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International Conference on Educational Research and Innovation



ETHICS IN HIGH-QUALITY RESEARCH



CONFERENCE PROCEEDINGS

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ETHICS IN HIGH-QUALITY RESEARCH



2015

Institute of Research and Community Services Yogyakarta State University

May, 6-7, 2015



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ETHICS IN HIGH-QUALITY RESEARCH



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CONFERENCE PROCEEDINGS

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Edited by

Prof. Dr. Sri Atun,

Christopher Drake,

Dr. Elizabeth Hatnell-Young,

Dr. Mohamed Bahaeldin

Prof. Dr. Sudji Mudadi,

Dr. Ing. Satoto Endar Naylor, S., M.Eng., M.Sc.,

Retna Hidayah, ST., MT, Ph.D.,

Dr. Setya Raharja,

Dr. Widiyanto,

Dr. Arif Rohman,

Apri Nuryanto, MT.

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MESSAGE FROM THE RECTOR OF YOGYAKARTA STATE UNIVERSITY

Welcome to Yogyakarta, Indonesia!

It is a great honor and pleasure for me to welcome you all to the 3rd International Conference on Educational Research and Innovation held in Yogyakarta, Indonesia. On behalf of Yogyakarta State University and the committee, let me extend my warmest greetings and appreciation to all speakers and participants who have travelled hundreds or even thousands of miles by various transportation means to come to Yogyakarta to attend this conference. It is my strong belief that your safe journey has been due to the blessings granted by God the Almighty and the Most Merciful to Whom we without any further due have to express our gratitude and praise.

It is indeed a privilege for Yogyakarta State University to have the opportunity to organise this very important conference in which educational researchers and practitioners get together to share ideas, experiences, expectations, and research findings. This conference is held as one of the agendas of Yogyakarta State University to celebrate its 51st anniversary. The theme of this year's conference is "Ethics in High-Quality Research".

Research is one of the activities among the academic members of a university. It is a systematic effort to solve the problems or answer the questions by collecting data, formulating the generalities based on the data, then finding and developing organized knowledge by scientific method. It is expected that from research activities valuable empirical facts can be obtained to improve and develop the theory and practice to bring a better quality of education.

Unfortunately, currently issues on ethics are regaining their popularity in various practices of research, such as inaccurate data analyses, data manipulations, and plagiarism. In response to this, in this year to support the roles of the Institute of Research and Community Services of Yogyakarta State University in encouraging researchers to conduct high-quality researches, an International Conference on Educational Research and Innovation (ICERI) is held under the umbrella theme of Ethics in High-Quality Research. It provides teachers/lecturers, education practitioners, college students, and policy makers the opportunity to share their knowledge, experiences, and research findings which are innovative and relevant to develop the educational practices focusing on the process and product.

This third conference is aimed at discussing the papers on the research findings related to research ethics, and researches on character education, teaching innovations, as well as educational policies. It is expected that this conference will reach its declared objectives successfully as a strategic forum to yield recommendations on the importance of ethics in the research to produce high-quality research for the benefits of the human's welfare.

To conclude, let me wish you a fruitful discussion during the conference and an enjoyable stay in Yogyakarta. And finally, hopefully all materials in this conference compiled into a proceeding are useful for us to improve the quality of education and educational research.

Thank you very much for your attention.

Wassalamu' alaikum warrahmatullah wabarakatuh.
May peace and God's blessings be upon you all

Yogyakarta, 6 May 2015
Rector,

Prof. Dr. Rochmat Wahab, M.Pd., MA.

MESSAGE FROM THE ORGANIZING COMMITTEE

His Excellency Minister of Research and Technology and Higher Education,
Vice Rectors and Deans of all faculties,
Honourable Heads of Institutes of Research of the surrounding universities,
Distinguished all invited speakers and all other speakers,
Distinguished guests,
All participants,
Ladies and gentlemen,

Assalamu' alaikum warrahmatullah wabarakatuh
May peace and God' s blessings be upon you all
Good morning

First of all allow me to extend my warmest greetings and welcome to you all to the 3rd International Conference on Educational Research and Innovation, held by Yogyakarta State to celebrate its 51st anniversary.

Raising the theme - Ethics in High-Quality Research - this conference is designed to discuss the papers on the research findings related to research ethics, and researches on character education, teaching innovations, as well as educational policies. Hopefully, all discussions in this conference can be inspiring and useful for us to improve the quality of education and educational research.

Ladies and gentlemen

For your information, we will proudly present one keynote speech, four plenary presentation sessions and four parallel presentation sessions. Four outstanding speakers in the field of character education and educational research have been invited. They are Christopher Drake from Association for Living Values Education, Hong Kong, Dr. Elizabeth Hartnell-Young from Australian Council of Educational Research, Dr. Mohamed Bahaeldin from Faculty of Education, Technische Universitat Dresden, Germany, and Dr. Nurul Taufiqurahman, Head of Innovation Center of the Indonesian Institute of Sciences (LIPI), Indonesia.

Ladies and gentlemen

We have done our best to prepare for this conference. So, my highest appreciation and heartfelt thanks to all committee members. As to err is human, shortcomings may

occur here and there. On behalf of the committee, I would therefore like you all to accept our apologies.

At the end of my speech, I would like to kindly request the Rector of Yogyakarta State University to officially open the conference.

To conclude, let me wish you a productive discussion and a fruitful conference. Thank you very much for your attention.

Wassalamu' alaikum warrahmatullah wabarakatuh.
May peace and God's blessings be upon you all

Yogyakarta, 6 May, 2015
Head of Research Institute and Community
Service of Yogyakarta State University

Prof. Dr. Anik Ghufon, M.Pd.

FOREWORDS FROM THE HEAD OF COMMITTEE

Assalamu 'alaikum wa Rahmatullohi wa Barokatuh
May peace and God's blessings be upon us all

Your Excellency The President of Yogyakarta State University Prof. Dr. Rochmat Wahab, M.Pd, MA, ladies and gentlemen, good morning and welcome to Yogyakarta State University.

The seminar entitle International Conference on Educational Research and Innovation (ICERI) is held under the umbrella theme of Ethics in High-Quality Research. The seminar is organized by Institute of Research and Community Services, Yogyakarta State University, working together with ACER, LIPI, and University of Dresden. This seminar also dedicated to celebrate the 51st Commemoration of Yogyakarta state university.

Ladies and gentlemen, on behalf of the committee of this conference, I would like to express highest appreciation and gratitude to the keynote speakers **Prof. Drs. Muhammad Nasir, Akt, M.Si, Ph.D** (Minister of Research, Technology and Higher Education) and four inveted speaker :

- **Christopher Drake**
(Association for Living Values Education, Hong Kong)
- **Dr. Elizabeth Hatnell-Young**
(Australian Council for Educational Research, Australia)
- **Dr. Bahaaeldin Mohamed**
(Faculty of Education, Technische Universitat Dresden, Germany)
- **Dr. Nurul Taufiqu Rahman, M.Eng.**
(Head of Innovation Center, Indonesian Institute Sciences (LIPI), Indonesia)

The conference is around 200 participant with 121 orally presented article from lecture, researcher, teacher, and student from about 45 universities. The conference is aimed at discussing the papers on the research findings related to research ethics, and researches on character education, teaching innovations, as well as educational policies. It is expected that this conference yields recommendations on the importance of ethics in the research to produce high-quality research for the benefits of the human's welfare.

This conference will be far from succes and we could not accomplish what we do without the support from various parties. So let me extend my deepest gratitude and highest appreciation to all committee members. I would also like to thank each of participants for attending our conference and bringing your expertise to our gathering. Should you find any inconveniences and shortcomings, please accept my sincere apologies. In conclusion, I hope that your discussions produce something useful and very pleasant stay in Yogyakarta.

Wassalamu' alaikum wa Rahmatullohi wa Barokatuh
Thank you

Por. Dr. Sri Atun

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MEANINGFULNESS OF LEARNING MATHEMATICS IN BUILDING THE SPIRIT OF ENTREPRENEURSHIP

Lusi Rachmiazasi Masduki¹; Eem Kurniasih²

^{1,2} UPBJJ-Universitas Terbuka Semarang
lusi@ut.ac.id; ekurniasih@ut.ac.id

Abstract

Anyone would be surprised to hear that there are still many students who sit in 6th grade elementary school, complained when they have to study mathematics. By asking a few of the reasons why students do not like math, find answers including "math is difficult, math is boring and not fun". Why it happened like that? Who should be responsible, parents or teachers? When the mathematics learning process is ongoing and the lack of significance it is certain there will be boredom. If students are bored, then the feelings that arise are displeased and the next due to the difficulty in learning. Penchant for mathematics learning will not occur if the students do not understand the benefits of what is being studied. Based on ex post facto study, after the fact, and further explore the causes why the learning of mathematics is unpopular with students. Observations and interviews with primary teachers, as well as school teachers and high school teachers, found that not many teachers who are able to carry out the mathematical learning be fun and meaningful, let alone which can establish entrepreneurial spirit. The conclusion shows that there are 88% of the 25 elementary school teachers, 80% of 10 junior high school teachers, and 80% of the 10 high school teachers within the first half of the teachers, was less creative evident from statements made themselves that the person concerned has not been think about how the application of mathematics learning meaningful and enjoyable experience to prepare students for life useful to be able to build the entrepreneurial spirit that is to prepare students who later able to live independently. Furthermore, it takes the direction and motivation or training can foster innovative and creative spirit of the teachers to associate each material mathematics with economic needs in achieving their hopes and dreams, so that tomorrow is better than today.

Keywords: application, the significance of mathematics, entrepreneurial spirit

1. Introduction

All parents always have hope in the future of their children grow and succeed independently. Through education in schools, the parents really want that hope can become a reality. But the reality is often not as expected, like when we heard that there are many students who sit in 6th grade elementary school to complain when one day have to study mathematics. Complaining is a sign unpleased, so that the teachers should be sensitive to the "chatter" of the students when they spontaneously expressed are not happy at math. Teachers should have the ability to introspect on how to teach that become habits. When teachers take pride in teaching habits that had been done, then do not realize that what happened the teacher "static" and delighted at this habit may be unpleasant for the students.

As the teachers should be aware that there are at least three roles that should not be forgotten such as an **instructor**, the teachers must be able to instill the concept of learning math is right and strong as the foundation or basis of mathematical thinking. Mathematical concepts should be invested in the right way and is able to adjust the curriculum demands in force. As an **educator**, the teachers must be aware that this day should be better than yesterday so that teachers will need to innovate the formation of such a character, especially at ourselves and then innovate in the learning process in helping students achieve their goals. As a **coach**, the teachers must be aware that its main task is to train students to have the mathematical skills such as counting skills, measure, predict to equip community life.

Not much is known about what steps should be done by the teachers to achieve the title of professional teachers. Maybe it all depends on the sincere intention in the heart and soul of each

the teacher. Many options can be used to create an active learning mathematics, creative, innovative, fun, and meaningful. However, in reality each teacher who admitted they had long taught, was already old age, and was already maximal in teaching, still looks "shocked" when receiving suggestion that the learning process is needed meaningfulness. By the suggestion words in the meaningfulness of learning, it appears various reactions from teachers who had consulted on how to teach the fun.

If teachers educate someone just to think just with the mind, without moral education means building a threat to public life [1]. Moral education is the basis of the development of all the knowledge needed for the provision of future life, so it takes the role of the teachers who understand how to educate moral. Especially moral independence in dealing with problems of life. For teachers who felt "great" are certainly not interested in this subject, but for teachers who have an open soul and always want to be better than before, start asking how the application of mathematics learning meaningful and fun for students.

Significance of the circumstances indicate that the submitted already has significant meaning can be understood. Meaningfulness in learning mathematics is a condition that meaningful learning mathematics are important and useful or beneficial to students' lives. Students feel the need to learn math so they no longer feel bored in learning. Characteristic of meaningful learning, students will make at least the spirit and they begin to comment "yes yes", "oo so yes". As evidence, usually students are able to show enthusiasm, able to provide arguments of each answer, and are able to show other examples around them.

Meaningfulness in learning mathematics can build entrepreneurial spirit when teachers observant and sensitive to the content of learning materials that can be used to build the entrepreneurial spirit of students. Such as playing a role in the buying and selling, profit and loss, calculate prices, tare, gross, predict the size based approach, predict events based on probability. All the material will not be difficult to understand the students, if the teachers are able to make a real sample questions and engage students actively in the learning process of mathematics.

Actually, in all the learning process with any subject, must be a provision for the independence of student life later in life, when students face this life with family and forced to live alone. If later the students have to face his own difficulties, usually automatically as humans begin to think "Can I do something?"

Then in their mind are everything that is memorable. What are memorable for students, certainly all the activities that have been done, especially when with their teachers.

Environment that is meaningful not just happen, but it requires effort from parents and educators in the community [1]. Teachers need to think about the requirement of students for the provision of independent living, so they could create a meaningful learning environment. Furthermore, it can be observed that from any side of mathematics is actually very useful as the provision of student life so that teachers must be willing and should not be upset if suppose there is a saying that "there is an error on the teachers, if there are students who do not like math". Is it true that when students expressed dissatisfaction with the math, it means that there is an indication that the teachers have not been able to teach mathematics significantly?

How to teach meaningful mathematics for students? What the entrepreneurial spirit is? Which mathematical material that students can build entrepreneurial spirit?

2. Method

Ex post facto research method is used as one of the types of approaches in research and is often referred to *after the fact* means that research is conducted to determine the causes of the events that have occurred. *Ex post facto* research is a systematic empirical investigation which the researchers did not control the independent variables directly as the embodiment of these variables has occurred [2]. The independent variable in *ex post facto* research is the variable that cannot be manipulated as a method of teaching or learning process that has occurred. *Ex post facto* research methodically also testing the hypothesis as well as experimental research but did not provide specific treatments.

This study is used to reveal what causes 6th grade students still complain and do not like math. How the way of teachers teach math? Have the teachers associate teaching mathematics to build entrepreneurial spirit? If anyone was ever do, like what? Symptoms or behaviors of students who are displeased with the subjects of mathematics, observed and obtained through observations and interviews with students and teachers after the learning process occurs.

Excess *Ex Post Facto* research methods will yield useful information about the nature of a phenomenon; can be used repair technique, the existing control programs [3]. In this study obtained information that turned out to students

who are displeased about the math lesson never or less actively involved in the learning of mathematics. Example of questions that are given, test questions and homework are less associated with problems of daily life, making it less attractive to students.

Lack of *Ex Post Facto* research methods, there is difficulty in determining the factors of the relevant causes; there is main weaknesses of research designs *Ex Post Facto* in the absence of control over the independent variables; difficult to determine the cause and effect relationship between two variables when it has been revealed [3]. Despite the weakness in the results, but there are weaknesses that can be utilized for the development of further research.

By interviews, students do not like math, it was found an answer that "math is hard and not fun". When the lack of significance of the mathematics study, it is certain there will be boredom students towards mathematics courses. Penchant for mathematics learning will not occur if the students do not understand the benefits of what is being studied. Based on *ex post facto* research with observations of mathematics during the first semester of study, it was found that not many teachers who are able to make the learning of mathematics in elementary school, junior high school and high school, it becomes a fun activity that can build entrepreneurial spirit.

It is required instruction for the teachers to apply mathematics learning that is meaningful and fun for the useful life of the students and be able to build entrepreneurial spirit.

3. Results and discussion

The results of this *ex post facto* study, it was found the cause of why the students are displeased about the math: first, most students do not realize that every day in this life we are always using mathematics. Starting from simple, we all sleep (how many hours the students to sleep) then how many minutes the students to shower, eat breakfast, and get ready to go to school so as not to be late. Calculating how long hour drive the students to school, for example, must walk, or ride a bike. Calculating how much pocket money received from parents, it has been used to buy anything, and it should still there or has run out. Second, the lack of teachers engage the students actively in the learning process, such as measuring the length and width of an object, counting the money to be paid if the price has been discounted. Third, teachers are aware of the shortcomings and claimed never have thought to build a spirit of entrepreneurship and prepare the

students' independence. Teachers prefer to use the sample questions are available in books and admit rarely make own questions related to daily life. Teachers admit never persuade students to play a role as in buying and selling, pay shopping with discounts, counting the money back. Teachers often make questions about the form of numbers without the story first, it contributes about story questions seem difficult.

3.1 Changing Paradigm of Learning Mathematics

The paradigm of "teaching" in our country today still dominates in mathematics learning activities in school. Students are still regarded as objects who do not know anything, clean white paper to be filled posts by teacher, or an empty glass to be filled with water. Otherwise, the teachers are positioning themselves as superhuman who knows everything and the only source of knowledge. Teachers lecture, patronize, and the highest authority in the classroom is in the hands of teachers.

Excessive emphasis on the contents and materials that are curriculum load and taught necessary due to teachers' ability. Materials are provided in the form so that the language of the book uses the language of smart people, so in terms of language students have difficulties, especially its materials. Mastery and students' understanding of mathematical concepts are very weak and not deep, so the learning achievement is low. The knowledge that is accepted passively does not make math meaningful for students. The paradigm of teaching like this should be left in the classroom. It is time for *teaching* paradigm is replaced by the paradigm of *learning* when reside in the class. This is consistent with the theory of constructivism.

In the theory of constructivism, the students are no longer as an object but they are positioned as a subject. The knowledge is no longer as something that is already made, but it is a process that must be researched, well thought out and constructed by students. Thus, the students are expected will actively in learning. It makes students must actively find their knowledge that they want to have. The task of the teachers is no longer transferring knowledge to students, but how to create an atmosphere of learning and plan learning activities that allow students to actively construct knowledge possessed by the students themselves, so it would be more meaningful learning activities for students.

Mathematics learning activities in schools will be effective and meaningful for students if the learning process of students consider the

context. The real context of the students' life includes physical background, family, social, economic, cultural, religious and other living reality. Insight and understanding that brought students when starting learning activities, feelings, attitudes, and values that are believed to students is also a real context. Consequently, to change the direction of mathematics learning constructivist approach or realistic, mathematics learning should be planned and conducted in such a way that every student with a unique context and get a chance to re-construct knowledge with their own strategy.

In the process of learning mathematics, students often have difficulty in learning activities. Therefore, the teachers need to provide support and encouragement to the students in the learning process. The provision of assistance that enables the students to solve problems, perform tasks, or achieve the goals that impossible endeavored by students. If the students are able to connect or relate the information in the possession of knowledge that is said to occur meaningful learning. However, if the students memorize new information without connecting to the existing concept in the cognitive structure is said to occur rote learning

3.2 What is Entrepreneur?

Entrepreneur is a real willingness and ability of an individual, which is derived from themselves, inside as well as outside the organization that exists to discover and create new economic opportunities. [4]. Why do the students need to get supplies entrepreneur?

1) Opportunity

Equip the students to watch their opportunity become future leaders in the business that will be built. Leadership is a main factor become successful entrepreneurs. Dare to be forward facing new something though risky.

In addition, it will get a chance to succeed. The success achieved by the person who has the entrepreneur spirit and makes motivation to continue to reach the success in his life. For them the future is success and success is a beauty that must be achieved in their life.

2) Profit

One of the reasons that excite into someone entrepreneur is a benefit which is obtained. The students need to be prepared to be rich person in business what they do with persistence and tenacity.

3) Independence

Some entrepreneurs are not comfortable when working for someone else. One of the best

to be an entrepreneur is the independence to pursue ideals.

4) Challenge

Prepare students' mental dare to face the challenges of the profit and loss of a business. May often read or watch some cases the bankruptcy of a company. Introduce a dynamic life in the company work. The choice depends on the student, if finally the student choose the entrepreneur world.

3.3 What it takes to be an entrepreneur?

1) Self-directed

The students must be discipline and really comfortable being a boss. They later will be responsible for the success or failure.

2) Self-nurturing

The students must believe in their own ideas even when no one else agrees and should be able to recharge themselves.

3) Action-oriented

It is not enough just to have a great business idea, the most important is the burning desire to realize, actualize, and create dreams into reality.

4) Highly energetic

The students must be able to handle the emotional, mental, and physical to work hard in long terms. The employees can have the day off in the weekend, besides entrepreneurs often work seven days a week full and no annual holiday, but most entrepreneurs think it's better than working a long time for someone.

5) Tolerant of uncertainty

The success of entrepreneurs is that they must take into count the risks and able to handle it. Entrepreneurial teams is a collection of experienced people from different business areas to join together to form teams with managerial skills/ expertise required to build, develop and market new products.

3.4 Why Learning Meaningful?

Teaching significantly (meaningful learning) is intended as the way to teach the subject matter that promotes understanding rather than memorizing. Learn significantly more emphasis on the process of products. Mathematical concepts cannot be taught by definition, but should be through relevant example. These examples should involve a certain concept has to be guaranteed that the concept has been formed in the mind of students who are learning.

No human being may grow perfectly, morally or practically. They are heading in that direction. If like that, which became the result is a long business life, both personally and in

society [1]. Effort of long life begins at home and school. From home can be trained to live frugally means not wasteful in the use of money. Excellent schools that have 99% proficient students, teachers often do not bother to form an independent character. Clever students usually have the ability to learn independently and are responsible for chores and schoolwork, but it required the planting concept of how to productive live and not consumptive.

In growing practically, the students are need of guidance and proper exercise through the significance of story questions associated with student life. For example, since in the 3rd grade in elementary school, there is material currency on mathematics, the type of work and the type of market in the Social Sciences, expenditures in Indonesian language, for teachers who "precise" is expected to associate the material in playing a role to build entrepreneurial spirit.

It needs learning planning who acts as a trader, who is the buyer, who become parents. Makes a story that parents give money and order their child to shopping kitchen need. The dialogue is prepared, the media in the form of goods sold given the label price and adjusted to current prices, it can use real money or money clone. On the matter of currency; type of work; types of markets; shopping is a knowledge basic of buying and selling; profit and loss; net, gross; discount, which can be used as the initial formation of entrepreneurial spirit. If developed further and skills associated with the subject, can be thought of what can be made from inexpensive materials, but can be sold and interest many people. Persuade students to think, who know they can find a brilliant idea. Like making handkerchiefs, napkins, tablecloths, seat cushions batik. Invite students calculate the capital and the process of making, propose selling price to make a profit or gain.

In addition to entrepreneurial spirit can also be formed precise character before buying, buying the appropriate capabilities and needs, resist the urge when insufficient finances, saving efforts to fulfill the greater needs. If you look at the performance of teachers like this, how great their services in giving basic of logical thinking, systematic, consistent and comprehensive. Learning to accept and find both of them can be significant when learning new concepts or new information associated with concepts that already exist in the cognitive structure of students. Necessary steps that lead to the activity of meaningful learning for students are as follows:

1) Orientation teach not only in terms of academic achievement, but also directed to develop a consistent attitude and interest in

learning as well as the students' base potential, such as counting, measuring and predicting.

2) The topics are selected and studied based on the students' experience. The lesson is not perceived by students as a task or something imposed duties by the teacher, but rather as part of or as a tool needed in students' life.

3) Teaching method that is used should make the students engage in direct activity and fun play.

4) In the process of learning should be prioritized opportunities for the students to play and cooperate with each other.

5) The subject matter that is used should be concrete materials.

6) In assessing the learning outcomes of students, the teachers not only emphasize the cognitive aspects by using a written test, but also should cover all domains of behavior the students relevant to involve a number of assessment tools.

Based on the description above can be concluded that the *ex post facto* research is the research that can explain the cause and effect of the learning which has occurred in the majority of elementary schools, in junior high school, and in high school. In the study was interrelated and influence each other between the attitudes of the students (as a result) the teacher's teaching style that previously experienced by students (as the cause), and can be found how the symptoms or behaviors that occur. The learning process will have an impact on the outcome of in-depth study, both individually and also in groups. Learning about the concept would be more meaningful if adapted with the learning styles of students who take advantage of interactive learning media. It can automatically obtained better learning outcomes and develop interest in entrepreneurship [4].

Meaningful learning is the most dominant factor affecting student interest in entrepreneurship [5]. Symptoms of interest entrepreneur students can be seen from the attitude of interest in the purchase, create works that can be sold, money counting skills, calculate the equity value of money, interpret discount, interpret profit, and so on. Entrepreneurial spirit can be observed through the interest and attitude is a form of student attention as effort pay attention to the lesson, so that they can focus on a specific object. This concern arises because of something that is exciting and impressing of the learning process fun and meaningful.

An entrepreneur is one of who creates a new business in the face of risk and uncertainly for the purpose of achieving profit and growth by identifying opportunities and assembling the necessary resources to capitalize on Reviews

those opportunities [6]. The entrepreneur is a person who is able to manage and dare to risk to create new businesses and business opportunity and be able to appreciate the time and responsibility. Entrepreneurial spirit is a mental attitude, knowledge and thinking and follow someone on a task that is its responsibility to its customers. The ability to create something new and different through creative thinking and innovative action to create opportunities for the challenges of life [7]. By having a consistent mindset and follow the pattern of the spirit, it will always appear feelings of love to learn mathematics.

The results of other research that in learning which uses of constructive collaborative and inquiry-oriented Chemo Entrepreneurship CEP are able to improve learning outcomes and students interest in entrepreneurship [8]. Active learning and creative process, especially in mathematics learning supported by a pleasant atmosphere and actively involve the students will make its learning the impression of depth and will be able to build a spirit of entrepreneurship, later the students can be equip it to live in the community.

4. Conclusion and recommendation

Many students are displeased about the math was caused by a lack of teachers actively engage students in the learning process. Some teachers are not understand about how to enable the students so that mathematics learning becomes meaningful and useful as a provision of life in society. The teachers still need referrals, training on how to teach mathematics and select materials that can be used as the basis to build entrepreneurial spirit for their students.

Through in-depth study of the material can be developed to build entrepreneurial spirit, such as calculating the profit or loss of accuracy about the real story, measure and make questions from the concept of geometry; play a role in the sale and purchase using discount rules. Train the planning of needs, and spending through diligent saving. Make an effort to fulfill the needs through creativity, productivity and not the consumptive. The most important for teachers to be able to equip students to have a strong entrepreneurial spirit for supplies in the future through meaningful mathematics learning.

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