

The Potential of Integrating Educating Learners on Soft Skills In University Physic Base on Teaching Project

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ABSTRACT:- In the period of the Fourth Industrial Revolution, to be able to adapt to the constantly changing and evolving work environment, university students need a comprehensively cognitive thinking and action. To achieve this, in addition to professional skills (hard skills), students must be equipped with interpersonal skills (soft skills). In recent years, some universities have included soft skills education program in their official curriculum as a compulsory module for students. However, the integration in study has not been paid enough attention. This research will demonstrate the potential of integrating fundamental physic with soft skills through Project-Based Teaching.

Key words:- The Fourth Industrial Revolution, skills, soft skills, University Physics, project-based teaching.

I. INTRODUCTION

Students are intellectuals who will become an important factor to nation's development, a high quality labor force for the global labor market in this modern world. Facing the immense challenge of the digital age, they must achieve comprehensive cognition and action to be able to adapt to the constantly changing and evolving work environment. They need to be well equipped with both professional skills (hard skills) and interpersonal skills (soft skills).

Nowadays, University in general and Ho Chi Minh City University of Food Industry in particular have included soft skills education program in their official curriculum as a compulsory module for students.

However, soft skills education has been recently taught as a separated subject whereas developing soft skills is a process which requires integration between other subjects in the whole course. This research will suggest a positive teaching method focusing on developing learners' capacity to enhance the quality of teaching University Physics in particular and offer soft skills training orientation in the curriculum.

II. THE STUDY

2.1 According to Forland Jeremy:

As affirmed by Forland Jeremy: "Soft skills term is said to be a social term associated with a person's communication, sociability, attitudes and effective behavior in communication. In other words, it is the skill related to how people live and work effectively with other individuals, groups and communities" (1)

As affirmed by N.J.Patrick: "The concept of Soft skills is considered to be the ability and the way we approach and react to our environment regardless of qualification and knowledge. Therefore, its concept is neither an inborn talent in their personality nor their knowledge, it is the ability to adapt to the environment and people in order to have effective interactions in both life and work".

Michal Pollick believes: "The term of Soft skills refers to people with EQ (Emotion Intelligence Quotion), which features on personality, communication, language, habits, friendliness, optimism in their relationships and their work."

According to the authors Nguyen Thi My Loc and Dinh Thi Kim Thoa: "The term of Soft skills is sprung from a term about emotional intelligence such as some personalities (time management, relaxation, crisis management, creativity and innovation), delicacy, behavior, habits, optimism, honesty, teamwork skills, etc. These are factors affecting relationship establishment. However, these skills are not so popular in schools nowadays, they are unrelated to professional knowledge and untouchable but they are not so special and they

depend primarily on individual's personality. Soft skills determine who you are, how you work, and to be a measure of your efficiency at work".(4)

In other articles on the same topic, "Soft skills" is a term that is directly related to language efficiency, sociability, behavior and attitudes toward people. It also associates with how people live and interact with people in society, communities, groups or organization, aiming to good performance or peak of a job or a career.

Therefore, there are various distinct concepts or definitions about the term "soft skills" according to different fields of occupation, professional perspectives, situations, and more. However, in general, it can be defined as: a system of skills that people acquired to make themselves easily accepted and to work effectively. Soft skills are not limit the life skills, interpersonal skills, teamwork skills, leadership skills, creativity skills, etc. It has the following characteristic: not human innate factor; not purely an expression of emotional intelligence; formed with real experience, not merely acquisition of knowledge; cannot be fixed with different professions;

2.2. Some issues about Project-Based Teaching

- Definition: Project-Based Teaching (PBT) is a sort of teaching model in which learners carry out an educational complex and combine theory and practice as well as create introductive products. The mission is conducted based on the high autonomy during the learning process from defining purpose, establishing plan to conducting the project, checking, adjusting, evaluating the process and result.

- Stages of project-based teaching: Dividing into Stages of PBT is relative, practically, carrying out this activity is a constant series of learners under the supervision and help of instructors. However, PBT is considerably divided into the stages as follow:

Stages	Instructors' activities	Learners' activities
Preparation	<ul style="list-style-type: none"> - Design project: defining applicable fields, customers, ideas and name. - Build an orientable set of questions: originating from the contents and objectives. - Prepare supporting materials, conditions of conducting the project in reality. - Design review form for the project products. 	<ul style="list-style-type: none"> - Work in groups to select the theme of the project. - Build the plan for the project: define agendas, expecting time, materials, self - finance, methodology and assign missions within groups. - Prepare authentic information. - Unite assessment criterion with instructors.
Carrying out the project	<ul style="list-style-type: none"> - Observe, evaluate learners during the process. - Contact necessary participants. - Clear up students' queries and encourage them to do it. - Initially ratify the group's last product. 	<ul style="list-style-type: none"> - Each group conducts the project according to the plan. - Collecting, processing the information. - Creating a product. - Making contact, search for the support. - Regularly inform the teachers.
Checking and taking over the product	<ul style="list-style-type: none"> - Prepare material facilities for the reporting day. - Check and evaluate the group's project product. 	<ul style="list-style-type: none"> - Prepare the procedure to introduce the product. - Introduce the product. - Self-evaluate the product of the own group. - Evaluate the project product of the others.

Through the mentioned stages, it is likely clear that the objective of the method develops learners' abilities: ability of awareness, problem-solving skills, team working ability, language skills, communicative competence, skill of applying information technology, industrial working style and creativity.(5)

2.3. Integrating educating learners on soft skills in University Physics teaching through project-based teaching

University Physics is a subject whose knowledge can be applied in both real life and technology and students' thesis related to reality and future career because of its realistic features. As a result, the subject is potential to conduct PBT.

For example, in the part of electromagnetic, each chapter can be taught by applied PBT via projects connected to reality as follow:

+ In teaching the static electric fields part, a set of “electrostatic appliances around us” with projects can be used to know appliances which use electrostatic fields in real life and technology such as printers, photocopy machine, electrostatic paint sprayer machine, electrostatic vacuum machine, etc...

+ In teaching the conductor part, a set of electrostatic phenomena and electrical engineering safety can be combined with the project of understanding the configuration of telecom wire and lightning rod...

+ In teaching the dielectric part, the project of ‘Ultrasound and its application’ can be utilized.

+ In teaching the static magnetic field chapter, teachers can use the projects of manufacture of screw vacuum cleaners”, “Understanding the principle of mine detectors”, and “Understanding the operation of a ship operated by a magnetic buffer”...

+ When teaching the chapter of electromagnetic induction, the projects of “microwave oven”, “Understanding the operation of railway braking system”, “Understanding vending machines with coins” can be applied.

+ When teaching the chapter of electromagnetism, a set of “Electromagnetic field” can be used with projects such as, “Understanding about identification devices”, “Understanding about wireless devices”, “Understanding about microwaves oven”, “Understanding about technology devices to see through objects”, “Understanding about night vision goggles”, ...

Teaching University Physics using PBT effectively creates learners’ abilities including working in groups, language using, communicating, applying information technology, industrial working style and creativity.(4,5)

III. SUGGESTIONS AND RECOMMENDATIONS

In general, universities and colleges value the role of soft skills for students is very necessary in reality and have been conducted this. However, teaching soft skills is still considered as a separate subject although forming it is a long term. In fact, almost of learners haven’t joined activities combined with soft skills. That can be solved with PBT which is potential to integrate in University Physics. In the era of the Fourth Industrial Revolution, in order to meet the demand of work force, it is recommended to have further research.

To utilize the potential of integrating KNM education through teaching General Physics in particular and other subjects in general, we propose some solutions for instance:

+ Organize short-term training courses for teachers on KNM, helping them get information and skills about KNM that they can find ways to integrate them into subjects effectively.

+ Organize KNM topics from the beginning of the course for students in order to aware of the importance of KNM and understanding the techniques of soft skills continuously throughout the course.

Making research and develop the integrated education in teaching General Physics is a practical job, improving the quality of training to meet the human resources needs for the fourth industrial revolution, including comprehensive professional skills and skills.

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