

Preliminary Study of the Entrepreneurial Soul (Enterpreneur) of High School Students in Scientific Chemistry Learning with a Scientific Approach

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Article Info

Article History :
Received January 2020
Accepted February 2020
Published December 2020

Keywords:
Entrepreneurial Soul;
Chemistry Learning;
Confidence

Abstract

The results of this research study with descriptive qualitative methods aim to analyze the findings related to the entrepreneurial spirit of high school students. The subjects in this study were 69 students of class XI involving 2 state high schools in Semarang in the academic year 2018/2019. Data collection is done by observation, questionnaires, and documentation. The results showed that 64.71% in SMA X had an entrepreneurial spirit with strong criteria and 35.29% with very strong criteria. In state high school Y 2.86% have an entrepreneurial spirit with weak criteria, 65.71% strong criteria and 31.43% very strong criteria. High school students tend to have an entrepreneurial spirit with strong criteria. But after being analyzed, the lowest score on the entrepreneurial spirit is the aspect of confidence. Various supports in learning can be done to improve the quality of learning and produce students who have good self-confidence. Steps that need to be taken include improving the method or model of learning and using teaching materials that support the growth of the entrepreneurial spirit, especially in the aspect of self-confidence.

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INTRODUCTION

One of the goals of High School (SMA / MA) education is to produce educated generation to continue to college. In fact, there are many SMA / MA graduates who cannot continue their education to higher education, so that it has the potential to become unemployed. One of the factors causing unemployment is that high school graduates do not have an entrepreneurial spirit. According to the Central Statistics Agency, in February 2016 the number of unemployed graduates of SMA / MA was ranked highest, reaching 1,546,699 people. Efforts to prepare high school / MA graduates to be ready to compete in creating or looking for work are urgently needed (Prayitno et al., 2017)

To create a future human being who has a large amount of entrepreneurial spirit, it requires a rational leap forward and a regular period of time. The main strategy to realize these expectations is through national policies in the field of education, namely through the integration of entrepreneurial values in the National Education curriculum. The education sector has a strategic role because what will happen in the future is reflected by what is happening now in the world of education (Khoiri et al., 2011)

Learning is the process of interaction between students and teachers and learning resources in a learning environment that is tarnished to achieve goals both in attitudes, knowledge and skills needed by students to live in society, as a nation, and contribute to the well-being of humanity (Awang & Ramly, 2008) Therefore, learning activities should be directed to empower all potential students so that they are expected to produce good quality graduates to continue their studies to a higher level or be ready to enter the workforce independently as entrepreneurs (entrepreneurs). In reality, learning applied in schools has so far been oriented towards cognitive outcomes and has not yet implemented learning that leads to the development of students' potentials in the affective domain such as the entrepreneurial spirit. Though the spirit of entrepreneurship is one of the provisions for living in society well (Mustofa et al., 2019).

Entrepreneurs are unique people who are risk takers and who introduce innovative products and new technology to the economy. The person can carry out their activities through a new business

organization or it can also be done in an existing business organization. Entrepreneurship is the enthusiasm, attitude, behavior and ability of a person to handle businesses and activities that lead to efforts to find, create, determine work methods, technology and new production by increasing efficiency in order to provide better services and obtain greater profits (Mustofa et al., 2019)

CURVE (2001) states that entrepreneurship is a soul that can be learned and taught. One's entrepreneurial spirit is reflected in various things such as leadership abilities, independence (including persistence), teamwork, creativity, and innovation (Aslan, 2010). The creative and innovative process is closely related to entrepreneurship. According to Paristiowati (2015), entrepreneurship (entrepreneurship) is a process of applying creativity and innovation in solving problems and finding opportunities to improve life (Paristiowati et al., 2015). Mohammad (2016) suggests that entrepreneurs are people who make creative and innovative efforts by developing ideas and gathering resources to find opportunities and improve their lives (Mohammad-Davoudi & Parpouchi, 2016) while Arifin (2018) states that entrepreneurs emphasize more on the soul, spirit, and then applied in all aspects of life (Arifin et al., 2018).

Based on research conducted by Rohayati (2005), learning chemistry especially in colloidal material is usually only done in class with the method of discussion and lecture. Though colloidal material will be easier to understand when students experience it directly, for example by inviting students to study in the laboratory. This method has advantages, namely the teacher can easily control the class, can deliver more material, is more efficient in terms of time and cost, and is more practical in terms of preparation because the teacher does not need to prepare supporting media. This method also has a weakness that is making students as objects of students so that students' feedback, activities and creativity are less developed. In addition, the material presented is less related to its application in daily life and has not yet implemented learning activities that can support developing an entrepreneurial spirit. These conditions can cause the development of students' entrepreneurial spirit (Rohayati et al., 2015)

Based on the results of observations and interviews with several teachers and students in

high school, it is known that chemistry lessons are lessons that are less liked and tend to be seen as difficult by students. This is because the learning process is too monotonous in lectures in class and does not apply meaningful learning processes. Khan (2011) states that chemistry is the basis for a number of other disciplines, but chemistry is abstract so it is difficult to understand and so far the learning process tends to be teacher-centered which requires less student skills. One of the contextual approaches in learning chemistry is the Chemo-Entrepreneurship (CEP) approach. According to Supartono (2009), through the CEP approach students are taught to link directly to real objects or phenomena around human life so that in addition to educating with this CEP learning approach it allows students to learn the processing of a material into a product that is useful, economically valuable and motivates students to entrepreneurship (Rahmawanna et al., 2016)

The results of research conducted by Sumarti (2008), states that with learning that links the material with daily life, a number of competencies can be achieved, the teaching and learning process becomes more interesting, students are focused attention and motivated to find out more and the learning outcomes become more meaningful (Sumarti, 2008)

For that we need the right effort so that SMA / MA graduates are able to create their own jobs. One effort can be made is to equip students with life skills that can provide the ability and courage to face life's problems, then creatively find solutions and be able to adapt to meet the demands and challenges of daily life (Prayitno et al., 2015)

Based on the description above, this article aims to analyze the findings related to the entrepreneurial spirit of high school students, the indicators that influence, and the steps that can be taken to improve the entrepreneurial spirit of students.

METHODS

This research was conducted with a qualitative descriptive method that aims to describe the results of the analysis of the entrepreneurial spirit of high school students. The subjects in this study were 69 students of class XI involving 2 public high schools in the city of Semarang in the

academic year 2018/2019. The independent variable in this study is the scientific approach. The dependent variable in this study is the entrepreneurial spirit of high school students. Research is divided into three stages, namely preparation, implementation and analysis (Creswell, 2014). Data collection is done by observation, questionnaires, and documentation. Observation is used to assess the entrepreneurial spirit of students. The questionnaire is used as initial data to find out the entrepreneurial spirit of the students. The research instruments used were observation sheets and questionnaire sheets. The observation sheet consists of 20 questions that represent aspects of chemistry learning, teaching materials, practical skills, ability to understand chemical materials, interests and motivation. The questionnaire sheet consists of 30 statements that represent aspects of confidence, task and outcome oriented, courage in taking risks, leadership, originality, and future oriented. Data analysis is divided into two stages, namely the initial stage and the final stage. Early stage data analysis is used to determine the validity and reliability of research instruments. The final stage analysis is used to determine the entrepreneurial spirit of students.

To find out the entrepreneurial spirit of students is calculated by finding the percentage of students who meet the aspects of entrepreneurial spirit. To get a percentage of students you can use the following equation:

$$\text{Score} = \frac{\text{score obtained by students}}{\text{number of aspects}}$$

Based on the scores obtained by students, it can be seen that students' entrepreneurial spirit using the classification of student entrepreneurial spirit is presented in Table 1.

Table 1. Classification of Student Entrepreneurial Interests

Score	Criteria
$3.25 < \text{score} \leq 4$	Very Strong (SK)
$2.5 < \text{score} \leq 3.25$	Strong (K)
$1.75 < \text{score} \leq 2.5$	Weak (L)
$1 < \text{score} \leq 1.75$	Very Weak (SL)

RESULTS AND DISCUSSION

The entrepreneurial spirit questionnaire data obtained by students is then calculated and the results (Figure 1)

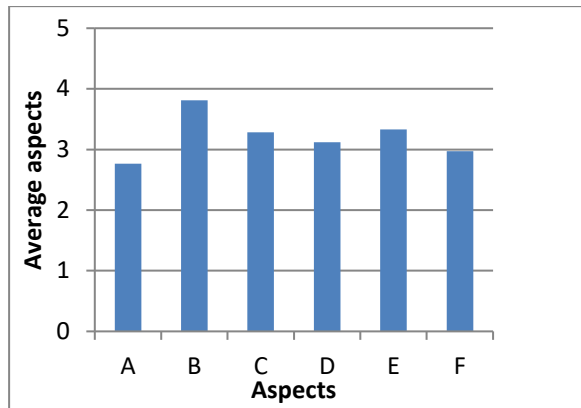


Figure 1. Analysis of Each Aspect of Entrepreneurial Attitude in State X Senior High School

Information:

- a. Confidence
- b. Oriented tasks and results
- c. Taking risks
- d. Leadership
- e. Originality
- f. Oriented to the future

Based on observations and assessments of students' entrepreneurial attitudes, every aspect of entrepreneurial attitudes has good criteria. However, the aspect of task-oriented and results obtained the highest score of 3.81 from several aspects of entrepreneurial attitudes while the aspect of confidence gained the lowest score of 2.76.

Students' entrepreneurial spirit is seen through the questionnaire given and filled out by students, then analyzed which is presented in Table 2.

Table 2. Recapitulation of Student Entrepreneurial Soul Test Results in SMA Negeri X

Criteria	Score	Total students	Percentage (%)
Very strong (SK)	$3.25 < \text{score} \leq 4$	12	35.29
Strong (K)	$2.5 < \text{score} \leq 3.25$	22	64.71
Weak (L)	$1.75 < \text{score} \leq 2.5$	0	0.00
Very Weak (SL)	$1 < \text{score} \leq 1.75$	0	0.00

The results of the analysis carried out showed that students have an entrepreneurial spirit with strong and very strong criteria. Based on Table 2 it can be concluded that 12 students out of 34 students or 35.29% of students have an entrepreneurial spirit with very strong criteria. It can also be concluded that 22 students out of 34 students or 64.71% of students have entrepreneurial spirit with strong criteria.

Judging from the aspects of entrepreneurial attitudes, the values presented in Figure 2 are also obtained.

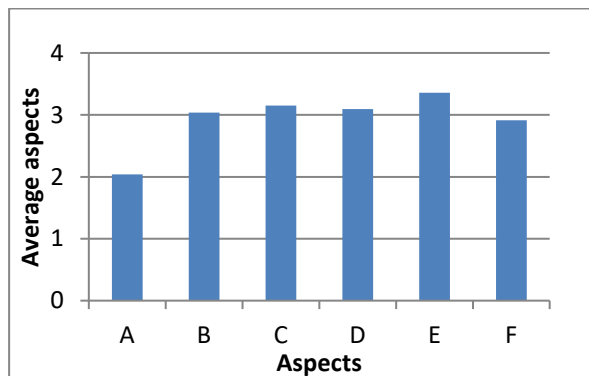


Figure 2. Results of Analysis of Each Aspect of Entrepreneurial Attitude at Y State High School

Information:

- a. Confidence
- b. Oriented tasks and results
- c. Taking risks
- d. Leadership
- e. Originality
- f. Oriented to the future

Table 3. Recapitulation of Student Entrepreneurial Soul Test Results in State High Schools Y

Criteria	Score	Total students	Percentage (%)
Very Strong (SK)	$3.25 < \text{score} \leq 4$	11	31.43
Strong (K)	$2.5 < \text{score} \leq 3.25$	23	65.71
Weak (L)	$1.75 < \text{score} \leq 2.5$	1	2.86
Very Weak (SL)	$1 < \text{score} \leq 1.75$	0	0.00

The results of the analysis carried out showed that students have an entrepreneurial spirit with the criteria of being weak, strong and very strong. Based on Table 3 it can be concluded that 1 out of 35 students or 2.86% students have an entrepreneurial spirit with weak criteria. It can also be concluded that 23 out of 35 students or 65.71% of students have entrepreneurial spirit with strong criteria. And it can be concluded that 11 out of 35 students or 31.43% of students have entrepreneurial spirit with very strong criteria.

Entrepreneurial spirit is the desire to interact and do everything to achieve the goal by working hard, self-sufficient to open an opportunity with the skills, beliefs possessed without feeling afraid to take risks, and can learn from failure in terms of entrepreneurship. Aspects of student entrepreneurial spirit include (1) self-confidence, starting from an optimistic person, not easily influenced by others (2) task-oriented and results (3) risk-taking, always enjoying challenges (4) leadership, always has leadership qualities and exemplary (5) originality, original does not mean completely new, but the product reflects the results of new combinations of existing components so that it gives birth to something new (Utomo et al., 2015)

Aspects of the entrepreneurial spirit of students on average have good criteria. The task-oriented aspect and results get the highest score, it is caused by several factors. Each student prioritizes achievement, profit-oriented, perseverance and hard work, has a strong drive, and takes the initiative. Initiative means always wanting to find and start something. To start, it requires a strong intention and determination so that the business will progress and develop (Kaufman et al., 2015). From Figure 1, it is proven that each student is always oriented to the task and the results. In Figure 1 and Figure 2 aspects of student confidence get the lowest score. This is seen when students express opinions with full confidence which indicates that students feel optimistic. In addition, students who did not cheat during the pre-test or post-test showed that students

do not rely on others and have confidence. Student confidence is also seen from the courage of students to present the results of group discussions without being appointed by the teacher (Ismulyati & Ikhwan, 2018)

In Figure 2 it is found that originality gets the highest score, it can be seen from the creativity of students in making products. Creativity is directed to create a new product. A new product means that it doesn't need to be entirely new, but it can be just parts of the product in terms of taste, design, and packaging. In addition, students also have different ideas from before (Kaufman et al., 2015)

Observation results indicate that the school has used the 2013 curriculum. However, the problem that occurs is that learning still tends to be teacher centered so that learning is less active. This is because learning in the classroom is dominated by teachers and has not emphasized active student activity (student centered). Sari revealed that the best learning is when students are actively involved in classroom learning activities (Wijayati et al., 2009)

The learning methods provided are less varied and the two schools have never used chemoenterpreneurship-related chemistry learning modules. The teaching materials used are chemistry textbooks in libraries and worksheets obtained from publishers, so students quickly feel bored and learning becomes less meaningful. This is indicated by the student learning outcomes are not optimal. The average semester 1 semester final exam score is still below the KKM (Minimum completeness criteria), which is 75.

One of the goals of the SMA / MA is to produce an educated generation to continue to a higher level (Sa'adah & Supartono, 2013). However, based on interviews with chemistry teachers, many high school / MA graduates cannot continue to college. Only 60-70% can go on to college so that it has the potential to become unemployed. Efforts are needed to prepare high school / MA graduates so students can have an entrepreneurial spirit and are

accustomed to making products so that they can meet the needs of life.

According to Starcher in (Nurmasari et al., 2014), entrepreneurship means someone who does or undertakes a project or activity significantly. So entrepreneurship can be interpreted as innovation in the creation of values both in terms of economic, social and others.

Entrepreneurial attitude is a tendency to act, feelings / emotions, and mindset, opinion views or opinions of a person towards certain attitude objects related to entrepreneurship. Entrepreneurship is not always synonymous with the entrepreneur's character or characteristics, because this character or characteristic is owned by someone who is not an entrepreneur. The attitude in terms of entrepreneurship actually exists in every human person who has innovative, creative behavior, likes change, renewal, progress and challenges (Wibowo & Ariyatun, 2018)

(Kamaludin, 2018) explained that the entrepreneurial spirit of students can be improved through education by instilling entrepreneurship education into all subjects, teaching materials, extracurricular, and self-development. Education is carried out through a learning process that links the material taught with everyday life and is directed to be independent in the business world.

Entrepreneurship-oriented learning is contextual learning that links subject matter with real objects in life, hoping that students will more easily understand chemistry that tends to be abstract (Paristiowati et al., 2015). Learning also gives students the opportunity to optimize their potential in producing products, so they can grow an entrepreneurial spirit that can become a provision after graduating from high school (Damiri, 2012).

The entrepreneurial approach can also help students acquire skills and knowledge that are essential for developing entrepreneurial interests, so that it can be used as an effort to reduce unemployment (Utomo et al., 2015).

CONCLUSION

The application of the 2013 curriculum in learning is expected to meet the demands of the 21st century. One of the student skills needed in the 21st century is the ability to think creatively. The existence of an entrepreneurial spirit and creative

thinking will make a solution to reduce the unemployment rate. High school students tend to have an entrepreneurial spirit with strong criteria. But after being analyzed, the lowest score on the entrepreneurial spirit is the aspect of confidence. Various supports in learning can be done to improve the quality of learning and produce students who have good self-confidence. Steps that need to be taken include improving the method or model of learning and using teaching materials that support the growth of the entrepreneurial spirit, especially in the aspect of self-confidence.

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