

INTEGRATION OF SPIRITUAL INTELLIGENCE IN MODERN TOOLS FOR CREATIVITY AND INNOVATIVE THINKING USING THEORY OF INVENTIVE PROBLEM SOLVING (TRIZ)

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ABSTRACT

The development of creativity and innovation is needed in preparing today's generations to face challenges in their future. However, the main focus in creativity and innovation development process is on cognitive, affective, imagination and practises (psychomotor) that allow total freedom for individual to present their product. In fact, unfortunately this will make them losing their own direction. Therefore, this article tries to integrate between the development of creativity and innovation with spiritual element, which the vital component and the main guidance for decision making in any innovation process. Indeed, this spiritual element is closely related with one of the basic concepts in Theory of Inventive Problem Solving, (TRIZ) which is ideality. TRIZ has been introduced in Universiti Malaysia Pahang (UMP) since 2017 where this theory proposed four basic concepts in inventive problem solving. The concept of ideality opens up an opportunity for researcher to integrate and prove that the concept is related with the element of spirituality. By inculcate the spiritual element in innovative process, this will eventually lead to the development of spiritual intelligence of God-consciousness, which is one of the core value in UMP. It is also a basic principle to guide our young generation about the real meaning of freedom and at the same time it acts as a main value in developing students' soft skills. What's important, this value also will give a good direction in innovation and educate our students to make more effective decision in problem solving process as what is emphasized in this article.

Keywords: creativity, innovation, spiritual intelligence, ideality and TRIZ

1.0 INTRODUCTION

Education world today has been challenged to develop creative and innovative potential among young generation. A survey done by World Economic Forum's in 2016 as reported in <https://www.weforum.org>., showed that creativity becomes one of the top three skills needed in 2020. Beside creativity, critical thinking, people management, team working and emotional intelligence also have been listed as the most needed skills in 2020.

In order to address the issues and challenges of 4IR, Malaysia Higher Education Framework 4.0 has been established and still focuses on creativity and critical thinking as the key for

success among young generation (Edward, 2018 in NST, 2018). Therefore, universities have been instructed to change their curriculum and delivery system to ensure that we produce a holistic, balanced and entrepreneurial graduate who is creative, innovative and adaptable with the motivation, confidence and skills to use critical and creative thinking meaningfully.

2. 0 EDUCATION AND HUMAN DEVELOPMENT

There are so many theories have been introduced on how to educate and develop human potential such as behaviourism theory by B.F Skinner, cognitive learning theory by George Miller and constructive theory by Dewey, Piaget, Bruner and Vygotsky (Carbonell, 2004). Besides the education theories, many researchers also develop education taxonomy and the most famous taxonomy is Bloom's taxonomy (Reigeluth, 1999). However, there are similarities in the development of the theories and taxonomies, which focusing more on three main domains; cognitive, affective and psychomotor. It is clear that this education theories and taxonomies are imperfect in their guideline to develop spiritual potential and there is clear evidence that the potential has been neglected (Wan Mohd. Zahid, 1994).

In order to understand the issue, we have to realise that the development of education based on western philosophy has become entirely empirical as against transcendental and therefore does not pay due regard to the religious or the spiritual aspect of man (Wahid Bakhsh Shaikh, 1999). There is also a conflict between science and religion in western civilization history. Most of western scholars believe that scientific approach is the only process of human endeavour towards truth. Science has become a matter of faith and will replace the religion (Brink and Carmody, 2002). Therefore, education policy has been oriented purely for economic and material ends; while the spiritual aspect of education has been ignored (Wahid Bakhsh Shaikh, 1999). The education model that denied spiritual aspect of man as illustrated in figure 1.

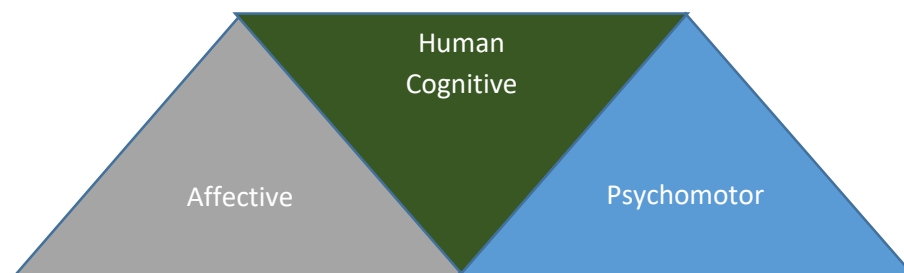


Figure 1: Education model without spiritual element

Moreover, according to Tajul Ariffin and Nor 'Aini (2002), education system that very focused on academic achievement based on skill and knowledge in science and technology will have vary pack curriculum. As results, the student did not have enough time to rest and reflect on what they have learned and also did not have time for recreation to observe and enjoy the beauty of their surroundings. Therefore, our education system turned into a 'factory' and produced skilled workers but not knowledgeable, moral and ethical individuals.

Furthermore, education without focusing on the core values or spiritual values of human being will produce mankind who imprisoned within the material world and will not achieve the true

happiness (Mohd Johari Ab. Hamid, 2007). Having the same idea, Korthagen (2003) stated that the core values of human being are the sources of man stability, through which they maintain a sense of purpose in their life. This process of education has been identified as “education for greatness”, which is education aiming at the development of great human being.

Many scientists today such as Laszlo (2004), Zohar and Marshall (2004) and recently one of the most respected scientists in theoretical physics, Michio Kaku claimed that they have found definitive proof of the existence of God (Science World Report, 2016). Their findings reach the same conclusion that there is no conflict between science and religion. Science and religion have reached the same fundamental conclusion about the world. Those who believe in science and in good conscience will believe in the existence of God.

Moreover, according to Osman Bakar (1997), knowledge of creativity and innovation relate with the knowledge of art. Knowledge of art cannot be defined as a separate entity from religious knowledge because the idea of creativity develops from human perception towards himself, the world and the universe. Therefore, education model with integration of spiritual intelligence as illustrated in Figure 2 has been proposed as a reference model for creativity and innovative thinking development processes in education.

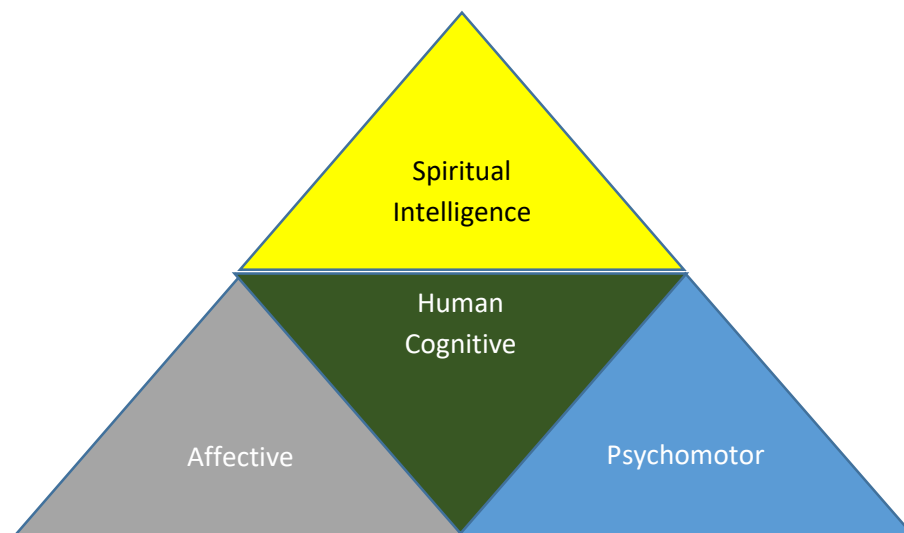


Figure 2: Education Model with Integration Spiritual Intelligence

Therefore, this concept paper is an effort to integrate the education model with modern tools in developing creative and innovative thinking in problem solving known as Theory of Inventive Problem Solving (TRIZ).

3.0 TRIZ AND THE CONCEPT OF IDEALITY

Ideality is one of the important concepts in TRIZ (Theory of Inventive Problem Solving) introduced by G. Altshuller and R. Shapiro in 1956. They found very interesting concept that Engineering Systems progress towards ideality by overcoming internal contradictions (Yeoh et al., 2009). Therefore, TRIZ philosophy is based primarily on the concept of resolving contradictions towards ideality.

According to Yeoh et al. (2009), ideality is the value of the summation of Functions divided by the summation of Problems and Cost as summarize in following figure:

$$Ideality = \frac{\Sigma Function}{\Sigma Problem (Harm) + \Sigma Cost}$$

Figure 3: Formula of Ideality in TRIZ

In addition Yeoh et al. (2009), stated that each engineering system evolves towards the highest achievable value which is ideality. He clearly defined ideality as an ultimately infinity (∞). His explanation about infinity is when the system is able to perform Main Function but does not involve any Cost or generate Harmful Function. This can be further depicted in equation as one over zero as shown in Figure 4.

$$Ideality (\infty) = \frac{1 (Main Function)}{0 (Cost) + 0 (Harm)}$$

Figure 4: Formula of Ideality and Infinitive

Hence, he concluded that “An Ideal System in No System” or the system that does not “materially exist” but its function is achieved or the function may be transferred to a Supersystem. What is supersystem? Supersystem is any components which were not designed as part of the system. These supersystem components can be defined as existing systems or any system in nature such as weather, wind, plants and animals that can influence the performance of the system (Yeoh et al., 2009).

4.0 IDEALITY, INFINITIVE AND SPIRITUAL INTELLIGENCE

Basic word for ideality is ideal. Ideal means a conception of something in its perfection. Meanwhile, ideality means existence only in idea and not in reality (www.dictionary.com). According to Syed Naquib Al-Attas, (2001), the perfection is an attribute only belongs to God. Therefore, as a human being we will never reach perfection but evolves towards perfection. According to Ary Ginanjar Agustian (2005), struggle towards perfection is the real purpose and the ultimate destination in human life. Thus, the ultimate destination of human life is to return themselves to God but never reach equivalence or perfection to Him (Fazlur Rahman, 1999; Wan Mohd. Nor, 2005). This destination will give right direction to human life.

Yeoh et al. (2009), clearly defined that ideality is infinity (∞). According to Ali Khan (2010), infinity describes something which is everlasting or something that cannot be fully comprehended. Therefore, God and numbers have been associated with infinity. Ali Khan (2010), also defined infinity as *baqā* which is also an attribute of God (Ali Khan, 2010). Similarly, this definition aligns with definition of ideality by Yeoh et al. (2009), which is “an ideal system in no system” or the system that does not “materially exist” or the function may be transferred to a Supersystem. Since supersystem also defined as nature, therefore we can

conclude here that any perfect system or ideal system that has been created is belongs to the power of Infinitive which is God.

The awareness of reality makes human perceived that ultimate destination is to return and enslave themselves only to God (real submission to the Will of God) whereby this concept associated with spiritual intelligence (H. Abuddin Nata, 2005; Syed Naquib al-Attas, 2001). Real submission refers to conscious and willing submission. It also a sign of true obedience to His law as mention in the following verse:

“Do they seek for other than the religion of God? While all creatures in the heavens and on earth have, willing or unwilling, submitted to His Will and to Him shall they all be returned.”

(Al-Imran: 85)

Furthermore, Syed Naquib Al-Attas (2001) also indicated that real submission to God as man’s vision in his life. However, the vision is incomplete without the exercise of his manifestation of real submission in words and actions. Thus, the changes, progress and development in man’s life should have definite direction towards the final vision which need to be achieved as they perform their role as a leader or *khalifah* (Syed Muhammad Naquib al-Attas, 2001). As a conclusion here, spiritual intelligence is crucial element since it gives us direction in innovation which is not only towards goodness but keep us progress and develop towards ideality or perfection.

5.0 DIRECTIONS OF INNOVATION

Since TRIZ consider ideality as one of the basic concepts, we have to assume that all systems have to be positioned on the left-hand side as shown in Figure 5. Therefore, all the intention in innovation process is to move any system from left to right i.e. from point A to point B in a direction to achieve ideality. This will transform it to a better system where it can lower the cost and harm which finally increase the function of the system (Yeoh, 2014).

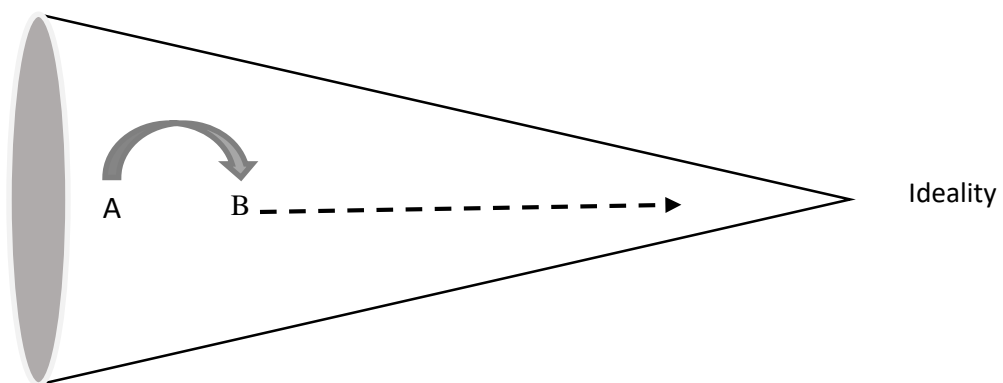


Figure 5: Direction of Innovation towards Ideality (Yeoh, 2014)

Figure 5 inspired us with the idea that the direction of innovation in TRIZ is only towards ideality, means towards goodness. Therefore, only innovation towards goodness in the development of science and technology can be accept as innovation. This direction of innovation consistence with the nature of human being. According to Muhammad al'Mahdi, (2004), God has programmed man's soul with nature disposition toward goodness. Therefore, every human being has the inborn intuitive ability, which is guaranteed to lead them to acknowledge the existence of God and lead their life only toward goodness. Furthermore, this direction of innovation not only be able to develop creative and innovative potential among human being but also give the value of responsibility to any innovation they have made (Rohana, et al., 2016)

What is the contradict direction of ideality? What happened if we replace number 1 with 0 or no function and divide by 1 for cost and harm. As a result, the answer will be 0 (to replace ideality). The formula as shown in figure 6:

$$0 = \frac{0 \text{ (Main Function)}}{1 \text{ (Cost)} + 1 \text{ (Harm)}}$$

Figure 6: Contradiction formula to ideality

Let's imagine if we use this formula in innovation. Indeed, the innovation without function will increase the cost and harm. Therefore, this formula will bring us to another direction in innovation which is the direction of badness, failure or defectiveness as shown in figure 7.

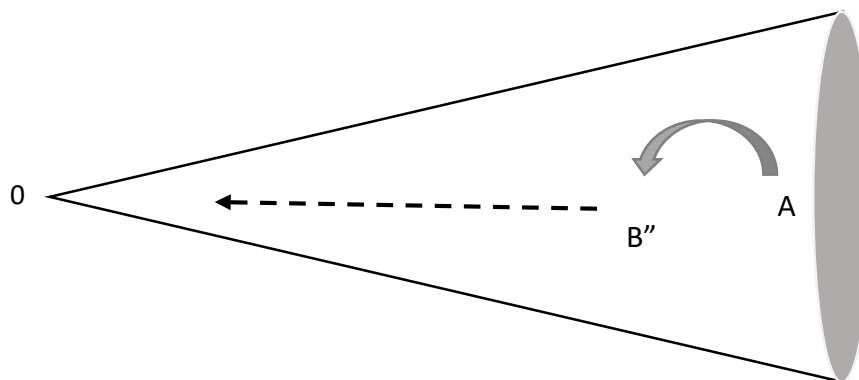


Figure 7: Direction of innovation towards failure or badness

Hence, there will always two directions in innovation of any products in market as shown in figure 7. Innovation towards goodness also can be recognize as value-based innovation and innovation towards failure is innovation with no value or zero value-based innovation. With this knowledge we can develop more critical analysis to any products or system that exist in the market and indirectly lead to many innovative activities in order to bring back the product innovation towards goodness or ideality.

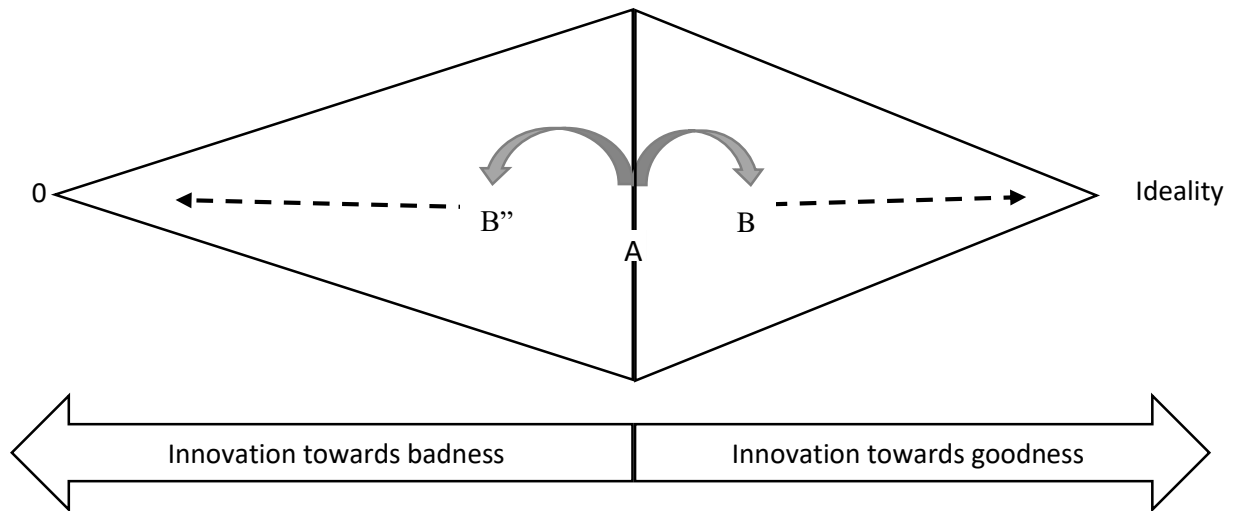


Figure 8: Directions of Innovation

These two directions in innovation also support the fact that man is the only creature on the earth and heaven whose carry the divine trust of free-will (H. Abuddin Nata, 2005). Thus, man will always have to make a choice between what is good and bad. The word free-will does not simply mean free choice. According to Syed Naquib Al-Attas (2001), the word free-will comes from Arabic word which is ‘khayr’ means ‘good’. It is bound in meaning with ‘*ikhtiyar*’, where determines that the choice meant is towards the goodness. In addition, a choice for the goodness is an exercise of freedom, and also an act of justice to our own self, others and this world. Meanwhile choice for the badness is not considered as a choice as it inclines towards the wrong doing, failure, malfunction or demolish of any system in the world.

Submission to God’s Will does not become real unless human beings choose to realize and make a choice toward goodness to achieve his vision of life which is enslaves himself for the sake of God (vision of ideality). The existence of man with his ability to perform his freedom as a bridge between the God’s will and historical reality in developing civilization is tremendously significant (The International Institute of Islamic though, 1989; Mansor Sulaiman, 2016)

6.0 CONCLUSION

In summary, ideality and spiritual intelligence are closely related to each other. Both of them determine the direction of the innovation, either towards goodness or badness. If the concept of ideality and spiritual intelligence is combined together, humans are able to produce a good innovation as what was highlighted in TRIZ. In our globalisation world, with this knowledge we can develop more critical analysis to any intervention that exist in the market and further lead to many innovative activities which can further improve our civilization.

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