

Indicators of Integration of Islamic Values in Human Knowledge

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Abstract

The International Islamic University Malaysia (IIUM) is committed to the Integration of Islamic values in the Human Knowledge (IOHK), which is the core of its vision and mission. One of the main concerns of IOHK is to determine indicators to evaluate the implementation of IOHK at IIUM, and other Malaysian public institutions of higher learning. This study aims to explore the psychometric properties of a set of indicators measuring the integration of Islamic values in the curriculum at IIUM using the Rasch Measurement Model. This study utilized the survey method, with a 65-item questionnaire developed based on the literature review and data taken from focus group discussions. The items were divided into seven sub-constructs: *Belief in IOHK* (BI), *Content of IOHK* (CO), *Teaching and Learning Process* (TL), *Evaluation* (EV), *Purpose of IOHK* (PS), *Product* (PR), and *Student Improvement* (SI). A total of 324 academic staff randomly selected from various faculties at IIUM completed the questionnaire. The statistical software Winsteps, version 3.72.1 was used to conduct the analysis of the polytomous data collected. The Rasch analysis showed that overall item and person reliability values were very high (0.99 and 0.96 respectively), with item separation 10.51 and person separation 4.81. All items had positive point measure correlation coefficients, with few items below 0.3. Fit statistics estimates showed that all items were within the recommended acceptable range (0.5 -1.50), except 5 items on *Belief in IOHK* sub-construct. Variance explained by measures, indicated useful measurement (52.4%) with the variance explained by the first contrast in the residual less than 10%. The item and person means measures were well matched, 0.0 and 0.05 logit respectively. There were no gaps in the middle of the item distribution, but quite wide gaps were seen at the upper and lower ends of the scale. Some items were overlapping; however, they measure different aspects. The instrument as it stands provides useful measures. Nonetheless, the items related to *belief of IOHK* and *Student Improvement*, and the gaps at the opposite ends of the scale require qualitative investigation.

Key words: Rasch analysis; knowledge integration; higher institutions.

Introduction

Curriculum is an important component in education as it determines how the education process should take place. In general, it comprises the interlinked elements of the learning process: aims, content, methods and evaluation (Taba, 1962). The curriculum should be designed towards reality; i.e., it should consider the cultural, social, ideological, spiritual, philosophical and psychological dimensions of society. It should also consider the theories of learning styles and human development. In the Islamic community, Islam is the religion and the way of life (Al-Faruqi, 1982). Thus, Islam should be the guiding framework in the curriculum design, and the main source of reference.

Since its inception in 1983, the International Islamic University Malaysia (IIUM) has been committed to the process of integration of Islamic principles and values with the modern fields of knowledge. Although this process of integration into the university curriculum has been actively promoted (Sskemanya, et al., 2011), little effort has been made to evaluate its success. To this end,

a set of indicators to measure the integration of Islamic principles and values in the curriculum have been developed; however, its psychometric properties have not been examined. The current study, therefore, aims to examine the psychometric properties of these indicators through the use of the Rasch Measurement Model.

Research Method

The study employed a quantitative method of data collection and analysis. A survey was used to gather information on the curriculum integration done by IIUM academic staff. The self-developed survey questionnaire was based on the literature review and data taken from focus group discussions. It consisted of 65-items, and was divided into two sections. Section A elicited demographic information about the respondents, including gender, faculty, nationality, post, and year of service; Section B consisted of seven sub-constructs namely: *Belief in Integration of Knowledge* (B) (7 items), *Content* (CO) (8 items), *Teaching & Learning Process* (TL) (19 items), *Evaluation* (EV) (9 items), *Purpose* (PS) (6 items), *Product* (PR) (12 items), and *Student Improvement* (SI) (5 items). All of the items for sections B to SI were measured using the 5- point Likert-type scale.

A sample size of 324 academic staff from 12 faculties at IIUM was selected for this study. The Rasch Measurement Model (RMM) was used to analyze the data. The statistical software Winsteps, version 3.72.1 was used to conduct the Rasch analyses of the polytomous data (Linacre, 2011). RMM is widely used in most research areas as it has the ability to extend the evidence of construct validity, explore construct unidimensionality, and produce estimates of item and person score reliability (Bond & Fox, 2007; Wright & Stone, 1979). In other words, RMM ensures the validity of items by a) examining item polarity, fit statistics and unidimensionality, and b) checking the consistency of the items with the purpose of the study through investigating reliability indices for both items and persons.

Results and Discussion

Academic staff perception on the integration of Islamic principles and values was analyzed using RMM, and the analysis outputs are depicted in Figures and Tables. First, the adequacy of the overall scale of integration of Islamic values was examined in three aspects: consistency with purpose of measurement (reliability and separation), validity of items (item polarity and item fit), unidimensionality of the measured construct, and targeting and items ordering. Second, the examination of the sub-constructs of the integration scale was also conducted.

Overall Scale of Integration of Islamic Values in Human Knowledge (IOHK)

(i) Consistency with Purpose of Measurement

Table 1 shows that a total of 324 persons with 65 items were measured. The values of reliability for item difficulty and person ability are very high (0.99 logit and 0.96 logit respectively). This

suggests that the ordering of item difficulty and person ability is highly replicable with other similar samples (Bond & Fox, 2007; Wright & Stone, 1979). The items separation index is 10.51, implying that the items can be divided into 11 levels, while the separation index for persons is 4.81, indicating that persons can be divided into 5 levels. The separation index value greater than 2 is considered as productive (Bond & Fox, 2007; Linacre, 2011).

(ii) **Validity of Items**

Item Polarity

Item polarity, represented by the point–measure correlation coefficient (PTMEA CORR), provides information on the extent to which all items are working in the same direction to measure the construct being examined (Bond & Fox, 2007). Relatively high and positive values (0.3-0.8) are wanted (Bond & Fox, 2007; Linacre, 2011). Table 1 shows that all items have positive point correlation coefficients, but few items are below 0.3 showing that these items were not effectively discriminating persons with different levels of ability. There is a high possibility that correlation values get higher if misfit persons were deleted. Nevertheless, all items are measuring the construct in the same direction.

Fit Statistics

Item fit statistics (infit MNSQ and outfit MNSQ statistics) are always examined to ensure that the items are contributing meaningfully to the measurement of the construct (Bond & Fox, 2007; Linacre, 2011). The recommended acceptable range for infit MNSQ and outfit MNSQ fit statistics for rating scale is \geq MNSQ of 0.50 to \leq MNSQ of 1.50 (Bond & Fox, 2007; Linacre, 2011). Items within this range are considered productive (Bond & Fox, 2007). Table 1 reveals that all items show good overall fit of the data to Rasch Model. Only 6 items (B1, B2, B4, B5, B6 and C6) show poor fit (INFIT and OUTFIT > 1.5 logit), and only 4 items (B3, B7, CO2 and CO5) have OUTFIT > 1.5 logit.

Having deleted some of most misfit persons, only the items on *belief in Integration* (B), namely (B1, B2, B4, B5) remained misfitting (INFIT and OUTFIT > 1.5 logit). These items measuring *Belief in Integration*, could be measuring a construct different from aspects related to the curriculum (i.e., *Curriculum Content, Teaching and Learning Approach, Evaluation, Purpose, Production and Student Improvement*). This is supported by the Rasch analyses for each individual sub-construct. It is important to maintain that the scale unidimensionality was not violated as shown in Figure 1. All the misfit items, therefore, were retained for the aforementioned reasons. However, it would be informative to analyze the first sub-construct separately, and the other sub-constructs together.

Table 1: Difficulty Measure, Fit statistics, Item correlation, Reliability and Separation for all items

NO	Item Label	Item Measures	(SE)	INFIT MNSQ	OUTFIT MNSQ	PT-MEASURE CORR
1	B1	-2.29	.10	2.15	3.14	0.09
2	B2	-0.88	.07	1.88	2.78	0.16
3	B3	-0.77	.06	1.34	1.56	0.27
4	B4	-1.7	.08	1.79	2.38	0.08
5	B5	0.27	.06	2.04	2.53	0.06
6	B6	0.01	.06	1.72	2.11	0.12
7	B7	-1.68	.08	1.40	2.23	0.12
8	CO1	-0.48	.06	.61	.68	0.59
9	CO2	0.04	.06	1.28	1.57	0.27
10	CO3	-0.87	.07	1.10	1.32	0.19
11	CO4	0.54	.06	1.07	1.12	0.52
12	CO5	0.32	.06	1.45	1.78	0.18
13	CO6	0.53	.06	1.56	1.77	0.28
14	CO7	0.36	.06	.86	.96	0.54
15	CO8	0.23	.06	.79	.89	0.59
16	TL1	-0.67	.06	.69	.67	0.59
17	TL2	-0.6	.06	.62	.61	0.6
18	TL3	0.17	.06	.71	.70	0.7
19	TL4	-0.73	.06	.61	.59	0.61
20	TL5	-0.6	.06	.59	.57	0.64
21	TL6	0	.06	.63	.62	0.69
22	TL7	0.01	.06	.63	.63	0.68
23	TL8	-0.12	.06	.70	.67	0.68
24	TL9	-0.26	.06	.60	.58	0.67
25	TL10	-0.07	.06	.76	.73	0.66
26	TL11	0.38	.06	.74	.73	0.7
27	TL12	0.5	.06	.82	.81	0.68
28	TL13	0.78	.06	.99	1.04	0.57
29	TL14	0.49	.06	.94	.93	0.64
30	TL15	0.55	.06	.76	.74	0.7
31	TL16	0.42	.06	.86	.85	0.65
32	TL17	0.8	.06	.84	.80	0.68
33	TL18	0.37	.06	.74	.73	0.68
34	TL19	0.15	.06	.68	.67	0.69
35	EV1	0.02	.06	.62	.61	0.69
36	EV2	0.24	.06	.71	.72	0.69
37	EV3	0.52	.06	1.05	1.01	0.63
38	EV4	0.78	.06	.83	.78	0.69
39	EV5	0.11	.06	.84	.83	0.64
40	EV6	-0.23	.06	.67	.69	0.66
41	EV7	0.54	.06	.89	.85	0.68
42	EV8	0.18	.06	.77	.76	0.68
43	EV9	0.5	.06	.91	.91	0.64
44	PS1	0.37	.06	1.11	1.09	0.6
45	PS2	0.55	.06	1.00	1.01	0.58
46	PS3	0.34	.06	1.24	1.26	0.51
47	PS4	0.66	.06	1.14	1.14	0.58
48	PS5	-0.21	.06	1.25	1.32	0.43
49	PR1	0.34	.06	1.17	1.12	0.62
50	PR2	0.55	.06	.99	.96	0.66
51	PR3	0.46	.06	1.08	1.05	0.66
52	PR4	0.55	.06	1.14	1.09	0.66
53	PR5	0.83	.06	1.09	1.03	0.7
54	PR6	0.79	.06	1.08	1.03	0.65
55	PR7	0.66	.06	.84	.80	0.7
56	PR8	0.58	.06	.94	.89	0.68
57	PR9	0.58	.06	1.06	1.01	0.67
58	PR10	0.56	.06	1.18	1.12	0.64
59	PR11	0.1	.06	.91	.88	0.65
60	PR12	0.01	.06	.84	.82	0.65
61	SI1	-1.08	.07	1.07	1.01	0.45
62	SI2	-1.11	.07	1.04	.96	0.46
63	SI3	-1.19	.07	1.15	1.13	0.44
64	SI4	-1.22	.07	1.12	1.03	0.44
65	SI5	-0.96	.07	1.09	1.11	0.45
Means		0.0	.06	1.01	1.08	
Item Reliability/		0.99	Person Reliability/		0.96	
Item Separation		10.51	Person Separation		4.81	

Construct Unidimensionality

In RMM, the items must measure a single unidimensional construct (Bond and Fox, 2007). The principal component analysis of residuals was used to test the unidimensionality of the measured construct. Having deleted some of the misfit persons, the variance explained by measures indicated a useful measurement (52.4%) with the variance explained by the first contrast in the residual is less than 10% (about 5.5%) as shown in Figure 1 (Linacre, 2011).

		-- Empirical --	Modeled
Total raw variance in observations	=	136.5 100.0%	100.0%
Raw variance explained by measures	=	71.5 52.4%	51.1%
Raw variance explained by persons	=	26.5 19.4%	18.9%
Raw Variance explained by items	=	45.0 33.0%	32.2%
Raw unexplained variance (total)	=	65.0 47.6%	100.0% 48.9%
Unexplained variance in 1st contrast	=	7.5 5.5%	11.5%

Figure 1: Standardized residual variance (in Eigenvalue units)

Person and Item Distributions

Figure 2 (Item-Person Map) shows the distribution of all items and persons on one logit scale. The item difficulty measure spanned from -2.29 logits to 0.83 logit, while the person ability measure spanned from -2.50 to 6.95 logits. There are no wide gaps in the item distribution, except at the upper and lower positions of the scale. Nonetheless, the person and item distributions are well matched, (item mean = 0.0 logit and person mean = 0.5 logit respectively). Looking at the overlapping items, it is found that most of them are measuring either different sub-constructs or different aspects of a sub-construct. Figure 2 also shows that *Student Improvement (SI)* is the easiest to be agreed upon by the respondents.

(iii) Validity of Persons' Responses

Finally, validity of persons' responses was also examined. Fifty-six (17%) persons showed poor fit (INFIT and OUTFIT > 1.5 logit). Figures 3 and 4 show the most misfitting responses strings to items.

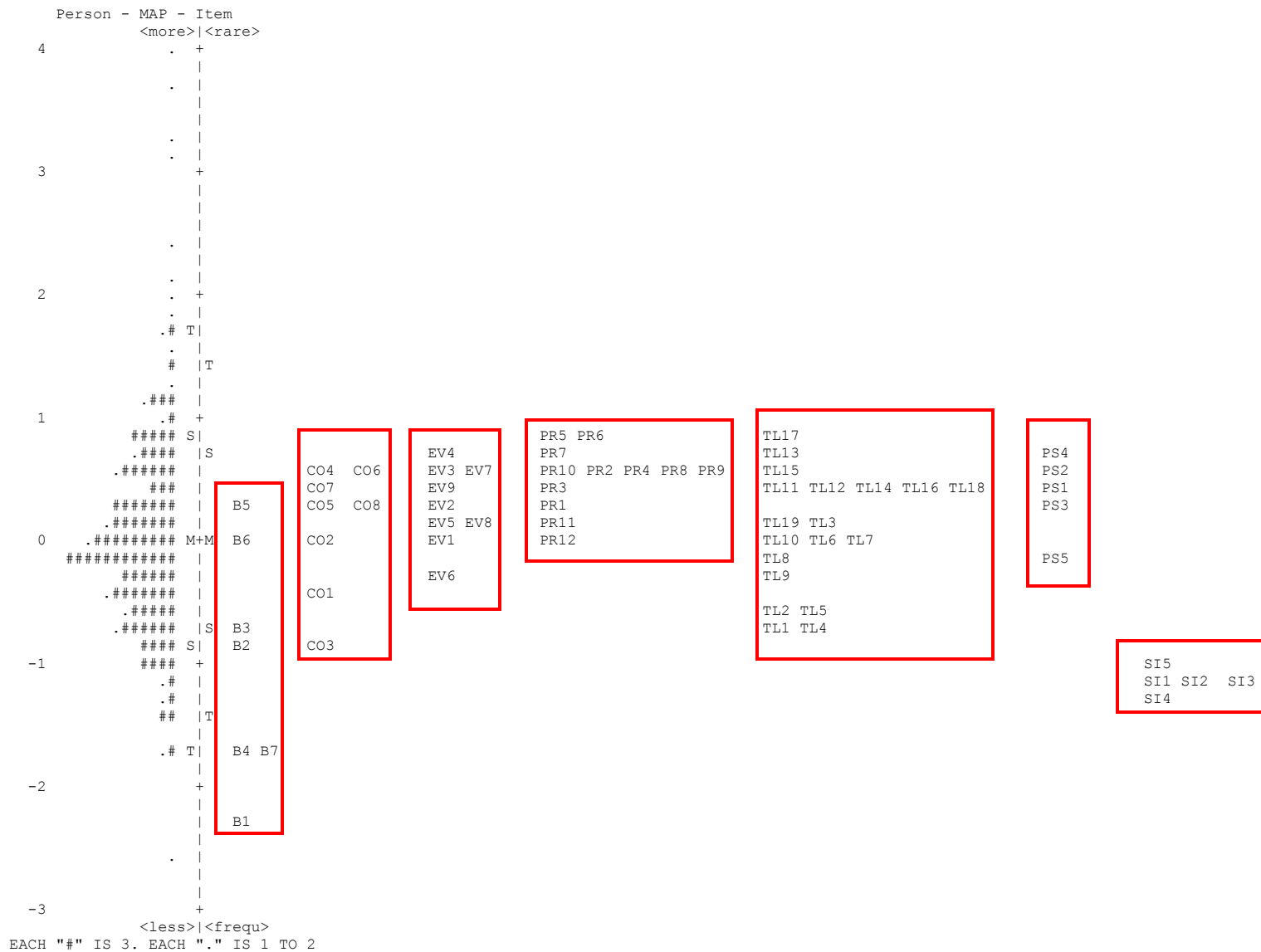


Figure 2: Item-Person Map: distribution of items for all the seven sub-constructs of integration

Item	OUTFIT	MNSQ	
1 B1	3.14	A|	.....4.....1.....1..4.131.13..23111.....1.....
2 B2	2.78	B|	..2....2.....1.....23222.31.1.11..11.....5.....
5 B5	2.53	C|	44.2..21111.111...21.12....1.....5.....5..333
4 B4	2.38	D|	..4..4....4..1..2...3...231.12..2.11...1.....
7 B7	2.23	E|	4.44...34....1.....131.1...212.....
6 B6	2.11	F|	4444..21.12.111.....2.21.1.....5...5...43
12 CO5	1.78	G|	..4...311111..1.2..212111.....4..5..543..
13 CO6	1.77	H|	...31.11111.....111.....4..5.....4..
9 CO2	1.57	I|	..44.1.1.2.2..1.2...121..2...1.....5...
3 B3	1.56	J|	.....3..3...31....3....33331.12....1.....5..53
			|-----low-
			|11221221132241111211212612112211221381322242228311
			|40212236407054302475097651540219928848386008673188
			|29283338 007 397 33 199 0 854651 84 8 535 028 456
			Person ID

Figure 3: Rasch analysis output showing most misfitting response strings

Person	OUTFIT	MNSQ	Item
			6666 1 442 6 5313 1414235242314153545555432535
			14743152038085609995652644611937731100258675788423
			high-----
143 143	8.76	A|	111...1.1...1.....1.....
145 145	6.00	B|	111...1.1...11.1...1.....1.....1.1.1111.....
21 21	4.54	C|	121.....3..2.1.2.....
38 38	4.53	D|	111...1.1..11.....5.....5.5...5555.5.5555...5.5
223 223	4.24	E|	44.4343..3.....1..1...1.....1.....
168 168	4.17	F|	..3.....1.1.1...11.....1.1.....
109 109	4.11	G|	.....2.....4.....44.....4.....
201 201	3.65	H|	13....2.....1....1.....
226 226	3.12	I|	111...1.1.....1.....
270 270	2.70	J|	..4.....3.2.....112.....1..1....2....2....
300 300	2.52	K|	.....1.2...11.1.....1.....1...
279 279	2.49	L|	.....2.....2.1...21..1..1..111.....11...
199 199	2.27	M|	.....3.....2...12..1.2.....
172 172	2.31	N|	.....2.1...11.....5.5..5...5...55555.5...5
207 207	2.08	O|	.....2..12.1.....1.....1...
149 149	2.18	P|	.....3.....1....1....1..1.111.1..1...1.1...
14 14	2.31	Q|	..4.....33.....11.....1.....
280 280	2.32	R|	...111...5...5.....4.4.....4....3..3.4
287 287	2.18	S|	.....11...5.....5.....5.5.5555...5.5
66 66	2.26	T|	4...3.32.3.....1...1...1.....1.1.
116 116	2.15	U|	.....2.....1.....5.5.5.
139 139	2.11	V|	.....3.....1.1...11.....
150 150	2.06	W|	.....2.3.2..2.....1.....1..1.....1.
41 41	2.03	X|	.....5.....5.....5...5...5...
107 107	1.79	Y|	.....3.....1.....211.....11...
301 301	1.97	Z|	.....2.2.....5...5.....

Figure 4: Rasch analysis output showing most misfitting response strings

Examination of the Sub-constructs of Integration of Islamic Values in Human Knowledge Scale

(i) Reliability and Separation Index

Table 2 shows item and person reliability and separation measures for all the sub-constructs of the integration scale. After deletion of misfitting persons, the reliability item measures ranged from 0.95-0.99, (B: 0.99, CO: 0.98, TL: 0.99, EV: 0.98, PS: 0.98, PR: 0.96, and SI: 0.95); while the person reliability measures ranged from 0.80-0.94, (B: 0.80, CO: 0.83, TL: 0.94, EV: 0.88, PS: 0.83, PR: 0.91, and SI 0.92). Bond and Fox (2007) assert that the reliability value greater than 0.8 is acceptable. Table 2 shows that all the person and item separation values are greater than 2, the recommended acceptable value given by Bond and Fox (2007). Moreover, deletion of a misfitting item (CO 3) led to better measures on the *Content* sub-construct.

Table 2: Reliability and separation analysis for each sub-construct

Construct	ID Item	Item Measure			Person Measure	
		Item Deleted	Reliability	Separation	Reliability	Separation
Belief	B1-B7	-	0.99	13.53	0.80	2.01
Content	CO1-C08	-	0.99	8.56	0.80	2.01
Teaching and Learning	TL1-TL19	-	0.99	10.32	0.94	3.92
Evaluation	EV1-EV9	-	0.98	6.60	0.88	2.76
Purpose	PS1-PS5	-	0.98	6.67	0.83	2.18
Production	PR1-PS12	-	0.96	5.20	0.90	2.96
Student Improvement	SI1-SI5	-	0.95	4.25	0.92	3.34

(ii) Item Polarity and Fit Statistics

Tables 3 shows the point-measure correlation coefficient (PTMEA CORR) and fit statistics (infit MNSQ and outfit MNSQ) for all items on all sub-constructs. All items have positive point correlation coefficient (PTMEA CORR), and infit MNSQ values are within the recommended acceptable range (0.5-1.50), except item CO3. Hence, it could be said that all items of each sub-construct were able to discriminate persons with different levels of ability, and working in the same direction to measure the intended construct. However, the point correlation coefficient (PTMEA CORR) for the items on the last sub-construct *Student Improvement* (SI) have high values and closer to 1 (0.92-0.97). The respondents might see the items on this sub-construct have the same reference; SI_2 (personality), SI_5 (appearance), SI_3 (morality); and SI_4 (attitude). So, it is recommended that these items be further examined qualitatively. For the fit statistics, the infit MNSQ showed that only one item, (CO3, 1.52 logit), is above the recommended acceptable range. This item deals with a controversial issue among staff i.e. the difficulty of IOK into the curriculum content. The item was deleted, and its deletion increased the item correlation coefficients and person reliability and separation.

Table 3: Item polarity and item fit statistics of all sub-constructs

Item	Belief (B)			Content (CO)			Teaching (TL)			Evaluation (EV)			Person (PS)			Production (P)			St. Improvement (SI)		
	PTME	INFIT	OUTFIT	PTME	INFIT	OTFIT	PTME	INFIT	OUTFIT	PTME	INFIT	OUTFIT	PTME	INFIT	OUTFIT	PTME	INFIT	OUTFIT	PTME	INFIT	OUTFIT
	CORR			CORR			CORR			CORR			CORR			CORR			CORR		
Item1	0.55	1.06	.87	0.68	.73	.74	0.66	1.04	1.00	0.78	.90	.94	0.79	1.17	1.11	0.82	.94	.94	0.96	.88	.38
Item2	0.66	1.22	1.17	0.57	.98	.98	0.66	1.01	.97	0.78	.97	.97	0.84	.71	.68	0.77	1.46	1.54	0.97	.63	.24
Item3	0.69	.86	.92	0.22	1.52	1.54	0.74	1.10	1.10	0.76	1.19	1.21	0.84	.74	.69	0.83	.79	.79	0.97	.75	.29
Item4	0.61	.96	.93	0.73	.95	.95	0.68	.89	.86	0.79	.93	.87	0.81	.97	.91	0.83	.84	.83	0.97	.78	.41
Item5	0.67	1.06	1.05	0.60	.99	1.00	0.70	.84	.83	0.77	1.05	1.05	0.72	1.39	1.43	0.82	.93	.85	0.92	1.47	1.42
Item6	.70	.85	.85	0.68	1.11	1.10	0.77	.81	.80	0.77	.94	.93				0.84	.76	.78			
Item7	0.55	.97	1.04	0.72	.73	.72	0.75	.84	.91	.78	1.06	1.06				0.82	.89	.97			
Item8							0.73	1.01	1.00	.81	.82	.79				0.84	.74	.70			
Item9							0.78	.81	.78	0.76	1.05	1.08				0.84	.74	.80			
Item10							0.74	.99	.95							0.81	1.00	1.02			
Item11							0.79	.86	.85							0.77	1.36	1.30			
Item12							0.77	1.03	1.04							0.75	1.43	1.49			
Item13							0.69	1.42	1.73												
Item14							0.72	1.36	1.35												
Item15							0.80	.84	.83												
Item16							0.74	1.10	1.18												
Item17							0.77	1.09	1.04												
Item18							0.77	.92	.89												
Item 19							0.78	.77	.77												

Item Distribution and Difficulty Measures of Each Sub-construct

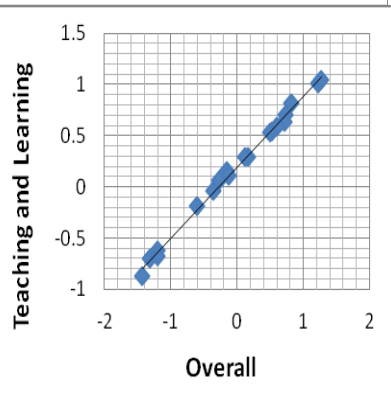
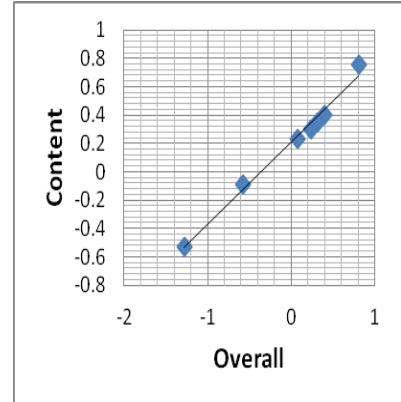
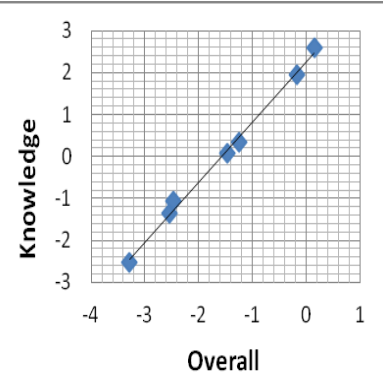
The distributions of the items on each sub-construct were examined to see the possible ordering of these items. It is found that items on each sub-constructs varied in their difficulty measures. Table 4 shows the most difficult and easiest items on each sub-construct as endorsed by the respondents.

Table 4: Most endorsed and least endorsed items on each sub-construct

Sub-Construct	Most Endorsed	Difficulty Measure	Least endorsed	Difficulty Measure
Belief (B)	B1 <i>An important mission of IIUM</i>	-2.53	B5 <i>An overemphasized mission</i>	2.59
Content (CO)	CO 1 <i>Integrates IOK</i>	-1.28	CO 4 <i>Is all about IOK</i>	0.81
Teaching & Learning (TL)	TL 4 <i>Giving examples</i>	-1.43	TL 17 <i>Games</i>	1.27
Evaluation (EV)	EV6 <i>Class presentation</i>	-.92	EV4 <i>Colloquium</i>	.84
Purpose (PS)	PS 5 <i>My colleague</i>	-1.02	PS 4 <i>External expert</i>	.58
Production (PR)	PR12 <i>Student assignment</i>	-.91	PR 5 <i>Books</i>	0.60
Student Improvement (SI)	SI 4 <i>Attitude</i>	-1.15	SI 5 <i>Appearance</i>	2.01

(iii) Scatterplot

Scatterplots were produced to examine the order of the difficulty measures of the items on each sub-construct when analyzed together and separately. The plots indicate that the ordering of item difficulty measures of the sub-constructs in the individual analyses match the difficulty measures in the overall analysis. However, the last sub-construct, *Student Improvement*, needs further qualitative investigation (Figure 5.)



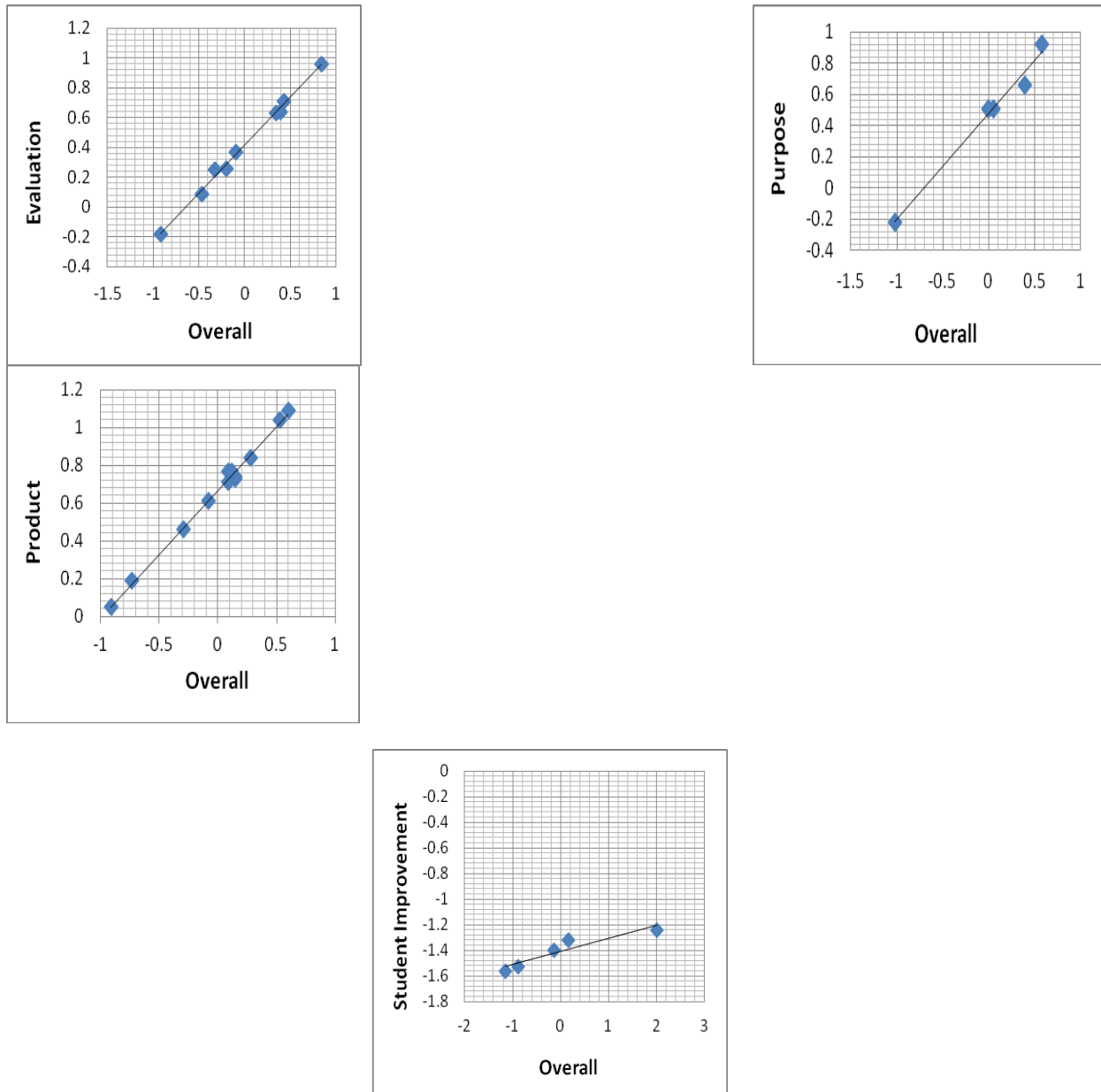


Figure 5: Scatterplots of item difficulty measures analyzed separately and together

Conclusion

The psychometric properties of the indicators to measure the integration of Islamic principles and values in the curriculum at IIUM have been examined through the use of the Rasch Measurement Model. These indicators could provide a useful measurement. Nonetheless, the items related to *belief of IOK* and *Student Improvement* sub-constructs, and the gaps at the opposite ends of the scale require further qualitative investigation.

References

- Al_Faruqi, Ismail. R. (1982). *Islamization of knowledge: General principles of work plan*. Herndon: IIIT.
- Bond, T., & Fox, C. (2007). *Applying the Rasch Model: fundamental measurement in the human sciences*. Mahwah: Lawrence.
- Linacre, J. M. (2011). *A user's guide to Winsteps & Ministep Rasch-Model computer programs. Program Manual 3.72.1* <http://www.winsteps.com/a/winsteps.pdf>
- Ssekamanya. S. A., Suhailah. H., & Nik Ahmad. H. (2011). The experience of Islamization of Knowledge at the International Islamic University Malaysia: Successes and Challenges. *New intellectual horizon in education*.
- Taba, H. (1962). *Curriculum development: Theory and practice*. New York: Harcourt, Brace & World, Inc.
- Wright, B. D., & Stone, M. H. (1979). *Best Design Test: A Handbook for Rasch Measurement*. Chicago: Mesa Press.