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Generation Y Youth Involvement in 3D Industries: A Preliminary Evidence from Malaysia

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Abstract

As the largest contributor for Malaysia's economic growth up to the year 2022, the 3D (dirty, dangerous and difficult) industries encompasses of services, manufacturing, construction, agriculture, mining and quarrying were very significant and provides ample job opportunities to the Malaysian workforce. Nonetheless, 3D industries are less attractive and shunned by Malaysians, particularly amongst the Generation Y youth. Four determinants were identified in this study namely (i) Wages and Benefits (ii) Recognition (iii) Career Development and (iv) Job Security. This study intends to verify the reliability of the instruments concerning factors that attract the involvement of Malaysian Gen Y youth in 3D industries. A preliminary study was conducted to verify the reliability and to further improved the quality of the instruments. This study employs quantitative method and the proposed items were adopted from past studies. Fifty respondents from the Institut Kemahiran MARA (IKM), Kuala Lumpur were involved in this pilot study. Data was analysed using SPSS. The major findings showed that the Cronbach's alpha values for all variables namely Gen Y youth's understanding, wages and benefits, recognition, career development and job security were reliable and above 0.7 threshold value ranges from 0.855 to 0.945. All the instruments proposed were valid and accurate to be used for large-scale study. This study reveals an urgency need for the Malaysian government and employers to pay serious attention in attracting youth involvement as an alternative to foreign workers. Therefore, to combat high influx of foreign workforce in Malaysia, the government and employers are urged to seek for better solution supported by empirical data. This research provides a significant value-added contribution to the existing body of knowledge concerning youth and 3D industries. Further research should develop a proper framework to attract youth involvement in 3D industries while tackling the influx of foreign workforce in Malaysia.

Keywords: 3D Sectors, Generation Y, Foreign Workers, Youth, Malaysia

Introduction

The backbone of Malaysia lies in its multigenerational workforce. Amongst all the generations in the workplace, Generation Y (Gen Y) is the largest and most dominant

workforce (Luscombe et al., 2013; Naim & Lenka, 2018). Gen Y workforce in Malaysia are mostly youth, who are actively seeking for job opportunities in various economic sectors. It is also noted that the Malaysian economic sectors are highly contributed by sectors classified as '3D' industries, namely services, manufacturing, construction, mining and quarrying and agriculture. Nevertheless, one of the main key challenges for Malaysia today is how to attract and place the dynamic Gen Y youth into these '3D' industries. These industries are considered as labour intensive activities, although recent development shows that it is moving towards high-technology industries (Department of Statistics Malaysia (DOSM), 2020). In the context of this study, these industries are often associated with '3D' jobs; an acronym for 'dirty, dangerous and difficult'. According to Ahmad et al (2018), the sectors of which the jobs that can be classified as '3D' are manufacturing, cleaning services, construction, agriculture and plantation.

According to statistical report by DOSM (2019), the largest contributors for Malaysia's economic growth up to 2019 were services, manufacturing, construction, agriculture as well as mining and quarrying industries. In the fourth quarter of 2017, 2018 and 2019, the Malaysian Gross Domestic Product (GDP) reached 307.9 billion, 322.6 billion and 369.9 billion, respectively. The statistics showed that these industries continuously improved annually.

Although these industries are listed as the biggest contributors to Malaysia's economic growth (DOSM, 2019), there are still challenges and critical issues faced by sectors that are able to weaken the future performance of the Malaysian economy. According to the Organisation for Economic Co-Operation and Development (OECD) 2018), these sectors need to consider the workforce structure, management and policy towards global expansion.

These critical issues can be observed from various perspectives. Given the importance of Gen Y youth involvement in '3D' industries, a review of literature discovered that there was lack of Malaysian youth involvement in these industries. A large body of literature also pointed out that there was no consistency in terms of '3D' definitions across countries including Malaysia. Former politician of the Democratic Action Party (DAP), Tan Sri Dato' Seri Panglima Dr. Lee Lam Thye agreed on the non-standardised definition of '3D' industries. He further echoed that there should be a clear-cut definition of '3D' industries, and a clear identification of jobs categorised under the '3D' industries (Tamboo, 2016). The same wave of thought was also highlighted by panellists from various backgrounds, such as the Branch Management and Research Labour Market, the Ministry of Human Resources (MOHR) and the National Institute of Occupational Safety and Health (NIOSH) at a Youth Roundtable Conference in 2016 (Institut Penyelidikan Pembangunan Belia Malaysia (IYRES), 2016). Furthermore, it is noted that the majority of Malaysian Gen Y youth have limited knowledge or awareness and understanding about '3D'. Achim et al (2017); Ahmad et al (2018); Annuar, (2019); the Malay Mail (2016) and the New Straits Times (2019) concurred that Malaysians were reluctant to work in '3D' industries due to misconceptions and lack of awareness about the industries. A preliminary survey by Emy et al (2019) used the '3D' *Information System* to gauge on the level of understanding and perception of Malaysians regarding '3D' industries. The survey results revealed that the Gen Y youth had an average understanding about these sectors, less awareness and they did not see a career in '3D' industries as their top choice of workplace.

On the other hand, in terms of employer's perspective, it was found that employers in '3D' industries are excessively dependent on millions of foreign workforces. Undeniably,

industries that are located in urban areas, such as services, manufacturing and construction are monopolised by foreign workforce from Indonesia, Bangladesh, Nepal, Myanmar, Pakistan, the Philippines, Vietnam, Thailand, China, Sri Lanka and Cambodia (Immigration Department of Malaysia, 2020). Moreover, with reference to statistics, the total number of foreign workforce as at June 2020 was 1,545,101 (MOHR, 2020). This is because, the foreign workforce is willing to accept the uncomfortable working conditions that are dirty, dangerous and difficult work environment (Achim et al., 2017). Furthermore, the recruitment of foreign workforce could reduce the labour cost incurred by the employers.

This could probably be the reasons why involvement of Malaysians in '3D' sectors are low with low interest to work in these sectors, especially for unskilled and semi-skilled workforce. Indirectly, this scenario has caused Malaysia to face prolong and challenging issues of workforce shortages (Sivanandam, 2019). Poor involvement of Malaysian workforce, especially in '3D' industries has compelled employers to seek for foreign workforce as an alternative solution to curb the shortages.

Due to the influx of foreign workforce, there are some positive and negative implications towards Malaysia with regard to the economy, social and employment (Achim et al., 2017). These are considered as great challenges to the country. A study by Nizam et al. (2015) echoed that influx of foreign workers brought negative impacts, such as low productivity due to the low rate of physical capital, poor quality control, time-consuming and problematic workforce. Awad et al., (2018) argued that the influxes of unskilled foreign workforces had reduced the output growth of manufacturing industries in the long run. Additionally, there was also an issue of money outflow to their home countries that caused currency manipulation and weakened the Malaysian Ringgit. According to the Central Bank of Malaysia (2018), the total outward remittance increased from RM33 million in 2017 to RM40.6 million in 2018.

Additionally, the Malaysian economic faced challenges and downturn due to the COVID-19 pandemic, which was detected in January 2020 (World Health Organisation (WHO), 2020). In the latest report by the Ministry of Health Malaysia (2021), until September 2021, COVID-19 total cases were about 2,245,695 involving both the Malaysian population and foreign workforce. There was a spike increase and fluctuation cases involving foreign workforce in Malaysia since the announcement of the Movement Control Order (MCO) (Ismail, 2020). However, during the COVID-19 pandemic, the Malaysian government started to send back the illegal foreign workforce to their respective countries.

As a consequence, the '3D' industries recorded a decline and registered lowest performance in the quarter of 2020 compared to the previous year. The economic activities in all sectors in Malaysia that included services, manufacturing and construction were affected since the implementation of MCO in March 2020. Therefore, during the MCO, working from home was a challenge and a new norm for all businesses.

The underlying critical issues in this study revealed that there is an urgency for the Malaysian government and employers to change the trend of recruiting workers. Undeniably, '3D' industries concerns are reflected from the high numbers of foreign workforce, but not from the Malaysian young generation. Given the current situation and importance of '3D' industries, this paper highlighted the top concerns, which was to create awareness and the importance of hiring local talents to curb the over reliance on foreign workers, as well as to sustain these industries in the long run. Therefore, it is anticipated that the Malaysian Gen Y youth are more aware on the job opportunities and vast potentials

available in these '3D' industries. This will indirectly and gradually diminish the need for unskilled and semi-skilled foreign workforce.

Literature Review

Wages and Benefits

The International Labour Organisation (ILO) defined wages and benefits as remuneration or earnings based on whatever designated or calculated, being expressed in terms of money, or fixed mutual agreement, or by national laws or regulation (ILO, 2020). According to the Malaysian Employment Act 1955 (Act 265) wages is defined as basic wages and all other payments in cash payable to an employee for work done. In the context of this study, wages and benefits are associated with payment earned for work or services done by an employee including indirect and non-cash compensation, such as accommodation, health and life insurance, security, medical, pension and paid vacation.

In most surveys around the world (Eck, 2016; Kicheva, 2017; Queiri & Dwaikat, 2016), wages and benefits were one of the causes that influenced or drove Gen Y youth in entering many industries, including the '3D' industries. This is also the main reason why thousands of Malaysians are working in '3D' industries in the neighbouring countries, such as Singapore, Australia and New Zealand, just to seek for a lucrative salary and better incentives (Free Malaysia Today, 2019; Abideen 2019). The former Human Resources Minister, Mr. M. Kula Segaran echoed that Malaysian youth were reluctant to work in the Malaysian '3D' industries due to low wages and it was an essential reason to attract workers to any sectors (Aris, 2018). Moreover, with regard to wages and benefits, only high salary and unrealistic remuneration can induce Malaysians to work as '3D' workers (Kamel, 2020).

Recognition

The term recognition in this study refers to the acknowledgements given to a worker or team's behaviour, performance, effort and accomplishment that help the organisational goals and values. Other than monetary rewards and incentives, employers can offer non-monetary rewards, such as recognitions to Gen Y youth to make the '3D' sectors more attractive. This is important because workers need to be valued by the employers. Saunderson (2015) defined recognition as an intangible expression of acknowledgment of an individual due to his/her positive behaviour, personal efforts or contributions made to the organisation. Recognition is very important and valued greatly by Gen Y youth to remain in the organisation (Iseback & Rostrom, 2015). Queiri and Dwaikat (2016) explained that the Gen Y youth also expected constant feedback from their superior. Gen Y youth expects and seeks continuous recognition in the workplace and they are unafraid to change their jobs frequently. If there is no appreciation given, the Gen Y are ready to leave the company. They have high passion for learning and if there is any mistakes, they prefer to correct all the wrongdoings immediately under close supervision.

Various studies supported that the workforce recognition is the right process of attraction (Naim and Lenka, 2018; Mohapatra, Saxena, Joshi and Chaturvedi, 2017; Eck, 2016). Nowadays, Gen Y youth is seeking for learning and development at the workplace. This is important for them to get immediate feedback about their performances, clear directions about their expectations and recognition of their contributions in the workplace (Naim & Lenka, 2018). Eck (2016) concurred that the industry's employer should learn how to create an attractive workplace in order to effectively recruit and retain the young talents in the industries for a long-term period. Yearly recognition is important but still not sufficient

because our Gen Y youth's expectation is for regular feedback and recognition. They expect to get an appreciation and would like to be valued for the work done (Eck, 2016). Kumar (2016) also mentioned that '3D' industries in Malaysia are famously known as low status, unrespectful career and introducing poor recognition to its workforce.

Career Development

Career development refers to all activities that are able to foster the knowledge, skills and capacities which relate to planning, developing and directing one's career (Rice et al., 2015). In the context of this research, career development refers to activities or the lifelong process of developing one's career, which involves training on new skills, moving to higher responsibilities, career change within the same organisation, or different organisations and evolving the preferred future. As the country's strongest industries, career development in '3D' should be emphasised so that they can be seen as highly-respected career choices to the Malaysian Gen Y youth. This is due to the desire of Gen Y youth at the workplace today is career development.

There is a serious issue on how to integrate Gen Y youth into '3D' industries. Therefore, '3D' industries are urged to find what are the effective strategies to smooth the attraction process. According to Iseback and Rostrom (2015), the Gen Y youth also aims for high ambitions and they would like to be the best version of themselves through enhancing their knowledge and skills. Additionally, Herzberg's Two-Factor Theory also highlighted the career development as an important key to ensure self-actualisation and self-esteem of an individual (Bexheti & Bexheti, 2016). Similarly, Kicheva (2017) found that Gen Y youth was seeking for personal development and meaningful careers. Constructing careers is important for Gen Y youth because they are concerned about success and achievements. Kicheva (2017) further argued that to have a meaningful career in the workplace, the employer needs to encourage and facilitate Gen Y youth for professional development

Job Security

Job security refers to a guarantee of employment including retirement security, job insecurity, which threatens the life and work of employee positions in the company and as a guarantee for not losing the job (Daud, 2017). In the context of this study, job security refers to a guarantee of employment and safe working environment for the workforce in '3D' industries. It is important to offer job security as an employee's benefit that can attract Gen Y youth's involvement in '3D' industries.

Nowadays, job security in the workplace is important to a company's success. As indicated in Herzberg's Two-Factor Theory, job security is categorised under hygiene factors that could result in dissatisfaction feelings amongst workers from its absence (Sankar, 2015). The interviews with the young generation showed that they need insurance, pension plan, medical treatment and work contract (Barsoum, 2015). This study considered job security as one of the factors that attracted the involvement of Gen Y youth in '3D' industries.

Methodology

A preliminary study was conducted to identify the reliability of the study instruments in order to identify factors that attract the involvement of Gen Y youth in '3D' sectors. This small-scale study was essential in research work and data was undertaken on 14 February 2020 amongst 50 students, who were involved in courses that related to '3D' sectors from

the Institut Kemahiran MARA (IKM), Kuala Lumpur. The samples of students were randomly selected, regardless of the course and gender, however, the students' age should be between 20 to 40 years old and located in the Klang Valley.

The survey intended to identify the factors in attracting the involvement of Malaysian Gen Y youth in '3D' industries. Four independent variables (IV) were identified and tested for its reliability and mean analysis. These factors were wages and benefits, recognition, career development and job security. Furthermore, Gen Y youth involvement as a dependent variable was also tested for its reliability and mean analysis.

The questionnaire comprised five sections, which were: Section A - Respondent's demographic profile; Section B - General information on '3D' industries; Section C - Understanding '3D' industries; Section D - Factors of the Malaysian Gen Y youth involvement in '3D' industries; and Section E - Gen Y youth involvement in '3D' industries. The survey instruments were measured using nominal and ordinal data (for section A and B) and interval data for section C, D and E. For the interval scale, the 7-point Likert scale was employed to examine the respondents feedback that range from (1) "strongly disagree" to (7) "strongly agree". This study employed the 7-point Likert scale due to the large spectrum of choices offered and the independence for a respondent to choose the 'exact' or which answers they preferred most (Joshi et al., 2015).

The instrument items were self-developed from literature reviews and adapted from studies by (Hong and Waheed, 2011). Furthermore, all the items in the instrument were translated from the source language (English language) to the local language (Malay language), whereby the translation was made by a professional translation proofreading services. The Statistical Package for the Social Sciences (SPSS) version 27.0 was employed for the data analysis.

Findings and Discussions

As a preparation for the main study to be implemented, a preliminary study was conducted and all important data collection protocols were followed. This stage is necessary, as it provides suitable platform to test the adequacy of the instruments and ensure its reliability before proceeding with the main study.

Table 1 presents the demographic profile of the respondents (Gen Y youth). There were five questions related to the respondents, such as gender, age, highest education level, level of income and employment status (Section A).

Table 1

Profile of Respondents (N=50)

Profile		Total	Percentage (%)
Section A: Respondents Demographic Profile			
Gender	Male	33	66.0
	Female	17	34.0
Age	Below 20	-	-
	20 - 30	49	98.0
	31- 40	1	2.0
	Above 40	-	-
Highest Education Level	Sijil Pelajaran Malaysia (SPM)	8	16.0
	Sijil Kemahiran Malaysia	16	32.0
	STPM/Diploma	26	52.0
	Bachelor's Degree	-	-
	Masters/PhD	-	-
	Others (Please state)	-	-
Level of Income	Below RM1,200	5	10.0
	RM1,200 - RM2,000	1	2.0
	Above RM2,000	5	10.0
	No income	39	78.0
Employment Status	Full-time employment	-	-
	Part-time employment	-	-
	Student	50	100.0
	Unemployed/Looking for work	-	-
	Unemployed/Not looking for work	-	-
	Others (Please state)	-	-

Based on Table 1, majority of the respondents were males (66%), while 34% were females and their age ranged from 20 years old to 40 years old, which has been categorised as Gen Y youth. In this study, 98% of the respondents were between 20 years old and 30 years old. In the context of this study, the focus was amongst Gen Y youth who were born between 1980 to 2000, who were between 20 years old and 40 years old (Shrivastava et al., 2017; Nichols & Smith, 2015; Dries et al., 2008). Furthermore, the results showed that 52% of the respondents had the Sijil Tinggi Persekolahan Malaysia (STPM) and Diploma, followed by Sijil Kemahiran Malaysia (32%) and Sijil Pelajaran Malaysia (SPM) (16%). As seen in Table 1, all the respondents that involved in this test were identified as students with no income.

Table 2

General Information on '3D' Industries

Profile	Total	Percentage (%)	
Section B: General Information on '3D' Industries			
Which industry would you prefer to work?	Services	25	50.0
	Manufacturing	8	16.0
	Construction	15	30.0
	Others (Please state)	2	4.0
Have you ever heard about '3D' industries?	Yes, (If yes, please proceed to question 3)	24	48.0
	No, (If no, please proceed to question 5)	26	52.0
How did you know about '3D' industries?	Through friends/relatives	4	15.4
	Through newspapers/magazines	1	3.8
	Through the social media	8	30.8
	General knowledge	12	46.2
	Others (Please state)	1	3.8
'3D' is an acronym for Dirty, Dangerous and Difficult.	Yes	25	100.0
	No	-	
Would you like to work in '3D' industries?	Yes (If yes, please proceed to question 6)	47	94.0
	No	3	6.0
Please tick ONE reason ONLY for your answer.	Salary	16	34.8
	Recognition	1	2.2
	Career development	21	45.7
	Job security	7	15.2
	Others (Please state)	1	2.2

Table 2 depicts the results of general information amongst respondents on '3D' sectors in Malaysia. The results showed that most of the respondents (50%) had chosen the services sector as the main sector for them to work, about 30% preferred to work in the construction sector, while 16% chose the manufacturing sector and 4% were not interested to choose '3D' industries as their future jobs. A total of 26 respondents (52%) never heard about these industries before, while only 24% were aware of the '3D' industries. Moreover, about 46.2% of them knew about '3D' industries through their own general knowledge, 30.8% found out through the social media, while about 15.4% knew about these sectors through friends and relatives and 3.8% from newspapers and magazines. All the 25 respondents who knew about '3D' sectors agreed that '3D' is an acronym for dirty, dangerous and difficult. Furthermore, 94% of them would like to work in these sectors, while 6% were not interested. Most of the

respondents (45.7%) considered career development was important to be included as job motivation, 34.8% expected for better salary, 15.2% were concerned with job security provided by the company and 2.2% expected for others.

Reliability Analysis

Following the above discussions, there are a number of tests available to perform the reliability analysis. Cronbach's alpha is one of the common tests used in checking for items and construct reliability. There is a wide range of interpretation on the Cronbach's alpha value that was used by authors. According to Sekaran and Bougie (2010), based on the Cronbach's alpha measurement scale, the closer to 1, the internal consistency reliability was higher, less than 0.60 was considered poor, those in the range of 0.70 were considered as acceptable and those over 0.80 were considered as good. The items which had less than $r < 0.30$ should be deleted from further analysis. The closer to 1, the internal consistency reliability was higher. In this research article, the items in a set considered high correlation with the Cronbach's alpha value were above 0.7 (>0.7). It can be considered acceptable (>0.7) in most social science research studies.

A study by Taber (2016), the Cronbach's alpha value was described as fairly high at 0.76 to 0.95, reliable at 0.84 to 0.90 and excellent at 0.93 to 0.94. However, this study found that the high value of Cronbach's alpha did not necessarily show the efficiency of the constructs, but a redundancy of the items might occur (Taber, 2016). Meanwhile, if there is a low value of the Cronbach's alpha, it indicated that there are a few number of questions of the constructs and poor correlation amongst the items, and thus the items should be revised or deleted (Tavakol & Dennick, 2011). The results obtained for the reliability analysis are presented in Table 3, 4 and 5.

Table 3

Reliability Test of 10 Items of the Understanding on '3D' Industries

Variables	Number of Items	Cronbach's alpha	Reliability Assumed
Variable:			
Understanding on '3D' Industries	10	0.862	Yes

The finding of the study indicated that the reliability test was good. The value of Cronbach's alpha for understanding on '3D' industries was 0.862, which indicated reliability assumed (exceeded the minimum Cronbach's alpha of 0.7). There were 10 items involved in total and no items were deleted in this construct. The results found that all the 10 items in this construct could be retained for further analysis and reliable for measuring the level of the Malaysian Gen Y understanding on '3D' industries.

Table 4

Reliability Test of 10 Items of Gen Y Involvement in '3D' Industries

Variables	Number of Items	Cronbach's alpha	Reliability Assumed
Dependent Variables (DV)			
Generation Y youth involvement in '3D' Industries	10	0.909	Yes

Table 4 shows the result of the reliability test on Gen Y youth involvement in '3D'

industries. The result of the Cronbach's alpha was above 0.7, which was 0.909. Therefore, the reliability was considered good, which indicated that all the 10 questions could be retained for large-scale data distribution. Moreover, the value of each items were more than 0.6, therefore, no items were deleted for this construct and the items included were able to identify the level of Gen Y youth involvement in '3D' industries in Malaysia.

Table 5

Reliability Test of Factors of Gen Y Involvement in '3D' Industries

Variables	Number of Items	Cronbach's Alpha	Reliability Assumed
Independent Variables (IV)			
Wages and benefits	8	0.855	Yes
Recognition	10	0.885	Yes
Career development	10	0.945	Yes
Job security	9	0.932	Yes

As depicted in Table 5, the IV factors of the Gen Y youth involvement in '3D' industries consisted of four constructs. Wages and benefits was represented by eight items with a Cronbach's alpha value of 0.855. Recognition consisted of 10 items with a Cronbach's alpha value of 0.885. Career development was represented by 10 items with a Cronbach's alpha value of 0.945 and job security was represented by nine items with a Cronbach's Alpha value of 0.932. The items in a set were considered high correlation with the Cronbach's alpha value of above 0.7 (>0.7). Therefore, the result for the reliability test in Table 5 showed the values of Cronbach's alpha for all the constructs were good, which ranged between 0.855 and 0.945. Moreover, no items were deleted for all the constructs in this study. It showed that the internal consistency was higher and the questions were valid and reliable to measure the factors that encouraged Malaysian Gen Y youth to be involved in '3D' industries, such as services, manufacturing, construction as well as mining and quarrying industries.

Descriptive Analysis of Respondents on General Information about '3D' Industries

There were several queries on '3D' industries, however, this study only discussed the main instruments. Table 6, 7 and 8 depict the descriptive analysis for all the variables in this research article.

Table 6

Descriptive Analysis of Research Variables

Item	Understanding the '3D' Industries							Mean
	Mean: 4.57 (Moderate)							
	1	2	3	4	5	6	7	
I have heard about '3D' industries.	10 (20.0)	3 (6.0)	6 (12.0)	10 (20.0)	8 (16.0)	4 (8.0)	9 (18.0)	4.02
I understand about '3D' industries.	7 (14.0)	3 (6.0)	13 (26.0)	11 (22.0)	7 (14.0)	7 (14.0)	2 (4.0)	3.74
I think dirty, dangerous and difficult are the best descriptions for '3D' industries.	4 (8.0)	8 (16.0)	8 (16.0)	15 (30.0)	5 (10.0)	5 (10.0)	5 (10.0)	3.88
I do understand which sectors are categorised under '3D' industries.	6 (12.0)	2 (4.0)	7 (14.0)	11 (22.0)	10 (20.0)	9 (18.00)	5 (10.0)	4.28
I am familiar with jobs categorised under '3D' industries.	7 (14.00)	2 (4.0)	4 (8.0)	9 (18.0)	13 (26.0)	9 (18.0)	6 (12.0)	4.40
I think '3D' industries in Malaysia are dominated by foreign workers.	4 (8.0)	5 (10.0)	2 (4.0)	11 (22.0)	12 (24.0)	5 (10.0)	11 (22.0)	4.62
I think employers in '3D' industries prefer to hire foreign workers.	2 (4.0)	4 (8.0)	4 (8.0)	5 (10.0)	10 (20.0)	8 (16.0)	17 (34.0)	5.18
I understand	-	1 (2.0)	3 (6.0)	11 (22.0)	12 (24.0)	14 (28.0)	9 (18.0)	5.24

the competency required for '3D' industries.									
I am aware of the latest trends in '3D' industries.	4 (8.0)	3 (6.0)	4 (8.0)	11 (22.0)	13 (26.0)	5 (10.0)	10 (20.0)	4.62	
I believe '3D' industries record a high contribution to the Malaysian economy.	-	-	3 (6.0)	7 (14.0)	10 (20.0)	12 (24.0)	18 (36.0)	5.70	

In this quantitative data analysis, the constructive method, namely descriptive analysis was used to develop the average mean value between the items of each variable. Table 6 shows the summary results of descriptive analysis for the variable on '*Understanding about '3D' Industries*'. The total mean value for all the items in this construct was 4.57, which indicated that the value was in the moderate level of understanding amongst Gen Y youth on '3D' industries in Malaysia. Additionally, all the items in this variable explained that the average mean value was in the range of 3.74 and 5.70 (moderate to high). In this data analysis, the highest mean value was 5.70 (high), which represented the item '*I believe '3D' industries record a high contribution to the Malaysian economy*'. Meanwhile, the lowest mean value was 3.74 (moderate), which referred to the item '*I understand about '3D' industries*'.

It is argued that the 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. This was further confirmed by Emy, Fadilah and Ahmad (2019), who mentioned that the Malaysian Gen Y youth have a moderate understanding about '3D' industries, meaning that they are unsure and having low understanding about '3D' industries. The same wave of thought was also highlighted by panellists from various backgrounds, such as MOHR and NIOSH at the Youth Roundtable Conference in 2016 (IYRES, 2016). Table 7, 8, 9 and 10 summarises the descriptive analysis for IV that are wages and benefits, recognition, career development and job security.

Table 7

Descriptive Analysis of Independent Variables (IV) on Wages and Benefits

Items	Wages & Benefits							Mean
	Mean: 5.76 (High)							
	1	2	3	4	5	6	7	
I expect fair and attractive wages and benefits to be offered in '3D' industries.	-	-	-	1 (2.0)	11 (22.0)	13 (26.0)	25 (50.0)	6.24
I expect to receive appropriate wages and benefits if I work in '3D' industries.	-	-	-	3 (6.0)	8 (16.0)	16 (32.0)	23 (46.0)	6.18
I expect rewards for overtime and any other extra work in '3D' industries.	-	-	-	6 (12.0)	10 (20.0)	12 (24.0)	22 (44.0)	6.00
I believe that wages and benefits are the main factor that influences my decision to work in '3D' industries.	-	1 (2.0)	1 (2.0)	5 (10.0)	13 (26.0)	13 (26.0)	17 (34.0)	5.74
I believe that working in '3D' industries abroad is more attractive due to better	1 (2.0)	-	-	11 (22.0)	4 (8.0)	15 (30.0)	19 (38.0)	5.76

salary package offered.									
I believe bonuses and other financial incentives will influence my involvement in '3D' industries.	-	1 (2.0)	1 (2.0)	9 (18.0)	14 (28.0)	6 (12.0)	19 (38.0)		5.60
I will consider working in '3D' industries if the minimum wage is above RM1,200.	-	2 (4.0)	6 (12.0)	13 (26.0)	11 (22.0)	9 (18.0)	9 (18.0)		4.92
I think wages and benefits will reinforce me to work harder in '3D' industries.	-	-	2 (4.0)	4 (8.0)	16 (32.0)	15 (30.0)	13 (26.0)		5.66

Table 7 summarises the result for descriptive analysis of IV on wages and benefits. There were eight items that represented this IV. The highest mean value was 6.24 for the item '*I expect fair and attractive wages and benefits to be offered in '3D' industries*'. The lowest mean value was 4.92, which indicated a moderate level that represented the item '*I will consider working in '3D' industries if the minimum wage is above RM1,200*'. The total mean value for wages and benefits was 5.76, which is considered a high level.

Table 8

Descriptive Analysis of Independent Variables (IV) on Recognition

Items	Recognition							Mean
	Mean: 5.72 (High)							
	1	2	3	4	5	6	7	
I am attracted to work in '3D' industries that have a very good, clear and well-defined recognition practices.	-	-	3 (6.0)	7 (14.0)	16 (32.0)	12 (24.0)	12 (24.0)	5.46
I genuinely feel appreciated when '3D' industries acknowledged my work achievements.	-	-	-	6 (12.0)	13 (26.0)	13 (26.0)	18 (36.0)	5.86
I wish to receive positive feedback for a job well done.	-	-	2 (4.0)	5 (10.0)	9 (18.0)	13 (26.0)	21 (42.0)	5.92
I am motivated to work harder and stay longer if my employer appreciates my work.	-	-	-	3 (6.0)	12 (24.0)	11 (22.0)	24 (48.0)	6.12
I think '3D' industries should promote a culture of fair recognition and not to differentiate amongst nationalities.	-	1 (2.0)	-	3 (6.0)	7 (14.0)	19 (38.0)	20 (40.0)	6.06
I am willing to change my job frequently just to seek for job acknowledgment.	4 (8.0)	5 (10.0)	8 (16.0)	14 (28.0)	7 (14.0)	9 (18.0)	3 (6.0)	4.08
I appreciate if my employer recognises me as an asset to the organisation.	-	-	2 (4.0)	9 (18.0)	7 (14.0)	14 (28.0)	18 (36.0)	5.74
I would prefer	-	1	2	9	9	13	16	5.58

regular feedback and recognition from my manager.	(2.0)	(4.0)	(18.0)	(18.0)	(26.0)	(32.0)		
I appreciate if my employer recognises my creative suggestion.	-	-	-	4 (8.0)	8 (16.0)	17 (34.0)	21 (42.0)	6.10
I appreciate if my employer always shows respect and values my efforts.	-	-	-	2 (4.0)	9 (18.0)	13 (26.0)	26 (52.0)	6.26

As shown in Table 8, the findings indicated the descriptive analysis on recognition as the IV for the study, which consisted of 10 items. The highest mean value was 6.26, which referred to the item 'I appreciate if my employer always shows respect and values my efforts'. Meanwhile, the lowest mean value was 4.08, which referred to the item 'I am willing to change my job frequently just to seek for job acknowledgment'. The total mean value for recognition was 5.72, which was categorised as high level.

Table 9

Descriptive Analysis of Independent Variables (IV) on Career Development

Items	Career Development							Mean
	Mean: 5.94 (High)							
	1	2	3	4	5	6	7	
I believe that '3D' industries could provide equal opportunities for career development amongst all workers, regardless of nationalities.	-	-	1 (2.0)	9 (18.0)	13 (26.0)	9 (18.0)	18 (36.0)	5.68
I wish '3D' industries would provide me with opportunities to learn new skills for my career development.	-	-	-	3 (6.0)	13 (26.0)	12 (24.0)	22 (44.0)	6.06

I believe working in '3D' industries allow me to grow and develop as a person.	-	-	-	7 (14.0)	9 (18.0)	14 (28.0)	20 (40.0)	5.94
I believe '3D' industries could provide good opportunities for an employee to take bigger responsibility in the career.	-	-	-	2 (4.0)	12 (24.0)	14 (28.0)	22 (44.0)	6.12
'3D' employers should consider the level of seniority and years of experience for career development	-	-	-	7 (14.0)	12 (24.0)	18 (36.0)	13 (26.0)	5.74
I wish '3D' industries would have a clear career path.	-	-	1 (2.0)	3 (6.0)	8 (16.0)	16 (32.0)	22 (44.0)	6.10
'3D' industries should chart comprehensive company policies and rules for career development.	-	-	-	4 (8.0)	15 (30.0)	18 (36.0)	13 (26.0)	5.80
'3D' industries should provide realistic job preview for attractive career development.	-	-	2 (4.0)	3 (6.0)	11 (22.0)	11 (22.0)	23 (46.0)	6.00
I believe '3D' industries are not low, demeaning and	-	1 (2.0)	-	5 (10.0)	11 (22.0)	9 (18.0)	24 (48.0)	5.98

portray a negative social stigma.									
I believe '3D' industries could provide a promising career development for the incumbents.	-	-	-	7	8	14	21	5.98	
				(14.0)	(16.0)	(28.0)	(42.0)		

Table 9 shows the summary results of descriptive analysis for the IV on career development. These findings showed that there were 10 items for the total with an average mean value ranging from 5.68 to 6.12, which was considered a high level. In this descriptive analysis, the highest mean value was 6.12, '*I believe '3D' industries could provide good opportunities for an employee to take bigger responsibility in the career*'. Meanwhile, the lowest mean value was 5.68, '*I believe that '3D' industries could provide equal opportunities for career development amongst all workers, regardless of nationalities*'. The overall total mean value for career development was 5.94, which indicated a high level.

Table 10

Descriptive Analysis of Independent Variables (IV) on Job Security

Items	Job Security							Mean
	Mean: 6.22 (High)							
	1	2	3	4	5	6	7	
I believe '3D' industries should have a safe working environment.	-	-	-	9	7	10	24	5.98
				(18.0)	(14.0)	(20.0)	(48.0)	
I believe '3D' industries should provide guaranteed employment.	-	-	-	5	7	17	21	6.08
				(10.0)	(14.0)	(34.0)	(42.0)	
'3D' industries should promote a quality work- life balance.	-	-	1	3	8	14	24	6.14
			(2.0)	(6.0)	(16.0)	(28.0)	(48.0)	
'3D' industries should provide long-term employment.	-	-	-	3	7	17	23	6.20
				(6.0)	(14.0)	(34.0)	(46.0)	
'3D' industries should provide	-	-	1	1	9	8	31	6.34
			(2.0)	(2.0)	(18.0)	(16.0)	(62.0)	

regular training on safety.									
'3D' industries should provide protective safety equipment for workers.	-	-	-	3 (6.0)	8 (16.0)	6 (12.0)	33 (66.0)		6.38
'3D' industries should have clear safety rules and regulations.	-	-	-	2 (4.0)	8 (16.0)	6 (12.0)	34 (68.0)		6.44
'3D' industries should promote the use of technology to reduce life and work threatening environment.	-	-	-	2 (4.0)	10 (20.0)	14 (28.0)	24 (48.0)		6.20
'3D' industries should promote the use of advanced technology in performing critical work at site.	-	-	-	3 (6.0)	6 (12.0)	16 (32.0)	25 (50.0)		6.26

In terms of job security IV factor, the result of the descriptive analysis was at a high level with total mean value of 6.22, which represented nine items in total. The findings showed that the highest mean value for this IV was 6.44, *'3D' industries should have clear safety rules and regulations*. Furthermore, the lowest mean value (5.98) was referred to the item *'I believe '3D' industries should have a safe working environment'*.

Based on the aforesaid results, the total mean value of descriptive analysis for wages and benefits was 5.76 (high), recognition was 5.72 (high), career development was 5.94 (high) and job security was 6.22 (high). Table 11 illustrates the summary of descriptive analysis for the dependent variable (DV) that is the involvement of Malaysian Gen Y youth in '3D' Industries.

Table 11

Descriptive Analysis of Dependent Variables (DV)

Items	Involvement of Malaysian Gen Y Youth in '3D' Industries							Mean
	1	2	3	4	5	6	7	
I am willing to work in '3D' industries.	-	1 (2.0)	-	7 (14.0)	12 (24.0)	16 (32.0)	14 (28.0)	5.68
My parents could influence me to work in '3D' industries.	-	1 (2.0)	2 (4.0)	13 (26.0)	8 (16.0)	17 (34.0)	9 (18.0)	5.30
People around me could influence my involvement in '3D' industries.	-	2 (4.0)	1 (2.0)	11 (22.0)	10 (20.0)	14 (28.0)	12 (24.0)	5.38
Successful role models could influence my involvement in '3D' industries.	-	2 (4.0)	1 (2.0)	6 (12.0)	10 (20.0)	18 (36.0)	13 (26.0)	5.60
Success stories could influence my involvement in '3D' industries.	-	-	1 (2.0)	6 (12.0)	15 (30.0)	13 (26.0)	15 (30.0)	5.70
Viral news in the social media could influence my involvement in '3D' industries.	-	1 (2.0)	1 (2.0)	8 (16.0)	9 (18.0)	17 (34.0)	14 (28.0)	5.64
Rebranding of '3D' industries will influence my decision to work in these industries.	-	-	2 (4.0)	7 (14.0)	9 (18.0)	18 (36.0)	14 (28.0)	5.70
High dependency on foreign workers could influence my involvement in '3D' industries.	1 (2.0)	1 (2.0)	4 (8.0)	13 (26.0)	8 (16.0)	8 (16.0)	15 (30.0)	5.20
Securing jobs in '3D' industries is easy.	2 (4.0)	6 (12.0)	2 (4.0)	18 (36.0)	10 (20.0)	7 (14.0)	5 (10.0)	4.38
Information	2	5	2	12	7	16	6	4.78

about	job	(4.0)	(10.0)	(4.0)	(24.0)	(14.0)	(32.0)	(12.0)
opening	is							
easily	available.							

The results demonstrated that the total mean value for this DV was 5.34, which indicated to the high level on involvement of Malaysian Gen Y youth in '3D' industries, such as construction, manufacturing and services. The range mean value was 4.38 to 5.70 (moderate to high level). The item with the highest mean value was '*Success stories could influence my involvement in '3D' industries*' and '*Rebranding of '3D' industries will influence my decision to work in these industries*'. However, the lowest mean value was 4.38, '*Securing jobs in '3D' industries is easy*'.

Several scholars debated the fact that the involvement of youth is still low due to various causes. In essence, the influx of foreign workforce led to a reduction in job opportunities in '3D' industries. A study by Aruthchelvan (2019) discovered that our local people are willing to take up '3D' jobs in other countries, such as Singapore, New Zealand and Australia rather than working in Malaysia.

Conclusion

This research intended to verify on the reliability of the instruments, whereby a preliminary analysis was conducted with students on '3D' industries. Therefore, based on the studies executed amongst authors, there were four factors that emphasised in attracting the involvement of Malaysian Gen Y youth in '3D' industries, namely wages and benefits, recognitions, career development and job security. With respect to the critical issues that were found in '3D' industries, the use of Herzberg's Two-Factor Theory in this research would help the Malaysian government as well as industry players, such as the construction, manufacturing and services sectors to highlight more on the main motivators for Gen Y youth in '3D' workplace. Therefore, the identification of the right motivators would provide significant information for better and proper work policies in hiring and retaining the employment of Gen Y youth in '3D' industries for the near future.

Therefore, in the evaluation of measurement instruments, the reliability test was conducted as further preliminary analysis. This research was focused on the preliminary analysis of Gen Y youth in '3D' industries. The research findings outlined the constructs Cronbach's alpha value that was relatively in the high internal consistency. It should be noted that all the instruments in the analysis were valid and accurate. Besides, the preliminary analysis emphasised the items used were correlated to each other based on the significant Cronbach's alpha value. Therefore, this preliminary analysis was important to be implemented as to develop the efficiency of the instruments and protocols of the study. Moreover, preliminary analysis should be carried out before conducting the large-scale study in order to ensure its reliability and validity of the items.

Overall, through in-depth study and some observations of Gen Y youth perspectives and '3D' industries (services, manufacturing, construction) this research study suggested a proper framework in attracting the Gen Y youth to '3D' industries. This could be considered as a value added contribution to the current thinking of the respective bodies of the industries. Moreover, this is significant to fill the gap of '3D' industries and outlines the challenges as this generation has their own perception, stigma and understanding. Special attention should be given to the '3D' industries due to millions of foreign workers employment in these industries, the high rate of current Malaysia's unemployment due to

the global COVID-19 pandemic and '3D' industries have been recorded as the highest contributor to Malaysia's GDP. A study by Ahmad et al (2018) revealed that Malaysians nowadays are reluctant to work in these infamous industries, and thus employing foreign workers can be an alternative solution to curb the Malaysian workforce shortages.

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The authors declared no potential conflict of interest with respect to the research, authorship and/or publication of this article.

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