Analysis Soft Skill of Chemical Education on Students Microteaching Course (PPL 1) Through Application Model Project Based Learning

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Abstract: This study aims to: (1) describe the students' soft skills majoring chemistry education, department of chemistry students in the course PPL 1 through the application of Project Base Learning (PBL) model, (2) Look at the relationship between the provision of project tasks with soft skills (3) look at the relationship between performance with soft skills. The subjects are chemistry education as many as 48 students that were divided into two classes, with the proportion are 9 men and 39 women. The data collection is done by using the instrument (1) Performance observation sheets, (2) project evaluation sheets and (3) soft skills questionnaire with 11 indicators of soft skills. Data analysis was performed with 1) a descriptive analysis with indicators description about soft skills and inferential analysis with correlation techniques (analysis SPSS 20.0 for windows). The results Showed 10 indicators included in the category of very high to soft skills high/very high such as communication (95.8%), Independent (95.3%), analysis (82.9%), ethics (92.7%), motivation (93.1%), initiative (90.6%), commitment (83.4%), problem solving (81.9%), flexibility (84.7%), time management (89.6%). While the first indicator of the high category, leadership (78.1%). Soft skills of students in the department of chemical education programs for PPL 1 are at very high category. There was a low correlation between the nature of the assignment project and the students' soft skills of chemical education programming PPL 1. There was strong correlation between performance and students' soft skills programs for PPL 1. There was low correlation between the provision of project tasks and students performance chemical education programming PPL 1.

Keywords: soft skills, project based learning

Microteaching course (PPL 1) which has two SKS is one of the compulsory subjects that are programmed in the department of Chemistry education with the requirement has programmed pedagogic courses such as Teaching Profession, Chemistry Teaching and Learning Strategies, DDP MIPA, review the curriculum and others. According to Dimyati (2000) that the learning process in college besides demanding the academic skills (*hard skills*), students are also required to develop their personal skill (*soft skills*) so that are they ready to enter the job market when they have completed the study.

Soft skills are skills that enable a person achieve his or her potential and use its knowledge useful and integrated into his life. Soft skills are a combination of behaviors, including attitudes and motivations that drive behavior (Sharma, A 2009 and Syamsidah, 2014). It can be concluded that soft skills are personality traits that key to act success and serves to improve the effectiveness of the work.

Some of them has become opinion above indicated that soft skills associated with a personality that strongly influence on behavior, attitudes and motivation (motivation). Personality has contributed to the positive leadership traits, making decision, solve the conflict with the fair, more communicative, and increase productivity and high creativity. Mastery the soft skill ability reinforces the personality or the personality of a person in facing the challenges



of work and other life resistance. *Soft skills* are often also called an inseparable part of the personality, both intra-personalities and inter-personalities and with this person's personality can have the things that distinguish it from others in the community and distinguish those with level or job level or career in one job. Subsequently (Coates, ED 2006) distinguishes between intrapersonal and interpersonal. The first or intra-personal is a skill that someone has to organize him/herself, such as the setting time period (*time management*), regulating stress (*stress management*), governing the dynamics or changes, character transformation, creative thinking, have a positive reference purposes, and quick learning techniques. The second or interpersonal is a skill that relate to or interact with the environment, the community, and the work environment, as well as interaction with the individual so as to develop the performance of the maximally, the motivation skill, leadership skills, negotiation skills, presentation skills, communication skills, the ability to establish relationships, and public speaking skill.

Students majoring chemical education as a chemistry teacher candidates and other related professions require capabilities beyond in terms of communication, adaptation and others. Skill or ability can be sharpened with the application of models of innovative learning and engage students as PBL (problem based learning), project based learning (PBL), and other discovery learning.

Project-based learning (PBL) is one model of anticipation to develop the students' ability, especially *soft skill*. This project-oriented learning has been developed in developed countries like the United States. The development and approach of this model more emphasize on providing opportunities for students who have been taught to explore the theoretical aspects as well as reflecting the practice which they did. From various studies about lectures strategies and training for practitioners discovered that one approaches closer to the conception *softs kill* is the approach of the project known as *Project-based Learning* (Bhattacharya et al. 2006).

The phenomenon of juvenile delinquency which lately has penetrated the world of school is a challenge for prospective teachers prepare themselves better in terms of the handling of the child's character. Low acceptance of the world of work, both formal and informal when applying to be a professional workforce allegedly caused by poor *soft skills of* both students and alumnus and this fact begins when the lecture takes place in which the device and learning model less supportive towards the development of *soft skills* of students. The fact is of course a problem that needs to be solved, because if not then the outputs of education will face resistance not only to the alumnus itself but also on educational institutions and the business world.

Based on that background, the research of the Study of Soft skills of students with the application of Project Based Learning (PBL) model as part of efforts to improve the soft skills of students is important to do.

This study aims to:

- 1. Describe student soft skill majoring Chemistry education which are programming PPL 1 using project based learning (PBL) related to aspects; communication, independent, analytical, leadership, ethics, motivation, initiative, commitment, problem solving, flexibility and time management.
- 2. Know whether there is a correlation (correlation) between students task with soft skills of students
- 3. Know whether there is a relationship between the value of performance which the soft skills PPL 1 course majoring Chemistry education with the application of *project based learning (PBL)*.
- 4. Know whether there is a relationship between the tasks of the student with a value of teaching performance.



Project-based Learning (PBL) Model

Learning Model is a part that cannot be separated from efforts to create learning objectives effectively and efficiently, in terms of how the teacher presents the material so that the material that can be accepted by learners is easy and fun, that kind of model make teachers and students easy to understand, understand and explain various materials despite the relatively large amount and may be a relatively long time.

Bruce Joyce, Marsha Weil and Beverly Showers (1992) describes the learning model is a plan that is used as a guide in the classroom learning or learning in tutorials and to determine the tools of learning and guide us in designing learning to help learners so that the learning objectives reached. Thus essentially learning model is a pattern of steps that include analysis, development and manufacture of materials and evaluation of learning outcomes in order to provide convenience to the students to achieve the learning outcomes.

Joice and Weil (1980) revealed that the learning model is a plan or pattern that can be used for curriculum (learning materials that long), designing teaching materials, and delivering teaching inside and outside the classroom. Furthermore Joice, Weil & Showers (1992: 14) suggests five essential elements as the description of a model of learning, namely (1) syntax, which is a sequence of events which is called a phase, (2) the social system that is the role of teachers and students as well as the type of rules required, (3) the principles of reaction, which give an overview to the teachers about how to view or respond to questions students, (4) support system, the condition required by the model, and (5) the impact of instructional and companion; instructional impact is the learning outcomes are achieved directly by directing the learners on the expected goal, while the companion impact is learning outcomes produced by a process of learning, as a result of the creation of a learning environment that directly experienced by students without direct guidance from the teacher.

Suyanto (2013) states that *Project-based learning* is a teaching approach that was developed based on the principles of constructivism, problem solving, inquiry-research, integrated studies and reflections that highlight the aspects of theoretical studies and applications. At the approach of Project-based Learning, students develop a project either individually or in groups to produce a product-such as a portfolio or journal (Clarke, 2003) and the results were presented/were presented and being reviewed. To support Project based Learning, lectures or training can use a variety of sources/resources including the field observation and reflection activities (Markham, T, 2003).

Table 1 Syntax Learning Project Based Learning (PBL) Model (Markham, 2003)

	Learning Activities		
syntax PBL	Lecturer	College student	
Phase I Selecting a topic of academic problems	Explaining learning objectives, scenario and how to implement it. Assisting students in dividing the group 3. designing project planning	Forming a group (2-4 people) heterogeneous academically. Determining or selecting projects that are of interest	
Phase 2 Implementing of learning	Guiding students in preparing projects, tasks and learning objectives based on the selected topic. Leading the students, how to work in groups.	 Making work sheet procedures, projects and learning objectives based on the selected topic. Following the teachers' instruction about how to work in groups. 	



stage 3 Monitoring the learners and the progress of the project	 Monitoring the progress of the project each group. Offering help a (if needed) 	Collecting information according to subject matter through strategies, models, time, and evaluation forms to solve their problems. Consulting their findings that emerged during the project.
stage 4 Testing results (Assess the outcome)	1. Appraising/observing and coordinating the percentage of projects that have been implemented.	1 .Some or all groups exhibited and present the project results in front of the class.
stage 5 evaluating the experience (Evaluate the Experience)	Reflecting on the activity and results of projects already executed, either individually or in groups. Lecture and learners develop the discussion in order to improve performance during the learning process, so in the end found a new finding (new inquiry) to address issues raised at the stage of first learning.	1. students were asked to express their feelings and her experience during the project completed 2. Lecture and learners develop the discussion in order to improve performance during the learning process, so in the end found a new finding (new inquiry) to address issues raised at the first stage of learning.

Students' Soft Skills

Many experts give insight about *soft skills*, there is a mention as to the nature and personality, behavior and so on. As a personality trait and the *soft skills* that are attached to a person, and when it was repeatedly carried out to form a personality. Everyone will have certain qualities and traits that are what often distinguishes one person to another, for example, leadership, *human relations*, activity and creativity and so on.

Furthermore, in the literature found a lot of opinions about *soft skills*, for example (Leung, 2008; Kaipa, 2005) cited by (St. Hamida, 2012), stated that in general *soft skills* are a group of personality, or ability that someone need to be able to work effectively in the workplace, and improve themselves. Furthermore *Soft skills* are the key to success, including leadership (*leadership*), decision making, conflict resolution, communication, creativity, and presentation skills (Leung, 2008).

Soft skills are skills that enable a person achieve his or her potential and use its knowledge useful and integrated into his life. Soft skills are a combination of behaviors, including attitudes and motivations that drive behavior (Sharma, A 2009 and Syamsidah, 2014). It can be concluded that soft skills are personality traits that become key to success and serves to improve the effectiveness of the work.

Some of the opinion above indicated that the *soft skills* associated with a personality that is strong influence on behavior, attitudes and motivation (*motivation*). Personality or personalities have contributed to the positive leadership traits, making the right decision, solving conflict with the fair, more communicative and increasing productivity and high creativity. Mastery ability *soff skill* reinforces the personality or of a person in facing the challenges of work and other life resistance.

Soft skills as explained above are very clear and it is important to get attention because in it contains the potential to be used of a person in interaction with others. Interaction requires managerial skills and technical a good skill, for example of how to manage in terms of time, in terms of stress, creative thinking and so on, all of this being an example and helpful in negotiation, presentation and in all forms and models of communication.

Furthermore, almost the same opinion was expressed by Sharma. A, (2009), that *soft* skills are all aspects of *generic skills* that also include elements of cognitive associated with



nonacademic skills. Added to that, based on the results of the study, seven soft skills were identified and important developed in learners in higher education institutions, include; Communication skills (communicative skills), thinking skills and problem solving (thinking skills and problem solving skills), the power of team work (team work force), lifelong learning and information management (life-long learning and Information Management), business skills (entrepreneur skills), ethical, moral and professionalism (ethics, morale and professionalism) and leadership skills (leadership skills).

What is proposed by Sharma above emphasized that *soft skills* are part of a skill that although strongly associated with cognitive domains but he is in the area of *non-academic skills*, it means that a person's skills cannot be separated from academic intelligence, may be made a proposition that there a strong tendency that one's who has academic intelligent when skill trained soft will give birth to a smart and skilled, has a good academic skills as well skilled in certain respects in accordance with the interests of the user.

It is hard to imagine how one can be successful without skill, because it was realized that academic intelligence is not enough to interact or negotiate with another person or business colleagues. Because it was in the middle of the phenomenon that soft skill is needed to face national and global challenges.

Material PPL I

PPL 1 (microteaching) is one of the compulsory subjects with a certainty 2 credits are given to the education department of chemistry with the purpose to give provision to student was will become teacher to be skilled and competent in teaching in the classroom. This subject is given after the students follow a course pedagogic as prerequisites such as Strategy Learning Teaching Chemistry weighs 3 SKS, Fundamentals of Education Mathematics 2 credits, Profession of Teaching 2 credits, development Participants learners 2 credits, Teaching and Learning 3 credits, Review curriculum 3 Credits and Chemistry planning 3 Credits.

PPL 1 aims to give provision for students Prodi chemical education to engage in the implementation of the actual field practice in the course PPL 2, where its implementation in schools partner. Competence to be achieved in this course is students able to prepare the lesson and apply it in the micro classroom by applying knowledge that has been acquired. Course is provided by giving the task of project such as designing a learning device, choosing the model of learning and assessment. Next apply the learning in the form of micro learning in class by 45 minutes for each student.

RESEARCH METHOD

Types of research

This research is the descriptive analytical abilities to reveal *soft skills of students* to apply *Project Based Learning* on the subject PPL I majoring Chemical Education Department of chemistry UNM.

Research subject

Subjects in this study were students of department of chemical education class A that is divided into two classes, namely A_1 and A_2 Department of Chemistry UNM which is programming course PPL 1 even semester year 2015/2016. The number of students is 48 people; 24 students in grade A_1 female 21 and male 3 student, A_2 class; girls 18 and 6 men



Research procedure

This research uses descriptive analytical research design to study variables that *soft skills of students* with aspects of communication, independent, analytical, leadership, ethics, motivation, initiative, commitment, problem solving, flexibility and time management. The steps of learning as in Table 2

Table 2 Steps Teaching and Learning Project Based Learning (PBL)

Lecturer's activity	Students' activity		
•	·		
 Initial activity Explaining the purpose of learning, scenario and how to implement it. 1. Helping students in dividing the working group 2. Designing the project planning Lecturer gives motivation 3. Checking for the presence of students 4. Providing a perception related to the material to be covered 5. Delivering the learning objectives 	Event Start 1. Forming a group (2-4 people) heterogeneous academically. 2 .Determining or selecting projects that are interested		
 Core activities Lecturers do lectures learning by solving problems as follows: 1. Delivering the learning contract on students about the process of learning 2. Guiding students in preparing projects, tasks and learning objectives based on the selected topic. 3. Guiding the students about how to work in groups. 4. Monitoring the progress of the project from each group. 5. Offering helps (if needed). 6. Assessing / observing and coordinate the percentage of projects that have been implemented 7. Giving reflection on the activity and results of projects already executed, either individually or in groups. 8. Teachers and learners develop the discussion in order to improve performance during the learning process, so in the end found a new finding (new inquiry) to address issues that have been raised at the beginning. End activities Directing students to me paraphrase the concept and giving follow-up 	 Core activities Students follow the following steps: 1. Noting 2. Arranging work procedures, projects and learning objectives based on the selected topic. 3. Following the guidance of lecturers on how to work in groups. 4. Ilecting information according to subject matter through strategies, models, time, and evaluation forms that have to solve their problems. 5. Consulting their findings that emerged during the implementation of the project. 6. Presenting or exhibiting and presenting the results. 7. students were asked to express their feelings and her experience during the project completed 8. Teachers and learners develop the discussion in order to improve performance during the learning process, so in the end found a new finding (new inquiry) to answer which has been filed at the beginning. End activity Summing 		

Data collection technique

The data collection phase of this research is done by providing test and non-test: (1) the test is given is the test performance (performance) that is student's performance according to the task of the project given. (2) non-test is provided in the form of a soft skill questionnaire of



students consisting of 31 items by loading aspects: (i) communication, ii) independent, iii) analysis, iv) leadership, v) ethics, vi) motivation, vii) initiative, viii) commitments, ix) problem solving, x) flexible and xi) management of time. 3) project course PPL 1 which includes aspects of 1) election topic (competence); 2) the selection of models; 3) completeness RPP component based Curriculum 2013; 4) Steps of project; 5) the use of the MFI; 6) selection of media and 7) component usage Assessment.

Data analysis technique

Data analysis technique used is descriptive statistical analysis and inferential analysis.

1. Analysis of descriptive statistics

After collecting the data, the data obtained will be analyzed using descriptive statistical analysis performed to illustrate how big the *soft skills of* students of department of education classes A. Descriptive statistical analysis of the data includes the highest value, lowest value, average value, and standard deviation.

The ability of *soft skills* is determined by calculating the percentage then put into five categories for every aspect of *soft skills*. According to Arikunto (2010) the predicate five categories is as follows:

Interval Percentage (%)	Category	
80-100	Very high	
65-79	High	
55-64	Medium	
45- 54	Low	
0-44	Very low	

Table 3. Category Soft skills Students

2. Analysis Inferential

Analysis of inferential used to se the relationship (correlation) between the *soft skills* of students in the application of the PBL with chemical education student is performance on the course PPL 1 with correlation technique *Product Moment*. Statistic technique used is SPSS for windows 20.00.

No.		Value		Criteria
1	1		Perfect	
2	0.75-0,99		Very strong	
3	0.5-0.74		Strong	
4	0:36 to 0:49		Moderate	
5	0-0.35		Low	

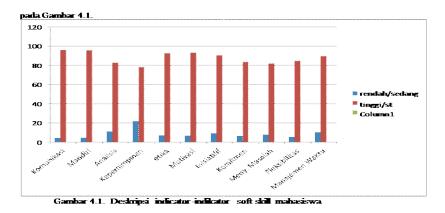
Table 4 Criteria Value of Correlation

RESEARCH RESULT

Overview Soft Skill Student Majoring Chemical Education contains programs PPL 1

There are two kinds of analytical results presented are the analysis using descriptive statistics and results analysis using inferential statistics. Data from descriptive analysis of the description of soft skills of students Study program study chemistry as shown in figure 4.

Based on Figure 4 shows that the average soft skills of students chemical education which learning with project -based learning models in the course PPL 1 is for the category of soft skills of high and very high at 84.5% of students were in the category very high. While the category of low and very low at only 15.5% of students. If seen the percentage of each indicator soft skills of 11 indicators of soft skills of students 10 indicators included in the category of extremely high for soft skills high/very high, namely: communication (95.8%), Independent (95.3%), analysis (82.9%), ethics (92.7%), motivation (93.1%), initiative (90.6%), commitment (83.4%), to solve the problem (81.9%), flexibility (84.7%), management time (89.6%). While the first indicator of the high category, leadership(78.1%). Description of soft skills student department of education chemistry class A can be seen



Correlation between Tasks Project Problem Based Learning (PBL) with Soft Skill Students Prodi P. Chemistry Course PPL 1

The relationship between the tasks given to a student project with a soft skill on the course PPL 1 can be seen in Table 5. Based on the processed data is seen in Table 5 that the correlation *Product Moment* of 0.282 which showed that the correlation is relatively low. If associated with a big contribution of variable assignment project towards soft skills of students can be seen from the test double regression.

Table 5 Correlation & Coefficient contributions Tasks Project with SOFTSKILL Students

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
WIOUCI	IX.	K Square	Square	the Estimate

Predictors: (Constant), Project Tasks

Seen the contribution of the task project amounted to 7.9% against the soft skills of students and many variables other that helped influence the student's soft skills that researchers have not been thorough.



Correlation between Performances with Soft Skill Students Prodi P. Chemistry

The relationship between the Performance of students in practice microteaching given at least twice to appear for every student with the subject soft skill PPL 1 can be seen in Table 6. Correlation between Performances in teaching in the micro classroom with soft skill student department of chemistry education in subjects PPL 1 of 0609 with a strong relationship category.

Table 6. Coefficient Contribution towards Soft Skills Students

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.619 (A)	.383	.370	7.58728

Predictors: (Constant), Value Performance

According to Table 4.5 shows the contribution of variable performance of students by 38.3% against the soft skills of students. If the comparison between the variable duty project with the performance of students, then that contributed greater is the performance. Although it's true that what the tasks project the students that will be shown as a performance, but once again soft skills is associated a lot with the ability to internally from within the students themselves as motivation, flexibility, and commitment.

Correlation between Project Tasks with Student Performance of Chemical education

The relationship between project tasks students in practice microteaching given at least twice to appear for every student by student performance on the course PPL 1 can be seen in Table 7

Table 7 Correlation between Task Performances with the Project Students

		value Performance	task Project
Pearson correlation	value Performance	1,000	.295
	task Project	.295	1,000
Sig. (1tailed)	value Performance	,	.021
	task Project	.021	,
N	value Performance	48	48
	task Project	48	48

It can be seen that the correlation between the task of the project and the performance was in a category low. The second variable is the variable smoking that affects the soft skills of students. Thus do not need to see the coefficient of contribution between these variables.



DISCUSSION

The model of learning that is applied to the student department of chemistry education programmed PPL 1 PBL (Project Based Learning) is a model that is based on the theory of constructivism (Slavin, 2009). By giving the task of project such as the design of the device micro learning in every presentation, then students at least will be challenged to create and showcase the best in terms of selection of models, methods and techniques as well as the suitability steps. The suitability of material and competency is achieved, the selection of appropriate media, preparation of the RPP which according to the model, learning until the application in micro learning.

Students based learning model by using the lecture method, is considered irrelevant and is not suitable for improving the soft skills of students. The conventional model not only eliminates the potential for creativity, but also do not foster self-reliance, motivation, and initiative of students, and therefore required the models more innovative and constructive so that potential students, both potential cognitive, affective and psychometric can develop optimally, and through approach to project known as Project-based learning (PBL) learning outcomes that can produce intelligent, skilled, and have a good soft skills (Lucas, George, 2005; Daniel K. Schneider, 2005).

Based on the descriptive analysis on the 48 students who undertaken the program PPL 1 shows that the average soft skills of students amounted to 84.5% with a very high category. From the 11 indicators of student soft skill seen that the 10 indicators included in the category of very high, namely communication, independent, ethical, initiative, motivation, commitment, analysis, time management, problem solving and flexibility. While only one indicator of which belongs to the category of high-namely leadership. Very likely occur due to stages of the PBL model indicators students' soft skill are very appreciated and stimulated. The execution of the project certainly requires independence, initiative and motivation. In completing the project requires good time management, communication skills and analytical and problem solving. Ethics and flexibility will be the effect of concomitant/follow up of other indicators.

The results of the analysis of the correlation between performances with soft skill shows the strong relationship, while correlations between tasks project with soft skills and project tasks with performance shows the low relationship. This shows that the appearance as the realization of the project has influenced more to soft skills compared to the completion of the project itself. Therefore, of a student more less animate or not involved mentally in the construction of the project so that the soft skill internalization not optimally appear. This is in line with the opinion of the cognitive psychology (Slavin, 2009) that the child or student who involved mentally will have an understanding and effect transfer the good one. Performance or appearance in accordance with the theory is very strongly influenced by the ability of the child and influenced by internal and external factors.

CONCLUSIONS

Based on the results and discussion of the study, it was concluded:

- 1. Students' soft skill of department of chemistry education programmed PPL 1 are in the very high category.
- 2. There is low correlation between the provisions of duty project with student's soft skill Prodi chemical education programmed PPL 1.
- 3. There are stronger correlations between performances with students' soft skill that programmed PPL 1.



4. There is low correlation between the provision of project tasks and the students' performance of chemical education programmed PPL 1.

Recommendations

Soft skills necessary to always stimulated by the educators and learners to produce a golden generation, it is important to implement innovative models of learning lectures.

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