

Comparison of Creativity Levels of Secondary School Students from the B40 Group in Malaysia

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Abstract:

Creativity is the most important asset to our country Malaysia since the need for "creative" class workers is increasing. According to a report from Sinar Harian (2019) Malaysia is ranked 35th in the Global Innovation Index (GII) 2019 and is still among the middle-income countries that are trying to close the innovation gap. Based on this fact, this research is proposed with the main objective to identify the true level of creativity of Malaysian students from the B40 income group. The Torrance Tests of Creative Thinking involving the Figural Test method has been developed to measure creativity based on four measurement indices namely Originality, Fluency, Flexibility and Elaboration which are then analyzed using descriptive statistics. Findings from this research are proposed to be used by interested parties in planning the social system, education, employment, economy, as well as improving Malaysia's position in the Global Creativity Index and the Global Creative Class to be comparable with other countries in the Asia Pacific.

Keywords — Creativity, Figural Test, , B40, Borneo, Peninsular Malaysia.

I. INTRODUCTION

Creative thinking skills are the ability to digest and generate original ideas. New ideas will result through inspiration or a combination of existing ideas. Students are able to identify and be able to find out the real cause of the problem. Creative thinking is closely related to the activities and lifestyles of people's daily lives. This thinking also depends on the stimulation received in the daily life of the community. Consciously or not, creative thinking styles occur on a daily basis without being noticed by those who go through them.

Having a variety of natural resources should make Malaysia a country that is able to compete at the global level by diversifying the use of natural resources and producing something innovative through the use of these natural resources. Malaysia is also known for its mineral and energy resources that allow Malaysia to compete strongly with other

developed countries in the world. With the progress of economy, science and technology in parallel with the progress of creative thinking and innovation, it will make Malaysia a main competitor to other developed countries. Creativity and innovation are among the main keys to developing an organization, especially when faced with an economic crisis that challenges all parties. Creativity allows contributors in the economic sector to prepare for economic turbulence, face social challenges and also be able to improve their current performance.

II. CREATIVITY

The word creativity comes from the Latin word "creare" which means "to create", while from the Greek word "creare" means "to fulfill". Kamus Dewan (2005) defines creativity as an ability or ability to create, creative power. In general, creativity is the ability or ability to invent and produce something new and original. Creativity

requires a high level of imagination, exploration and the ability to build something new from something old and existing. Creativity involves critical and analytical thinking skills to create and produce new ideas that are unique and interesting. It also involves the ability to think practically that can translate ideas into applications.

Creativity can produce innovative ideas or ways to improve processes or old ways that are more effective and efficient or more interesting. Instead of innovation, we need to use a creative mind and high imagination. Innovation is the way of working in the future. Malaysia needs a creative and innovative future generation to boost the country's economy and prosperity.

Calvin W. Taylor (1985) is a psychologist who says that not all human beings are born and endowed with the same talents. He believes that the development of a person's talent is closely related to the way in which an educator tries to stimulate a student's thinking. In his theory "Multiple Creative Talent", he explained that the formation of talent must be compatible with the learning activities carried out in the classroom. In his theory, Taylor has suggested five types of creativity to show the level of difference in the creativity process that occurs in one individual with another individual. The types of creativity are as follows:

1) *Expressive Creativity*

Expressive creativity often happens randomly and freely. It can be seen through the drawings produced by children who draw spontaneously. Most of the drawing children create at this stage are independent. The results of this drawing will also be according to the ability to match their age and the development of their physical condition which is not yet stable. At this stage, the result of the drawing is in the form of scribbles and uncontrolled use of lines. This expressive creativity is independent, skill, originality and quality are not considered important by students during the process of producing work.

2) *Creativity through Production/Technical*

Creativity through the production process refers to the efficiency and ability of a student in producing work. At this stage, educators need to help students

in order to improve their existing skills to a more systematic and perfectly planned method. At this time, the role of educators is very important because students need guidance to identify the perfect and appropriate methods and approaches in the process of producing good works.

3) *Inventive Creativity*

Inventive creativity refers to the ability of individuals to create new things or objects through the process of experimentation. At this stage, the main emphasis is on the factors of discovery and new creation. It also involves trial after trial to produce a theory, formula and conclusion to the experiment that has been carried out by the individual. The role of educators at this stage is to provide encouragement and support so that students do not give up easily.

4) *Innovative Creativity*

Innovative creativity is a stage that involves modifying existing basic concepts to new ideas. At this stage students begin to make modifications and innovations through their own style and technique. Educators can help and guide students to identify the correct implementation method. In addition, students have started to act outside of conventional methods and produce alternative methods for every planning done by them.

5) *Imaginative Creativity*

Imaginative creativity is the highest ranked creativity. At this stage the formal principles of art are translated into an abstract and simplified form. For example, the image of a human figure is depicted without giving attention and emphasis to the basic form or formal form of the figure.

As for rural and urban education, referring to the Malaysia Education Blueprint 2013 – 2025, the Malaysian Ministry of Education has set policies to bridge the education gap that exists such as the gap between urban and rural areas, the digital divide, the gap between student achievement levels and socioeconomic gap. The urban and rural gap refers to the inequality that occurs, for example in terms of providing infrastructure and placement for teachers who teach. In addition, various aspects achieved by

rural and urban areas are different such as public transport facilities, public libraries and so on. The effect of this will also create a digital divide like the one that went viral in the media at the time where a female student had to spend the night on a tree just to answer a test. This digital divide usually exists in rural areas where internet usage is limited. This gap also causes various facilities such as computer labs, science labs and life skills workshops to be affected.

Achievement gaps such as students' difficulties in mastering the 3M's (membaca, menulis, mengira) of reading, writing and counting also cause concern for the Malaysian Ministry of Education. This will cause a high-risk student to lose interest in learning and subsequently drop out of the education system. Social gap refers to differences in terms of health, student welfare and poverty. Poverty is often the main factor that causes a significant social gap, especially between urban and rural areas.

In this research, the focus is on the B40 group. In Malaysia, the income levels of the people are classified into three main categories, namely Top 20% (T20), Middle 40% (M40), and Bottom 40% (B40) as shown in Table 1 below. Data related to this level of income was obtained based on a survey conducted by the Department of Statistics' (DOSM) Household Income and Basic Amenities (HIS/BA) in 2019. This survey will be conducted every five years.

Table 1
 Income Classification by Household
 (Source : Household Income and Basic Amenities Survey Report 2019, Department of Statistics Malaysia)

Household Group		Median Income (RM)	Income Range (RM)
B40	B1	1,929	Less than 2,500
	B2	2,786	2,500 - 3,169
	B3	3,556	3,170 - 3,969
	B4	4,387	3,970 - 4,849
M40	M1	5,336	4,850 - 5,879
	M2	6,471	5,880 - 7,099
	M3	7,828	7,110 - 8,699
	M4	9,695	8,700 - 10,959
T20	T1	12,586	10,960 - 15,039
	T2	19,781	15,039 or more

Malaysia consists of 11 Malay states, 2 Borneo states (Figure 1). The states in Peninsular Malaysia consist of Perlis, Kedah, Pulau Pinang, Perak, Terengganu, Kelantan, Pahang, Negeri Sembilan, Selangor, Melaka and Johor while Borneo consists of Sabah and Sarawak. Peninsular Malaysia and Malaysian Borneo are separated by the South China Sea. From a socio-economic point of view, Peninsular Malaysia is more advanced than Borneo Malaysia. Significant differences between the two can also be seen from various aspects including demographics, religion and language.

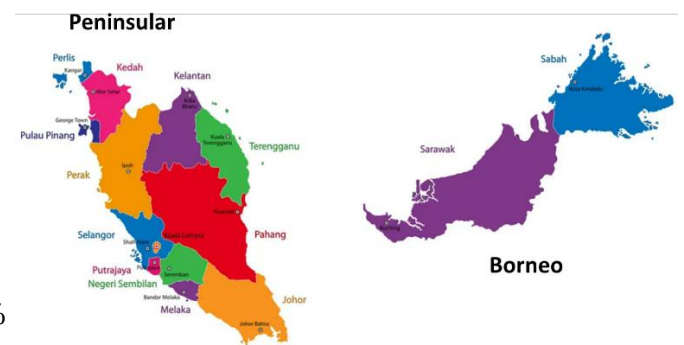


Figure 1 : Map of Malaysia
 (Source : <https://www.vectorstock.com>)

III. PROBLEM STATEMENT

In accordance with the Malaysian Education Blueprint (2013-2025) which emphasizes creative thinking skills, the Malaysian Ministry of Education has emphasized the mastery of various cognitive skills including reasoning and critical, creative and innovative thinking. One of the problems of the education system in secondary schools today is related to the formation of the basis of a person's personality that will allow him to socialize successfully in a dynamic society, develop and choose life and career on his own and work hard by using his creative potential efficiently (Palai, 2014). The best way to implement it is to start at the school level, which is to nurture a culture of creativity, invention and innovation. This is very important for the development of human resources in the future as stated by Zulkifly and Rahmah (1997), "...it is also necessary to create a skilled labour force that is

enterprising, scientifically and creatively minded and equipped with the ability to solve any problem. All this should be started at the school level”.

Malaysia has the potential to produce creative and innovative people, this is in line with the National Education Philosophy and its application in compulsory subjects and subject curriculum (Abd. Rahim, 1999). Educational institutions are the most important places to nurture students' talents and creative abilities. Talking about creativity or in other words creativity, it is the most important asset in a developing country especially our country, Malaysia. Creativity in general is the ability or ability of individuals to create, produce, develop new and original ideas.

This research basically makes the impression that students from the B40 income group in urban secondary schools have a higher level of creativity compared to students in rural secondary schools. This is based on the official website of the curriculum development department which reports that the government is working hard to bridge the educational gap between urban and rural schools. According to the former Minister of Education, Tan Sri Muhyiddin Yassin, a study needs to be conducted to identify issues and problems in rural schools whose student achievement is seen as lower than schools in urban areas. According to him, incomplete infrastructure, lack of equipment, quality of teachers, lack of teachers, inappropriate learning environment or parents' attitudes may be the cause of this happening. (Ministry of Education Malaysia, 2013).

IV. RESEARCH OBJECTIVES

One of the main objectives of this research is to identify the true level of creativity of students in the B40 income group in secondary schools throughout Malaysia. Identifying differences in the level of creativity between students in secondary schools in Peninsular Malaysia and Malaysian Borneo. Make a comparison of the variation in the level of creativity among students from the B40 income group in secondary schools in Peninsular Malaysia compared to Malaysian Borneo.

V. DATA COLLECTION

Procedure

This research aims to assess the extent of creativity of students in secondary schools in Peninsular Malaysia and Malaysian Borneo. The school selection procedure is based on the total number of students in each school that has been set. This is to facilitate the selection of students from the B40 group in the schools involved. After getting the list of selected schools, the list is sent to each State Education Department (JPN) to get approval for the selection of schools, and then apply for permission to carry out field research activities. Each application to JPN is accompanied by a letter of permission to conduct field research activities from the Education Policy Planning and Research Division of the Ministry of Education Malaysia.

Respondent

The respondents for this research consisted of 400 students from six states as shown in Table 2 below. For Peninsular Malaysia, four states have been chosen to represent the four main zones in the Peninsular, namely the East zone (Kelantan), the West zone (Selangor), the South zone (Johor) and the North zone represented by the state of Penang.

Table 2
 Selection and Number of Study Respondents

	State	Male Student	Female Student	Total of Students	Overall Total
Peninsular	Kelantan	25	25	50	200
	Selangor	25	25	50	
	Johor	25	25	50	
	Pulau Pinang	25	25	50	
Borneo	Sabah	50	50	100	200
	Sarawak	50	50	100	
OVERALL TOTAL		200	200	400	400

The selection of respondents is based on purposive/judgmental sampling to fulfil the purpose of obtaining the desired information. Findings from this research will answer research questions related to the level of creativity of students in high schools in Peninsular Malaysia compared to Malaysian Borneo. In order to facilitate the process of descriptive data analysis, the researcher has given special focus to the items that have been listed under the four main indexes of the Figural Test, namely:

Originality, Fluency, Flexibility and Elaboration which are discussed in the next section.

Sample Size

In this research, sample size is the most important part that every researcher should follow. The sample size is a reflection or picture of the population where it has its own method in determining the best sample size for each research. Some experts have expressed their respective opinions on this matter, for example Krejcie and Morgan (1970), and Cohen et. al (2001). For the purpose of this research, the researcher has chosen non-probability sampling (non-random) characterized by purposive/judgmental sampling where a group of subjects with certain characteristics are selected as respondents based on knowledge and the specific purpose of a research. This means that not all respondents in the population are selected by the researcher to be used as respondents. For this research, the researchers have selected a total of 400 high school students from the B40 income group from the states in Peninsular Malaysia (200 people) and Malaysian Borneo (200 people).

Creativity Test

Since creativity is directly related to expressing a different and practical idea, the creativity test is felt to be the most appropriate instrument for this purpose. The Torrance Tests of Creative Thinking (TTCT), by E. Paul Torrance is the most popular creativity test in the world (see: Kim, 2006; Torrance, 1970, 1974). For this research, researchers have used the Figural Test method as suggested by Torrance. Nevertheless, the researchers have adapted the Figural Test which is simpler and saves time which is the Figural Test which was conducted by Chen et al (2002) as in the example below (Figure 2). According to Chen et al, this kind of general creativity stimulation test (using 3 types of geometric shapes) will produce a variety of responses, whether from those who are creative or not.

The construction of questions for this Figural Test is to examine the respondent's cognitive domain in accordance with the characteristics of 'creation' in Bloom's Taxonomy. It aims to measure the intellectual level of respondents towards creative thinking based on the characteristics of originality,

generation, planning and production. The data from this Figural Test was analysed using descriptive statistical methods using comparison.

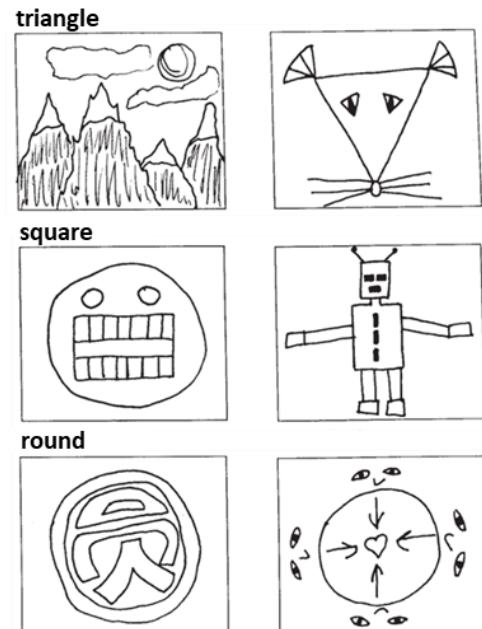


Figure 2 : Sample of Figural Test
(Source : Chen et al, 2002)

To complete the analysis process, the researcher has used a 5-point scale. All the drawing results from this Creativity Test are evaluated based on four (4) indices as suggested by Yong (1994) which are:

- 1) Originality: Bringing out different, unusual and unique ideas. Example: The work produced is different from other respondents.
- 2) Fluency: Open minded, fast and high imagination, the ability to produce many ideas. Example : Building objects/details building objects/how to use objects/details
- 3) Flexibility (Flexibility): Diverse approaches to generating ideas. Example: Respondents vary their ideas from the original idea to several different adaptations
- 4) Elaboration: Able to develop ideas from one level to a higher one, emphasis on detail. Example: The respondent gives the result of an idea that is exploited from the original template or changes the original form to something else

In accordance with studies that have been carried out by several researchers before [example: Ibrahim (2020); Marzuki Ibrahim (2018, 2020); M.A.Yahyaawal et al (2022)], researchers have selected a total of 5 assessors based on the characteristics of their involvement in the field of art and design (teachers and lecturers), have done research or activities related to creativity and have been appointed as judges/assessors / judge in a competition based on creativity.

VI. RESEARCH FINDINGS

Chart 1 below shows the results of the Figural Test that was conducted on 400 selected respondents. From this chart, it is clear that there is a significant difference in the very creative category, which is as much as 12% among respondents in the Peninsular compared to Borneo. This at the same time shows the socio-economic difference factor, especially in the Western zone of Malaysia such as the state of Selangor, which to some extent affects the creative thinking of students. This finding also supports the observation of researchers who have visited schools in the state and found that the school environment in Peninsular Malaysia is better compared to schools in Malaysian Borneo. It can be seen through a variety of more modern facilities provided to facilitate student affairs such as information and communications technology (ICT) facilities which indirectly increase students' interest in deepening knowledge using interactive mediums. Among the other factors that influence the difference in the level of creativity between Peninsular and Borneo based on the researcher's observations is the factor of the teacher who teaches. The teachers who teach in schools in the Peninsular are made up of more experienced teachers with various ethnic backgrounds, and this to some extent colours the school environment with a variety of learning methods. Furthermore, this matter to some extent provides different exposure to school students. The average teacher in the Peninsular also has an advantage from a teaching point of view because they are greatly assisted by more sophisticated and complete facilities, compared to Malaysian Borneo.

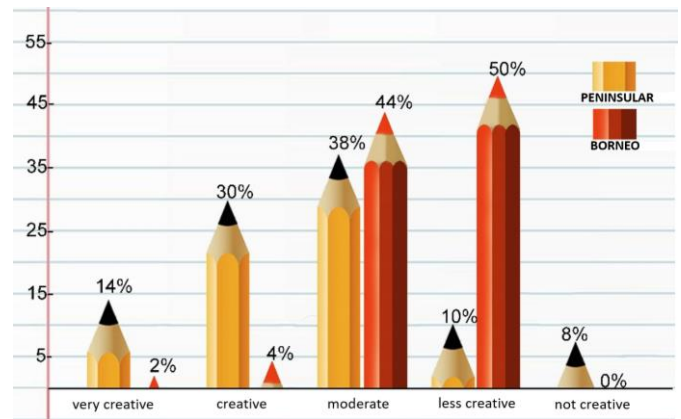


Chart 1
Findings from the Figural Test

The difference in the less creative category clearly shows a significant difference. Peninsular Malaysia leads the percentage of less creative with 10% compared to Malaysia Borneo which is as much as 50%. This clearly shows that the number of less creative students in Borneo is higher compared to the Peninsular. The results of the researcher's observations based on the Figural Test that has been carried out on them show that students from the Peninsular are more passionate and enthusiastic to take the test than students from Borneo who need a longer time to understand and answer the given Figural Test questions.

Chart 1 also clearly proves that the level of creativity of students in Malaysian Borneo is lower when compared to Peninsular Malaysia. Based on the researcher's observations, one of the factors that influence the high percentage in the medium and uncreative category is because students from schools in Malaysian Borneo do not develop and exploit ideas in a broader direction but are more inclined towards the same idea among themselves. This will have an impact on the marks obtained by them, especially those involving elements of originality. Researchers believe that the lack of early exposure to activities in the form of creativity and innovation is one of the factors that cause their Figural Test results to be low.

The findings from this research clearly prove that there is a gap in creativity between B40 students in Peninsular Malaysia compared to Malaysian Borneo.

It is supported by a statement from the Malaysia Education Blueprint 2013 – 2025 which states that there is a gap between Peninsular Malaysia and Borneo Malaysia. The findings of this research clearly prove the truth behind Malaysia's position in the Global Innovation Index (GII) 2019.

VII. CONCLUSION

It is hoped that the findings from this research can to some extent help the Malaysian Ministry of Education which is in the process of improving, updating or perhaps restructuring the existing curriculum so that it is relevant to current developments. Finally, it is hoped that the findings of this research can also be used to help Malaysia in producing people who think creatively and further improve its position to be among the top 20 countries in the world in the Global Creativity Index and Global Creative Class.

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