

Education for creative innovation and entrepreneurship society



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\n[[toc title="Table of Contents"](#)]\n

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1. [INTRODUCTION](#) \n \t
2. [ENGINEER CREATIVE, INNOVATION, AND ENTREPRENEURSHIP](#) \n \t
3. [Creativity and Innovation](#) \n \t
4. [THE CHARACTERISTIC OF MURABBI](#) \n \t
5. [TEACHING AND LEARNING STYLE](#) \n \t
6. [CONCLUSION](#) \n

\n[/toc]\n \n

This study will be conducted using a qualitative method and this is just a concept paper. I will see past researches and journals that are related with this study. In this study, we will see the attitudes of the students to become a good engineer, the concept of murabbi in educators, and the implementation of creativity, innovation and entrepreneurship in the curriculum and the style of teaching and learning. I will generate a few questions that will be a guideline for me. The question will lead me to do this study. What can we do to make student became someone that is creative and innovative? How can we develop it? What is the attitudes and attributes that student must have to compete with the future challenges? What is the characteristic of murabbi? How do we raise the spirit of entrepreneurship in students?. Engineering is a discipline that applies the principles of science and mathematics in providing products and services that can shape and influence people's lives. Now, the applications of engineering become more important to the world. So, we need to make an improvement on our engineering education. We need to do a research on every corner of <https://assignbuster.com/education-for-creative-innovation-and-entrepreneurship-society/>

engineering education to make it more systematic and can produce an engineer that will lead the technology of the future. So, this study will explain about creativity, innovation and entrepreneurship in engineering education to help our education became more interesting and towards the education of the 21st century.

INTRODUCTION

The world now is changing rapidly, the technology and innovation becoming more important to our development. The competition to be better than other make the people try to do beyond the expectation. So, our engineering education needs to be ready with the global changing and the future challenges. In order to prepare with the challenges, engineering training and education must be revised and modernised (Nguyen 1988). Creative, innovation, and entrepreneurship is not the new thing in education, but these three elements will be the best way to build the success in life.

According to Mohd Zukime (2008), to face the future, students should be taught to be creative and innovative, and we must expose them with invention, innovation, and entrepreneurship. Liu & Schonwetter (2004) also state that, with the increasingly rapid development of the country and the needs of the community will require engineers to be creative and innovative. Besides being creative and innovative, entrepreneurship is also an important subject in education. Offering entrepreneurship in engineering program allows a greater aspects focus on entrepreneurship characteristics of technology based new products and employment opportunities (polczynski & Jaskolski 2005).

To produce engineers who can compete in the future, educators need to become good instructors or murabbi. Murabbi is educators that not only teach the knowledge but at the same time they try to educate their student with spiritual, physical, and mental to appreciate and practice the knowledge that they have learned (Wikipedia 2007). Duderstadt (2008) explains that engineering education requires a shift that far away from lecture-laboratory approach to a more active learning experience that involves problem-solving skills, teamwork, creativity, design, and innovation. From the study that have been done by Evans et. al (1993) shows that educators agreed that graduated students must have strong technical background, but the soft skills are also very important and must be stressed in the educational process. The student's attributes are important for realizing their dreams because that is what will be their strength to learn in many ways and to work with lectures. Being smart is not enough but student must know what they want, they must have courage and discipline to help them setting the goal, acquiring skills, and directing them (Dilaura 2001).

In engineering education or engineering technology, process of teaching and learning have many different method or technique, and it's depend on individual on how to do it. Students have many style to learn, like by see and hear, reflecting and acting, reasoning logically and intuitively, memorizing and reflection, and others (Felder & Silverman 1988). As well as teaching methods that have different styles like showing the way or discussion, focusing on the principles and different applications, and there is also the emphasis on memorization and understanding (Felder & Silverman 1988). The style of teaching and learning can always have changes over time, so

does our economy that can change over the time. According to Edwards et. al (2009), economy's knowledge today see the emergence of a new paradigm for innovation and progress in the knowledge of the economic activity, there is no doubt that entrepreneurship and innovation are essential to the creative process in the economy and to increase the productivity of the country.

ENGINEER CREATIVE, INNOVATION, AND ENTREPRENEURSHIP

An essential part of engineering is to prove something will work before it is built. It is important for us to examine all aspects and take into account all possibilities before doing a thing. Rowe (2005) explains that if the engineers do not give his best effort, something that was built may be collapse due to the strong pressure exceeds from what is expected, material damage, or poor maintenance. Flexibility, creativity, negotiation and other efficiency has become a necessity in engineering and engineering education has an obligation in regard to the current economic preparations to meet the expectations of student's needs (Edwards et. al 2009).

McKeag (2008) state that, in industrialized societies, people expect originality, ingenuity and something new or improved products processes and systems because these factors are fundamental to creativity. According to Stouffer et. al (2004) explains that creativity will help us see the world in a new way, it also helps us to consider various angles instead of just one and help us to create a bridge among the various fields of knowledge and innovation. In addition, Stouffer et. al (2004) also explains that the engineers should have broad insight and understanding, and should increase effort to

resolve important issues facing 21st century such as maintaining infrastructure, providing clean water and food, and protect the environment. Creative solution to the big issues is essential to ensure the health, viability, and sustainability of society in the 21st century. Engineer is an employee who has to work creatively because sometimes their work will become artistic activities, creative thinking can also become a life style, a personality trait, a way of regarding the world, a way of interacting with others, a way of working in groups, a way of living and growing (Vidal 2003). Living creatively means we need to increase the existing talent, tapping the unused potential and become what we are capable of through interaction with other people.

Entrepreneurship is more than creating a purely business, having a characteristic such as seeking opportunities, taking risks beyond security, and persistence to push ideas into reality will permeate the soul of an entrepreneur (Kuratko 2004). Engineers that working at companies may be given extensive responsibilities where they will be exposed to activities that contribute to innovation and entrepreneurship, related knowledge, skills, and experience (Polczynski & Jaskolski 2005). According to Kleppe & Wang (2001) stated that entrepreneurship has a space in engineering education and now this had been a topic of debate in engineering education. Therefore, many institutions are providing a course to teach entrepreneurship to engineering students. The first step to be taken by engineering education is to accept the notion that we need to produce graduates with the increase of the diversity of the field of student intelligence and balance between the ability of the left brain and the right brain (Miller 2007).

Creativity and Innovation

Creativity has many definitions that have been describe by many people. Vidal (2003) state that, creativity is the ability to challenge assumptions, break boundaries, recognise patterns, see in new ways, make new connections, take risks, and seize upon chance when dealing with a problem. To combine all the definition, Sefertzi (2000) say that creativity involves the generation of new ideas, providing valuable solution to a problem, motivation and emotion. In general, creativity is fundamental feature of human intelligence.

Innovation Advancing Education (IEA) (t. th) has discovered the relationship of the 4C's (Communication, Critical Thinking, Collaboration, and Creativity) to one another and realized that the first 3C is the foundation of the 4th C, which is creativity. Besides that, when all the relationship is implemented with the listening, observing, verifying, and engaging (LOVE), it will provide structured environment that naturally fosters creativity.

Picture 1: Venn Diagram of 4C's with the LOVE relationship

THE CHARACTERISTIC OF MURABBI

A teacher is someone who is very important in the life cycle of student. According to Harden & Crosby (2000), there is six main role of the educator to be more than just a lecturer which is the information provider, role model, facilitator, student and curriculum assessor, curriculum and course planer, and resource developer. A good educator is someone who really teaches and makes his/her student to learn more. Murabbi is an educator, he do what parents do but much more explicitly and a higher level of sophistication

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(Kazmi 1999). To determining educator's productivity that has important implications to preparing the future educators, we need to see the relative importance of intelligence, subject knowledge, and teaching skills (Harris & Sass 2009). According to Harris & Sass (2009), also explain that the apparent role of intelligence seems to suggest that policies designed to reduce entry barriers and encourage the "brightest" into the teaching profession could boost student achievement. However, this assumption is tempered by the fact that subject matter knowledge and teaching skills seem to matter as well.

According to Kazmi (1999), murabbi have a deeper meaning that we need to know, murabbi is not only a teacher who teach their student with their knowledge, but he/she is a an exemplary, he also an ideal muslim who teaches by living an exemplary life of a true muslim. Besides that, Kazmi (1999) describe the several functions and characteristic of murabbi, which is:

The primary function of a murabbi is not so much to create theoretical knowledge as to personalize knowledge, he/she give it through his own way and talk about it.

A murabbi have an ability to interpret, understand and judge both routine and ordinary experiences in the light of the truth knowledge.

He/she see their experience as their knowledge and teach the student what is true and false according on what he/she has been through.

Provides the configuration of meaning that makes the understanding of the book possible.

They will help their student to solve a problem in a variety ways, as long as it does not violate the truth.

An educator should try to understand their student, try to remember and calling the student's name in lecture to foster closer the relationship.

Educators should helping and encouraging their student to learn in ways, they will help their student with respect and not make their student fell that they can't do anything without trying and learn more, they also will make a preparation before entering the class and they know what the best for their student (Bain 2004). Miller (1987) explains that, effectiveness of a teacher is depending on the characteristic of a teacher who demonstrated, managing the classroom in peace and fairness is one the effective teaching.

TEACHING AND LEARNING STYLE

In a study by Felder & Silverman (1988) describe some measure of learning styles, learn in a structured educational environment can be considered as a two stage process involving the receipt and processing of information. In step acceptance, external information (can be seen through the senses) and internal information (appear on self-study) be a use to the students, those who select the material to be processed and ignore all others. There are many different styles of teaching and learning styles, the mismatch in teaching and learning can occur. When there is mismatch between both teachers and students, they will face hardship because of incompatibility (Kapadia 2008). So, Kapadia (2008) have categorized some learning style which is intuitive student, visual student, deductive student, active student, and global student.

Education has always been a major concern among Muslims. It was launched by the Prophet Muhammad is not only a preacher and community leader, but also a great teacher and an ardent in promoting learning (Al-Khalediy 2011). Various techniques are available to train yourself to be an instructor and also a good student whether they are based on the techniques in Islam or technique of the west and east. They rely on themselves or depend on the level of self-motivation and desire to achieve the success you seek. Tengku Sarina Aini (2012) proposes the philosophy of education and technical education by teachers should be influenced by the principles of Islam. In addition, he expressed understanding of the teacher-centered teaching and student-centered education will reflect the beliefs, experiences, and philosophy that is based on Islam

CONCLUSION

From this study, it can be concluded that the teaching is not just a process between a teacher who only provide the necessary information to students alone, but it involves a special relationship where teachers and students share the process of helping each other to achieve the desired success and progress. Educators and students alike need to be creative and innovative in teaching and learning process. Students should be taught to be creative in problem solving. They need to produce new innovations to provide themselves with the challenges ahead. Entrepreneurship is one area that will assist students in achieving success in business. Entrepreneurship is a driving force to improve the performance of field progress, so students need to be educated and introduced to entrepreneurship from the beginning. Become a creative, innovative, and entrepreneurship will produce an

engineer who has a strong soft skill and be a ' multidisciplinary' and 'employability' engineer.