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# Analysing the Awareness of Generation Y Youth on '3D' Industries Through '3D' Info System

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**Abstract**

*3D' is an acronym for dirty, dangerous and difficult. Also perceived as labour intensive, excessive physical work, hazardous work environment, low wages and little security, '3D' industries today have a significant contribution to the Malaysian economy and a potential to create vast employment opportunities. Unfortunately, '3D' industries are shunned by Malaysians particularly among Generation Y (Gen Y) youth. Lack of awareness among Malaysians about '3D' industries is reflected from the high number of foreign workforce engaged in '3D' industries and this is among the reasons for employers to hire them. It is important to know how well Malaysians understand about these industries. Therefore, this paper intends to gauge the level of understanding and perception of Malaysians about '3D' industries through an instrument named '3D' Info System. This survey was conducted among 33 visitors in IIDEX 2019 at Universiti Teknologi MARA (UiTM), Shah Alam. The result shows that 55% of Malaysian visitors have a neutral understanding of '3D' industries, 33% have a poor understanding and only 12% have a good understanding about '3D' industries in Malaysia. Thus, it is recommended that it is vital to create awareness and attract Malaysian job seekers especially Gen Y youth to gain knowledge about '3D' industries in Malaysia.*

*Keywords:* '3D' sectors, Generation Y, foreign workers, employment, services, manufacturing, construction

## INTRODUCTION

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Statistics from the Ministry of Human Resources (MOHR), (2019) show that the number of legal and illegal foreign workforce was in a worrying trend. From 2017 to 2019, there were 1,732,944, 1,757,285, 2,026,204 and currently 1,975,879 legal foreign workforce have been hired in Malaysia (Ministry of Human Resources (MOHR), 2017, 2018, 2019). Table 1 depicts the number of legal foreign workforce in Malaysia from 2017 to 2019.



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Table 1: Number of Legal Foreign Workforce in Malaysia, 2017-2019

| Sectors | Total Numbers (2017) | Total Numbers (2018) | Total Numbers (2019) | |
|---|---|---|---|---|
| | | | March | September |
| Manufacturing | 619,658 | 644,173 | 702,294 | 699,044 |
| Construction | 339,911 | 326,283 | 445,972 | 428,919 |
| Services | 235,854 | 239,052 | 311,393 | 309,006 |
| Plantation | 255,281 | 267,188 | 279,256 | 264,269 |
| Agriculture | 155,858 | 153,865 | 157,538 | - |
| Mining and quarrying | - | - | - | 34 |
| Maid | 126,382 | 126,724 | 129, 751 | 129,980 |
| Total | 1,732,944 | 1,757,285 | 2,026,204 | 1,975,879 |

Source: Statistics from the Employment and Labour Force (Ministry of Human Resources (MOHR), 2017, 2018, 2019)

It shows that Malaysia was heavily employing foreign workforce from various countries to work in our industries especially in '3D' industries. These foreign workforces come from 13 countries, namely, Indonesia, Bangladesh, Nepal, India, Myanmar, Pakistan, the Philippines, Vietnam, Thailand, China, Sri Lanka, Cambodia and Laos. The influx of foreign workforce in '3D' industries has caused a negative impact on Malaysian employment. In essence, this situation has led to a reduction in job opportunities in '3D' industries for Malaysians especially the young generation. Being aware of the negative implication of foreign workforce to Malaysia in the form of economy, employment and social, the government should play an imperative role in managing the foreign workforce especially while handling their applications in working with the sectors (Nizam, Ahmad, and Aziz, 2015; Institute for Youth Research Malaysia (IYRES), 2016; Cheng, 2016; Ibrahim & Mahyuddin, 2017; Awad, Yussof, & Khalid, 2018; Central Bank of Malaysia, 2018; Department of Statistics Malaysia 2019; Arutchelvan, 2019; Musa, 2019). This is significant to secure our local workforce employment for the future.

Therefore, in order to secure and encourage Gen Y youth employment in '3D' industries for the future, a practical approach should be seriously applied as the main motivators for the workforce in Malaysia. After reviewing some of the theories, this study considered a Herzberg's Two-Factor Theory which highlighted on motivation-hygiene factors. This theory illustrates the right motivators and determinants that able to influence workforce's attitudes towards work and also highlighted the cause of dissatisfaction of the workforce. There are two dimensions in this theory which known as motivational factors or intrinsic factors such as achievement, recognition, advancement and growth, work itself, and responsibility. While, hygiene or extrinsic factors comprises of salary,



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fringe benefit, policy and administration, status, supervision, working conditions, interpersonal relations and job security. According to Yusoff, Kian and Idris (2013), these factors are highly recognized and more necessary to attract and motivate a person in the workplace. Based on this theory, the respective bodies such as government and employers can propose the right determinants for the Gen Y youth and highlight the causes that make them stay away from '3D' industries. Furthermore, the identification of the right motivators would help them to construct better and proper work policies in hiring and retaining Gen Y youth in '3D' industries for the near future. This was in line with a study by Ahmad, Supaat, Wook, Tagoranao and Rahman (2018) which explored the reluctance of the young generation in '3D' industries. Aligned with the current issues, '3D' industries should be modernised and mechanised to provide a better involvement of Malaysian Gen Y youth.

There is a need to produce more in-depth studies to probe these issues critically and this study needs to be undertaken as it may benefit the young generation (Gen Y), employers, the government (policy makers) and other respective bodies. Therefore, this paper intends to gauge the level of understanding and perception of Malaysian '3D' industries through an instrument named '3D' Info System.

## LITERATURE REVIEW

### '3D' Industries

The discussions on the definition of the '3D' industries are too general and have been discussed by many authors. A vast amount of literatures on '3D' industries are mostly centred on developed countries particularly in the Western countries as they are among the super economic powers in the world. However, it was found that there are limited studies on '3D' in the Malaysian context. Not only that, there are also various definitions of '3D'. Ofori (2015) found that there is no common definition but there are arguments among the authors whether it is an industry or a sector that comprises many industries. Furthermore, many authors have attempted to explain '3D' industries from different perspectives.

According to Lee, McGuinness and Kawakami (2011), the '3D' industries can be called as (1) dirty, (2) dangerous and (3) difficult sectors which are labour intensive, and offer hazardous work environment and low wages. Meanwhile, '3D' industries in the United States can be classified as "SALEP" to refer to the types of work in '3D' industries



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(Fortuna, Morris & Tacci, 2012). Böhning (1996) has created the term "SALEP" which refers to 'Shunned by All Except the very Poor'. Besides, the workforce in '3D' industries is synonymous with lack of skills, documentation, education and language proficiency. Briggs (1993) then classified '3D' industries as having low wages, few fringe benefits, little security and are of a dead-end nature. Based on the United States economic situation, '3D' industries actually need migrant workforce to fill only certain '3D' jobs.

Meanwhile in Japan, the term '3D' is known as '3K' that originated from the Japanese expression (1) *Kitanai* (dirty), (2) *Kiken* (dangerous) and (3) *Kitsui* (difficult) (McCornac & Zhang, 2016). The '3K' are Japanese words which refer to the hazards and job conditions of the workplace. Thus, this has discouraged many young Japanese from entering these industries. In addition, '3D' is also associated with blue-collar workers that perform manual and physical work such as manufacturing, mining, construction, mechanical, maintenance, technical installation and other types of physical work (Marandi & Moghaddas, 2013). The workforce can be skilled or unskilled, can be paid according to hours, and paid by projects or by monthly salary.

On the other hand, Rahim, Chen, Zainon, Yusoff and Deraman (2016) explained about the image of '3D' industries which is synonymous with the dirty, difficult and dangerous image. This has discouraged many local workforce and new graduates to shun away from the '3D' jobs. Nevertheless, the general definition of '3D' in Malaysia as defined by Ahmad et al. (2018) is the acronym for the infamous 'dirty, dangerous and difficult' jobs that cover various informal sectors such as manufacturing, construction, cleaning services, agriculture, plantation and automotive maintenance.

## The Key '3D' Industries in Malaysia

In Malaysia, services, manufacturing, construction, agriculture as well as mining and quarrying industries are registered as the largest contributors for Malaysia' economic growth up to 2019 (Department of Statistic Malaysia (DOSM), 2019). Based on the statistical report, Malaysia's economy grew at 5.9% in the fourth quarter of 2017 with 307.9 billion of Gross Domestic (GDP), while 4.7% in the fourth quarter of 2018 with 322.6 billion of GDP and 3.6% in the fourth quarter of 2019 with 369.9 billion of GDP. This indicated that services and manufacturing industries were the main impetus to Malaysia's economic growth in 2019. Being the major contributors to the world's economies indicate these sectors or industries are mainly categorised as '3D' (dirty, dangerous and difficult) industries. Table 2 below presents the latest trend of Economic Activity and Gross Domestic Product from 2017 to 2019 in Malaysia's '3D' industries.



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Table 2: Malaysian Economy Activity & Gross Domestic Product (GDP), 2017-2019

| Kind of Economic Activity (%) | 2017 (Q4) Growth Rate (%) | 2018 (Q4) Growth Rate (%) | 2019 (Q4) Growth Rate (%) |
|---|---|---|---|
| Manufacturing | 5.4 | 4.7 | 3.0 |
| Construction | 5.8 | 2.6 | 1.0 |
| Services | 6.2 | 6.9 | 6.1 |
| Agriculture | 10.7 | -0.4 | -5.7 |
| Mining & Quarrying | -0.5 | 0.5 | -2.5 |
| GDP at Constant Prices (RM Billion) | 307.9 | 322.6 | 369.9 |

The above table emphasises the fact that Malaysia's '3D' industries were able to provide ample job opportunities for our Malaysian workforce (Ahmad et al., 2018). Under the Eleventh Malaysia Plan (11MP), there were many job opportunities created in every '3D' industry as proven above, for example services was 987,500, manufacturing was 111,000 and construction was 72,10. However, the total number of unemployed persons in '3D' were still increasing from 450,300 persons to 502,600 in 2015 to 2017 and is expected to increase to 523,800 in 2020 (Ministry of Human Resources (MOHR), 2019). In the latest report, Malaysia's unemployment rate was found to have increased from 3.30% to 3.40% between March 2018 to March 2019, respectively. However, the current Malaysian unemployment rate is 3.30%, while youth unemployment is 10.6%, which indicates that 293,700 of Malaysian youth are jobless. It shows that '3D' industries are among the industries that also contribute to the changing unemployment rate in Malaysia. The high number of Malaysian workforce does not match with the job opportunities created under '3D' industries. Thus, it is important to create awareness and provide sufficient knowledge about the jobs and general information related to '3D' industries. A better understanding of Gen Y youth would encourage them to search for the right skills and help them stay employable in future '3D' job prospects.

## The Critical Issues in '3D' Industries

Generally, manufacturing, construction and services industry are categorised as blue-collar jobs (Bujang, Omar, Hashim, Kepalnasir, & Jusoh, 2019). There are numerous critical issues related to this class of jobs such as unemployment among Malaysian youth. Most youth feel that blue-collar jobs are low-grade jobs that should be avoided, therefore they stay away from blue-collar jobs (the Sun Daily, 2017). Undeniably, there is a lack of Malaysian Gen Y youth involvement in blue-collar jobs. As described by Ahmad et al. (2018) most Malaysians are reluctant to work in '3D' industries and this situation has led to a high dependency on foreign workforce. There are several critical issues associated



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with the lack of youth involvement in '3D' industries. These critical issues can be observed from three (3) different perspectives, namely from the youth or workforce perspective, the employer perspective and the national perspective.

The first perspective is from the youth or workforce perspective. There are several factors that have led to this problem. It is argued that a majority of Malaysian youth have limited knowledge or awareness and understanding about '3D' industries. As echoed by several scholars, the '3D' definition was found to be too general, inconsistent and non-specific. The '3D' term was defined differently in various countries. The definitions of '3D' industries by countries such as the United States, Japan, Australia, Korea, Singapore, Thailand and Malaysia were found to be too general, unstandardised, inconsistent and non-specific (Fortuna et al., 2012; K. Lee et al., 2011; McCornac & Zhang, 2016; Munz, Straubhaar, Vadean, & Vadean, 2007; Rahim et al., 2016). Many authors have attempted to explain the '3D' industries from different perspectives. Achim, Rusdi, and Amin (2017); Ahmad et al., (2018); Malay Mail (2016); Annuar, (2019b); and New Straits Times (2019), concur that Malaysians were reluctant to work in '3D' industries due to misconceptions and lack of awareness about these industries themselves. As a result, the '3D' industries are characterised by the high number of foreign workforce and low involvement of Malaysian youth.

The second perspective is from the employers' perspective. It was notably found that employers in '3D' industries are excessively dependent on millions of foreign workforce. A study by Puteh, Sheikh, Ishak, and Anwar (2011) stated that there are several reasons why employers preferred to hire foreign workforce, namely because of lax of law and regulations enforcement, the reluctance of locals to work in '3D' industries due to unattractive wages and incentives packages, attitudes of local workers that are known to be choosy and lack of availability of locals to work in '3D' industries. Currently, there are legal and illegal foreign workforce which are heavily employed in '3D' industries, especially in manufacturing, construction and services industries (Ministry of Human Resources (MOHR), 2019). The number keeps increasing from 2017 (1,732,944) to 2019 (2,026,204) and this situation will indirectly diminish the jobs available that can actually be offered to our Malaysian workforce.

The third perspective is from the national perspective whereby, this issue poses a great challenge to the country. The influx of unskilled foreign workforce in the '3D' industries has caused negative impacts to Malaysia in the economy, employment and social sectors (Nizam, Ahmad, and Aziz, 2015; Institute for Youth Research Malaysia (IYRES), 2016a; Cheng, 2016; Ibrahim & Mahyuddin, 2017; Awad, Yussof, & Khalid, 2018; Central Bank of Malaysia, 2018; Department of Statistics Malaysia 2019;



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Arutchelvan, 2019; Musa, 2019). In terms of the economy, the inflow of unskilled foreign workforces have caused a negative impact to the Malaysian economy such as low productivity due to the low rate of physical capital, poor quality control, and time-consuming and problematic workforce (Nizam, Ahmad, & Aziz, 2015). Moreover, there is a reverse impact on the Malaysian economy because of the country's dependency on foreign workforce, resulting in the outflow of money to the foreign workers' home countries. This will weaken our Ringgit and expose Malaysia to currency manipulation. The fiscal policy will also be affected. The salaries sent to their home countries have increased the Malaysian money outflow to foreign countries. As reported by Cheng (2016), Indonesian workforce are the largest contributors to the home remittance of their country. Meanwhile, Bangladeshi workforce have sent back RM17 billion, Nepalese have sent RM13.2 billion, Indians have sent RM6 billion and Filipinos have sent about RM3 billion to their homes countries. According to the Central Bank of Malaysia (2018), the total outward remittance was found to have increased from RM33 million in 2017 to RM40.6 million in 2018.

Given the importance of the '3D' industries, this study points out the gaps which are knowledge gap about '3D' industries, lack of attractiveness of '3D' industries to Malaysians especially among Gen Y youth, and lack of in-depth studies particularly from Gen Y youth's perspective in the Malaysian context that gauge their views and opinions about '3D' industries. The proceeding discussions among different authors demonstrate that most of the studies are towards individual '3D' industries. In addition, as emphasised by the Institute for Youth Research Malaysia (IYRES), 2016), there is only one online survey involving 1409 youth conducted by IYRES to measure youth readiness and their response to '3D' employment.

Hence, one of the main challenges for Malaysia today is how to manage and place the dynamic Gen Y youth into the '3D' industries in Malaysia. This study focusses on Gen Y youth between the ages of 20 to 40 years old. Among all the generations in the workplace, Gen Y youth is the newest and largest generation entering the workforce (Luscombe, Lewis, & Biggs, 2013; Naim & Lenka, 2018). Nevertheless, Ahmad et al. (2018) stated that most of Malaysian are reluctant to work in '3D' industries, thus employing foreign workforce from many countries has become an inevitable alternative solution to employers. This has become a great challenge for Malaysia due to the poor involvement of Malaysian workforce, especially our Gen Y youth in '3D' industries. As stated by Annuar (2019); Malay Mail (2016); New Straits Times (2019), the low involvement of youth in '3D' industries is due to misconceptions about the industries themselves.



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## METHODOLOGY

A preliminary survey was conducted to further confirm the involvement of Gen Y youth in Malaysian '3D' industries. A system was developed to probe various issues regarding the industry. This paper discusses the development of the system to gauge the level of understanding and perception of '3D' industries among Malaysians especially Gen Y youth who were attending an International Exhibition and Competition organised at MARA University of Technology, Shah Alam, (IIDEX). The survey was conducted in September 2019, among 33 visitors from ages 15 to 40 years old. This system is named "*The '3D' Info System"* which acts as an instrument to gauge and evaluate the necessary information related to '3D'. It comprises five (5) demographic questions that employ the use of nominal and ordinal scales to obtain valuable information from the respondents. Meanwhile, there are twenty (20) general information questions pertaining to '3D' industries in Malaysia that employ interval scale, Likert 5-points scales to examine how strong the respondents feel about the statements. The items in the instrument were based on literature reviews, consisting of articles from newspapers, reports and journals. This system also provides a bridge between Malaysians and other respective parties such as government agencies and private sectors to have a communication pertaining to '3D' industries.

## FINDINGS AND DISCUSSIONS

The idea of conducting the survey through '3D' Info Survey is quite effective and it enables the researcher to elicit some meaningful findings of Malaysians' perceptions about '3D' industries. How do Malaysians, especially Gen Y youth, perceive the '3D' industries? Is it true that they have different understanding and perceptions towards these industries? Thus, this is in line with the first objective of the study, which aims to gauge the level of understanding of Malaysians towards '3D' industries in Malaysia. Some of the instruments obtained from the '3D' Info Survey are presented in percentage (%) as shown in Table 3 below.

Table 3: Instruments in '3D' Info System

| Details | | No | Percentage (%) |
|---|---|---|---|
| Respondents | | 33 | - |
| 1) Demographic Questions | | | |
| Gender | Female | 20 | 60% |
| | Male | 13 | 39% |



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| | | | |
|---|---|---|---|
| Age | 15-25 years old<br>26-35 years old | 29% | 87% |
| | 35 above | 4 | 12% |
| Current working industry | Services<br>Manufacturing<br>Construction | 7 | 21% |
| | Others | 26 | 78% |
| 2) General information about '3D' industries in Malaysia | | | |
| Have you ever heard about '3D' industries? | Yes | 21 | 63% |
| | No | 12 | 36% |
| I am aware of all '3D' works in Malaysia | Strongly agree<br>Agree | 12 | 36% |
| | Neutral<br>Disagree<br>Strongly Disagree | 25 | 63% |
| I will consider working in '3D' industries | Strongly agree<br>Agree | 10 | 30% |
| | Neutral<br>Disagree<br>Strongly Disagree | 23 | 69% |
| Employers in '3D' industries would prefer hiring foreign workers | Strongly agree<br>Agree | 22 | 66% |
| | Neutral<br>Disagree<br>Strongly Disagree | 11 | 33% |
| Gen Y stay away from '3D' industries | Strongly agree<br>Agree | 19 | 57% |
| | Neutral<br>Disagree<br>Strongly Disagree | 14 | 42% |
| I would feel safe and secure working in '3D' industries | Strongly agree<br>Agree | 5 | 15% |
| | Neutral<br>Disagree<br>Strongly Disagree | 28 | 84% |
| I would genuinely feel respected and motivated working in '3D' industries | Strongly agree<br>Agree | 9 | 27% |
| | Neutral<br>Disagree<br>Strongly Disagree | 24 | 72% |
| Foreign workers should be replaced by local talents in '3D' industries | Strongly agree<br>Agree | 23 | 69% |



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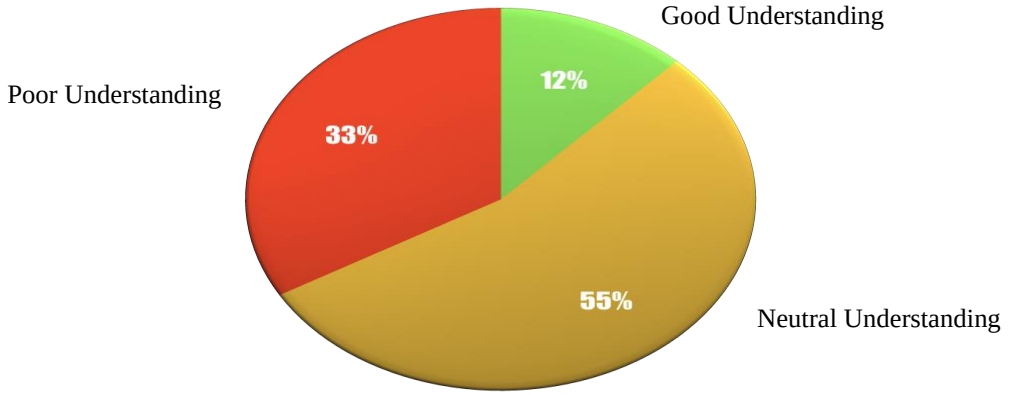
| | | | |
|---|---|---|---|
| | Neutral<br>Disagree<br>Strongly Disagree | 10 | 30% |

Source: The '3D' Info System (2019) developed by the researcher

Therefore, based on the '3D' Info System developed by the researcher, the overall results are obtained as displayed in Figure 1.




The results from the '3D' information system indicated that the majority of visitors who responded to this system were females at 60% while 39% were male respondents. In this survey, most of them were identified as Gen Y youth, whereby 21% of them were from '3D' industries and 78% were not related to '3D' industries. There were twenty (20) general information questions about '3D' industries, however, this paper only discusses the main instruments.

As seen in Table 3, 63% of the visitors have heard about '3D' industries in Malaysia. This might be due to the high contributions and growing demand of '3D' industries today. However, it does not reflect the level of understanding of '3D' industries in Malaysia, where 63% of visitors were not aware of all '3D' works in Malaysia. The previous resolution produced by the Institute for Youth Research Malaysia (IYRES) (2016) emphasises that young generation are urged to have a better understanding and more information about '3D' industries from time to time. This is important to create awareness towards the needs and job opportunities in '3D' industries, for instance, the awareness in preparing themselves in terms of upgrading their skills from unskilled to semi-skilled and skilled level, getting the required certificates, such as the safety and health certificate, and acquiring '3D' knowledge for better self-marketing. Despite its great contributions to the country, this survey shows that most of the visitors would not



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consider working in '3D' industries and 57% of them also agreed that the young generation nowadays stayed away from '3D' industries. This concurs with a research conducted by Achim, Rusdi, and Amin (2017); Ahmad et al., (2018); Malay Mail (2016) which found that Malaysians were reluctant to work in '3D' industries due to some reasons, such as unsatisfactory human rights provisions.

In contrast, most of the visitors agreed that employers in '3D' industries preferred to hire foreign workforce than our Malaysian workforce. This explains the high number of legal and illegal foreign workforce in Malaysian '3D' industries today. As supported by previous researches, employers prefer to employ foreign workforce eventhough Malaysians are ready to work in industries such as food service industry (Puteh et al., 2011). The findings of the survey clearly showed that only 15% of the visitors would feel safe and secure while only 27% of them would feel respected and motivated if they worked in Malaysian '3D' industries. Ahmad et al., (2018) found that '3D' industries consist of challenging jobs which expose workers to various risks, hazardous work environment, exploitation and violation of rights. According to the statistics from the Social Security Organisation, the number of accidents for '3D' industries in Malaysia was up to 57,368. It can be assumed that '3D' industries do not have a positive image that can make the employees feel safe, secure and motivated to work in '3D' industries.

Nevertheless, the '3D' information system survey also indicated that most of the visitors agreed that Malaysian local talents should replace the foreign workforce in '3D' industries in Malaysia. In line with the government's current stand, the former Prime Minister of Malaysia, Tun Dr Mahathir Mohamad during the 2019 Workers' Day Celebration, urged the government to give priority to Malaysian workforce compared to the foreign workforce in '3D' industries (Hamzah, 2019). Therefore, this study would acknowledge the importance of attracting the young generation, especially Gen Y youth into '3D' industries.

Meanwhile, Figure 1 displays the pie chart on the level of understanding towards Malaysian '3D' industries. The results from the '3D' information system survey indicated that the majority of visitors who responded to this system were Gen Y youth. From the results, 55% of the visitors have a neutral understanding of '3D' industries, while 33% of them have a poor understanding, and the remaining 12% of them have a good understanding about '3D' industries in Malaysia. This figure shows that a majority of Gen Y Malaysian youth are unsure and have a low understanding about '3D' industries. Nevertheless, this contradicted the results found through an online survey which concluded that Malaysian youth have a good understanding about the '3D' work in



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Malaysia. Based on the above argument, it is therefore imperative to establish a standard definition of '3D' that is well accepted across countries. A standard and clear definition of '3D' industries will make the strategy that is intended to promote these industries able to penetrate the targeted group. Indirectly, this might help to reduce the gap in '3D' industries and attract more Gen Y youth to join '3D' industries in the near future.

## CONCLUSION

The findings give a signal that there are parts of Gen Y youth who are less aware and still not clear with the career in '3D' industries. The government, employers and education institutions should consider developing programmes and policies to encourage the training of unskilled to semi-skilled and skilled workforce in '3D' industries, for instance manufacturing, construction and services industries. Malaysian young talents must be ready for 'self-marketing' and capable to do more sophisticated work in order to keep themselves updated with the advanced technological and economic development needs.

One immediate initiative is to provide the necessary information about '3D' industries to Malaysians, particularly to job seekers at every level of age. Furthermore, special attention should be given to these industries due to their huge and significant contributions to our economy, as well as the importance of enhancing the quality of youth talents for '3D' industries (Sivanandam, Rahim, & Carvalho, 2018). The growing questions such as 'do we need so many foreign workers in all industries in Malaysia?' should be answered and given more attention in order to develop a better country in the future (Lee & Idris, 2018). In conclusion, raising their awareness about '3D' industries can be as an important part of employability development among Malaysian young talents.

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