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Implementing Teacher-Centered Learning (TCL) and Student-Centered Learning (SCL) Approaches on Basic Culinary Learning Outcomes in Students of Art Culinary Vocational Education at State University of Jakarta

Annis Kandriasari[1]

[1] *Art Culinary Vocational Education, Faculty of Engineering*
State University of Jakarta

Abstract- *this study aims to analyze the comparison between Teacher-Centered Learning (TCL) and Student-Centered Learning (SCL) to basic culinary learning outcomes. A research design used was Quasi-Experimental. The subjects of the study are 80 respondents of college student of Art Culinary Vocational Education, faculty of engineering, the State University of Jakarta. They took the basic culinary course in semester 105, year 2016/2017. The instruments used were the data of learning plan implementation, observation sheets, and questionnaires designed to measure the result of student's cognitive learning. The result of reliability test on questionnaires regarding student's learning outcomes variable on basic culinary course with the competency of vegetable cutting achieves a coefficient value of 0,9906. The count result is reliable since the count r value is higher than the r_{table}-value; 0, 9906 > 0,632. The calculation of two-mean difference test shows that t_{count} = 0, 0374 and t_{table} = 1, 66 using significance level (α) of 0, 05 with degree of freedom (n_1+n_2)-2 = (40 + 40)-2 = 78. The equation obtains t_{count} = 0, 0374. The t_{table} using 5% significance level equals 1, 66. In conclusion, it obtained that there are no differences Art Culinary Vocational Education students' learning outcome between class which applied Student-Center Learning (SCL) approach using discovery learning, and other class which applied Teacher-Center Learning (TCL) using the conventional method of vegetable cutting course.*

Keywords- *Teacher-Centered Learning (TCL), Student-Centered Learning (SCL), Basic Culinary, Learning Outcomes, Learning Approaches.*

I. INTRODUCTION

Today, a learning development in Indonesia leads to competitive nuances and appraises learning process which affects the mastery of competency. A learning paradigm approaches that based on Teacher-Centered Learning (TCL) has shifted to Student-Centered Learning (SCL). The dialogical nuances in learning process developed for shaping the student's character which has traits of bravery, honesty, responsibility, and which can make scientific arguments.

In general, the lecturing process in the Art Culinary Vocational Education still applies learning activity which is of one-sided, where the lecturer dominates the learning process of students regarding providing the materials. One of the great learning approaches is Teacher-Centered Learning (TCL). In the learning system, the lecturers' role is becoming the center of information and the resources of knowledge in achieving the learning outcomes. In this case, the students are limited to understand what is given by their lecturer and taking the notes if necessary. The lecturing activities combined with assigned tasks, sessions of questions and answers have not yet allowed by students participation.

The lecturing conditions aimed to build the art culinary skill consisting of theoretical and practical lectures. The former reveals general ideas concerned with the materials that experimented on in practical lectures. One of the culinary subjects is basic culinary which is compulsory and is a prerequisite to proceeding to another next practical subject. This subject discusses materials that concern with basic concepts in food processing, basic processing techniques, preparations before processing (meats, poultries, fishes and shellfishes, eggs, as well as vegetables), and food garnishes. After taking the basic culinary course, the students are expected to apply basic art culinary principles to food processing. To achieve learning competence in involving active students participation, it needs critical thinking regarding the material development, preparation techniques development, processing and serving related to materials. It practiced on from various learning sources and modern learning media. The learning activity aimed at the students such that it enables them to raise their grade on practical results are needed.

The development of learning approach patterns involving active student participation. It has a potential to render positive effects on learning outcomes regarding active participation. The students are more likely to feel that the lectures are theirs. It patterns also allow for stronger motivations to attend the lectures, better comprehension compared to passively receiving theories from the lecturers, and they support teamwork-based systems, interpersonal skills, as well as communications. The change in lecturers' role by involving the students in active participation is known as Student-

Centered Learning (SCL) approach. The application of this approach offered independent learning environment especially for Art Culinary Vocational Education students and increased active participation during the lectures.

II. MATERIALS AND METHODS

This study aims to analyze the comparison between Teacher-Centered Learning and Student-Centered Learning approach on learning outcomes of basic culinary. This research was carried out from March until November 2016. The subjects are 80 respondents of Art Culinary Vocational Education students, Faculty of Engineering, the State University of Jakarta. They took the basic culinary course in semester 105, year 2016/2017. A research design used was Quasi-Experimental, which defined as the type of experiment that is not entirely true because the prerequisites for carrying out scientific experiments using certain principles are not yet met (Suharsimi, 2006: 86).

This study applies an approach that based on Student-Centered Learning and Teacher-Centered Learning. The detailed research design used was Nonequivalent Control Group Design. This study utilizes two variables comprising. It consists of the independent variable (X) which is represented by learning approach that categorized into group A_1 for Student-Centered Learning, group A_2 for Teacher-Centered Learning, and the dependent variable (Y) which represented by learning outcomes of the Art Culinary Vocational Education student on the basic culinary course.

The data used were quantitative that include pre-test and post-test. In the experiment class, the learning approach used Student-Centered Learning. The control class Teacher-Centered Learning. The instruments used were the learning plan implementation, observation sheets, and questionnaires. It designed to measure the result of student's cognitive learning.

Table 1. Lattices of Vegetable Cutting Instruments

No	Indicators	Problems		Level	
		Pre Test	Post Test	Pre test	Post test
1	Describing vegetable definition	1	2	C1	C1
2	Classifying the types of vegetable	2	1	C2	C2
3	Preparing vegetable procession	3	12	C1	C1
4	Differing vegetable cutting based on function and types of cutting	4, 5, 6, 7, 8, 9, 10, 11	3, 4, 7, 8, 9, 10, 11, 14	C4, C4, C4, C4, C3, C3, C3, C3	C3, C3, C3, C4, C4, C4, C4, C3
5	Deciding the serving based on the cutting of vegetable	12, 13, 14, 15	5, 6, 13, 15	C5, C5, C5, C5	C5, C5, C5, C5
Total problems		**15**	**15**		

Table 2. The Instrument of Matching Type

No	Indicator	Problems		Level	
		Pre Test	Post Test	Pre test	Post test
1	Differing vegetable cutting based on function and types of cutting	1, 2, 3, 4, 5, 6, 7	1, 2, 3, 5, 6, 8, 9	C3, C3, C5, C5, C3, C3, C5	C3, C5, C3, C3, C3, C5, C5
2	Deciding the serving based on the cutting of vegetable	8, 9, 10	4, 7, 10	C4, C4, C2	C4, C2, C4
Total Problems		**10**	**10**		

The two instrument validities of learning outcomes used constructed validity and content validity. The former applied on three expert lecturers, and the latter applied to ten students that excluded from research sample. Upon observing the calculation results of biserial validity on 30 questionnaires regarding vegetable cutting, the item can be declared as val3id if it has $r_{count} > r_{table}$ which amounts to 0,632. After closer inspections, it inferred that there are five questions declared as invalid since each of them has $r_{count} > r_{table}$ which consists of question number 1, 3, 10, 22 and 23. Therefore, the rest 25 questions declared as valid. It follows that these questions used as an instrument for later researchers. The result of reliability test on questionnaires regarding student's learning outcomes variable on basic culinary course with the competency of vegetable cutting achieves a coefficient value of 0,9906. The r_{count} result is reliable since the r_{count} value is higher than the r_{table} value; 0,9906 > 0,632. Hence, it deserved to utilize as a research instrument.

Normality test is necessary to be conducted to examine the normality of data distribution that scrutinizes at the later stage of the research (Suharsimi, 2010). The type of normality test used in this research is Liliefors test. In the early stage of

research, a researcher must know whether the sample that will be analyzed is homogeneous or not. The assessment of activity from observation sheet analyzed by using percentage analysis. Such results are interpreted using qualitative scales as follows:

76% - 100% : Good
56% - 75% : Enough
40% - 55 % : Not Good Enough
< 40% : Bad (Suharsimi 2002: 246)

The enhancement of learning outcomes and activities seen from enhanced learning activity and learning outcomes of the student are calculated using the formula of normalized gain average. One-tailed test of correlated sample t-test is used to carry out the hypothesis test by comparing the learning outcomes of the students between experimental class and control class (Sugiyono, 2007: 119). The indication of learning completeness achieved when the entire students can accomplish the aim of learning at a minimum of 65% from at least 85% of the number of college students participating in the class (Mulyasa, 2003:99).

III. RESULT AND DISCUSSION

This experimental research is conducted to examine the application of a learning approach based on Teacher-Centered Learning with a conventional approach and the one that based on Student-Centered Learning through discovery learning in enhancing the learning outcomes of basic culinary, especially on vegetable cutting competency. The implementation of the experiment took two sessions of meeting with the following detail: one-time Pre-test on learning approach applying discovery learning (SCL) and one-time Post-test. The conventional approach is applied to control class by assigning pre-test at the start of materials, continued with materials distribution and finished with post-test. The experimental class and control class is carried out by a researcher with the help of one observer namely the lecturer team of basic culinary course. The task of an observer is to observe all students' activities during the learning process and to assess those activities on the assessment sheet that is provided by the researcher.

3.1 The Learning Implementation

3.1.1 Treatment and learning stage on experimental class and control class

A. Pre-Test on experimental class and control class

Table 3. Descriptive Statistics of *Pre-test* on Experimental Class and Control Class

Pre-test	Class	N	Mean	Median	Mode	Std Devia-tion	Variance
	Experimental	40	55	54	48	12,738	162,256
	Control	40	42,2	40	36	13,156	173,087

In table 3, it shows that the average of pre-test result on experimental class amounts to 55 whereas it amounts to a lower value of 42,2 for the control class. The median values of pre-test result for experimental class and control class are 54 and 40 respectively. The mode values of pre-test result for experimental class and control class are 48 and 36 respectively. The experimental class has a lower value of standard deviation amounting to 12,378 compared to that of control class which is 13,156. Therefore, the former also has lower variance value of 162,256 compared to that of the latter which amounts to 173,087.

B. Post-test on experimental class and control class

Table 4. Descriptive Statistics of *Post-test* on Experimental Class and Control Class

Post-test	Class	N	Mean	Median	Mode	Std Deviation	Variance
	Experimental	40	64,2	68	68	11,42	130,421
	Control	40	52,3	52	52	11,071	122,574

From table 4 above, the average of the post-test result on experimental class amounts to 64,2 whereas it amounts to a lower value of 52,3 for the control class. The median values of post-test result for experimental class and control class are 68 and 52 respectively. The mode values of pre-test result for experimental class and control class are 68 and 52 respectively. The experimental class has a higher value of standard deviation amounting to 11,42 compared to that of control class which is 11,071. Therefore, the former also has higher variance value of 130,421 compared to that of the latter which amounts to 122,574.

3.2 The Time of Learning Implementation

The time implementation of SCL learning approach using discovery method on the experimental class (Bachelor of Art Culinary Sie 1 2016) took two sessions of meeting with time allocation of 2 X 60 minutes. The first meeting held on Tuesday, September 27th, 2016 from 8 AM until 9 AM. The second meeting held on the next day, Wednesday, September 28th, 2016 from 8 AM until 9 AM. On the other hand, the timely implementation of TCL learning approach using the conventional method on the experimental class (Bachelor of Art Culinary Sie 1 2016) took two sessions of meeting with time allocation of 2 X 60 minutes. The first meeting held on Tuesday, September 27th, 2016 from 10.15 AM until 11.15 AM. The second meeting held on the next day, Wednesday, September 28th, 2016 from 10.15 AM until 11.15AM. As one can observe, the treatment of both experimental and control class is the same regarding time allocation.

3.3 Analysis of final data

3.3.1 Normality test

The result of hypothesis testing on normality using normalized parametric statistics is as follows:

Table 5. Data Results of Normality Test on the Class

	X^2_{count}	X^2_{table}	α	Normality
Experimental	0,276	0,886	5%	Normal
Control	0,188	0,886	5%	Normal

In table 5, it shows that the X^2_{count} of experimental class amounting to 0,276 appears to be higher than X^2_{table} which amounts to 0,188. The normalized data for X^2_{count} of control class amounting to 0,188 is higher than X^2_{table} which amounts to 0,886.

3.3.2 Homogeneous Test

The homogeneous test used to examine the similarity of variance. If the result finds F_{count} to be less than F_{table}, the null hypothesis is not rejected. Hence, the alternate hypothesis accepted. In this case, it concluded that the data is indeed homogeneously distributed.

Table 6. Homogeneous Test

Statistics	Types of student variable	
	Treatment Class	Control Class
Variance	156.0615	176.4
Sample	40	40
F_{count}	1,13	
F_{table}	1,69	

In table 6, it shows that the F_{count} for homogeneous test on student's learning outcomes amounting to 1,13 appears to be less than the F_{table} value of 1,69 (5% significance level). Thus the null hypothesis is not rejected, and therefore the data distribution is homogeneous. It concluded that the variance on learning outcomes data including *pre-test* and *post-test* on SCL and TCL learning approaches is statistically homogeneous.

3.3.3 Learning outcomes

The following table 7, it shows that pre-test and post-test condition for each class category on students' learning outcomes using written-based test:

Table 7. Results on Written Test

No	Results	Experimental Class		Control Class	
		Pre-test	***Post-test***	***Pre-test***	***Post-test***
1	Highest	76	84	76	76
2	Lowest	32	36	16	24
3	Average	55	64,2	42,2	52,3
4	Minimum passing criteria	72,5%			
5	g value (gain test)	0.7037		0,2452	

In table 7, the average of *post-test* for experimental class and control class are 64,2 and 52,3 respectively. The two averages of *post-test* are entirely different. It shows same treatment in both experimental class and control class leads to

different influence. This result confirms with the result found in t-test which shows that the results of *post-test* are significantly different. The comparison between the value of pre-test and post-test from experimental class and control class observed from the following histogram:

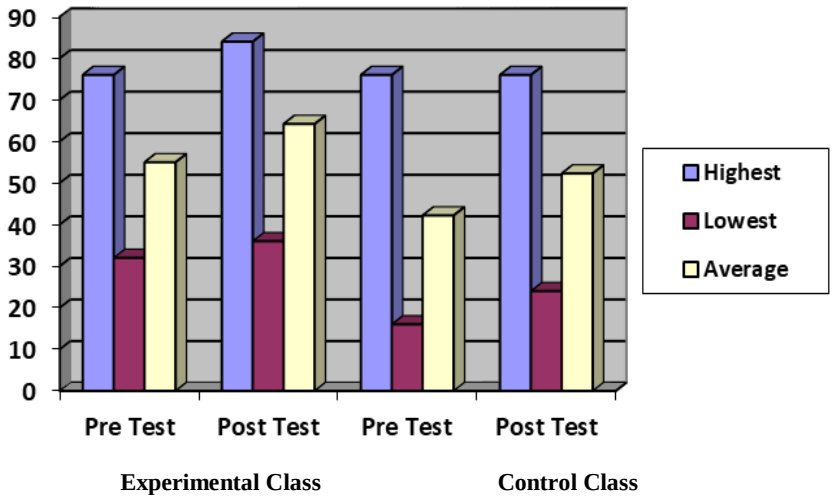

Figure 1. *Pre-test and Post-test* Value Comparison Histogram

In figure 1, the average of post-test results on experimental class appears to be higher than that of the control class. Hence, it concluded that the implementation of learning in experimental class (XC) renders effects that observed through those post-test results. The obtained g value for control class in which Teacher-Centered Learning approach is applied using conventional method amounts to 0,2452. It has low enhancement category. The obtained g value for an experimental class in which Student-Centered Learning approach is applied using discovery method amounts to 0,7037. It has high enhancement category. The significance of the gain test determined through one-tailed t-test with the following proposed hypothesis:

Ho: μ=μo: students' learning outcomes of the experimental class is the same with that of the control class
Ha: μ≠μo: students' learning outcomes of the experimental class is higher than that of the control class

The calculation of two-mean difference test shows that $t_{count} = 0,0374$ and $t_{table} = 1,66$ using significance level (α) of 0,05 with degree of freedom $(n_1+n_2)-2 = (40 + 40)-2 = 78$. The equation obtains $t_{count} = 0,0374$. The t_{table} using 5% significance level equals 1,66.

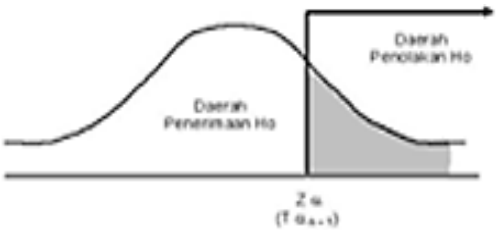

Figure 2. One-Tailed Test Graphic

The criteria of the test specify that Ho is not rejected when $t_{count} < t_{table}$. In this case, t_{count} does not fall under the rejection region. It concluded that, at 5% significance level, there is no significant difference between the two learning approaches (TCL and SCL). Based on the criteria of hypothesis testing on the average value of the class, it concluded that the average of students' learning outcomes of experimental class in which Student-Centered Learning approach applied appears to be higher than that of control class in which Teacher-Centered Learning approach applied

Based on the obtained results, they show that students' skills receive excellent results. These findings figured out from the value of *post-test* that conducted. The results of the *post-test* show that the average of which already achieves the

minimum limit. In general, gain test and t-test shows that students' learning outcomes increase significantly with high enhancement category.The learning outcomes increased through study methods. So long as the students are willing to participate in their study actively. Therefore, the selection of study methods become an essential factor that needs to consider throughout the learning process.

3.4 Discussion

This research finds that Student-Centered Learning (SCL) approach by applying discovery learning can increase the student's learning outcomes. The study implemented for two sessions of meeting on experimental class and two sessions of meeting as well on control class. The assessment of pre-test, post-test, and the application of SCL approach to discovery learning conducted on the former. The total amount of time spent on the learning process that was carried out on experimental class is 120 minutes. The same total amount of time spent for learning process on control class.

The initial condition of both experimental class and control class is the same as both are lectured by the same basic culinary course lecturer, given the same materials with the same competence and resource. Moreover, the total number of students of the two samples from each class are the same as both experimental class and control class have the same amount of sample which is 40 students. The study on experimental class in which SCL approach applied by using discovery learning at an early stage of learning is treated by looking for the data regarding vegetables, their function, types, quality, processing preparation, cutting technique, and storing technique. In contrast, the study on control class at an early stage of learning did not treat the same way.

In Act of Minister of Education Number 232/U/2000 regarding Guidelines of Higher Education Curriculum Development and Student Assessment article 12 paragraph (1) stated that on activities and student learning progress, a periodic appraisal did in the form of test, task implementation, and lectures observation. Article 12 paragraph (2) stated that exams held through midterms, final semester exams, final examinations of the study program, undergraduate thesis exam, graduate thesis exam, and dissertation exam. Article 12 paragraph (3) mentioned that assessment of learning outcomes is expressed by the letter A, B, C, D, and E which each worth 4, 3, 2, 1, and 0. Then in article 16 paragraph (1) stated that assessment of student learning outcomes is done thoroughly and continuously in a consistent manner corresponding with the characteristic of the education concerned. Moreover, article 16 paragraph (2) also mentioned to encourage higher academic achievement; better appreciation system needs to be developed for those high-achieving students and graduates (*Menteri Pendidikan Nasional R.I.*, 200). The best format for assessing student's learning outcomes within the context of SCL is related to the methodology and learning purpose, especially for feedback interest to students.

SCL allows for an assessment on student's learning outcomes designed in the so-called blueprint of assessment which emphasizes knowledge, attitudes, and skills as an integrated unity which includes student's learning responsibility, independent and cooperative student's activity, problem-solving, material comprehension, learning the environment, and critical thinking. Moreover, the assessment of learning outcomes within SCL approach includes formative assessment and summative assessment. The former is meant to give feedback to the students regarding their study, and the latter is applied using criterion-referenced assessment. The matters based on the consideration that both lecturer and the students can pinpoint with ease regarding the key to success and the issue that hinder such success. The assessment results previously found can be used to fix the future of learning process (Ingleton C. et al., 2001).

The learning process that uses SCL approach shifts the role of the lecturer to be a facilitator and motivator which guide the students to be more active and independent such that they are not solely dependent on the lecturer alone but instead they also strive to interact with various learning resources to achieve learning objective. The similar argument was also expressed by Djamarah (2010:92) which stated that Student-Centered Learning approach stimulates students' thinking skill creatively and entirely since they are encouraged to approach the problem from a different angle to solve it. According to Suprijono (2011:13), learning is interactive dialogue and is an organic and constructive process, but it is not a mechanism such as teaching. In like manner, Warsito (2008:72) stated that learning is an effort to prompt learners to study or it is an effort to create a condition that supports learning activity.

At the first meeting session, there were many hindrances during the learning process for the experimental class. However, at the next meeting, such obstacles dealt. The observation of learning process on experimental class runs smoothly, which reflected in the learning implementation. Such study design can optimize the whole resources and learn components which comprised of lecturer, book, discussion, and teamwork among members.

The lecturer has implemented both SCL and TCL learning approach using appropriate steps and procedures of RPP. The lecturer always evaluates the students' learning outcomes and deficiency. In contrast, the observation of learning process using SCL approach does not run smoothly, as there were many obstacles and shortcomings at the first meeting. It is because such a learning approach is still relatively new for the students. In managing the learning process, a gradual adaptation needed as a learning method. The determination of learning method adjusted with primary characters of a discussion as well as a learning method. According to Djamarah (2010:75), the selection and determination of method in

teaching and learning activity depart from 1) the value of strategical method 2) method usage effectiveness 3) the importance in the selection and determination of method 4) factors affecting the selection of the method.
Grouping often takes much time as students do not adapt to cooperative teamwork and some of them may feel that they are not compatible with some members of the same group. At the first stage of learning, the management of study does not yet run smoothly since the students used to work individually and due to the lack of lecturer's understanding regarding this matter. At the second stage of learning, the management of study run smoother than before as the students have adapted to working cooperatively with others in their group. At this stage, the students can also recognize differences among group members, so that they can build a mutual relationship in which they help each other and work together to solve the problem. It shows that the lecturer has fulfilled his role in SCL approach by implementing the management of study well.

The learning process that takes place in the control class at the first stage of learning faces some obstacles which comprise students find themselves hard to comprehend the materials delivered by a lecturer, students do not have enough courage to propose a question to a lecturer regarding the material. However, these issues are no longer a problem at the next meeting, as the students are already able to comprehend the materials well, which reflected in how actively they express their argument and ask questions. Upon observing the research results, conventional learning approach renders a lecturer full in teaching and learning activity with minimum students' participation. It causes boredom in learning.

The results of this research suggest that the ability of a lecturer in managing the study experiences an increase in percentage at the first and second stage of learning in both experimental class and control class. The existence of obstacles is always coped with and fixed by a lecturer such that the management of study runs well. The students' developed habit of working collective will nurture a sense of mutual help and self-adaptation among the members of a group, such that the participation of students in the learning process will keep increasing. This argument confirms with the research results found by Erwin Putera (2011) which stated that the application of SCL approach could increase the learning outcomes of social science classes. Mulyasa (2003:101) stated that learning is said to be successful and have a specific quality if all or at least most (75%) students are actively involved both physically, mentally, and socially in the learning process, besides showing great desire to learn, excellent learning spirit, and self-confidence.

Based on the t-distribution table with 5% significance level, t_{table}= 1,66. The hypothesis testing criteria specify that Ho is not rejected if $t_{count} < t_{table}$. In this case, the t_{count} does not fall into rejection region of Ho, and it concluded that at 5% significance level (α), there is no significant difference between TCL and SCL learning approach on learning outcomes of the basic culinary course. It is because there is no intervention in sampling between experimental class and control class. All data disperse freely. Some students have basic culinary skill learned from their previous vocational culinary school at each class category. There is also no significant difference in the teaching method as the lecturer has the skill and competence to teach the material, even though if the materials delivered linearly as they are taught by the lecturer using TCL approach with the conventional method. The lecturer can deliver the materials well using the media that is developed in such way so that the materials are easy to comprehend.

This research's pre-test and post-test show that the application of SCL approach using discovery learning can increase the students' learning outcomes on the basic culinary course. It referred to the average value for the experimental class which amounts to 64,2, while it amounts to 52,3 for the control class. Notice that the former has higher average value than the latter. It proves that SCL approach which uses discovery learning outperforms TCL approach that uses conventional method. These findings confirm with results found by Riasat Ali (2008). In his research, he concluded that the average value of experimental group was higher than that of the control group.

Overall, the use of SCL approach with discovery learning is found to be better to elevate the students' learning outcomes. In the end, researcher already verifies that SCL using discovery learning is better regarding increasing the learning outcomes of basic culinary regarding vegetable cutting. This finding strengthens previous studies' conclusion. One of the many previous types of research is the study that was carried out by Arum (2012). In her thesis titled "Comparative Study on Learning Outcomes Using the Conventional Method on Main General Journal Discussion of students at grade X Vocational Accounting of Widya Praja Ungaran," she stated that the learning outcomes using SCL approach are higher compared to the one using a conventional method. The similar conclusion is found by Hadi Arianto (2012) which stated that there was a record of an increase in the learning outcomes using SCL approach on the standard of competence of processing petty cash fund.

Based on instrument sheet, suggestion and observation result, student's positive response shows that the presentation makes courses more interesting. An interactive discussion makes courses more alive and present real example from the discussed chapter. It tends to be more diligent and understand the material because of incidental factor like giving responses, and questions before class started. It is the conducive class situation, kinship. The lecturer's way of teaching was not tedious. It can grasp course's material well even in free courses. The lecturers can motivate the students. There are functional interactions/ relationships between lectures and students, fun yet responsible. The lectures system is vivid and systematic; trains students for public speaking and be responsible. It is comprehensive, the balance between material,

and case instance. It has punctual and on schedule. It is random group formation is good enough and increasing many new friends. The students take the class more seriously and consistently studying in preparation for taking Lectures Readiness Assessment (LRA). The lecturers committed themselves and prepared to teach. The decisions are taken based on consensus.

From students statement, it concluded that students like pleasant class environment, the application of learning method that used, group presentation, good habits that liven up (for instances: praying before lectures starts, work cooperatively with other members in the same group), learning material's suitability, and so forth. In other words, qualitatively can be concluded that learning material has accurately delivered to students. However, as observed from students' negative statement, lectures also have a deficiency. According to students, for example, the student the random group formation was rigid, and lectures original material is using a different textbook (English language). The uses of foreign language (English) in fact is expected to optimize student's language potential. Group members formation which determined by the lecturer, which against students' desire, is learning progress for students to socialize in community or workplace, these were expected for the students able to maximize their social and emotional potential so the can work cooperatively in a heterogenic team

IV. CONCLUSION

Based on research and discussion result, it obtained that there are no differences Art Culinary Vocational Education students' learning outcome between class which applied Student-Center Learning (SCL) approach using discovery learning, and other class which applied Teacher-Center Learning (TCL) using the conventional method of vegetable cutting course. Student's learning outcome of basic culinary course in class which applied Student-Center Learning (SCL) approach using discovery learning was better than student's learning outcome in class which applied Teacher-Center Learning (TCL) using the conventional method of vegetable cutting course.

REFERENCES

[1] Ali, Riasat. (2008). *Effect of using the problem-solving method in teaching mathematics on the achievement of mathematics students.* Online. Provided in www.ccsenet.org/ass**,** vol.6 no. 2 February 2008 [accessed on 23 Jan. 2016].
[2] Anni, Catharina Tri. (2006).*Psikologi Belajar*. Semarang : UNNES.
[3] Arikunto, Suharsimi. (2010). *Prosedur Penelitian*. Jakarta: PT Rineka Cipta.
[4] Djamarah,S. B. and Zain, Aswan. (2010). *Strategi belajar mengajar.* Revised Edition. Jakarta: Rineka Cipta.
[5] Hamalik, Oemar. (2008). *Kurikulum dan Pembelajaran.* Jakarta: Bumi Aksara.
[6] Kasinyo Hartato and Abduramansyah. (2009). *Metodologi Pembelajaran Berbasis Active Learni*. Palembang: Grafika Telindo.
[7] Kurdi, Fauziah Nuraini. (2009). *Penerapan Student Centered Learning dari Teacher Centered Learning mata Ajar Ilmu Kesehatan pada Program Studi Penjaskes*. Forum Kependidikan volume 28 No. 2.
[8] Muijs, Daniel, et al. (2008). *Effevtive Teaching (Teori & Aplikasi)*. Yogyakarta: Pustaka Pelajar.
[9] Mulyasa, Enco. (2006). *Kurikulum Tingkat Satuan Pendidikan.*Bandung : Penerbit PT Remaja Rosdakarya.
[10] Prayitno, Duwi. (2013). *Mandiri Belajar Analisis Data Dengan SPSS*. Yogyakarta: Mediakom.
[11] Priyatmojo, Achmadi dkk. (2010). *Buku Panduan Pelaksanaan Student Centered Learning (Scl) Dan Student Teacher Aesthethic Role-Sharing (Star).*
[12] Purwanto. (2010). *Evaluasi Hasil Belajar.* Yogyakarta: Pustaka Belajar.
[13] Sugiyono. (2012). *Metode Penelitian Kuantitatif Kualitatif dan R&D*. Bandung: Alfabeta.
[14] (2007). *Metode Penelitian Kuantitatif Kualitatif dan R&D*. Bandung: Penerbit Alfabeta.
[15] Suprijono, Agus. (2011). *Cooperative Learning* Teori & Aplikasi Paikem. Yogyakarta: Pustaka Belajar.
[16] Trianto. (2007). *Model-Model Pembelajaran Inovatif Berorientasi Konstruktivisme*. Jakarta: Prestasi pustaka.

