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Implementation of STEM Approach, Entrepreneurship Course, Feeding for Chicken Egg Productivity

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ABSTRACT
The purpose of this qualitative research is to describe the implementation of the STEM Approach of Entrepreneurship Courses in a case study at the FKIP Chemistry Education in Sriwijaya University, Feed for Increasing Chicken Egg Production. The subjects in this study were Chemistry Education Students, Entrepreneurship Lecturers, and Chemistry Education Coordinators. Data collection methods used are document studies, observations, and interviews. Data were analyzed descriptively. The results of the study are as follows: Based on the STEM Approach of Entrepreneurship Courses in Chemistry Education FKIP Sriwijaya University, Feed for Increasing Chicken Egg Productivity, creative students compile (1) problems (2) entrepreneurial design facilitated by Chemistry Education. (3) report the results of the design, present, and video. (4) Assessment of the process and student learning outcomes, chicken egg productivity is very satisfying. The Application of STEM Approach for Entrepreneurship Lectures in Chemistry Education FKIP Sriwijaya University, Feed for Increasing Chicken Egg Productivity optimally

Keywords: *STEM approach, Entrepreneurship, Chicken egg productivity.*

1. INTRODUCTION

Entrepreneurship education in each education unit, needs to be done, a developed nation if the number of entrepreneurs is at least 2%. Entrepreneurship education in each education unit, needs to be done, a developed nation if the number of entrepreneurs is at least 2% of the population. Data from 2007 showed that the population of Indonesia was approximately 220 million, the number of entrepreneurs was only 400,000 people (0.18%), which should be 4,400,000 people. Means the number of entrepreneurs in Indonesia is short of 4 million people [1]. Entrepreneurship education gradually forms flexibility, proactivity, risk courage, experience trying, anticipatory, honest, disciplined, hard work, independent, cooperation, responsibility, leadership, never give up, commitment, realistic, curiosity, communicative, motivated to succeed , action oriented [1], [2], [3]. Entrepreneurship Course with a weight of 2 Semester Credit Units in Chemical Education Sriwijaya University is a subject that must be taken by students. Students think creatively and innovatively, using the approach of Science, Technology, Engineering, Mathematics (STEM). This research is a case study in Chemistry Education at Sriwijaya University. The STEM approach needs to be implemented to improve the quality of Sriwijaya University now in 2020 in the 36th rank in Indonesia based on Kemenristekdikti [4]. The steps of the STEM approach [5] are in the form of 1) The existence of a problem, 2) The design or problem-solving plan, this design is a proof of creativity. 3) Testing problem solving; and 4) Reporting or disseminating trial results. The STEM approach is one unit and is not separate between S, T, E, and M. The four STEM steps [5]. serve as a guideline in the implementation of entrepreneurship learning in this study. The limited STEM approach is not carried out stage 3) trial. Based on the results of the study, three stages were carried out: the problem, the problem solving plan / design, and reporting. Based on creativity in the STEM Approach, creative students, think critically to design entrepreneurs [6].

Based on that background, the Entrepreneurship Course prior to this needs to be upgraded to creative, innovative, and engineering students [7], then a qualitative study was carried out, regarding the implementation of the STEM Approach of Entrepreneurship Subjects in Chemical Education in Sriwijaya University, Feed Material for Increasing Productivity Free-range Chicken Eggs. The purpose of this study, to describe the implementation of the STEM Approach for Entrepreneurship Subjects in Chemical Education, Sriwijaya University, Feed Material for Increasing Productivity of Free-range Chicken Eggs. This research is useful: 1) for students to improve engineering creativity, through the STEM approach, 2) for Entrepreneurship Subject Supporters become guidelines in learning with the STEM Approach

2. METHOD

This type of research is a qualitative study, with data collection techniques in this study in the form of observations, interviews, and document studies. The research site at Pendidian Chemistry of Sriwijaya University and the research sample using the purposive sampling method was carried out with consideration of the Covid 19 outbreak and ranked 36th out of 100 Sriwijaya Universities [4]. The subject of the research is the Implementation of the STEM Approach in Entrepreneurship Subjects in Chemistry Education at Sriwijaya University, the STEM Approach is limited without the Trial stage. Data analysis methods used are, data presentation and conclusion drawing. Testing the validity of the data in this study was carried out by triangulation. This research was conducted in the Even Semester Academic Year 2019/2020..

2.1. Observation

This phase the researchers made observations to obtain learning process data with a limited STEM approach without a trial phase. These observations include learning "feed for increasing the productivity of laying hens". These observations [5] are broken down into the following stages: a. Students take the initial test individually. b. Students form groups of 3 students. c. Students work on group work that is designing entrepreneurial plans: 1) Each group of students searches from the internet a different type of feed for each group to increase the productivity of free-range chicken eggs. 2) the groups are scrambling to upload the type of feed via their respective Mobile Phones to the entrepreneurship class WhatsApp group. 3) The group wrote the type of feed earlier (as a solution to problem solving) under the heading "Feed (a type of feed that the group agreed to) to increase egg productivity" 4) The group wrote a plan addressing the place of maintenance to increase egg productivity. 5) The group designs a cage floor plan where maintenance increases egg productivity. 6) The group wrote a feed composition plan to increase egg productivity. 7) The group designs the number of times each day the feed is to increase egg productivity. 8) The group writes the title of the identification of compounds, elements, and / or atoms from journals that are related to the free-range chicken material. 9) Each group writes a reference as a source of reference data. 10) Each group presents points 3) to 8) in front of the class and the other groups take turns taking pictures and video presentations, as a pioneer of learning activities. 11) Each group uploads the video to Youtube. 12) Individual students take the final test of lecture activities.

2.2. Interview

The interview phase was conducted interviews with caregivers, Semester 2 students as participants in Entrepreneurship courses, and Chemistry Education Coordinator at Sriwijaya University. This stage is to get interview data on Semester / Syllabus Learning Plans, support and facilities for Entrepreneurship courses by Sriwijaya University.

2.3. Documentation

This documentation phase is to obtain data on the results of photo documents, videos, letters of support from Sriwijaya University, Semester / syllabus Implementation Plan, scores on the learning outcomes of Entrepreneurship courses, feed material to increase the laying hens.

3. RESULT AND DISCUSSION

3.1. Observation

Entrepreneurship Learning on the topic "type of feed for increasing the productivity of free-range chicken eggs" was held on February 22, 2020, a Chemistry Education student at Sriwijaya University. The number of students attending the lecture was 24 people. Based on observations of entrepreneurial learning using the STEM Approach [5]. The learning phase starts from 1) the initial test up to stage 12) the final test, as in point 2.1. The evidence of the observation activity is written in items 3.3.1 to 3.3.2.

3.2. Interview

The observation data was checked by interviewing lecturers of entrepreneurship courses with the initials IH, BL, and KAW, stating that Entrepreneurship courses in the even semester 2019/2020 used the STEM Approach [5], on feed material to increase the productivity of free-range chicken eggs. Interviews to semester students with the initials ME, SAA, and RCL stated that it needs to work hard, never give up, and dare

to take risks to make the results of the entrepreneurial plan / design come true [7], [8]. Lectures with the STEM Approach [5]. encourage students to be creative, think critically design the type of feed to increase the productivity of free-range chicken eggs as an entrepreneur. The Coordinator of Chemistry Education at Sriwijaya University said that the Entrepreneurship Semester Course Implementation Plan had been prepared, but the revision was simplified to adjust to the Minister of Education and Culture Circular Letter number 14 of 2019 [9]. The Chemistry Education Coordinator expressed the support of the Sriwijaya University to entrepreneurial students in the form of the Socialization of Student Entrepreneurship Program on February 25, 2020 in the Multipurpose Room of the Sriwijaya University Student Center Building, Indralaya Campus. Students can use it for free, the internet wifi facility has been provided as support for Sriwijaya University on the Palembang and Indralaya campuses. There are still many theoretical Semester Entrepreneurship Plans, not yet practicable so it needs to be changed from 16 meetings to 13 times STEM Approach with different material, one-time Semester Examination meetings, one-semester Final Examination, and preliminary meetings at the beginning of the lecture once . A group work completion meeting to design different material in the Entrepreneurship course is conducted outside the class meeting. If the Entrepreneurship course is to be used as an alternative business activity for the Chemical Education alumni of Sriwijaya University, it needs to be changed from 2 semester credit units to more than 2 semester credit units.

3.3. Documentation

Documentation is needed to complete the observation and interview data. Based on the documentation data, all groups have implemented the STEM approach steps [5]. Based on the documentation, the results of the STEM Approach research are limited without trial of feed material to increase the productivity of free-range chicken eggs, as follows.

3.3.1. Problem

The problem of entrepreneurship was raised by Group 1 with the initials ME, SA, and RCI, and in the form of Group 2 with the initials YAH, RA, and SP, both chose "Ration" [10] as feed to increase the productivity of free-range chicken eggs as an entrepreneurial problem. The problem of rice bran entrepreneurship was raised by Group 3 with the initials US, CAM, and UAS. The problem of entrepreneurship was raised by Group 4 with the initials ME, SAA, and RCL, choosing rice bran food to increase the productivity of free-range chicken eggs. Group 5 NK, AAD and MR chose the problem of yellow corn as a feed entrepreneur to increase the production of free-range chicken eggs. The entrepreneurial problem raised by Group 6 with the initials FHS, DSA, and NYH plans to choose sorghum as food for increasing the productivity of free-range chicken eggs. Group 7 with initial LKP, MAR chose the cassava problem to increase the productivity of free-range chicken eggs. Group 8 with the initials ISA and RA chose green leaves to increase the productivity of free-range chicken eggs.

3.3.2.Plan / Design

The address plan for raising and caring for the goats is oThe plan to address group 1 entrepreneurs on the road Brigadier General Hasan Kasim Bukit Sangkal, Kalidoni District, Palembang City. Plans for addressing entrepreneurship group 2 on Jalan Major Zen Taqwa Matamerah Lorong Setia No. 12 Rt 16 Rw 003 Kalidoni District Kelurahan Sungai Selincah, Palembang. The group 3 entrepreneurship plan was implemented on Jalan Sako Baru, Sako District, Palembang City. Group 4 plans the entrepreneurship of the productivity of free-range chicken eggs in Jalan Krisna, Wonosari Village, Prabumulih Utara District, Prabumulih City. Plans for group 5 entrepreneurs in Medda Village, PenVIEW Subdistrict, Ogan Komiring Ulu Regency. Group 6 plans to start an entrepreneurship in Mendala District of Ogan Komering Ulu District. Group 7 has an entrepreneurial plan on Baturaja Bintasaja Road, Lubuk Rukam Village, PenVIEW Subdistrict, Ogan Komering Ulu District, Group 8 plans to do entrepreneurship in Jalam Cut Nyak Dien, Martapura District, Ogan Komering Ulu Timur Regency.

Groups 2 and 3 have designed the house plans for the chicken poultry entrepreneurship. The composition of feed ration [10], [11], [12], [13]. in the form of 50% bran, 20% menir, 4.5% fish meal, and 25.5% palm kernel meal. Feeding is planned to consist of 2 phases, namely 0 to 4 weeks starter phase and finisher phase 4 to 6 weeks. The amount of laying feed needed in the starter phase is 1,520 grams per tail. For the finisher phase, 3,829 grams per tail. Feeding is done every morning and evening. The fee plan consists of 4,500 IDR / kg; menir 6,000 IDR / kg; fish meal 3,000 IDR/ kg; and palm kernel cake 2,500 IDR / kg. Identification plan of bran: 6% protein, 1,200 kK / kg energy, 0.10% lime, 0.5% vitamin and mineral. Menir: contains 2% protein, energy 532 kK / kg, lime 0.02%, vitamins and minerals 0.02%. Fish meal contains 2.25% protein, energy 1.34 kKl / kg, lime 0.23%, vitamins and minerals 0.13%. Palm kernel cake contains 4.77% energy 522 kKl / kg, lime 0.05%, vitamins and minerals 4.14%. The procedure of making feed ration into 2 groups namely wet protein (rice bran, groats) and protein supplement (fish meal, palm kernel meal). Then the mixture is stirred evenly with enough added water with the consistency of the dough that can be formed.

Steam the food mixture like cooking rice until cooked so the feed isn't stale. Remove the dough then shape according to your wishes examples of flour, pellet shape.

The design of the laying hen care for the laying hens was done by group 4. Feed composition consisted of 80% bran [14] 10% vitamins, and 10% water. Plans for feeding the free-range chicken 3 to 4 times a day and then interspersed with corn 1 to 2 times a day, for vitamins are given egg stimulants containing 12 vitamins, then given water. The planned use of funds in the form of enclosures and materials 70,000,000 IDR; land 30,000,000 IDR; feed 300,000 IDR; Free-range chicken seeds 500,000 IDR. So that the total funds needed are 100,800,000 IDR. Rice bran is an alternative foodstuff that is rich in nutrients, rich in oryzanol which has hypocholesterolemic properties. The nutritional content of rice bran is in the form of vitamins (Thiamine, Niacin, Vitamin B-6), minerals (iron, phosphorus, magnesium, potassium), amino acids, essential fatty acids, anti-oxidants, food fiber, and hypoallerginic components. Determination of Thiamine (Vitamnin B1) can be done by Ultraviolet-Visible spectrophotometry [15].

Group 5 has designed a chicken coop where to keep the native chicken. The composition of the free-range chicken feed is in the form of 3 basic patterns, namely a). 40% concentrate, 40% corn, and 20% rice bran [16], [17], [18]. b). 30% concentrate, 50% corn, and 20% rice bran. c). 35% concentrate, 50% corn, and 15% rice bran. The design of feed for free-range chicken in the form of the first 2 weeks as much as 4 times a day namely morning, afternoon, evening and night. Furthermore, age is greater than 14 days, feeding is done 3 times a day ie morning, afternoon, and night. Initially the feed was given a feeder tray, then at 7 days the place of the hanging feeder began to be introduced without the installation of feed slots. the number of feeder trays is reduced gradually and at the age of 15 days a funnel has been installed (wheeled feeder tray). Furthermore, the height of the hanging feeder uses a breast height benchmark or around the cache of a free-range chicken. Comparison of feed place is around 30 fish / feeder. Planned cost breakdown in the form of free-range chicken coops 8,000 IDR; laying hens seedlings 5,000,000 IDR for 100 individuals; laying native chicken feed 1,000,000 IDR. The total cost is 14,000,000 IDR. If from 100 laying hens produce 6 kilograms of eggs per day, the net profit is 1,000,000 IDR per month. The compounds contained in rice bran are 6.12% crude fiber having a fat content of 14.1%, crude protein13.85%, rice bran containing metabolic energy of 2,100 kcal / kg, crude protein 12.9% fat 13%, crude fiber 11.4%, ca 0.07%, p available 0.21%, and Mg 0.22%.

The design / plan for the free-range chicken coop has been prepared by this group 6. The composition of free-range chicken feed consists of Sorghum [19], [20]. ground corn, and mustard greens. Feeding is done 2 times a day morning and evening. This entrepreneurial cost plan is in the form of a stable of 1,500,000 IDR; free-range chicken 750,000 IDR; feed 545,000 IDR; husk 12,000 IDR; feed container 28,000 IDR. The planned vaccine and vitamin costs 100,000 IDR per 100 free-range chickens. Other costs such as employee wages, water, electricity, etc. Plans for the plans for free-range chicken cages have been prepared by group 7. Feed composition in the form of cassava [21] rice bran, tofu waste, soybean pulp, coconut pulp, and household agricultural waste. Feeding free-range chicken is done 2 times a day morning and evening. Details of the cost in the form of domestic chicken cages 5,000,000 IDR; free-range chicken eggs 100 eggs ready 50,000,000 IDR; free-range chicken feed per month 1,000,000 IDR; 15,000,000 IDR land. the total breakdown costs 26,000,000 IDR (still under estimation). Procedure / step of making feed in the form of drying materials to be ground to dry, all ingredients are mixed evenly, use the machine if the ingredients have not been mixed evenly. Dry again for one to two days, then pour into a plastic bucket and add supplements. When giving this feed to free-range chicken, you should add enough water, and stir thoroughly.

Plans for the plans for free-range chicken cages have been prepared by group 7. Feed composition in the form of cassava [21] rice bran, tofu waste, soybean pulp, coconut pulp, and household agricultural waste. Feeding free-range chicken is done 2 times a day morning and evening. Details of the cost in the form of domestic chicken cages Rp. 5,000,000; free-range chicken eggs 100 eggs ready 50,000,000 IDR; free-range chicken feed per month 1,000,000 IDR; 15,000,000 IDR land. the total breakdown costs 26,000,000 IDR (still under estimation). Procedure / step of making feed in the form of drying materials to be ground to dry, all ingredients are mixed evenly, use the machine if the ingredients have not been mixed evenly. Dry again for one to two days, then pour into a plastic bucket and add supplements. When giving this feed to free-range chicken, you should add enough water, and stir evenly.

The design of the free-range chicken house plans has been made by this group of 8. Feed composition is in the form of green leaves [22] and rice bran, and cassava. Feeding on free-range chicken was done 2 times in one morning and evening. Planned cost breakdown in the form of free-range chicken coops 4,000,000 IDR; free-range chicken eggs 200 eggs ready 10,000,000 IDR; free-range chicken feed per month 1,500,000 IDR; and land 12,500,000 IDR. The total breakdown fee is 28,000,000 IDR (still under estimation). The steps of making feed are 1) drying material that wants to be

ground until smooth, stirred, and dried. 2) The dry ingredients are put in a bucket and supplemented with vitamins and supplements to accelerate the production of free-range chicken eggs. 3) feed is ready to be given to free-range chicken, it should be given a little water to drink free-range chicken.

This plan / design as engineering was written by each group, taken from the internet. This way of learning through the internet has become a feature of Industrial Revolution 4.0, involving cyberspace. All data is already on the internet to be utilized as well as possible [23].

3.3.3.Reporting / presentation 1

Reporting groups 1 to 8 in the form of writing in the form of hard copies, presentations, photos and videos uploaded on YouTube. Proof of the upload was group 1: feed ration, group 3: rice bran feed, group 4: bran rice group 5: yellow corn feed group 6: sorghum feed group 7: cassava feed group 8: feed green leaves. Learning outcomes 0.92 using N-Gain scores with high categories [24].

3.4. Discussion

Implemetation of Learning with the STEM Approach of Entrepreneurship courses in laying hens for feeds at the Department of Chemical Education, Sriwijaya University is carried out through:

The observation stage, at this stage, was carried out by the entrepreneurship learning obervation in the Department of Chemistry at the University of Sriwijaya University, feed material to increase the productivity of free-range chicken eggs on February 22, 2020. From the observation results in lectures, 24 students were obtained using the STEM Approach instructions [5]. During the lecture, all students used the internet to answer problems, design problem solving, prepare reports in the form of hard copy writing and video presentations of the report. This shows that learning uses the Revousi Industry 4.0 approach. Characteristics of the Industrial Revolution 4.0 using cyberspace. Steps or syntax in Entrepreneurship lectures in the Department of Chemical Education, Sriwijaya University, as in point 2.1. This shows the STEM Approach [5]. is going well and smoothly. Based on observations of the lecture on entrepreneurial issues raised by Group 1 with the initials ME, SA, and RCI, and in the form of Group 2 with the initials YAH, RA, and SP, both chose "Rations" as feed to increase the productivity of free-range chicken eggs. The problem of rice bran entrepreneurship was raised by Group 3 with the initials US, CAM, and UAS. The problem of entrepreneurship was raised by Group 4 with the initials ME, SAA, and RCL, choosing rice bran food to increase the productivity of free-range chicken eggs. Group 5 NK, AAD and MR chose the problem of yellow corn as a feed entrepreneur to increase the production of free-range chicken eggs. The entrepreneurial problem raised by Group 6 with the initials FHS, DSA, and NYH plans to choose sorghum as food for increasing the productivity of free-range chicken eggs. Group 7 with initial LKP, MAR chose the cassava problem to increase the productivity of free-range chicken eggs. Group 8 with the initials ISA and RA chose green leaves to increase the productivity of free-range chicken eggs. The problems raised by each group have fulfilled the STEM Approach [5].

Plans / designs from group 1 to group 8 in the form of plans for addressing wirausana feed to increase the productivity of native laying hens have been designed to address plans for breeding to increase egg productivity. The complete address plan is as stated in point 3.3.2. Based on the results of the interview, the place of address of this entrepreneur is the original address of his parents' place. This is done to reduce the initial funding that must be provided for novice entrepreneurs. But there are also those in the Regency outside of the city of Palembang, budgeting land rent funds for these entrepreneurs. Entrepreneurial activities to succeed need courage to take risks, work hard, can see opportunities, creative and innovative [25].

All of the groups designed a plan for a place for raising domestic poultry to increase egg productivity, according to the location where the entrepreneur plans. The home plan is a group initiative based on uploads from the internet. The group wrote a feed composition plan to increase egg productivity, also sourced from uploads from the internet. The group designed the number of times each day the feed was given to increase egg productivity. Each group plans an initial amount of funds for entrepreneurs, also using reference sources from brochures from the internet. The group wrote the title of the identification of compounds, elements, and / or atoms from the journal. Each group wrote a reference as a source of data as a reference. The complete design can be seen in point 3.3.2.

Only group 4 who wrote the identification of the determination of Thiamin (Vitamnin B1) [15] can be done in Ultra violet-Visible spectrophotometry by using reference data from scientific journals. This is a weakness so it needs further emphasis for the STEM approach to entrepreneurship courses the following year at the Department of Chemical Education, Sriwijaya University. This is also allegedly caused by students taking Entrepreneurship courses in semester 2 who have not yet learned much of their chemical subject matter. As a suggestion to the Department of Chemical Education, Sriwijaya University, the Entrepreneurship course was placed in the upper semester of semester 2.

Each group presented the results of the group's work in front of the class and the other groups alternately videotaped the presentation, as a pioneer of learning

activities. Each group uploads the video to YouTube. Proof of uploading videos to YouTube can be seen in point 3.3.

Interview steps. Based on the results of interviews with the lecturers of Influential, IH, BL, and KAW to the second semester students consisting of 24 students, there is a "Feed for Increasing Productivity of free-range Chicken Eggs". This material, is very important with the STEM approach model because free-range chicken eggs are familiar to students, most people like to eat chicken eggs. This Entrepreneurship course is a Chemistry Education student at the University of Sriwijaya who sits in semester 2, this student has just studied Basic Chemistry Course 3 semester units of normal semester students have not studied much chemical material so the chemical identification written on the entrepreneurship course has not been well understood. The level of ability of students in semester 2 is certainly not the same, so the results of internet brochure writing about chemical compounds that can be studied are Sucrose (C12H22O11), glucose (C6H12O6), fructose (C6H12O6), maltose (C12H22O11). Whereas atoms C, H, O, and the elements are written incorrectly like C12, C6, H12, O111, O6. The elements C, H2, O2 should be written. Emphasizing the identification of the chemistry involved that is downloaded from journals on the internet to students needs to be done, because many writings on the internet are not scientific.

From the results of the interview it was found that during learning, students work on assignments, presentations, discussions, questions and answers, responding to presentations and cooperative learning models. Lecture material about animal fattening efforts such as the Tiger is very less useful in daily life. The task was done by a group of students. Students use brochure reference sources from the internet. The results of interviews with IH, BL and KAW also stated that the characteristics of students in the class were different, there were some students who were enthusiastic about paying attention to the presentations, there were also students only quietly paying attention to the presentations so that the lecturer lecturers did not know the students understood or did not know about the material presented . Different levels of student intelligence can be seen from the low student learning outcomes of 2 students repeating the Entrepreneurship course at Palembang Campus, namely RA and ISA of 24 students. RA and ISA were from the Department of Chemistry at Sriwijaya University, Indralaya campus, because the two students could not take Entrepreneurship courses at the Indralaya Campus, the time was at the same time as other courses. During the Entrepreneurship lecture on the Palembang Campus on Saturday, while at the Indralaya Campus there were no lectures at all on that Saturday.

The use of the STEM Approach in Entrepreneurship courses has never been done in the Department of Chemistry of the University of Sriwiaya University. Effective lecturers and students agreed to use the STEM Approach in the Entrepreneurship course as an alternative provision of new employment opportunities for students in addition to the main task as a chemistry teacher later. The STEM approach) is very important, there are solutions to design solutions to problems. Based on the description STEM approach is needed in the Entrepreneurship course in the Department of Chemical Education, Sriwijaya University. Based on that research also carried out titled Implemetasi Learning Approach STEM Entrepreneurship Subjects in the Department of Chemical Education, Sriwijaya University.

In the documentation phase, the researchers analyzed the document implementing the lecture with the STEM Approach of Entrepreneurship courses in the Department of Chemical Education, Sriwijaya University, feed material to increase the productivity of free-range chicken eggs where each group had written hard copies of group work reports as presentation material and videos. From the documentation, the implementation of the STEM Approach has been carried out properly and completely in accordance with the steps of the STEM Approach starting from the initial preliminary test and the final lecture test. The initial test questions are in accordance with or the same as the final recovery test questions on feed material to increase the productivity of free-range chicken eggs at the Department of Education, Sriwijaya University. From the semester implementation plan and the syllabus of Entrepreneurship courses, for feed material to increase the productivity of free-range chicken eggs, the test questions are in accordance with the objectives of the lecture. From the documentation data, the purpose of lecturing recovery, students can arrange, make or carry out in groups regarding: 1) problems / title of feed material to increase the productivity of free-range chicken eggs. 2) plan for addressing as a place for laying hens. 3) plan / design of hens in place for laying hens. 4) composition and number of times of freezing sifting. 5) initial funds needed for laying hens entrepreneurs. 6) reference as a reference for free-range chicken entrepreneurs. 7) title identification of compounds, elements, or atoms in the form of chemical journals from the internet. 8) presentation of reporting on the work of each group. 9) take a photo and upload the presentation as a group work report to YouTube.

From the documentation, an invitation letter number 0045 / UNG / SB3.BAK.KM / 2020 was obtained for the Socialization of Student Entrepreneurship Program on February 25th, 2020 in the Multipurpose Room, the Sriwijaya University Student Center Building, Indralaya Campus, as a support of the Sriwijaya University for student entrepreneurship. Entrepreneurial development

in higher education needs to be done to become a young entrepreneur [26]. Documentation of the entrepreneurship plan has been prepared by each group of students in the Entrepreneurship course at the Department of Education, Sriwijaya University, feed material to increase the productivity of free-range chicken eggs, contained in full in point 3.3.1. This shows the STEM Approach [5] has been implemented well and completely. From the documentation, the initial and final test results obtained an N-Gain score of 0.92 with a high category (Hake, 1998), meaning the STEM Approach has succeeded in improving student learning outcomes.

4. CONCLUSION

Based on the STEM Approach of Entrepreneurship Courses at Chemistry Education Departement in Sriwijaya University, Feed for Increasing Chicken Egg Productivity, creative students compile (1) problems (2) entrepreneurial design facilitated by Chemistry Education. (3) report the results of the design, present, and video. (4) Assessment of the process and student learning outcomes, chicken egg productivity is very satisfying. The Application of STEM Approach for Entrepreneurship Lectures at Chemistry Education Departement in Sriwijaya University, Feed for Increasing Chicken Egg Productivity optimally. Suuggestion, further experimental research needs to be so that the effectiveness oh the STEM Approach can be clearly measured.

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