

Application of Problem Base Learning Models in Improving Soft Skills

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Abstract—This study aims to describe the application of problem based learning in improving soft skills of University of Indonesia students in the Department of Mechanical Engineering Education in the course of Production Process. One of the advantages of the problem based learning model is being able to train students to use various concepts, principles and skills they have learned to solve the problems at hand. With the application of problem based learning, critical thinking skills can develop, because the critical thinking skills observed in this study are the ability to identify, analyze, solve problems, think logically and make decisions correctly and can draw conclusions.

Keywords—application; problem base learning; soft skills

I. INTRODUCTION

Development and competition in the era of globalization requires the industrialized world increase for unskilled labor (skills) required a good job in the form of technical skills (hard skills) and skills software (soft skills). Today is a growing realization that the world of work fields engineering desperate need of labor not only master the technical skills but also other important capabilities such as teamwork, communication, whether oral or written, build team work, critical thinking and problem solving. Additionally stated that someone with mastery soft skills ugly then skill techniques controlled becomes worthless [1]. This situation indicates that workers must be mastered in a balanced well skills engineering and soft skills.

Soft skills seen as a competence that is essential for a person to help adapt to the work situation (<http://www.sdf.gov.sg/Agustus2007>). Soft skills is the key to success, including leadership, decision-making, conflict resolution, communication, creativity, and ability presentation [2]. Soft skills is skills allowing a person reach her potential and uses its knowledge useful and integrated in life [3]. In other words mastery soft skills for graduates engineering is the key to success and continue to work, evolve along with the development demands of the working world.

Soft skills is the complement hard skills indispensable in the world labor, non-technical nature, intangible, and not easy to teach [4]. However soft skills must be trained, stated that the training soft skills able to improve the mastery of technical skills [5]. Training soft skills improve one's potential, making

the workforce more flexible, have a positive attitude to a volatile, capable of handling various demands change and more competitive labor [6].

Formal education in many diverse fields of learning engineering soft skills have felt the need, therefore mastery soft skills graduates are the essence of competence which must be controlled and measured through performance during learning. Learning soft skills seen as part of efforts to establish professional attitude. This attitude will affect the behavior of matter on the quality, fast, precise, and efficient, appreciate the time and reputation [7]. Shape attitude must be formed through a process of habituation since the beginning of the work developed aligned with learning needs. Therefore soft skills as part of competency has a very strong role to make someone achieve performance set.

There are three models of learning soft skills: a) a separate model as learning soft skills or discrete, implementation is packaged specifically not listed in curriculum, b) integrated model that integrates with hard skills inherent meaning and engineering program integrated with, the existing curriculum or in learning existing or in the process of learning, c) with the model complementative, implementation soft skills added to the curricular education program and curriculum structure No [8]. Determination of the model to be used is determined by several considerations, among others in terms of ease of implementation, financing and benefit for the establishment soft skills graduates. It seems that the model of integration meet all three convenience, especially from In terms of organization learning. Learning soft skills integrated allows students to learn see how the soft skills with subjects in a meaningful relationship and contextual with the world of work. Lessons become more meaningful, students learn uniting between knowledge and its application in various learning experiences designed teachers, as well as gain more value for learning.

However, learning soft skills integrated is still a problem, it This is because not mastered the basics of learning soft skills integrated can move the subject to learn actively and meaningfully to growth soft skills sustainably.

II. METHOD

This research is included in qualitative descriptive research, because the data obtained is more concerned with the process than the results. This type of research is able to capture a variety of qualitative information with meticulous descriptions, data collected in the form of words in sentences or images that have meaning more than just statements of numbers or frequencies in terms of numbers [9]. The data obtained in this study is a learning process that occurs in the application of probabilities based learning in an effort to develop critical thinking skills.

Data collection techniques used are in the form of: a) observation or observation method; b) interview method, interviews are conducted as one way to obtain information needed by researchers by interviewing several students; c) documentation method, this method is used to obtain data about lecturer learning devices in the form of RPKPS as well as steps in PBL activities carried out by students in the form of photographs. Qualitative research relies on descriptive data analysis, prioritizes processes rather than results, limits the study with focus and has a set of criteria for checking the validity of the data, and the results are agreed upon by both parties, researchers and research subjects. The data analysis technique used in this research is the process of finding information and systematically compiling information and data that has been obtained from observations, interviews and documentation. Then the researcher reduces the data (activities that refer to the selection process, attention management, simplification, abstracting and transforming data), exposing data (classifying data and identifying data), drawing conclusions and verifying conclusions.

III. DISCUSSION

Integrated learning will go well when followed rules following rules:

- Using multiple learning approaches applied eclectic. That is, although the learning soft skills based behavior change yet rests on several approaches that can foster learning behavior soft skills independently and meaningful. Therefore learning soft skills use multiple learning approaches: cognitive, behavioral, constructivist, and humanism used in mesh or eclectic. Approach cognitive stressed the importance of the subjects studied in obtaining and organize knowledge. Learning takes place in the study subjects themselves with their mental processes of perception, memory, thinking, decision. By learning approach behaviorism then learning occurs through the process the bond between the learning environment as a stimulus and behavioral response, as well as effect conditioning. Learning soft skills can be more effective when followed by whether behavioral consequences in the form of a beneficial effect and no profitable. With the constructivist approach emphasizes learning study subjects attempt to shape the understanding, the ability to construct what studied in the next process fused with him. Knowledge proceed to become, through the interpretation phase, transformation, construction done by the students themselves. Students will acquire deep significance of what

known and as well as strengthen the concept of self. With approach humanism believes that every subject of study has the potential to be developed through education. Each study subject was personal that has the potential, there is an awareness of who he is. Learning laying students at the center of learning, learning through the process active self-discovery, so that students have the authority to develop and grow. The role of educators rather to provide an environment and conditions to make learning subjects develop self-concept own. When described then seen the following: Avoid combining SI and CGS units, such as current in amperes and magnetic field in oersteds. This often leads to confusion because equations do not balance dimensionally. If you must use mixed units, clearly state the units for each quantity that you use in an equation.

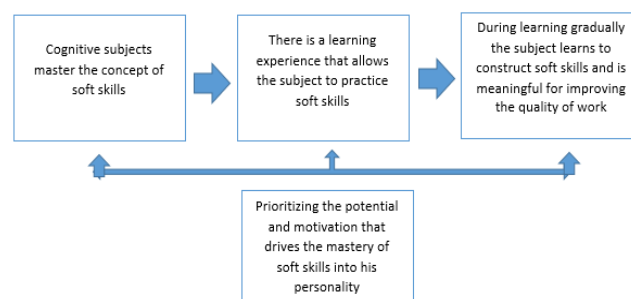


Fig. 1. Mechanism is an eclectic approach to learning.

Study the picture above describes the mechanisms of learning soft skills integrated starting with the introduction of the concept and its behavior with related content Engineering. Through a variety of learning experiences designed educators, in slowly subjects learn to practice behaviors soft skills once tried to constructing a concept and behavior soft skills in tune with the demands of work faced. During the learning educators can use a variety of strategies which allows self-learning study subjects are motivated and aware of his mastery soft skills his. Appears values like work that productive, efficient, effective, quality, and superior or best. Educators can apply reinforcement mechanism that serves to reinforce mastery soft skills subjects studied. As time goes on mastery soft skills fused and meaningful for increased performance results-oriented in accordance with labor standards set

These problems include:

- Menu management and food production with attention to accuracy Good presentation of the needs of servings and serving temperature. This issue emphasizes mastery soft skills: strategic thinking, solving problems, commitment, responsibility, discipline. Creating a set of product continental menu with attention to requirements menu and look perfect. The issue emphasizes mastery soft skills: orientation on the purpose or targets, commitment, responsibility, creativity, discipline, hard work reached success. The restaurant serves guests a satisfying guests. The issue emphasizes mastery soft skills: commitment,

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Educators need to understand the concept of each soft skills drilled in order to developing work issues and give guidance. Soft skills drilled with respect to the issues mentioned above:

- a. Strategic thinking: being able to organize the work of production and food services as efficiently as possible.
- b. Problem solving: ability to solve problems in the production process or associated with the estimates of material requirements, production requirements, time presentation and conformity with the established temperature.
- c. Commitment: the power to make appointments and a force to maintain quality, labor standards that have been set.
- d. Responsibility: able to strive in earnest to run SOP or make a commitment that has been set.
- e. Discipline: being able to adhere to the SOP, the working procedures of food production has been made or given educator or adherence to prescription.
- f. Orientation on goals or targets: the ability to develop ways to achieve set targets or produce products that can meet the target market, and how to control the achievement of objectives.
- g. Creativity: ability to display products with attractive appearance, interesting and unique.
- h. Endeavor to achieve success: the ability to constantly improve themselves continue to learn and responsive to the error, and the ability to always oriented the success of producing a perfect job.
- i. Communication: ability to interact with guests, sharing information, establish ethics-based communications and communications for productive work and efficient.

- j. Look professional: be able to realize self-confidence, display products and standardized services, attractive, and convincing.

In addition educators must realize that learning soft skills function to strengthen the morality of the subject studied. Students should be encouraged to live work behavior as appreciation of social responsibility. Should values as embodiment. When interacting with matter, subject directed learning to learn to make judgments between belief and professionalism, as well as the consequences of his behavior. Mastery soft skills that reflects mastery of noble values will impact on satisfaction stakeholders. Values being written in target selection educator learning together with the soft skills.

- Learning happens all the time, learning about how not just the facts. Learning is seen as a change in the character of commonly called attitudes, interests or values [10]. Soft skills is part of the formation of personality reflected through the work behavior as a manifestation of the values that formed through learning. Therefore learning soft skills takes time, occur in the process of habituation as a form of civilizing. Learning soft skills not done periodically, but must constantly all the time studying in school. This process started since the beginning of the semester class I or and continuing until the respective graduating. learning

The applied both theoretical and practical learning. Commitment educators to familiarize the behavior soft skills aligned with content integrated into key to the success of the process of acculturation. Mastery soft skills will not happen when education only teaches A concept but with the application process into the appropriate learning situation. Learning is challenging students, with a target at mastery of cognitive, emotional and skills.

Mastery is seen through his work, evaluated by their performance and can be enhanced through the completion of the task. Skills controlled by reflecting mastery of the knowledge and understanding related to the task. With someone will master the knowledge of various facts and information. Comprehension appoint any individual developer-related processes in ways to interpret, analyze, synthesize knowledge or experience accompanies that knowledge increases, performance skills it's getting better

- Learning soft skills followed by reflection or self-evaluation as a form of performing management. This process requires the continuous improvement cycle which works to improve the working performed. In this way the subject of study obtain information on an ongoing basis the development of good mastery hard skills and soft skills. The hope mastery of competency soft skills reached a level mastery, in tune with the needs of stakeholders. With the continuous improvement or measure ongoing performance the evaluation conducted in three stages: before, during and after the study. Instrument is used is chosen with consideration of such observations are complementary, questionnaires, portfolios, self-expression, Self-evaluations. The format of the evaluation was made in order to used by educators, friends, and yourself.

There are 3 things that cannot be separated when educators to apply management performer, target of learning, coaching and feedback and reinforcement. Learning targets explains selection skills or soft skills will be trained or as content. Coach educators who serve to motivate, help develop skills and provide reinforcement and feedback. In Noe mentioned that there are three roles a coach [11]: The first is based on the assessment results give individual feedback. The second is to help students to be able to educate itself through a process of interaction with experts who are able to encourage understanding and self-development potential. The third is to serve giving students with learning experiences. Feedback or feedback is work performance information to help subjects learn to be able to provide the appropriate response on learning experience that made educators. Reinforcement the form strengthening the performance of work lead to the learning targets. For this purpose educators should become effective in helping to improve mastery soft skills and are sensitive to changes in behavior soft skills every student. Basically learning soft skills require content as its core, coach, feedback, inter-face and nurtured over time and occurs in contextual situation [12].

Using an active learning approach combines thinking and active a task that has relevance with significance for the students. learning soft skills demanding activity subject of study, independently, or through teamwork / collaboration, key to success is that the learning based learning involving personal experience, stimulate feelings and thoughts, self-initiation, also a self-evaluation or with active learning. Active learning is key and reflected through the evaluation [13]. With active learning subjects studied provide opportunities for information, discuss, talk, express opinions, write, perform tasks groups or individually. Some active learning activities [14]:

- Observations of some models or examples that provide opportunities to the subjects learn to see or know.
- Reflection is done by making the experience to a friend or teachers / lecturers to invite potential dialogue in the classroom so allows emerging new experiences or new knowledge.
- Solving the problems presented allow subjects studied are at condition higher-order thinking.
- Discussion trained subjects learn to analyze, assess, compare, and solve the problem is a method of co-operative learning and interactive.
- Self-explanation is a process to explain the understanding of the subject learn both to his friends and lecturers allow Strong understanding.
- Vicarious learning obtained during the study subjects watched debates on specific topics.

In addition it also emphasizes active learning or virtual learning experience with quite varied learning strategies, some of patterns can be selected by various considerations studies, whether enough is done at school or at work, or one

of the two. At school if the models, portfolio, reflection, simulation, cooperative learning, student participation in the organization. In the workplace is the business partnerships, cooperative work experience, and internships provide real-world observation [15]. Students can learn soft skills through a community of friends, family or parents, community workers, community, through various kinds of media information that are quite varied. Apart the other alternative schools can use the learning pattern with modules, class's coordination, e learning, simulations, and role playing. In this way the meaning of soft skills will be attached and the identity of the graduates.

IV. CONCLUSION

Learning soft skills developed on the basis of the above 5 conditions interrelated. Learning approach used eclectic provide a foundation of learning development; soft skills drilled integrated in hard skills as content; Problem-based learning experience with followed by active learning and management performing measure ongoing performance. Guiding role of teachers / lecturers as facilitators and coaches will help subjects learn to achieve performing set. If drawn as follows:

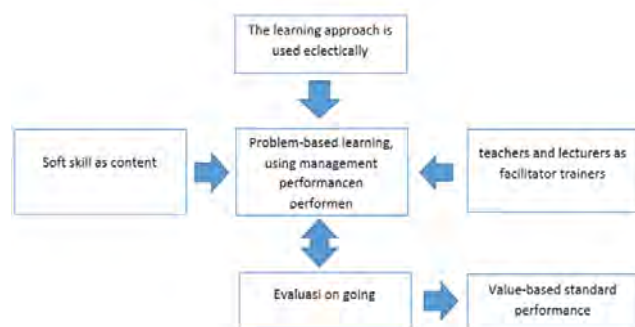


Fig. 2. Summary of the basics of learning development soft skills integrated

The application of problem based learning can help in developing students' critical thinking skills. Critical thinking skills need to be developed by students as an effort to prepare themselves to face challenges and problems that will be encountered now and later. The steps of the PBL learning model are used; 1) identifying the problem, the suitability of the information obtained; 2) explore interpretation; 3) determine alternatives as solutions; 4) communicating conclusions; and 5) integrating, monitoring, and refining strategies to remedy problems. The implementation of learning with PBL includes; 1) Preparations made by the lecturer by preparing the Semester Learning Activity Program Plan (RPKPS) and Student Activity Sheet (LKM); 2) Implementation of learning by implementing PBL in an effort

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