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IRDAYANTI MAT NASHIR, RAMLEE MUSTAPHA & ABDULLAH YUSOFF

Rasch Model Validity for Robotics Learning Survey in Technical and Vocational Education System

ABSTRACT: *This study aimed to explore the personality of student for robotic based learning in Technical and Vocational Education System. The RLS (Robotics Learning Survey) consists of 48 items before going through the purified process by using Winstep software for Rasch Analysis. This RLS was adapted and modified from John L. Holland (1960)'s Theory (realistic, investigate, artistic, social and enterprising, and conventional) and modified referred to the school learning environment in Malaysia. Then, the RLS was distributed randomly to the 223 student's school in Malaysia. After going through the purified process, the six items was removed refereed polarity item by PTMEA CORR (Point Measure Correlation) value and item fit measure for constructs. During these activities, students are asked to explain the behaviours of a robot constructed in advance by the teacher or teacher assistant, rather than having to construct or program a robot themselves. These programmed will in line with STEM (Sciences, Technology, Education, and Mathematics), which is a curriculum based on the idea of educating students in four specific disciplines — science, technology, engineering, and mathematics — in an interdisciplinary and applied approach. Rather than teach the four disciplines as separate and discrete subjects, STEM integrates them into a cohesive learning paradigm based on real-world applications. Other than STEM programmed, these activities also involves TVE (Technical and Vocational Education), which is these educational robots is the education and training that provides the necessary knowledge and skills for employment.*

KEY WORDS*: Rasch Analysis; Educational Robots; Sciences, Technology, Education, and Mathematics; Technical and Vocational Education.*

INTRODUCTION

Nowadays, an increasing number of discussions and debates on changes and approaches to enhance teaching and learning skills often seen amongst academics those could be affective towards teaching, learning, and students' achievement. There are numerous approaches to teaching and learning, such as teacher-centred, student-centred, subject matter, and also inductive

About the Authors: **Dr. Irdayanti Mat Nashir** and **Prof. Dr. Ramlee Mustapha** are the Lecturers at the UPSI (*Universiti Pendidikan Sultan Idris* or Sultan Idris University of Education) in Tanjong Malim, Perak, Malaysia. **Dr. Abdullah Yusoff** is a Lecturer at the Polytechnics of Sultan Azlan Shah in Behrang, Perak, Malaysia. For academic interests, the Authors are able to be contacted via e-mail address at: irdayanti@ftv.upsi.edu.my

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and deductive approach. These approaches are crucial in guiding and developing one performance. However, teaching approach need to assist with methods and techniques (Nind, Curtin & Hall, 2016; Blazar & Kraft, 2017; and Darling-Hammond *et al*., 2019).

This research paper will focus on personality of student for RBL (Robotic-Based Learning), since it requires student to conduct the application using skills, principles, or theories they have learnt. This activity needs to be carried out using critical thinking process, such as application, analysis, synthesis, and evaluation which suggested by B.S. Bloom (1956). Inquiry-discovery approach, brainstorming, simulation, and problem solving skills are some of methods could be implemented in solving problems throughout teaching and learning process. Student are trained to apply approach and method they learnt into real practice, which has been designed thoroughly as actual situation. This approach suitable to all subjects taught includes robotic-based subject (*cf* Bloom, 1956; Adams, 2015; Gyebi, Hanheide & Cielniak, 2017; Scott, 2017; and Febrina, Usman & Muslem, 2019).

Recently, RBL approach has been acknowledged and well accepted amongst academics. Robotic learning was first introduced in the 1980s, after many competitions and "battle-bot" programs were conducted successfully and doable. Robotic-learning approach is not only focusses on its education, but it also produces projects and products, besides taking part in robotics' innovation and invention competition. Commonly, a teacher will use variety of approaches, methods, and techniques in his/her class. This is because, if only a specific approach used, it may not be applicable to all student. For instance, some student may fit into one approach while the rest may not, depended on themselves and acceptance. So do teachers, not all teachers may be suitable to a particular approach only (Altin & Pedaste, 2013; Blazar & Kraft, 2017; and Jung & Won, 2018).

Literature Review. The TVE (Technical and Vocational Education) is a new concept emerged in our education system in recent years. Before 20th century, academics opined that TVE only seen as a part of training, nor education. In the Western countries, there are some opinions believe that general or liberal education is academically smarter than TVE. In fact, in 19th century, a learning theory was discovered known as "Theory of Mental Discipline" (*cf* Billet, 2011; Porres, Wildemeersch & Simons, 2014; and Willingham, Hughes & Dobolyi, 2015).

The theory asserts strongly that academic subjects, such as Geographic, History, and Mathematics, could help in developing one's mental ability and have higher potential to be great future leaders and able to hold good professional positions. Then, some elite schools in Europe started to focus on those academic subjects only. Although the narrow minded and negative opinions about TVE begins to decrease and changed, but this issue is still being debated until now. As a result, the educational planners often in dilemma whether to prioritise between general knowledge and TVE (Middleton, Ziderman & Adams, 1993; Young, 2014; and Marope, Chakroun & Holmes, 2015).

But currently, some stakeholders, who in power, begin to seriously pay attention; and it leads to the establishment of Malaysia Technical and Vocational Education and Training Empowerment Committee, which will be chaired by Ministry to empower and improve the standard of TVE along with the needs of Industry and Education 4.0 (Langer ed., 2013; Maclean, Jagannathan & Sarvi eds., 2013; and Mazlan *et al*. eds., 2017).

In confronting the challenges of Industry and Education 4.0, educational institution in Malaysia should empower the teaching and learning based on high technology, which compatible with the demands of industry. Some of the efforts done is to boost students' interest in automation and robotic, which is one of pillars in Industry 4.0. The plentiful programs, which involve robots, need to be carried out so students have the opportunity to explore and execute the innovation research project and creativity, where students' potential and talent could be identified and developed systematically

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and well organised (Mazlan *et al*. eds., 2017; Anbumozhi & Kimura eds., 2018; and Kassim & Teng, 2018).

Thus, students will utilise their creativity, knowledge, and variety of skills to build the robot to solve problems, which will be given in line with the objective of Ministry of Education. The Ministry of Education has highlighted the STEM (Science, Technology, Engineering, and Mathematics), which stands for Science, Technology, Engineering, and Mathematics program which have been used globally. In developing countries, many new implementations have been done to transform the old classroom to an active and conducive environment (MoE Malaysia, 2015; Afari & Khine, 2017; and Mazlan *et al*. eds., 2017).

In contrast, in Malaysia, the scenario at the classroom still at the same level; where a teacher stands alone in front of students, while they listen and jot down what have been said. To change and improve this situation, the numerous programs of robotic teaching programs should be implemented as the complementary for current education curriculum (MoE Malaysia, 2015; Manyika *et al*., 2017; and Smerling, 2017).

As an educator, it requires one to apply a variety of learning methods and approaches, while confronting student in the classroom. Absolutely, it is not easy to control all student at a time since they come from different background and having variety of characteristics. Unfortunately, an approach or method chosen earlier may be suitable and acceptable for few student only and not all (Prince, 2004; Fry, Ketteridge & Marshall, 2009; and Dommett, 2018). The skills of teacher: how they apply the approach also would be different depended on the learning theory he/she relies on (Hashim & Yaakub, 2009; Karim, Lemaignan & Mondada, 2016; and Savard & Freiman, 2016).

However, after deciding to choose which approaches or methods, the most important part is the teacher him/herself must really know and be precise on the steps and procedures about to do next.

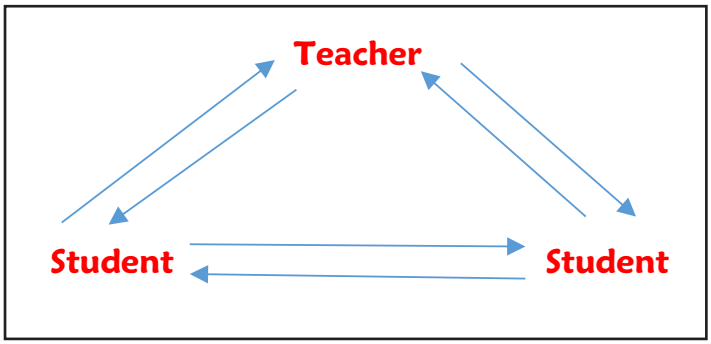

Diagram 1:
The Relationship between Teacher and Student

In addition, there is no such proof saying that only one approach is the best choice to solve all the learning problems. So, the teacher is required to know how to adapt and adjust the approach together with the content that he/she wishes to deliver (Hashim & Yaakub, 2009; Scott, 2017; and Darling-Hammond *et al*., 2019).

In this research, student-centred approach used as a teaching method to conduct the robotic program. One of the main characteristics, which has been highlighted during the activity, is student themselves play role as the "main player" at the class. Student are encouraged to actively participate in every activities. Thus, student are given a longer time to explore and solve problems with help and support from other student, who assisting as facilitator (Frieman, 2016; Gyebi, Hanheide & Cielniak, 2017; and Coon, Mitterer & Martini, 2018). An active communication style and a good interaction between teacher and student also happened as shown in diagram 1.

Apart from that, teacher practices a democratic leadership style, so student are free to voice out their opinion and asking questions. Teacher also encourage student to actively attempt and do activities by themselves. Accomplishing the learning objective is the utmost goal to achieve. There are many technique of discussions conducted to enhance the spirit of cooperation and toleration amongst students, who are capable and having ton of passions (Manreka, 2015; Koca, 2016; and Piekkola, 2017).

Besides, teacher also have the

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Table 1:
Summary Statistic of Reliability and Separation Item and Person for the Construct

	Item	Person
Separation	5.28	2.66
Reliability	0.97	0.88

opportunity to identify students' personality at the early stage by communicating to them. So that, teacher can help to overcome the weaknesses affectively, if the prevention steps taken earlier. As a result, student can develop according to their timeframe, when they are ready (Frieman, 2016; Mohammad, Ghazali & Hashim, 2017; and Pirker, 2017).

The purpose of this study were to explore and validate the reliability the personality of student for the RBL (Robotic-Based Learning).

RESEARCH METHODS

Researchers developed the RLS (Robotics Learning Survey) to explore real world articulation of workplaces based robotics learning. As part of their work placement, a group of students completed the RLS. The RLS consists of 48 items five point of R. Likert (1932)' scale and comprised with six constructs: realistic, investigate, artistic, social, enterprising, and conventional (Likert, 1932; Alimisis, 2013; and Savard & Freiman, 2016).

The RLS were distributed to 150 students in various secondary schools in Malaysia. Self-administered questionnaire were used to gather data of RLS. In this study, the questionnaire adapted from John L. Holland (1960), and other scholars, and some modifications were made to suit the context of the study. Data were analysed with the aid of software Winsteps Version 3.74 (Holland, 1960; Hogan & Blake, 1999; and Linacre, 2015).

FINDINGS AND DISCUSSION

Through Rasch measurement model approach, the researchers perform examination the item functional in terms of: (1) item reliability and separation of the respondents; (2) detecting polarity items that measure the constructs based on the PTMEA CORR or Point Measure Correlation; (3) items fit measuring constructs; and (4) item measure for construct. Based on Rasch measurement model approach, the acceptable reliability of L.J. Cronbach (1951)'s alpha (α) is between 0.71 – 0.99, where it is at the best level (71% – 99%). The findings of the pilot study found that the reliability obtained based on L.J. Cronbach (1951)'s alpha (α) is 0.96. So, this value shows instruments used are in very good condition and effectively with a high level of consistency. Reliability person and item will confirm to fix and separation of Rasch model (*cf* Cronbach, 1951; Hasan, 2011; Othman *et al*., 2014; Yasin *et al*., 2015; and Rachman & Napitupulu, 2017).

Analysis also performed on the instrument as a whole, namely the reliability and the separation of the item and the respondent. Table 1 shows the reliability and separation items, where the reliability of the items was 0.97; while the separation of items is 5.28 when rounded off is equal to 6.0. Based on the reliability of the items, the value of 0.97 indicates are in good condition and acceptable (*cf* Bond & Ford, 2015; Ramezankhani *et al*., 2015; and Sharif *et al*., 2019). See table 1.

While the separation of the item is 5.28 if rounded off is equal to 6.0; and this value can still be used, because it shows that the entire item is divided into 5 levels of measurement. According to J.M. Linacre (2015), and other scholars, the separation index is better when the value is more than the value of 2.0 (Ariffin *et al*., 2010; Linacre, 2015; and Souza *et al*., 2017).

While the reliability of the person is 0.88 and the separation of the person is 2.66. This shows that the respondents are very high reliability and very good. This is because Trevor G. Bond & Christine M. Ford (2015), and other scholars, described the reliability of more than 0.8 was good and

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Table 2:
Item Polarity by PTMEA CORR (Point Measure Correlation) Value

Entry Number	PTMEA CORR	Item	Entry Number	PTMEA CORR	Item
18	-.22	F6	4	.44	D4
6	-.23	D6	35	.45	H7
20	-.23	G2	43	.45	I5
16	-.25	F4	41	.46	I3
2	.28	D2	1	.46	D1
29	.28	H1	48	.47	I10
34	.30	H6	31	.47	H3
15	.33	F3	42	.47	I4
37	.33	H9	39	.48	I1
3	.33	D3	24	.49	G6
30	.34	H2	5	.49	D5
17	.36	F5	19	.49	G1
45	.37	I7	44	.49	I6
12	.37	E6	8	.50	E2
14	.38	F2	25	.51	G7
32	.40	H4	28	.51	G10
33	.41	H5	7	.52	E1
36	.42	H8	22	.52	G4
47	.43	I9	46	.52	I8
13	.43	F1	10	.52	E4
38	.43	H10	23	.53	G5
11	.44	E5	40	.54	I2
21	.55	G3	9	.54	E3
26	.56	G8	27	.60	G9

stronger acceptable. While the separation of the item and person showed a good separation of the item difficulty level appropriate to J.M. Linacre (2015), which describes the separation of more than 2.0 is a good value (*cf* Bond & Ford, 2015; Linacre, 2015; and Taber, 2018).

Polarity Item by PTMEA CORR Value. Examination of the PTMEA CORR (Point Measure Correlation) to detect polarity items intended to test the extent to which the construction of constructs to achieve its goal. If the value contained in the PTMEA CORR is the positive (+), it shows the item measure the constructs to be measured (Bond & Ford, 2015; Yasin *et al*., 2015; and Sharif *et al*., 2019). Other hand if value is negative (-), the item is not developed to measure the constructs to be measured. Thus, it needs to be improved or dropped, because the item is not lead to the question (not focus) or difficult to answer by the respondent (Bond & Ford, 2015; Ellis, 2017; and DeCastellarnau, 2018).

Based on table 2**,** there are four items that have a negative value in the PTMEA CORR of F6, D6, G2, and F4. The rest PTMEA CORR are positive, which indicates that the items measuring the constructs to be measured. Whereas the negative PTMEA CORR indicates item should repaired or removed. Thus, four items were dropped from the entire 48 items of questionnaire. The rest of PTMEA CORR is positive, but the lowest positive value of the item D2 (0.28) and H1 (0.28). This value should be considered as probable items tend to be difficult be answered by the respondent (Bond & Ford, 2015; Ellis, 2017; and DeCastellarnau, 2018). See table 2.

Thus, purification items should be done. However, based on these findings show that positive items moving in one direction with construct and able to measure constructs and does not conflict with the constructs being measured. If the PTMEA CORR (Point

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Table 3:
Item Fit Measure based Outfit MNSQ (Mean Square)

Entry Number	Infit		Outfit		Items	Entry Number	Infit		Outfit		Items
	MNSQ	ZSTD	MNSQ	ZSTD			MNSQ	ZSTD	MNSQ	ZSTD	
3	1.22	2.5	0.23	2.6	D3	13	1.25	2.5	1.22	2.2	F1
22	.99	-.1	.98	-.2	G4	34	1.46	4.4	1.48	4.5	H6
26	.81	-2.4	.81	-2.4	G8	35	1.35	3.5	1.33	3.1	H7
27	.81	-2.4	.81	-2.5	G9	33	1.30	2.9	1.26	2.4	H5
37	1.16	1.9	1.18	2.0	H9	39	1.10	1.1	1.09	.9	I1
25	.88	-1.4	.88	-1.4	G7	9	.87	-1.4	.85	-1.4	E3
2	1.36	3.8	1.34	3.7	D2	6	1.12	9.9	1.22	9.9	D6
28	1.02	.3	1.03	.3	G10	14	1.30	2.9	1.32	2.7	F2
38	1.11	1.3	1.11	1.3	H10	41	.79	-2.2	.79	-1.9	I3
19	1.05	.6	1.06	.7	G1	29	1.41	9.9	.90	9.9	H1
24	.99	-.1	.99	-.1	G6	48	1.10	1.0	1.10	.8	I10
23	.93	-.8	.93	-.8	G5	43	1.08	.8	1.06	.5	I5
20	1.89	1.9	1.48	9.9	G2	10	.88	-1.1	.83	-1.3	E4
21	1.00	.0	1.00	.0	G3	40	.89	-1.0	.86	-1.1	I2
36	.89	-1.3	.92	-1.0	H8	47	1.15	1.3	1.18	1.3	I9
12	.96	-.4	.99	-.1	E6	11	1.18	1.5	1.12	.9	E5
4	1.15	1.7	1.16	1.8	D4	44	.90	-.7	.88	-.7	I6
1	0.76	-3.0	.77	-2.8	D1	42	1.11	.8	1.09	.6	I4
31	1.01	.2	1.01	.2	H3	46	1.00	.1	.99	.0	I8
7	.79	-2.6	.77	-2.7	E1	16	1.62	1.7	1.65	2.5	F4
8	.89	-1.3	.90	-1.2	E2	30	1.43	1.2	1.51	2.0	H2
5	.97	-1.25	.99	-.1	D5	45	.63	.0	1.28	1.3	I7
32	1.23	2.4	1.25	2.6	H4	15	.53	-1.5	1.19	.8	F3
18	1.00	.0	1.04	.5	F6	17	1.09	.4	1.00	.1	F5

Measure Correlation) is high, then, the item is able to distinguish between respondents capability (*cf* Bond & Ford, 2015; Yasin *et al*., 2015; Sabudin *et al*., 2018).

Item Fit Measure for Constructs. Items fit is measuring the constructs that can be seen through the infit and outfit MNSQ (Mean Square). According to Trevor G. Bond & Christine M. Ford (2015), and other scholars, the outfit and infit MNSQ should be in the range of 0.6 to 1.4 to ensure the items are suitable for measuring the constructs (Bond & Ford, 2015; Yasin *et al*., 2015; and Boone & Noltemeyer, 2017). But, the outfit index MNSQ noteworthy in advance compared infit MNSQ for determining congruity of items that measure a construct or latent variable (Jailani, 2011; Yasin *et al*., 2015; and Sharif *et al*., 2019).

If the infit or outfit MNSQ value more than 1.4 logit, then it gives meaning confusing item. If the MNSQ value is less than 0.6 logit, it shows that the item is too easily anticipated by the respondents (Linacre, 2015; Yasin *et al*., 2015; and Sharif *et al*., 2019). Beside that, the outfit and infit ZSTD (Z-Standardized) value should also be within -2 to +2 (Tavakol & Dennick, 2013; Bond & Ford, 2015; and Yasin *et al*., 2015). But, if the outfit and infit MNSQ be accepted, the ZSTD index can be ignored (Linacre, 2015; Yasin *et al*., 2015; and Sharif *et al*., 2019).

Therefore, if this condition is not met, then, the item can be considered to be removed or having purified. Table 3 shows the misfit order featuring two items having the largest outfit MNSQ and one item of value resulting from the smallest outfit MNSQ item analysis statistics: misfit order. Based on table 3, found also three items that are not in the specified range and it should be purified or dropped. Items that exceed the value of 0.6 until 1.4 in column outfit

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Table 4:
Item Measure Based Measure Term

Entry Number	Measure	Infit		Outfit		Items	Entry Number	Measure	Infit		Outfit		Items
		MNSQ	ZSTD	MNSQ	ZSTD				MNSQ	ZSTD	MNSQ	ZSTD	
3	.70	1.22	2.5	0.23	2.6	D3	13	-.01	1.25	2.5	1.22	2.2	F1
22	.66	.99	-.1	.98	-.2	G4	34	-.06	1.46	4.4	1.48	4.5	H6
26	.65	.81	-2.4	.81	-2.4	G8	35	-.10	1.35	3.5	1.33	3.1	H7
27	.65	.81	-2.4	.81	-2.5	G9	33	-.16	1.30	2.9	1.26	2.4	H5
37	.61	1.16	1.9	1.18	2.0	H9	39	-.18	1.10	1.1	1.09	.9	I1
25	.58	.88	-1.4	.88	-1.4	G7	9	-.24	.87	-1.4	.85	-1.4	E3
2	.56	1.36	3.8	1.34	3.7	D2	6	-.25	1.12	9.9	1.22	9.9	D6
28	.54	1.02	.3	1.03	.3	G10	14	-.27	1.30	2.9	1.32	2.7	F2
38	.49	1.11	1.3	1.11	1.3	H10	41	-.30	.79	-2.2	.79	-1.9	I3
19	.48	1.05	.6	1.06	.7	G1	29	-.31	1.41	9.9	.90	9.9	H1
24	.48	.99	-.1	.99	-.1	G6	48	-.35	1.10	1.0	1.10	.8	I10
23	.42	.93	-.8	.93	-.8	G5	43	-.37	1.08	.8	1.06	.5	I5
20	.37	1.89	1.9	1.48	9.9	G2	10	-.39	.88	-1.1	.83	-1.3	E4
21	.36	1.00	.0	1.00	.0	G3	40	-.40	.89	-1.0	.86	-1.1	I2
36	.36	.89	-1.3	.92	-1.0	H8	47	-.41	1.15	1.3	1.18	1.3	I9
12	.33	.96	-.4	.99	-.1	E6	11	-.43	1.18	1.5	1.12	.9	E5
4	.30	1.15	1.7	1.16	1.8	D4	44	-.50	.90	-.7	.88	-.7	I6
1	.26	0.76	-3.0	.77	-2.8	D1	42	-.52	1.11	.8	1.09	.6	I4
31	.26	1.01	.2	1.01	.2	H3	46	-.57	1.00	.1	.99	.0	I8
7	.20	.79	-2.6	.77	-2.7	E1	16	-.62	1.62	1.7	1.65	2.5	F4
8	.14	.89	-1.3	.90	-1.2	E2	30	-.63	1.43	1.2	1.51	2.0	H2
5	.09	.97	-1.25	.99	-.1	D5	45	-.76	.63	.0	1.28	1.3	I7
32	.06	1.23	2.4	1.25	2.6	H4	15	-.86	**.53**	-1.5	1.19	.8	F3
18	.05	1.00	.0	1.04	.5	F6	17	-.90	1.09	.4	1.00	.1	F5

MNSQ was item 3 (0.23), item 20 (1.48), and item 22 (1.48). See again the table 3.

Item Measure for Construct. Based on table 4, each item has been analyzed and compiled in the order of Winstep software (Osman *et al*., 2011; Linacre, 2015; and Loubser, Casteleijn & Bruce, 2015). The difficulties item is in the first position, while the simplest item is in the bottom position. The D3 item have a value of 0.70, while G2 item with a value of 0.37. It can be conclude that the D3 item have twice the difficulty level compared to G2 items. Overall, the findings of the level difficulties for the items, based on B. Sumintono & W. Widhiarso (2015), as following here:

1. *The value measure <-1 = item is very easy.*
2. *The value of measures -1 to 0 = simple items.*
3. *The value of measures 0 to 1 = difficult items.*
4. *The value of the measure > 1 = the item is very difficult* (Sumintono & Widhiarso, 2015).

Discussion. After data analysis, following the standard index and the conditions that must be followed to achieve the standards of validity and reliability of the instrument based on the Rasch measurement model does revision of each item. The removal and the purification items done by referring and consider the views and expert evaluation (*cf* Hasan, 2011; Gerrin, Kartono & Ridlo, 2018; and Sharif *et al*., 2019).

Based on the results obtained, there are six items that do not meet the requirements analysis and have been removed. The total of the retained items, which have good fit, was 42 items for this RLS (Robotics Learning Survey). Overall summary related items in the survey are shown in table 5.

By using the reliability items and respondent test indicate that the set of survey is valid and reliable to measure student's personality. Thus, there is no mismatch of items and respondent (over 50% fit) found during the process of data analysis. This is because the advantage of using Rasch model measurement is the ability to identify the fitness of items and

Table 5:
Summary of Items Dropped and Retained

Construct	Retained Items	Total Numbers of Retained Items	Dropped Items	Total Numbers of Dropped Items
Realistic	G1, G2, G3, G4, G5, G6, G7, G8, G9, G10	Nine	G2	One
Investigate	E1, E2, E3, E4, E5, E6	Six	-	-
Artistic	H1, H2, H3, H4, H5, H6, H7, H8, H9, H10	Nine	H6	One
Social	D1, D2, D3, D4, D5, D6	Four	D3 and D6	Two
Enterprising	F1, F2, F3, F4, F5, F6	Four	F4 and F6	Two
Conventional	L1, L2, L3, L4, L5, L6, L7, L8, L9, L10	Ten	-	-

respondents (Hasan, 2011; Boone, 2016; and Boone & Noltemeyer, 2017).

According to Trevor G. Bond & Christine M. Ford (2015), and other scholars, this method can identify the difficulty level of items and the ability of the respondents. Then, the problematic survey items can be improved or removed to ensure that it measure the constructs. Thus, the result obtained related to the construct reliability and validity of this questionnaire is acceptable to answer the research question (*cf* Bolarinwa, 2015; Bond & Ford, 2015; and Mohajan, 2017).

CONCLUSION

This paper presents the results on Rasch analysis to determine personality student of RLS (Robotics Learning Survey) and to verify whether all the items in the questionnaire constructs were statistically reliable and valid for further analysis; and if each item measured the specific objectivity within the Rasch model. The results were also supported by L.J. Cronbach (1951)'s alpha of person and item reliability at 0.91 and 0.94 respectively. Based on the summary of statistic this analysis, the validity and reliability for 48 items of student's personality in the RLS. About 6 items are recommend to be dropped and 42 items are to be retained.

The criteria of Student Personality in the RLS includes the construct realistic, six for construct investigate, nine items for artistic construct, four for social and enterprising construct, and ten items for conventional construct. It is recommended that future research should explore the profiles of the students in school. This would produce valuable information about the personality student of RLS.

Another avenue for future research should be to combine both quantitative and qualitative analysis; and analyse the results with a view to minimizing the possibility of bias in understanding the measurement of instruments.[1]

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[1]***Statement:*** We certify that this manuscript based on our personal study and/or research; and that we have acknowledged all material and sources used in its preparation, whether they be books, articles, reports, and any other kind of document, electronic or personal communication. We also certify that this manuscript has not previously been submitted in any other journal or publication; and that we have not copied in part or whole or otherwise plagiarised the work of other publications and/or materials.

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