOMES AND MOTIVATION

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ABSTRACT

Chemistry learning innovations must be continuously pursued to prepare students for Era Society 5.0 and overcome academic and non-academic problems, including juvenile delinquency. One of the chemistry learning innovations carried out by this study is the application of chemo-entrepreneurship-based chemistry learning integrated with Values Education (VE). This study aimed to offer evidence for developing student learning outcomes and motivation through integrating values education into chemo-entrepreneurship-based chemistry learning. A quasi-experimental study was conducted to determine the effect of chemo-entrepreneurship-based chemistry learning integrated with VE on learning outcomes (affective and cognitive domains) and the motivation of grade XI students at Senior Secondary School Ajisaka, Tulang Bawang, Lampung. The sample was selected using a saturated cluster random sampling technique to determine the control group (XI-1) and the experimental group (XI-2). Students learning outcomes on the affective domain and motivation were measured by the Mann-Whitney test while learning outcomes on the cognitive domain was measured by independent sample t-tests on pretests and posttests taken by students. The study demonstrated that students exhibited a statistically significant change in learning outcomes and motivation due to these treatments.

Keywords: chemo-entrepreneurship, learning motivation, learning outcomes, quasi experimental, value education

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1. INTRODUCTION

We live in the era of Society 5.0, a concept centered on society and humans (Handayani dan Muliastrini, 2020). This era is marked by the rapid development of technology, which impacts all aspects of life, including education. The use of technology has increased in every classroom. Technology makes classrooms more manageable, effective, and efficient (Rahayu, 2021). Although the positive impacts of technology outweigh the negative ones, the negatives mustn't be disregarded because they can be detrimental. One of them is the rampant deviant behavior of students in the school environment.

Any behavior carried out by adolescents that deviates from the norms of criminal law is called juvenile delinquency (Sumara dkk., 2017). This behavior can harm students and those around them. This deviant behavior also often occurs in the school environment. One of the contributing factors is that the inculcation of values in learning activities needs to be maximized, even though education should play an essential role in developing values and morals (Das(Bhakat) dan Paul, 2020). Value education is vital to help everyone improve the value system held and used in everyday life (Indrani, 2012).

Education in the Society 5.0 era emphasizes character, morals, and exemplary education (Awulloh dkk., 2021). Education in schools should pay attention to the development of good behavior in students. Educators generally believe that value education is an integral part of education, where value education must be included in all subjects and school culture at all levels of education (Şahin, 2019). Values education is not only the task of religious and civic education teachers, but all disciplines have the same responsibility, including chemistry. If moral education is only imposed on religious and/or citizenship teachers, morality will only develop in memorizing religious doctrines and the government's ideological views (Permaisari, 2011). Values education in schools must also lead to the development of values in ways of thinking scientifically, patience, cooperation, responsibility, tolerance, and developing a sense of brotherhood regardless of religion; race; gender; and caste (Lakshmi dan Paul, 2018).

Education in schools should not only develop students' cognitive abilities and skills, but also foster moral intelligence, make students have noble character (Azra, 2002) and pay attention to students' emotional development. The existence of value education in the curriculum is believed to be a way to foster student morality (Aneja, 2014). In addition to school culture and environment, classroom learning also has a major influence on the perspective and behavior of a teenager/student (Sukitman, 2016).

Several studies have shown a positive impact on values education integrated through chemistry learning. Research conducted by Ambarwati, dkk (2017) concluded that integrating values education and chemistry learning can improve learning outcomes and student motivation. Integrating value education in learning also aims to give students new experiences and strengthen their moral values and character (Permaisari, 2011). Therefore, integrating value education into chemistry subjects is important to do as an effort to improve students' emotional development and affective abilities (Imron dan Mohlisin, 2021).

In addition to the problem of juvenile delinquency, high school/vocational high school graduate unemployment ranks highest. Data from the Central Statistics Agency (BPS) through its official website (www.bps.go.id) records the number of open unemployed in Indonesia according to the most increased education completed as of 2021 based on the results of the National Labor Force Survey (Sakernas) dominated by high school and

vocational graduates. SMA/SMK graduates who were unemployed reached 9.09 and 11.13 percent, respectively. In addition, based on BPS data for the last 10 years, SMA/SMK graduates have always been the highest contributor to the unemployment rate in Indonesia. The government has made various efforts to reduce the unemployment rate for SMA/SMK graduates through reforming the curriculum. At the primary and secondary education levels, the Ministry of Education and Culture outlines strategic steps in implementing the 2013 Curriculum, one of which is through entrepreneurship skills. Mursalin (2020) states that the goals of the 2013 Curriculum will be achieved when students have an entrepreneurial spirit and skills. Therefore, teachers need to insert entrepreneurial content into learning, one of which is through a chemo-entrepreneurship approach.

Chemo-entrepreneurship is a contextual chemistry teaching and learning approach that links the content with real objects which has economic values (Kusuma dan Siadi (2010); Listari (2013); Wibowo dan Ariyatun (2018); Mursalin (2020); Puspitasari dan Santoso (2020)). Through this approach, students will have the opportunity to learn how to transform chemical objects into useful products that have economic value and foster an entrepreneurial spirit. The chemo-entrepreneurship approach also leads students to become more creative (Wibowo & Ariyatun, 2018), innovative (Wulandari dkk., 2018), and gain new experience (Ismulyati dan Ikhwani (2018), so that they can apply the knowledge that has been learned in everyday life (Supartono dkk., 2009). In addition, the chemo-entrepreneurship approach can increase interest in learning and student learning outcomes (Ismulyati dan Ikhwani (2018); and influence students' cognitive and affective learning outcomes (Listari, 2013).

Many chemical materials, including the Colloid System, can be delivered using a chemo-entrepreneurship approach (Urfa dkk., 2019). This material is very close to everyday life, but it is difficult for some students (Rakhmadhani dkk., 2013) because it contains abstract concepts and many chemical terms that are difficult to understand.

Selection of the right learning approach will affect students' success while increasing learning effectiveness. Learning is effective if the learning objectives are achieved and students are motivated to learn. Emda (2017) mentioned that learning motivation is one of the keys to achieving learning goals. It can be noted that learning motivation in students causes learning activities to run effectively (Sidik dan Sobandi, 2018). Therefore, learning motivation is one of the factors that determine success in learning; for this reason, high motivation is needed to achieve good learning outcomes (Rumhadi, 2017).

This study will focus on learning chemistry using a chemo-entrepreneurship approach integrated with values education to determine how it influences students' learning outcomes (affective and cognitive) and learning motivation. In addition, this research was conducted to provide new experiences for students and is expected to be a learning reference for chemistry teachers so that learning in schools is more varied.

2. METHOD

A quasi-experimental with Nonequivalent Control Pretest Posttest Group Design was applied to determine learning outcomes and student motivation in colloidal system material through testing chemistry learning strategies based on chemo-entrepreneurship integrated value education. This study involved all students of grade XI Ajisaka High School, totaling 67 students from two classes, namely XI MIA 1 and XI MIA 2. Then a cluster random technique was carried out to select the experimental group (XI MIA 2) and the control group (XI MIA 1).

Data collection was carried out in eight meetings, four in the experimental and four in the control groups. The meetings include pretest, main activity (discussion of colloid system material), posttest, and post-scale. Pretest activity was conducted at the first meeting before the learning began. The second activity was carried out by discussing colloid material in two meetings. The last activity was the posttest and continued with the post-scale.

Data were collected from questionnaire (to seek the affective learning outcomes and motivation), tests (to measure students' cognitive learning outcomes. Types of data and data analysis techniques through statistical tests conducted in this study are presented in Table 1.

Table 1. Types of data and statistical tests on research variables

Variable	Type of data	Test prerequisite	Statistic test
Affective learning outcomes	Ordinal	-	Mann-Whitney
Cognitive learning outcomes	Interval	Normality & homogeneity	Independent sample T-test
Learning motivation	Ordinal	-	Mann-Whitney

Before data collection, the student affective learning outcomes questionnaire was validated by content and constructs. The affective learning outcomes questionnaire comprises 25 statements divided into 15 positive and 10 negative statements. The content and construct validation questionnaires were tested on students (empirical validation). The questionnaire results were then analyzed using the SPSS 20 program to determine their validity and reliability.

Based on the empirical test results obtained from 21 valid and four invalid statement items, only 21 are used to measure students' affective learning outcomes. The reliability of the affective learning outcomes questionnaire shows a Cronbach's alpha value of 0.737, which means high. An instrument is reliable if it has an Alpha coefficient of at least 0.7 (Widoyoko, 2012).

The instrument for assessing students' cognitive learning outcomes consists of 20 multiple-choice questions. The content and construct validation test questions for students' cognitive learning outcomes were tested empirically in class XII MIA 1 and 2 of Senior Secondary School Ajisaka with 40 students who had previously received colloid material. Based on the results of the analysis using the SPSS 20 program, there are 15 valid multiple-choice questions with significant correlations at the 1% and 5% levels of the 20 multiple-choice questions. The reliability of multiple-choice questions also showed high results (Cronbach's alpha value of 0.716). Further analysis tests were conducted with Anates V4 software for multiple choice questions to determine the items' discriminating power and difficulty level. The results are in Table 2.

Table 2. Differentiating power and level of difficulty of pretest and posttest questions

No.	Differentiating power	Level of difficulty
1.	72.73	Fair
2.	36.36	Difficult
3.	54.55	Difficult
4.	18.18	Difficult
5.	36.36	Fair
6.	36.36	Difficult
7.	72.73	Difficult

No.	Differentiating power	Level of difficulty
8.	27.27	Fair
9.	63.64	Fair
10.	36.36	Fair
11.	45.45	Very Difficult
12.	45.45	Fair
13.	36.36	Fair
14.	45.45	Fair
15.	72.73	Fair

Before analyzing cognitive learning outcomes data, a prerequisite test (normality and homogeneity test) was carried out to determine whether the resulting data is normal and homogeneous (Sugiyono, 2013). If the data is normally distributed and homogeneous, parametric statistical tests can be carried out, namely the t-test.

The normality test was carried out using the Kolmogrov-Smirnov of SPSS 20. The significance value obtained in the experimental and control classes was more than 0.05 (> 0.05); which means the data is normally distributed. The normality test results on students' cognitive learning outcomes data can be seen in Table 3.

Table 3. Normality test results of students' cognitive learning outcomes

Tests of Normality

		Kolmogorov-Smirnov[a]		
	Kelas	Statistic	df	Sig.
Hasil Belajar Kognitif	Pretest Kontrol	.141	30	.133
	Posttest Kontol	.123	30	.200*
	Pretest Ekperimen	.153	30	.071
	Posttest Eksperimen	.154	30	.067

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

The homogeneity test was carried out using Levene's Test for Equality of SPSS 20, and a significance value of 0.963 was obtained. Based on the results of the homogeneity test scores on cognitive learning outcomes, a significance value of more than the limit of 0.05 (Sig. > 0.05) means that the cognitive learning outcomes of students in the experimental and control classes have the same or homogeneous variance.

Because the cognitive learning outcomes data fulfills the prerequisite test, a t-test can be conducted to see whether there are differences in chemo-entrepreneurship-based learning integrated with values education and cognitive learning outcomes. The t-test used in this study was the independent sample T-test to compare the experimental group and the control group (Sugiyono, 2013), while to find out the increase in student learning outcomes before and after the treatment was given the N-Gain test.

Questionnaires of students' learning motivation were first validated by content and constructs and then tested on students (empirical validation). The learning motivation questionnaire consists of 20 statements divided into 14 positive and 6 negative statements. Data from empirical test results were then analyzed using the SPSS 20 to determine its validity and reliability. They obtained 17 valid statements and three invalid statements, so only 17 statement items were used to measure student learning motivation. The reliability of the data for filling in the learning motivation questionnaire shows a Cronbach's alpha value of 0.749, which is in high category.

3. FINDINGS AND DISCUSSION

Test the hypothesis on affective learning outcome variables

Affective learning outcomes questionnaire items obtained from the experimental class and control class were then analyzed using the Mann-Whitney test to find out the effect of chemistry learning based on chemo-entrepreneurship integrated value education on students' affective learning outcomes. The formulation of the hypothesis, are:

H_0 : There is no significant effect between chemistry learning based on chemo-entrepreneurship integrated with values education on the learning outcomes of class XI MIA students at Senior Secondary School Ajisaka

H_a : There is a significant influence between chemistry learning based on chemo-entrepreneurship integrated with values education on the learning outcomes of class XI MIA students at Senior Secondary School Ajisaka

The decision criterion in this test is if the significance value (2-tailed) < 0.05, then H_0 is rejected. The results of the analysis show that the Asymp. Sig. (2-tailed) is 0.000 (see Table 4), so the significance value (2-tailed) < 0.05, then H_0 is rejected, meaning that there is a significant difference from chemistry learning based on chemo-entrepreneurship integrated value education on students' affective learning outcomes.

Table 4. Mann-Whitney test results for affective learning outcomes

Test Statistics[a]

	Hasil Belajar Afektif
Mann-Whitney U	152.500
Wilcoxon W	617.500
Z	-4.406
Asymp. Sig. (2-tailed)	.000

a. Grouping Variable: Kelas

Test the hypothesis on cognitive learning outcomes variables

Due to the fulfilment of the analysis prerequisite test by obtaining normally distributed and homogeneous data on students' cognitive learning outcomes, parametric statistical tests were then carried out using the independent sample T-test to test the hypotheses in this study. The following is the formulation of the research hypothesis:

H_0 : There is no significant effect between chemistry learning based on chemo-entrepreneurship integrated with value education on the learning outcomes of class XI MIA students at Senior Secondary School Ajisaka

H_a : There is a significant influence between chemistry learning based on chemo-entrepreneurship integrated with value education on the learning outcomes of class XI MIA students at Senior Secondary School Ajisaka

The decision criterion in this test is if the significance value (2-tailed) < 0.05, then H_0 is rejected. Based on the results of the independent sample T-test, it shows that the significance value of students' cognitive learning outcomes is 0.038 (see Table 5), so the (2-tailed) significance is <0.05, so H_0 is rejected.

This means that chemistry learning is influenced by chemo-entrepreneurship integrated value education on students' cognitive learning outcomes, as seen from the test results.

Table 5. Independent sample T-test results of students' cognitive learning outcomes

Independent Samples Test

		Levene's Test for Equality of Variances				
		F	Sig.	t	df	Sig. (2-tailed)
Hasil Belajar Kognitif	Equal variances assumed	.002	.963	-2.120	58	.038
	Equal variances not assumed			-2.120	57.982	.038

The pretest and posttest scores are then used to calculate the N-Gain score. N-Gain aims to determine the increase in students' cognitive learning outcomes before and after the treatment. The N-Gain score was then analyzed by parametric statistical test using the SPSS 20. The average N-Gain score for the experimental group was 49.16% which was included in the less effective category, while the average N-Gain for the control group was 30.72% which was included in the ineffective category.

Test the hypothesis on learning motivation variables

Questionnaire data on student motivation in the experimental and control groups were statistically tested using the Mann-Whitney. This statistical test was carried out with the help of SPSS 20. The formulation of the research hypothesis was:

H_0 : There is no significant effect of chemistry learning based on chemo-entrepreneurship integrated with value education on the learning motivation of class XI MIA students at Senior Secondary School Ajisaka

H_a : There is a significant influence between chemistry learning based on chemo-entrepreneurship integrated with values education on the learning motivation of class XI MIA students at Senior Secondary School Ajisaka

The decision criterion in this test is if the significance value (2-tailed) < 0.05, then H_0 is rejected. The results of the analysis show that the Asymp. Sig. (2-tailed) is 0.000 (see Table 6), so the significance value (2-tailed) < 0.05, then H_0 is rejected. This means there is a significant difference between chemistry learning based on chemo-entrepreneurship integrated value education and student learning motivation, as seen from the questionnaire results.

Table 6. Mann-Whitney test results for student learning motivation

Test Statistics[a]

	Motivasi Belajar Siswa
Mann-Whitney U	89.000
Wilcoxon W	554.000
Z	-5.356
Asymp. Sig. (2-tailed)	.000

a. Grouping Variable: Kelas

DISCUSSION

This study focuses on the effect of a chemistry learning strategy based on chemo-entrepreneurship integrated value education on learning outcomes (affective and cognitive) and student motivation in the colloidal system topic. In general, the study shows a positive and significant influence between these learning strategies on the measured variables (learning outcomes and learning motivation).

Student affective learning outcomes are measured based on a questionnaire given at the time of the post-scale. Analysis of the research data on the results of the affective learning outcomes questionnaire in the experimental class showed a significant difference based on the results of the Mann-Whitney test compared to the control class with a significance value (2-tailed) < 0.05 or 0.000.

This shows that there is a significant difference between value-integrated chemo-entrepreneurship-based chemistry learning on students' affective learning outcomes in line with research conducted by Rahmawanna et al. (2016) showing that chemo-entrepreneurship-based chemistry learning affects and improves students' attitudes (affective learning outcomes). Another study by Imron and Mohlisin (2021) also indicates an increase in affective learning outcomes with learning methods that apply value education.

If calculated from the average score of affective learning outcomes (see Table 7 and Table 8), in the experimental group, the three aspects of affective learning outcomes were included in the very good category, while for the control group all three were included in the good category. This indicates that values-based chemo-entrepreneurship-based chemistry learning in the experimental group affects students' affective learning outcomes compared to the control group with Teacher Centered Learning-based chemistry learning.

Table 7. Reference criteria for student affective learning outcomes

Average score	Criteria
>3.00-4.00	Very good
>2.00-3.00	Good
>1.00-2.00	Poor
0-1.00	Very poor

Table 8. Average score of students' affective learning outcomes

Affective learning outcomes	Experiment group	Control group
Acceptance	3.37	2.93
Participation	3.15	2.75
Judgment and identification of attitudes	3.28	2.98

Students' cognitive learning outcomes were measured based on the results of working on the pretest and posttest. Data analysis on students' cognitive learning outcomes shows significant differences between the experimental and the control groups. The hypothesis test was carried out using the independent sample T-test, which obtained a significance value of 0.038 or a significance (2-tailed) <0.05. Thus, a chemistry learning strategy based on chemo-entrepreneurship integrated with value education affects students' cognitive learning outcomes. These results support Puspitasari and Santoso's study (2020), which shows a significant increase in learning outcomes in classes with chemo-entrepreneurship-based chemistry learning. Another study by Maulidar (2016) also showed that classes with chemo-entrepreneurship-based chemistry learning had higher learning outcomes than classes with conventional learning. Similarly, research conducted by Ambarwati et al. (2017) on implementing character-based learning in chemistry learning concludes that it can increase student achievement.

Based on the N-Gain test conducted to find out the difference in the increase in pretest and posttest results, it can be concluded that the average N-Gain score for the experimental group with chemistry learning based on chemo-entrepreneurship integrated with values education is 49.16% which is included in the less effective category, while the average N-Gain for the control group using Teacher Centered Learning-based chemistry learning is 30.72% which is included in the ineffective category. Learning that is considered less effective and ineffective can also be seen based on the posttest scores compared to the Minimum Completeness Criteria (KKM) in the experimental and control groups in Table 9.

Table 9. Posttest scores compared with KKM score

Group	Number of students (N)	KKM score (70)		Pass percentage
		Passed	Not Passed	
Experiment	30	13	17	43.33%
Control	30	9	21	30%

Based on Table 9, in the experimental group there were still more than 50% of students who had not passed the KKM. This supports the results of the N-Gain test which shows that chemo-entrepreneurship-based chemistry learning is still ineffective in integrating value education. Although the learning applied to the experimental class is still considered ineffective, based on the independent sample T-test on the N-Gain score to find out whether there is a significant difference in increasing the pretest and posttest results in the experimental and the control groups, a significance value of 0.017 or (2-tailed) <0.05 is obtained. Based on this significance value, it can be concluded that there is a significant difference in the increase in pretest and posttest results in the experimental class and the control class. The results of this study are in accordance with research conducted by Nurmasari et al. (2014), where chemo-entrepreneurship-based chemistry learning provides significant effectiveness between the experimental and control groups.

The ineffectiveness of chemistry learning based on chemo-entrepreneurship integrated value education on cognitive learning outcomes in this study was influenced by the limited allocation of teaching time. The allocated time, which should have been 45 minutes per one hour of lessons, was reduced to 30 minutes for each hour of lessons. Teachers at Senior Secondary School Ajisaka, Tulang Bawang, Lampung also expressed the ineffectiveness of learning in class due to reduced study hours. The reduction in teaching

time occurred because the learning system implemented at the school was adapted to environmental conditions as a result of the Covid-19 outbreak. In addition to the duration of teaching time, differences in students' absorption abilities in receiving learning also affect the effectiveness of learning outcomes (Manurung, 2015). A person's ability to understand and absorb lessons is certainly different. Some are fast, and some are very slow. Therefore, students often have to take many different paths to understand the same information or lesson. This aligns with research conducted by Artani et al. (2021), which revealed that learning did not work effectively because students were unfamiliar with the learning methods provided. The implementation of learning was still not implemented properly. Therefore, more face-to-face hours are needed to obtain more comprehensive data regarding learning outcomes due to chemo-entrepreneurship-based learning integrated with value education.

Data on student motivation analyzed and tested using the Mann-Whitney test shows that the Asymp. Sig. (2-tailed) is 0.000 or a significance value (2-tailed) <0.05, so it can be concluded that there is a significant difference between the experimental and control groups.

Table 10 Reference criteria for student learning motivation

Average score	Criteria
>3.00-4.00	Very good
>2.00-3.00	Good
>1.00-2.00	Poor
0-1.00	Very poor

Table 11 Average score of student learning motivation

Aspect	Experiment Group	Control Group
Interest	3.23	2.78
Curiosity	3.14	2.87
Self-confident	3.35	2.83
Satisfaction	2.69	2.45
Participation	3.18	2.75

Based on Tables 10 and 11, interest, curiosity, self-confidence, and participation in the experimental group were included in the very good category. In contrast, in the control group, it is included in the good category. Regarding satisfaction, the experimental and control groups are included in the good category. Even so, the average score in the experimental group is higher than the average score in the control group, which indicates that chemistry learning based on chemo-entrepreneurship integrated value education positively impacts student learning motivation. The results of this study support several previous studies (Ambarwati, et al (2017) and Prayitno, et al (2017)).

When implementing chemistry learning based on chemo-entrepreneurship integrated with value education, students are maximally involved in learning activities such as conducting experiments/practices, for example, making pudding with simple ingredients to get products of economic value, students learn how to develop thinking skills, intellectual skills, and maximize their potential. This approach makes learning more innovative, creative, interesting, fun and meaningful, and students can also relate material concepts to examples of colloids in everyday life. This is in accordance with research conducted by Rahmawanna, et al (2016), which shows that learning with a chemo-entrepreneurship approach is able to grow students' interest and enthusiasm to take part in learning and increase students' positive attitudes after learning. This is a positive effect of the learning method because the chemo-entrepreneurship-based learning method directly connects

learning material with real things so that students become more active and enjoy participating in learning activities. In addition, students are also trained to apply practical values, intellectual values, socio-economic values, educational values and religious values in learning and everyday life.

4. CONCLUSION

Chemistry learning based on chemo-entrepreneurship integrated value education positively and significantly influences learning outcomes (affective and cognitive) and student learning motivation at Senior Secondary School Ajisaka, Tulang Bawang, Lampung.

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BIBLIOGRAPHY

Ambarwati, E., Yusrin, & Winaryati, E. (2017). Pengaruh Model Pembelajaran Tipe Take and Give Berbasis Pendidikan Karakter Terhadap Motivasi dan Hasil Belajar Siswa dalam Pembelajaran Kimia. *Seminar Nasional Pendidikan, Sains dan Teknologi Fakultas Matematika dan Ilmu Pengetahuan Alam Universitas Muhammadiyah Semarang*, 92–101.

Aneja, N. (2014). The Importance of Value Education in the Present Education System & Role of Teacher. *International Journal of Social Science and Humanities Research*, *2*(3), 230–233.

Artani, A., Sumarti, S. S., Priatmoko, S., & Harjono. (2021). Pengaruh Pendekatan Chemo-Entrepreneurshippadamodel Pembelajaran Inkuiri Terbimbing Berbantuan Kahoot Terhadap Hasil Belajar Kognitif dan Afektif Peserta Didik. *Chemistry in Education*, *10*(1), 38–44.

Awulloh, A., Latifah, K., A'fifah, N., & Huda, M. K. (2021). Urgensi Pendidikan Karakter dalam Menghadapi Era Masyarakat 5 .0 Di SDN Palimanan Barat 1. *Prosiding dan Web Seminar (Webinar) "Standarisasi Pendidikan Sekolah Dasar Menuju Era Human Society 5.0," 0*, 248–353.

Azra, Azyumardi. (2002). *Paradigma Baru Pendidikan Nasional Rekonstruksi dan Demokratisasi*. Jakarta: Buku Kompas.

Das(Bhakat), S., & Paul, A. (2020). Value Education and It's Impact in the Present Society with Respect to Inclusive Education in the Era of Globalization. *International Journal of Multidisciplinary Education Research*, *10*(2(1)), 17–22.

Emda, A. (2017). Kedudukan Motivasi Belajar Siswa dalam Pembelajaran. *Lantanida Journal*, *5*(2), 93–196.

Handayani, N. N. L., & Muliastrini, N. K. E. (2020). Pembelajaran Era Disruptif Menuju Era Society 5.0 (Telaah Perspektif Pendidikan Dasar). *International Seminar Proceeding*, *3*(2252), 58–66.

Imron, A., & Mohlisin. (2021). Peningkatan Kemampuan Afektif Peserta Didik melalui Model Value Clarification Technique Pada Mata Pelajaran di MI. *Jurnal Magistra*, *12*(1), 90–107.

Indrani, B. (2012). Importance of Value Education in Modern time. *Education India Journal: A Quarterly Refereed Journal of Dialogues on Education*, *1*(3).

Ismulyati, S., & Ikhwani, Y. (2018). Pengaruh Pendekatan Chemo-Entrepreneurship (CEP) terhadap Minat dan Hasil Belajar Siswa SMA N 1 Bukit Kabupaten Bener Meriah Pada Materi Perubahan Materi. *Lantanida Journal*, *6*(1), 28.

Kusuma, E., & Siadi, K. (2010). Pengembangan Bahan Ajar Kimia Berorientasi Chemo-entrepreneurship untuk Meningkatkan Hasil Belajar dan Life Skill Mahasiswa. *Jurnal Inovasi Pendidikan Kimia*, *4*(1), 544–551.

Lakshmi, V. V., & Paul, M. M. (2018). Value Education in Educational Institutions and Role of Teachers in Promoting the Concept. *International Journal of Educational Science and Research*, *8*(4), 29–38.

Listari, E. (2013). Pengaruh Model Pembelajaran Problem Based Learning Berorientasi Chemoenterpreneurship Terhadap Hasil Belajar Kimia Siswa. *Hydrogen: Jurnal Kependidikan Kimia*, *1*(2), 100.

Manurung, S. (2015). Analisis Faktor-Faktor yang Mempengaruhi Keefektifan Belajar Matematika Siswa Mts Negeri Rantau Prapat Pelajaran 2013/2014Analisis Faktor-Faktor yang Mempengaruhi Keefektifan Belajar Matematika Siswa Mts Negeri Rantau Prapat Pelajaran 2013/2014. *EduTech: Jurnal Ilmu Pendidikan dan Ilmu Sosial*, *1*(01).

Maulidar. (2016). *Pengaruh Pendekatan Chemo-entrepreneurship terhadao Hasil Belajar Siswa pada Materi Koloid Kelas XI MIA MAS Babun Najah Banda Aceh*. Universitas Islam Negeri Ar-raniry Darussalam Banda Aceh.

Mursalin, E. (2020). Peningkatan Minat Kewirausahaan Berbasis Penggunaan Buku Ajar Mata Kuliah Hidrokarbon Berorientasi Chemoentrepreneurship (Cep). *AMAL: Journal of Islamic Economic And Business (JIEB)*, *02*(01), 81–90.

Nurmasari, N., Supartono, & Sedyawati, S. (2014). Keefektifan Pembelajaran Chemo-entrepreneurship pada Pemahaman Konsep dan Kemampuan Life Skill Siswa. *Chemistry in Education*, *3*(2252).

Permaisari, A. F. (2011). *Pengaruh Pembelajaran Kimia Terintegrasi Nilai terhadap Hasil Belajar Siswa*. Universitas Islam Negeri Syarif Hidayatullah Jakarta.

Prayitno, M. A., Wijayati, N., & Mursiti, S. (2017). Penerapan Modul Kimia Berpendekatan Chemoentrepreneurship untuk Meningkatkan Kecakapan Hidup dan Motivasi Belajar. *Journal of Innovative Science Education*, *6*(2), 140–146.

Puspitasari, L., & Santoso, T. (2020). *Pengaruh Pendekatan CEP (Chemo-entrepreneurship) untuk Peningkatan Hasil Belajar Siswa*. *1*(1), 32–40.

Rahayu, K. N. S. (2021). Sinergi Pendidikan Menyongsong Masa Depan Indonesia di era Society 5.0. *Edukasi: Jurnal Pendidikan Dasar*, *2*(1), 87–100.

Rahmawanna, Adlim, & Halim, A. (2016). Pengaruh Penerapan Pendekatan Chemo-Entrepreneurship (CEP) Terhadap Sikap Siswa Pada Pelajaran Kimia dan Minat Berwirausaha. *Jurnal Pendidikan Sains Indonesia*, *4*(2), 113–117.

Rakhmadhani, N., Yamtinah, S., & Utomo, S. (2013). Pengaruh Penggunaan Metode Teams Games Tournaments Berbantuan Media Teka - Teki Silang dan Ular Tangga dengan Motivasi Belajar Terhadap Prestasi Siswa pada Materi Koloid Kelas XI SMA Negeri 1 Simo Tahun Pelajaran 2011/2012. *Jurnal Pendidikan Kimia Universitas Sebelas Maret*, *2*(4), 190–197.

Rumhadi, T. (2017). Urgensi Motivasi dalam Proses Pembelajaran. *Jurnal Diklat Keagamaan*, *11*(1), 33–41.

Şahin, Ü. (2019). Values and Values Education As Perceived By Primary School Teacher Candidates. *International Journal of Progressive Education*, *15*(3), 74–90.

Sidik, Z., & Sobandi, A. (2018). Upaya Meningkatkan Motivasi Belajar Siswa Melalui Kemampuan Komunikasi Interpersonal Guru. *Jurnal Pendidikan Manajemen Perkantoran*, *3*(2), 190–198.

Sugiyono. (2013). *Metode Penelitian Pendidikan (Pendekatan Kuantitatif, Kualitatif, dan*

R&D). Bandung : Alfabeta.

Sukitman, T. (2016). Internalisasi Pendidikan Nilai dalam Pembelajaran (Upaya Menciptakan Sumber Daya Manusia yang Berkarakter). *JURNAL JPSD (Jurnal Pendidikan Sekolah Dasar)*, *2*(2), 85.

Sumara, D., Humaedi, S., & Santoso, M. D. (2017). Kenalakan Remaja dan Penanganannya. *Jurnal penelitian & PPM*, *4*(Kenakalan Remaja), 129–389.

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

Urfa, U. K., Sanjaya, & Anom, W. K. (2019). Pengembangan Modul Koloid Berorientasi Chemoentrepreneurship (CEP) Untuk Kelas XI SMAN 9 Palembang. *Jurnal Penelitian Pendidikan Kimia*, *6*(1), 25–33.

Wibowo, T., & Ariyatun. (2018). Penerapan Pembelajaran Berorientasi Chemo-entrepreneurship (CEP) terhadap Kreativitas Siswa SMA Modern Pondok Selamat Pada Materi Kelarutan dan Ksp. *Jurnal Tadris Kimiya*, *3*(1), 62–72.

Wulandari, I. M., Anwar, Y., & Savalas, R. (2018). Penerapan Model POE (Predict-Observe-Explain) dengan Pendekatan Chemoentrepreneurship pada Materi Pokok Hidrokarbon terhadap Hasil Belajar dan Keterampilan Proses Sains Siswa Kelas XI MIA di MAN 2 Mataram. *Chemistry Education Practice*, *1*(1), 34.

Widoyoko, S.E.P. (2012). *Teknik Penyusunan Instrumen Penelitian*. Yogyakarta: Pustaka Pelajar.