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Creative Thinking Skills for a 21st Century Muslim Educational System

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ABSTRACT

After achieving independence 60 years ago, various changes, progress and modernization has been achieved by Malaysia. But one thing is obvious, Malaysian still relies heavily on ideas, thoughts and technology borrowed from other countries. This dependence if persistent in the long run will certainly bring many disadvantages. Malaysian people and Muslims from other countries as well, should be smarter and more creative to create new sciences and technologies without depending directly on external parties. However, the effort to produce many creative individuals is facing various obstacles. One such obstacle is a barrier contained in the education system itself. This article attempts to peel off the obstacles in Malaysian education system. The exam-oriented education system has been around for a while and indeed it's not an easy thing to change it. In Malaysia, the Ministry of Education steps in abolishing the PMR public examination and replacing it with the Assessment Test School-based Form Three (PT3) has been an excellent effort in promoting Higher Orders Thinking Skills (HOTS) among the young people. Consequently, more aggressive measures should be taken in changing the education system to emphasize intrinsic motivation to reproduce new Islamic creative figures which can revitalize the Islamic civilization to the fullest.

Keywords: Creativity; higher order thinking skills; education; Islamic civilization

INTRODUCTION

There are many books that have been written (Ahmad Yahaya 2009; Fahmi Amhar 2010; Muhamad Akhmal Hakim 2013) on the success of Islamic civilization especially during the times the Abasiyah government (750M to 1258M) which produced many distinguished scholars. Names like Ibn Sina, Al-Biruni, Al-Farabi, Al-Idrisi, Ibn-Al Nafis, Al-Hazen and Al-Zahrawi are among the thousands of Islamic scholars who are not only talented and smart but also to be considered creative. They are considered creative as they succeed producing new sciences in the fields they are involved. We take an Islamic scholar in the 10th century BC, Al-Zahrawi from Spain as an example. Al-Zahrawi was very disappointed with the technique of surgery that existed during his time. So, by using his own experiences and observations he has created some new surgical techniques together with its surgical devices. Among the surgical instruments he has made include catgut yarns for joining surgical wound (Dzulkifli 2011). He then wrote several books which explains in detail the accurate surgical procedure. His ability to generate new ideas in the surgical field shows that Al-Zahrawi is not only intelligent but also a creative person.

The success of Islamic civilization creates clusters or so many creative figures in the range a period of about a thousand years shows that there is an influence on the environment gave birth to these creative figures. So, one question is justified is what kind of atmosphere of social, religious, political, economic, educational, and so on existed during the glorious period of Islam? The ambiance of the environment is so conducive with creativity to be able to produce many creative figures. If we can answer these basic questions and strive to create the same environmental ambient, it is not impossible for Muslims today to be able to produce many creative figures for the sake of rebuilding Islamic civilization.

Another question to ask is why in the 21st century, Muslims are especially in Malaysia still cannot match the West in producing ideas and new technologies? If we take a Nobel prize winner as a measure after almost a hundred years the Nobel prize was awarded, from 700 people who have won only six Nobel laureates winners were Muslims. Ahmed Zuweil (1999) was one of the Muslims who won the Nobel prize because of his creativity in chemical back in 1999. We have agreed with Ahmad Yahaya (2009) that between the causes of diminished Islamic civilization is because of the imperialist policy launched by western powers on Islamic state throughout the Industrial Revolution. But in the 21st century, all Muslim countries occupied by western powers have gained independence. Islamic countries such as Malaysia, Indonesia, Pakistan, Egypt and so on administered by Muslims is free to determine the education system and their own political systems. But despite the independence and freedom, we are still failing to produce many creative figures. This article attempts to parse one main reason of this failure in current reality. But before that this article will discuss the meaning of creativity, the importance of creativity, the factors influencing creativity and ultimately a barrier to the creativity of Muslims today. By discussing these aspects, hopefully, our understanding the problems of producing creative individuals as well as Muslims society can increase.

Understanding Creativity

The standard definition of creativity has enabled significant empirical and theoretical advances, but still contains philosophical conundrums concerning the nature of novelty and role of recognition and values (Lee Martin & Nick Wilson 2017). Creativity is considered a key priority in society and education (Boysen 2017). Yet, it is difficult to give the true meaning of creativity because of its nature covers a variety of dimensions. But most researchers define creativity based on to two important components. Creativity involving creating a product, ideas or something new which are differentiated and innovative (Kaufman 2009). Second is creativity must also be in line with the tasks performed. This means creativity must be useful and relevant. For example, when we ask a child what is its ideology when it comes to adulthood? The child responded, "when I grow up I want to be a bread". The answers by the child are different but not relevant (Kaufman 2009). Therefore, the answer to the child is not considered creative. There is a company that sell cars intends to manufacture a car with a new design where only the driver's seat is leading forward while the passenger's seats are directed backward. This new design is designed to reduce mortality rate and injury in case of accident. But the car with the new design are not released because research shows that people will not buy a car that is odd. This shows that community assessments influence determining whether the product is creative or not.

Creativity is not synonymous with talent. Talent is a gift that cannot be taught and cannot be learned. On the contrary, creativity is something that can be learned, taught, enhanced and very important to human development. Individual who gifted is usually creative. But creative individuals are not necessarily talented. Similarly, the relationship of creativity to intelligence in which smart individuals are not necessarily creative. However, creative individuals are generally smart. If the individual has the talents, intelligence and creativity at once in him, many extraordinary things that can be done. In context of wanting to restore glory of Islamic civilization, the individual who possessed the talent, the level of intelligence and the high creativity need to be supplied with high faith values in order for the creative ideas to be produced in line with the Islamic needs.

The Difference of View on Creativity between East and West

Most studies on creativity have been conducted in the context of Western society especially in American society. But there are also researchers who run creativity study in Eastern society context. The studies conducted by some researchers (eg, Lubart 1999; Niu & Sternberg 2002) have produce two different perspectives. The first perspective states that there is a difference between the views of Western societies and the views of the Eastern community about the concept of creativity. For example, according to Lubart (1999) compared to Western society the concept of Eastern society about creativity seems less focused to innovative product generation. On the contrary, creativity in the society East more involves a personal satisfaction situation, which has to do with the environment of human life. He added that creativity is more related to meditation because it helps one to see the real situation about himself, others and event. Another significant difference is from the point of relationship with religion creativity. According to Dacey & Lennon (1998) it is different from Western society, where they abandon their Christian religious teachings to produce creative ideas, Muslims, especially those who lived in the tenth century, had succeeded in producing new ideas but at the same time still adhering to his religious teachings. In Hindu religion, "creativity is seen as a spiritual statement and not an innovative solution to a problem" (Lubart 1999). In addition, in East Asia perspective, creativity is seen as something that involves the re-interpretation of traditional ideas to seek a new perspective while in the approach of Western society, creativity involves parting with traditions (Kristeller 1983).

The second perspective states that there is no difference in between the views of Western societies and Eastern society's view of creativity. For example, studies conducted by Rudowicz & Hui (1997) have found the equality between Chinese society's concepts of creativity and the creativity concept of West community. According to them, Chinese society the characteristics of creativity includes: innovative ideas, imagination, intelligence, independence and energy levels height. In addition, studies (for example: Chan & Chan, 1999; Cheng, 1999) done to investigate the implicit theory of the public about creativity also found that Chinese societies from various tribes share basic concepts of creativity with Western societies. In another study, Kapur, Subramanyam and Shah (1997) has interviewed 20 Indian scientists to know their views about creativity. The findings show that Indian scientists have a the concept of creativity that has much in common with Western society views.

Although there is a difference in views on the concept of creativity, the creativity and innovation thinking are not new things in Islamic civilization (Dzulkifli,2011). Only the term of creativity and innovation has not been widely known in the past. What matters we cannot deny the

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creator of Islam has triggered thousands of creative ideas. The ideas then produces various innovations that change the understanding of science in the real sense (Dzulkifli 2011).

Importance of Creativity

In the world of increasingly complex and full of chaos today is very important for us to focus on creativity (Rowe, 2004). Many a new approach is needed to solve the new problems we face. Mumford, M.D. & Mcintosh, T. (2017) explains the creative process model (Figure 1). The model was based on three assumptions. Which are first, creative problem solving requires the production of high quality, original, and elegant solutions to complex, novel, ill-defined problems, second, problem solving requires knowledge or expertise, and third although different performance domains impose different knowledge requirements, and stress, weight, processes differently, similar processes would underlie creative thought in most domains of endeavour.

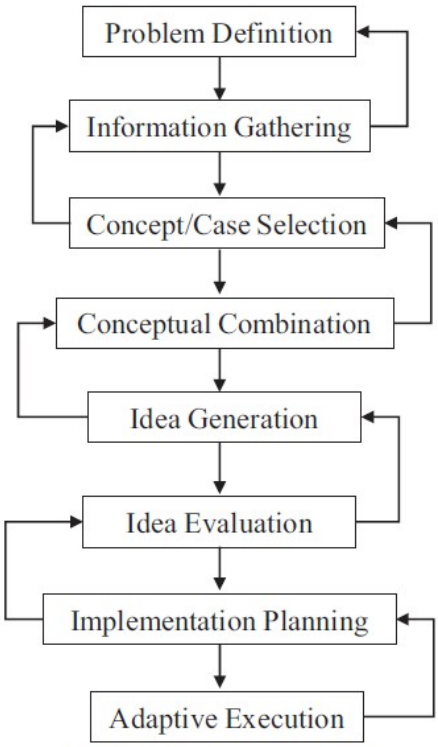

Figure 1. Creative Process Model (Mumford et al. 1991)

We had to deal with global warming issues, infectious diseases such as SARS and Ebola, education, violence, an increasingly old population and so on. Therefore, we need to produce more creative individuals who can solve the problem in a way different. For example when dealing with a lot of events involving terrorists doing violence by hijacking and blowing a plane there are some creative scientists who conduct research on substance that can withstand strong explosion. Therefore, a new innovative solution was made which is a material named *glare* which is will not

break due to a powerful bomb blast and flame retardant but at the same time lighter than aluminium (Rowe 2004).

Creativity is also very important in determining the continuation of an existence civilization and country. We take an example of a cold war between the United States with Soviet Russia in the 1950s where they both compete against each other in expanding the influence of the powers of the saints. In the bustle of competition this influence Soviet Russia has suddenly succeeded in launching the first man-made satellite on the world of Sputnik I in 1957. This Soviet success surprised America Companies who are beginning to feel their survival are in jeopardy and continue to look for answers why they have been left behind. Finally they met a reasonable explanation: the problem is the absence of creativity (Cropley 2001). In clearer words the creativity of engineers in the United States was found to be inadequate. Increase in level the creativity of its people is seen by the United States as a major step towards becoming world number one power. Hence one act namely the National Defence Education Act has been introduced. This Act calls for creativity to be promoted throughout the school United States (Cropley 2001). Not surprisingly, most research also about creativity in the United States funded by the country's defence department.

Islamic countries should take lessons from this American experience where they should feel that the essential needs of Islamic students are not to increase intelligence solely but also to increase the creativity level of the students. According to Mohd. Yusof Othman (2012) we need to be more creative because if we do not improve creativity, others will strive to enhance their creativity. He stressed that as a result, we would be victimized by the creativity of others.

Creativity is also needed to handle changes. Changes are part of the nature of life. If the change is a minor change, we may not be aware of the need for creativity. But since recent years the rate of social and technological change has increased dramatically. Increased female involvement in employment is an example of social change while the increasingly sophisticated communication gadget is an example of technological change. Mohd. Yusof Othman (2012) concludes that the world is always changing from something easy to something composite and advanced. He also pointed out that the world is narrower in that what's happening in the West will soon be felt in the far East. Hence, he emphasizes the need for us to be creative in order to improve our competitiveness and career performance or our life practice.

Factors Affecting Creativity

Because creativity is a complex entity, it is not an easy task to explain what factors influence its growth. There are various approaches taken to explain these factors. Initially researchers tend to look at each of these factors separately but since they have begun to bring together these factors together and form creativity models.

Psycho-social approaches are a model of creativity that focuses on the three constructs namely personality, motivation and socio-cultural environment as the main factor influencing the growth of creativity (Sternberg 2003). Guilford (1950) has stated that skills, personality traits and motivation play an important role in determining the level of creativity of an individual. Nevertheless, he did not study the three constructs but only focused his research on the cognitive processes involved in creativity. Just about thirty-three years after that Amabile (1983) has devised a theory that attempts to explain the link between skill, personality traits and motivation with creativity. According to Amabile (1983, 1996), the theory based on the three components of

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creativity is based on personal experiences, statements made by creative individuals and motivational theories of psychologists such as Rogers (1954) and Maslow (1943, 1968) . The model outlined by Amabile (1983) has two goals: (1) To offer a framework that can be used as a reference to understand the social influence on creative behaviour, and (2) To further develop the field of research on creativity. According to Dacey and Lennon (1998) this model is one of the earliest models that attempts to incorporate cognitive, personality, motivation and social influences into the creative process and is the first model to suggest an explanation of how each of these factors can alter the various steps in the creative process.

The three-component theory of creativity stipulates that any creative creation or presentation requires relevant domain or discipline skills, relevant creative processes and motivation to carry out tasks or work. The first component of the domain or discipline skills (Figure 1) refers to the knowledge, facts, technical skills, talents and expertise that individuals possess in any field or discipline (Amabile 1983 & 1996; Dacey & Lennon 1998; Starko 2010). According to Amabile (1996) the wider or greater domain or discipline skills that an individual possesses means more and more alternatives exist to create a new idea. Amabile (1996) added more skills in this domain depending on internal cognitive strength, along with formal and informal education in discipline or field. For example, a scientist who wants to contribute in astronomy requires extensive education in the field before he or she is prepared to give meaningful and original contribution.

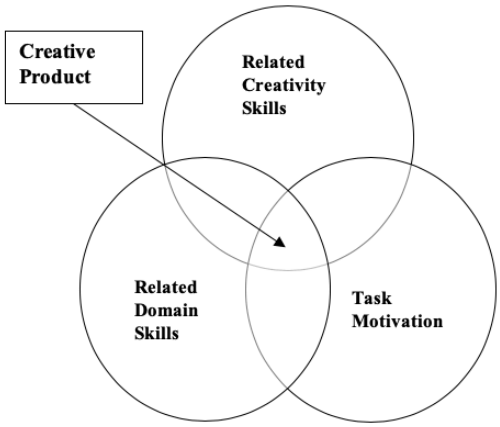

FIGURE 2. Three-Component of Creativity Model (Cited from Hennessy et al.,1988)

The second component of the relevant creativity skills refers to strategies, habits, patterns and abilities that help create creative thinking (Starko 1995). Amabile (1996) categorizes the creative process skills into several sections: Cognitive styles related to the creativity process; Knowledge of heuristics to generate new ideas; The way that work can lead to creative creation and personality traits identified has to do with creative behaviour. For example, among the personality traits that are closely related to creativity are: Ability to slow down the lust of desire; persevering in the face of frustration; Freedom in making judgments; Be tolerant of vague or unclear things; Concerns on internal assessments and the ability to take risks (Amabile 1996). Amabile (1996) claims that some of the creative process skills rely on personal portrayal and partly depending on the improvement through education and training.

The last component of motivation to do tasks or work is Amabile's most important contribution to creativity (Starko 2010). Dacey & Lennon (1998) argues that the motivation to do something or work is a decisive factor that distinguishes between what individuals can do and what the individual will do. Amabile (1983) states that motivation of work or task is responsible in determining whether the process of creativity will be initiated and continued. Amabile (1983) also notes that the task motivation or work has two important elements: the basic attitude that the individual points to the task or work, and the individual's perception of the reasons for doing a task or work at a time. In addition, Amabile (1983) also explains that the basic attitude toward an assignment or work is formed when an individual performs a cognitive assessment of the task or work to see whether the task or work is equal or in line with his or her interests and priorities. According to Amabile (1983), the individual's response to the motivation to do something or work depends on social and environmental factors, especially those that exist or are not external obstacles that can control or perceive to be able to control the individual's performance in doing tasks or work.

Amabile (1983) has proposed a two-point hypothesis to explain how motivation can influence creativity: The intrinsic motivation is ideal for creativity, while extrinsic motivation will impede creativity. Collins & Amabile (1999) has defined intrinsic motivation as a motivation to do an activity because of its own activity, in which the individual assumes that the activity is as engaging, engaging, satisfying and challenging. Intrinsic motivation is characterized by the focus on challenges and fun. Instead, extrinsic motivation is defined as motivation to do any work or activity in meeting goals that are outside of work or activity itself such as to earn rewards, competition and recognition.

Nevertheless, in 1993, Amabile modified the hypothesis produced in 1983 when recent facts and studies have shown that some types of extrinsic motivation would have no negative effect on creativity. Amabile (1993) has identified two types of extrinsic motivation: synergistic extrinsic motivation that provides information or enables an individual to complete the task in a better way and can work with intrinsic motivation; and unincorporated extrinsic motivation that will make an individual feel that he is being controlled and incompatible with intrinsic motivation. The revised Intrinsic Motivation Hypothesis states: "Intrinsic motivation is in harmony with creativity, while the controlling eccentric motivation affects creativity but the extrinsic motivation that provides information can support creativity especially when the initial stage of intrinsic motivation is high" (Amabile 1996). However, he noted that most studies have shown that carrying out tasks or work to earn rewards (Extrinsic motivation) especially in the classroom and daily office environment can affect intrinsic motivation and creativity (Hennessey & Amabile 1998).

To support his hypothesis on the role played by intrinsic motivation in stimulating creativity, Amabile and his associates (Hennessey, Amabile & Martinage 1989; Hennessey & Zbikowski 1993) have done some experimental and non-experimental studies. Among their non-experimental studies is the study of individual motivation approaches to their work or work. The results of the twelve-year survey showed that there was a stable motivational approach to work or work (Amabile, 1996). In order to measure an individual's motivational approach to his or her work or work whether intrinsic or extrinsic Amabile (1993) has produced an inventory called Work Preference Inventory. This personality inventory serves to identify the main components of intrinsic motivation such as interest, ability, fun, involvement, extreme curiosity and motivation such as valuation, recognition, money or other forms of incentive and coercion (Collins & Amabile, 1999). Amabile (1996) claims that any individual identified as having an intrinsic motivation in approach to their task or work consistently found to be inclined to produce work that

is considered highly creative. Teacher perception study on this creativity will use the Work Priority Inventory to measure teachers 'motivation approach to their tasks and will then see the relationship of teachers' motivational approaches with their teaching behaviours.

The three components of this creativity also explain how the three components enter the creative process. The creative process has certain phases that do not necessarily occur in a fixed order (Lubart 1999). The following phases are (a) identifying problems or assignments, (b) preparing (collecting appropriate information), (c) generating feedback (finding and producing potential feedback, (d) communication and feedback confirmation (to test the possible feedback) According to Lubart (1999), the final result of this creative process may be in the form of a product's success, failure to produce, or progress toward achieving a goal, according to Amabile (1987) the components will be especially influential during certain phases and not in other phases. For example, intrinsic motivation plays an important part in the problem identification phase and at the beginning of the problem solving process The relevant creativity process plays an important role in the generation of feedback. Relevant domains are important in the communication phase and verification of reply information.

Barriers to the Creativity of Muslims

There are various barriers to the creativity of Muslims today. Among them are the obstacles from the political environment, the culture practiced and the education system. But we will only discuss the barriers from the educational system as school is said to be a social environment that can be controlled and changeable. In addition, the school is seen as an important early foundation site in sowing creativity other than home or family.

After the independence of the Islamic countries from the colonial grip they usually continue the education system that has been introduced by the colonialists. As time went by, some reforms were introduced into the education system in order to address some of the problems that occurred in society or to further improve the existing education system. For example, in Malaysia, education acts an important tool in the effort of preparing Malaysia as a developed country by year 2020. It serves as a vital foundation in providing and supplying skilful human resources needed to boost the growth and development of a country (Shaaruddin, J. & Mohamad, M. 2017). It may be that the education system's goal was initially aimed at achieving a state-driven agenda but since the 1980s the education system has been transformed in order to be more targeted for the self-development of the students. But there is one thing that has not changed despite the fact that many efforts have been made to change it, the education system of most Muslim countries, including Malaysia, is still test-oriented. Even in the context of Malaysia, the examination orientation is seen as the day is increasingly gripping the education system. Although the education system has succeeded in raising the intelligence or IQ of the entire Muslim community, the same education system has managed to cripple the creativity of Muslims.

In Malaysia, the signs of graduate-oriented educational system can be seen clearly in schools. If we go to schools now we can see special signboards that have been highlighted the important dates of public examinations that will be faced by the students along with the number of days to arrive at the date of the examination. The goal is to remind students to prepare for the exam. As soon as the main exam date, the school will postpone other activities that are not related to exams such as co-curricular activities in order to give students time and focus on major exams. In some schools, motivational and workshop courses on how to answer examinations are properly

held to help students answer questions correctly and confidently. Famous paid motivation figures will be invited to motivate students a few months before the public exams begin. Usually workshops are delivered by experienced teachers as examiners. There are also schools that provide an undertaking form to be signed by students, where students promise to work hard to pass excellence in major competitiveness to be occupied. Before the actual examination is conducted, the students will sit for an experimental exam to train the students to answer the actual exam questions. The test exams are usually carried out only once, but it is not a secret that there are many schools running test exams repeatedly.

In addition, the books that discussed the last year's exam questions became very popular among students. These books usually provide brief notes for quick reference to the students who read them. In fact, there are schools requiring students to buy questionnaire books and these answers for use by teachers in the classroom. As a result, teaching and learning activities become one way in which teacher-centered teaching takes on student-centered teaching activities. Students are fed by various knowledge by the teacher to help them answer the exam questions with excellence. Therefore students who are supposed to be active are quiet and passive when in the classroom. The highlight of this is that there will be a prayer ceremony for Muslim students and for non-Muslim students held rituals or prayers according to their respective beliefs to successfully excel in the examination. That's how our school sinks with the activities of this exam. But we have to remember the stronger the grip of the exam in our education system, the more it crippled the creativity of our students.

How does this exam-oriented education system disable the creativity of the students? To answer this question, we need to refer back to the Theory of the Three Components of the Amabile Creativity (1986) that had been discussed earlier. According to Amabile (1986) intrinsic motivation helps stimulate student creativity while extrinsic motivation helps to disable student creativity. Students who study a science to be good grades in an extrinsic motivated exam. While students who study for fun or out of curiosity are intrinsically motivated. According to Amabile's theory (1986), students studying for the grades will paralyze their creativity compared to those who study because of their deep interest.

In an environment that emphasizes extrinsic rewards, most people work only to earn rewards and nothing more (Pink, 2014). Therefore, if a student is given a prize for reading three books, most of them will not read the fourth book, not to mention developing a reading habits (Pink, 2014). A case study was conducted against one of the famous noble prize winners Albert Einstein (1904). During his teenage years he went to school in a German military school. At the school he felt depressed because of the school-oriented system of examinations and emphasized memorization until he lost interest in science. Only after he moved to Switzerland and attended school there his interest in science reappeared. Schooling in Zurich is a new starting point for Einstein's scientific thinking. The school is more humanistic, not emphasizing memorization instead focusing on individual laboratory tasks. This is where Einstein evolved into a world-class scientist.

From a historical point of view, this examination-oriented educational system is something that we inherited from the British colonialists in the mid-nineteenth century. The British purpose of building a school at that time was to produce many of the workforce that would work in an uphill growth of factories because of the industrial revolution. It is unrealistic to continue with this examination-oriented education system as the times have changed. Perhaps we need to make Finland, Japan or Israel as an example because these countries seem to have succeeded in producing creative and balanced people in thought.

As a solution to this problem, the Malaysian government has initiated the empowerment of Higher Order Thinking Skills (HOTS) through the changes in evaluation and assessment practices in the schools and higher Institutions of learning. Not only on HOTS empowerment, various changes are taking part in the Malaysian education system. In October 2011, the Ministry of Education has launched a review of the nation's education system as a whole in an effort to develop the Education Development Plan New Malaysia. The decision to conduct the review of education system is made in the context of education standard rising up to the international level, increasing national aspirations in preparing the younger generation to cope with the need 21st century, and increased parental and community expectations to the education policy of the state. Within 15 months (October 2011 to December 2012), the Ministry has acquired input from multiple sources such as a research report run by educational experts from UNESCO, the World Bank, OECD, and six Public Higher Education Institutions. This research also involves school leaders, teachers, parents, students, and people around the country. The result is the Malaysian education Development Plan has evaluated the current performance of the education system of the country with regard to past achievement and compares it to the international benchmarks. This plan recommended 11 necessary strategic and operational shifts to be implemented by the Ministry to achieve the desired vision (https://www.moe.gov.my/images/dasar-kpm/PPP/Preliminary-Blueprint-BM.pdf) .

CONCLUSION

This exam-oriented education system has been around for a while and it is not an easy thing to change it. In the Ministry of Education to abolish PMR examinations and replaced it with the Test Form Three Assessment (PT3) based school is the preliminary step that should be praised. So, what is your IMPLICATION? More aggressive measures should be taken in changing the educational system to emphasize intrinsic motivation to regenerate new Islamic creative figures that can reestablish Islamic civilization.

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