

Developing an Academic Self-Efficacy Scale by Using the Rasch Model

Ratih Christiana^{a*}, I Nyoman Sudana Degeng^b, Carolina Ligyah Radjah^c, Triyono^d, ^{a,b,c,d}State University of Malang, Department of Guidance and Counseling, Faculty of Educational Science St. Semarang 5, Malang 65145, Indonesia, Email: ^{a*}ratihchristiana@unipma.ac.id

This article aims to conduct a preliminary study to develop academic self-efficacy scale of students as a diagnostic instrument when conducting counselling practice. The research samples were 487 undergraduate students of Guidance and Counseling Study Program at six universities in East Java through the format of academic self-efficacy scale of counselling practice. The research method used a quantitative method in the form of questionnaires with Likert scale in the form of semantic differential. Data analysis testing has been conducted successfully with the Rasch model through Winsteps software. The study results show that the students who have self-efficacy of counselling practice are categorised into three groups, such as high 8,7%, medium 36,8%, and low 54,4%. Data instrument analysis shows the fulfilment 20% standard of unidimensionality that is proven by the score achievement of the scale shows academic self-efficacy reaching 41,9%. Interestingly, the statistic result of the person and item instruments show good instrument reliability with MNSQ achievement = 0,97 and the interaction between respondents with ZSTD item = 0,77 which indicates the feasible and further analysis to be conducted.

Keywords: *Self Efficacy Scale of Students' Academic, Counseling Practice, Rasch Model*

Introduction

Undergraduate students of Guidance and Counseling Study Program can be said successful if they are skilful and sure in the process of conducting the right counselling process. The achievement aspect of academic achievement when conducting the counselling process

correctly is when the undergraduate students of guidance and counselling study program own academic self-efficacy (Waqar et al., 2016). According to Christiana (2018b), academic self-efficacy is defined as the belief owned by individuals, that they can achieve academic success. In line with this, (Baskin et al., 2010; Meyer, 2012; Alotaibi & Tohmaz, 2017) state that, the basis of efficacy counsellor when conducting counselling service is because of the practice support and learning the counselling skill repeatedly.

Undergraduate students of guidance and counselling have gained material about counselling practice, and it is not applied thoroughly yet and tends to experience doubt and not sure during the counselling practice. It is proven that there are eight universities in East Java that had been observed in this research, and the results are not in line with the expectation. There were 487 students observed and the results: (1) high academic self-efficacy 8,7%, (2) medium academic self-efficacy 36,8%, and (3) low academic self-efficacy 54,4%.

The results of the research which was conducted at six universities in East Java showed 54,4% students have academic self-efficacy in a low category related to counselling practice. One of academic success is when the students have self-efficacy aspects. Self-efficacy is discussed in the research by Murphy (2015), who states that "perceived academic climate and academic self-efficacy significantly positive correlated with students' academic performance". Following that, the research by (Mullen, 2014; Mullen et al., 2015), also discusses self-efficacy aspect and confirm that "academic self-efficacy and academic motivation, however, do predict academic performance". Sharma and Nasa (2014) add that "academic self-efficacy is receiving increasing recognition as a predictor of educational performance".

The research by Christiana (2018) shows that academic self-efficacy development can facilitate 63% of 81 students to conduct exam preparation with high and sufficient self-belief. Considering the benefits of academic self-efficacy towards students' psychological aspect, then there are some scales that had been developed with the purpose to measure students' academic self-efficacy. This is in line with the research by Jahangard et al. (2017) that 286 medical students in Iran show academic achievement increase with learning style based on academic self-efficacy that used data collection instrument in the form of academic self-efficacy for doctor profession students with the emphasis on the aspects of physical, social, cognitive, and emotion of students and the success indicators reviewed from the GPA of the previous semester. The result of similar research by Hataway (2016) that 75,2% prospective nurse students with high academic self-efficacy measured by using CASES (College Academic Self Efficacy Scale) developed by Froman and Owen in 1988 showed the effect of academic self-efficacy towards good learning achievement on prospective female nurse students. Research Schwartz (2016) respondents as many 341 Michigan Psychologist who

either received supervision, there were ($n = 254$) which statistically significant increased ($p < 0,05$) threshold in their levels of counselling self-efficacy.

Some scales which measure self efficacy are Academic Self Efficacy: An Inventory Scale arranged and developed by Jinks and Morgan (1999) which was popular with the term MJSES (Morgan-Jinks Student Self Efficacy Scale) contained 34 items with aspects of talent, context, and effort, 900 students at three schools in the city at the suburb area and rural village showed 0,82% internal consistent and 0,78 consistent at sub-scale; Rowbotham and Schmitz (2013) set SSE (The Student Self Efficacy) showed significant correlation until $r = 0,70$ and effective related measure to didactic course work; Physical Activity Self Efficacy Scale for Adolescents: A Social Cognitive Perspective (Abd-El-Fattah, 2015) the research results conducted on 260 students in Arab showed that 75,5% students have self efficacy aspect at physical activity, optimisation effort, and perseverance in facing difficulty; (Tsai et al., 2014) SSES (Strength Self-Efficacy Scale) with research subjects were 275 people (career counselor, educator counselor, researcher) and 302 counselee showed the power in the aspect of self esteem and life satisfaction, while the aspect of social willingness is almost omitted because it showed weak consistency; SCERES (Self-Conscious Emotion Regulatory Efficacy Scale) by Wu et al., (2016) was focused on 674 students from China with good psychometric result and valid and reliable instruments, showed 61,07% self efficacy factors in managing feeling of ashamed, feeling of guilty, jealousy, and feeling of proud by containing 15 items; College Academic Self-Efficacy Scale (Owen, S.V & Froman, 1988) which measures 93 students of psychology education reviewed from the aspects of sport skills, academic performances, health practice, and socialisation behaviors. These four aspects can describe the strength and magnitude dimensions only. However, if reviewed further, self-efficacy measurement has been developed, not discussed in detail yet about academic self-efficacy of counselling practice.

Based on the findings of the research results above, then the purpose of this research is to arrange a valid and reliable academic self-efficacy scale on counselling practice that has good items. Academic self-efficacy on counselling practice with good psychometry will have benefits on knowing the degree of academic self-efficacy of undergraduate students at guidance and counselling study program, as the consideration of intervention plan and diagnosis about the belief level in conducting the counselling practice. Besides that, the scale can also be used for the research in the field of counselling primarily related to the performance of guidance and counselling teachers in giving the service to the counselee. The next part will be discussed in the literature study related to the research method by using the Rasch model in which the analysis and discussion of the research findings are displayed and ended in the conclusion.

Components of Academic Self Efficacy

Bandura (1997) states that self-efficacy components consist of four, they are; (a) Mastery experience, the experience in achieving the achievement (Nwosu & Okoye, 2014); (b) Vicarious experience, other people's experience (Albert Bandura, 1998); (c) Verbal persuasion (Arjanggi et al., 2020), (d) Physiological and psychological condition (Burck et al., 2014). Added by Bandura (1977a), that self-efficacy dimensions are; task difficulty level (magnitude), task field (generality), and strength and weakness of an individual's belief (strength).

The components proposed by Bandura (2006) consisted of the sources and dimensions of self-efficacy, then the components can be summarised into three; they are:

1. Successful in doing the task
This component comes from task difficulty level dimension (magnitude), task field (generality), and strength and weakness of individual belief (strength).
2. The ability to overcome all obstacles
This component comes from the task field dimension (generality).
3. Mental endurance
This component comes from the strength and weakness of an individual's belief (strength).

According to Tavakolizadeh et al., (2015), college students need to own academic self-efficacy because it positively correlates to the metacognitive skill which is the process of monitoring and reflecting students' cognition when doing the academic activity. To support this component formation, then the items in academic self-efficacy scales in counselling practice contains assessment components in course activity which its content is counselling practice. The arrangement of academic self-efficacy of counselling practice is based on self-efficacy component that has been extracted by Bandura (2006) and visualised in Table 1.

Table 1: Indicators of Academic Self Efficacy in Counseling Practice

Variables	Indicators	Descriptors	Scales				
			A	B	C	D	E
Academic Self Efficacy	Successfully did the task	Participate in counselling practice	1	4	7	5	5
			11	6	9	9	11
			12	10	14	17	16
	Successfully did the task	Completeness in Counseling Practice	9	8	3	3	3
			10	12	5	15	8
			21	19	18	24	20
	Successfully did the task	Belief in doing Counseling Practice	2	1	10	6	13
			13	14	12	11	18
			19	25	23	19	23
	Ability to overcome all obstacles	The readiness of accepting the theme of Counseling Practice that is considered a difficult case	3	5	2	13	1
			14	17	8	16	4
			22	23	15	22	6
		Detail in reexplaining Counseling Practice showed by the lecturer	4	2	1	4	10
			15	11	6	7	12
			20	20	17	10	19
Motivate themselves to be better in Counseling Practice	5	9	11	18	15		
	16	16	20	25	22		
	24	27	26	27	26		
Mental Endurance	Persistent in the training of counselling ability	6	13	11	18	2	
		17	21	20	25	17	
		26	24	26	27	25	
	Keen on the effort of fixing the mistake in comprehending Counseling Practice	7	3	4	8	7	
		23	18	13	14	9	
		25	22	21	23	24	
Keep trying to become a skilful counsellor	8	7	19	2	14		
	18	15	24	20	21		
	27	26	27	26	27		

Methods

This research used a quantitative approach, data were obtained by using the scale developed by the researcher, and the research subjects were guidance and counselling students at the seventh semester in East Java. Data analysis in the instrument test used analysis software Rasch Model.

Research Instrument

The instrument used was the scale with three constructs consisted of nine descriptors. Three constructs used succeeded in doing the task, the ability to overcome all obstacles, and mental endurance (Bandura, 1977; Bandura, 1977a; Christiana & Krisphianti, 2020; Schunk, 1995; Bandura, 1997; Vanhaltren, 2016; Cervone, & Pervine, 2012). The instrument was designed for this equivalent series research conducted four times measurement, then five equivalent instrument forms were provided.

Therefore, five forms of students' academic self-efficacy were developed which related to counselling practice. The steps taken in the instrument arrangement was conducted in some stages, either in the making or the tryout, that can be seen in Figure 1, which is the making of instrument clues. Before the survey, a step I review, field try out, step II review, and final instrument (the instruments were developed by the researcher herself based on the indicators of academic self-efficacy).

Research Population and Samples

The research population was selected randomly; semester 7th students consisted of female students (83,13%), and male students (16,87%), a total of 487 students in East Java. Target samples were 116 students. Each university got six to eight students until 38 students would be given intervention. The students of guidance and counselling study program were selected from six universities that are the university which has an undergraduate program in guidance and counselling study program such as Malang Kanjuruhan University, PGRI Nusantara University Kediri, Darul Ulum University Jombang, PGRI University of Adi buana Surabaya, Catholic University of Widya Mandala, and Madiun PGRI University.

Rasch Model Analysis Technique

According to Linacre (2011), the analysis model of item response theory (IRT) was developed by George Rasch in 1960, popularised by Ben Wright. Data dichotomy in Rasch analysis indicates the ability of Guidance and Counseling students' ability, to be formulated becoming the model which connects the students of guidance and counselling and the item in the scale. Following the research Sumintono and Widhiarso (2015), Rasch formulated data dichotomy (in the form of right and wrong) becoming one model that connects the students and the item.

Through these data, according to Bond and Fox in Park & Liu (2019) Rasch developed the measurement model which determines the correlation between students' ability level (personability) and item difficulty level (item difficulty). In Research (Rahman et al., 2020) used Rasch produced fit statistics analysis (fit statistics) which gives information that the data obtained ideally described that the people who have the high ability by providing the answer pattern towards the item suitable with the difficulty level. The standard used is infit and outfit of the mean square (middle squared) and standardised values (Perera et al., 2018).

The references in the Rasch model, which uses an instrument with win step software, if the data are suitable, then the total value of mean square (middle squared) is 1,0 Z-standardised values is 0,0. While according to (Boone, Staver, & Yale, 2014; Sari et al., 2016) at each

level of the item or respondents, then the standard shows harmony or inharmony, three criteria must be fulfilled, they are:

Value of Outfit Mean Square (MNSQ) which is accepted: $0,5 < MNSQ < 1,5$

Value of outfit Z-standard (ZSTD) which is accepted: $-2,0 < ZSTD < +2,0$

In the context of this testing, then an item that does not fit (misfit) is the item that is too easy (logit value is too negative), or very difficult (big logit positive value) from the given respondents' answer pattern, or the value from three criteria produced from the analysis of the software shows that the item did not fulfil the requirement which indicates the item did not measure the feature, the wanted trait (Sumintono & Widhiarso, 2014).

Results

The analysis conducted on the collected data is categorised into a statistical summary that gives information about; (1) instrument reliability in the form of person and item, (2) person and item validity, (3) unidimensionality, and (4) Function of the differential item (DIF).

Reliability in the instrument level: Person and Item

Table 2 showed the statistics result from Rasch model analysis; data were obtained from 487 respondents who answered 135 items towards the instruments given parallel consisted of pre-test and post-test 4 in the amount of 27 items, which are the results of Winsteps software process.

Table 2: Instrument Statistics Summary: Person and Item

Summary of 487 Measured Person

	Total Score	Count	Measure	Model S.E.	INFIT		OUTFIT	
					MNSQ	ZSTD	MNSQ	ZSTD
MEAN	71.0	25.0	.65	.28	1.00	-.04	1.01	-.12
SEM	.6	.0	.05	.00	.04	.14	.04	.13
P.SD	5.4	.0	.41	.01	.33	1.21	.31	1.13
S.SD	5.4	.0	.42	.01	.33	1.22	.31	1.14
MAX.	81.0	25.0	1.46	.30	2.22	3.64	2.36	3.95
MIN.	57.0	25.0	-.40	.27	.41	-2.87	.41	-2.86
Real RMSE	.30	True SD	.29	Separation	1.97	Person Reliability	.77	
Model RMSE	.28	True SD	.30	Separation	2.09	Person Reliability	.83	
S.E. OF Person Mean = .05								

Person RAW Score-to-Measure Correlation = 1.00

Cronbach Alpha (Kr-20) Person Raw Score "Test" Reliability = .78 SEM = 3.65

Summary of 27 Measured Item

	Total Score	Count	Measure	Model S.E.	INFIT		OUTFIT	
					MNSQ	ZSTD	MNSQ	ZSTD
MEAN	213.0	75.0	.00	.17	1.07	-.25	1.02	-.29
SEM	8.7	.0	.22	.00	.07	.43	.07	.43
P.SD	42.8	.0	1.06	.02	.32	2.12	.32	2.12
S.SD	43.7	.0	1.08	.02	.33	2.16	.33	2.17
MAX.	275.0	75.0	1.60	.22	1.74	4.29	1.74	4.27
MIN.	145.0	75.0	-1.75	.15	.47	-4.39	.47	-4.33
Real RMSE	.18	True SD	1.04	Separation	2.96	Item Reliability	.97	
Model RMSE	.17	True SD	1.05	Separation	3.28	Item Reliability	.98	
S.E. OF Item MEAN = .22								

Item raw score-to-measure correlation = -1.00

The total amount of data shown in Table 2, number of data are given 176440 produced chi-square 33003.06 with free square (df) 5290 ($p = 0,000$) which shows overall measurement is excellent and its result is significant.

For the table which measures respondents' answer pattern obtained that MNSQ Infit and MNSQ Outfit value which their expectation is 1.0; it seems for person value MNSQ Infit is 1.00 and MNSQ outfit is 1.01. In other words, overall, the response answer pattern obtained in the instrument is categorised into good. While for ZSTD infit and ZSTD outfit value it expectation is 0.0; for person value at ZSTD infirt is -0.4 and ZSTD outfit is -0.12. This shows that overall respondents' answer pattern has suitability with the model. Overall the respondents' reliability is also good, which is 0.77.

Instrument testing at the item for MNSQ infit value is 107 and MNSQ outfit value is 1.02 (expectation value 1.0); while ZSTD infit value is -0.25 and ZSTD outfit is -0.29 (expectation value 0.0). These results show that overall the instrument is good, supported by the instrument reliability value is 0.97. Cronbach alpha value (KR-20) which measures the interaction between respondents and the item which shows reliability value is good, which is

0.78. Overall shows that data obtained in this research are in line with the Rasch model until further analysis is feasible to be conducted.

Validity

Measurement instrument validity is how far an instrument by the scale can measure what indicator supposes to be measured. If reviewed from the Rasch model, the measurement interpretation especially constructs and content validity, can be investigated more precisely. Besides that, the Rasch model also measures respondents' validity, if there are respondents' answer patterns that are not consistent able detecting by showing the reliability level.

Figure 1. The Map of Respondents and Items Distribution

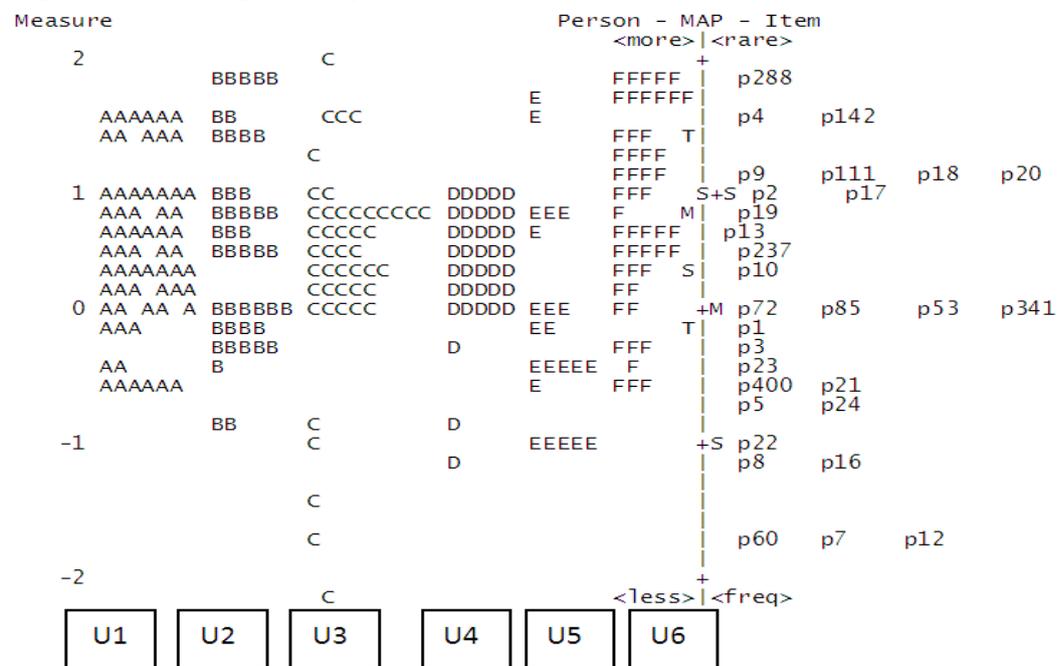


Figure 1 shows the distribution of respondents' answer pattern (on the left) and the item agreement level (the right side). The right side part shows the classification of respondents based on their university, in which U code shows University (given code with number 1, 2, 3, 4, 5, and 6). This indicates that the students at 6 universities become the respondents in this research has various distribution.

In table 2, the average logit person is 0,65, which means the logit shows overall respondents tend approving the statement about academic self-efficacy in counselling practice. The separation value is 1,97 (see Table 1), then the respondent' level in this research is counted by using the level separation formula (Sumintono & Widhiarso, 2015).

$$H = \frac{[(4 \times \text{SEPARATION}) + 1]}{3}$$

With separation item value is 1,97 then $H = [(4 \times 1,97) + 1] / 3 = 3,29$ counted as 3 grups.

Item Validity

Table 3: Item Suitability (Item Misfit)

Item Statistics: Misfit Order

Entry Number	Total Score	Total Count	Measure	Model S.E.	Infit Mnsq	Infit Zstd	Outfit Mnsq	Outfit Zstd	Ptmeasur-A1 Corr.	Exact Match Obs%	Exact Match Exp%	Item	
27	173	487	.96	.15	1.74	4.29	1.74	4.27	A .60	.31	29.3	45.4	I3
3	227	487	.22	.15	1.57	3.37	1.54	3.19	B .60	.30	30.7	47.2	I2
23	234	487	-.40	.16	1.38	2.32	1.36	2.23	C .33	.30	34.7	46.8	I3
2	206	487	.25	.15	1.36	2.31	1.37	2.36	D-.22	.31	28.7	46.6	I1
21	239	487	-.52	.16	1.36	2.22	1.37	2.24	E .43	.29	29.3	46.6	I1
13	191	487	.58	.15	1.35	2.27	1.35	2.26	F .13	.31	40.0	45.4	I1
11	162	487	1.21	.15	1.16	1.08	1.15	1.05	G .21	.30	54.7	46.3	I1
5	248	487	-.77	.17	1.12	.81	1.12	.81	H .25	.28	44.0	47.4	I2
20	163	487	1.18	.15	1.10	.75	1.11	.78	I .31	.30	48.0	46.2	I2
14	147	487	1.55	.15	.98	-.10	.99	.01	J .22	.29	50.7	47.4	I2
14	246	487	-.71	.17	.92	-.50	.94	-.35	K .07	.28	49.3	46.7	I2
9	164	487	1.16	.15	.89	-.71	.91	-.57	L .39	.30	50.7	46.1	I1
6	275	487	-1.75	.22	.89	-.52	.77	-1.13	M .53	.22	74.7	69.1	I3
12	275	487	-1.64	.17	.23	-.32	.45	-1.02	N .59	.30	62.1	50.1	I1
17	180	487	.81	.15	.88	-.86	.87	-.94	o .22	.31	54.7	45.1	I3
18	168	487	1.07	.15	.85	-1.04	.86	-.95	j .26	.30	58.7	45.8	I3
7	274	487	-1.70	.22	.79	-1.07	.84	-.79	i .15	.23	65.3	68.0	I3
22	256	487	-1.01	.18	.74	-1.73	.76	-1.54	h .35	.27	61.3	50.2	I2
4	145	487	1.60	.16	.71	-2.19	.71	-2.15	g .16	.29	65.3	47.6	I2
19	185	487	.71	.15	.70	-2.31	.70	-2.27	f .27	.31	57.3	45.2	I1
26	181	487	.89	.15	.66	-2.68	.66	-2.65	e .11	.31	45.3	45.0	I3
8	250	487	.14	.19	.56	-2.25	.64	-2.36	d .50	.51	34.7	44.2	I3
16	260	487	-1.14	.18	.66	-2.25	.64	-2.36	c .50	.26	58.7	54.2	I2
1	226	487	-.20	.15	.65	-2.67	.62	-2.98	b .10	.30	77.3	47.3	I1
15	246	487	-.71	.17	.92	-.50	.94	-.35	k .07	.28	49.3	46.7	I2
10	236	487	.37	.20	1.76	2.13	1.07	2.16	D .22	.21	32.3	45.1	I1
25	240	487	-.55	.16	.47	-4.39	.47	-4.33	a .14	.29	76.0	46.4	I3
MEAN	213.0	75.0	.00	.17	1.98	-.3	.97	-.3			53.3	49.8	
P.SD	42.8	.0	1.06	.02	.32	2.1	.32	2.1			14.1	7.4	

Although Table 2 shows, the item average logit value is 0.0 logit which that means the instrument overall is capable of measuring. But in Table 3 shows two items are liked and need to be selected only one item (numbers 6 and 7, available in one indicator that same is mental endurance in accordance with indicators persistent in practising counseling skills and active in efforts that help improve in skills counselling). In figure 1 is seen that the item on the right, starts from the one owning the smallest person logit (negative) until positive logit is at logit person value in the left of the map. This shows that overall the item measures academic self-efficacy of prospective counsellor students.

Unidimensionality

Unidimensionality is the most important thing to know what is going to be measured, in this research measure about academic self-efficacy of prospective counsellor students by using the Rasch model analysis with (Principal Component Analysis, PCA) from residual, is measure scale diversities measure what is going to be measured.

Table 4: Standardised Residual Variance in Eigenvalue Unit

Table of Standardized Residual variance in Eigenvalue units = Item information units

Eigenvalue	Observed	Expected		
Total raw variance in observations =	43.0177	100.0%		100.0%
Raw variance explained by measures =	18.0177	41.9%		42.0%
Raw variance explained by persons =	2.3922	5.6%		5.6%
Raw Variance explained by items =	15.6255	36.3%		36.5%
Raw unexplained variance (total) =	25.0000	58.1%	100.0%	58.0%
Unexplned variance in 1st contrast =	3.4799	8.1%	13.9%	
Unexplned variance in 2nd contrast =	3.0496	7.1%	12.2%	
Unexplned variance in 3rd contrast =	2.2959	5.3%	9.2%	
Unexplned variance in 4th contrast =	1.8910	4.4%	7.6%	
Unexplned variance in 5th contrast =	1.6080	3.7%	6.4%	

Table 4 shows the diversity of measurement (raw variance) of data is 41.9% not too far different from the expectation, which is 42.0%. According to Linacre (2011); Sumintono & Widhiarso (2014), the requirement o unidimensionality 20% can be fulfilled, the Rasch unidimensional limit has been fulfilled, which is above 40% that means better. Another result that supports diversity that cannot be explained, all is under 9% (8.1%, 7.1%, 5.3%, 4.4%, 3.7%) ideally not more than 15% which showed by item independence level in the good scale.

Differential Item Functioning (DIF)

The scale item during the measurement is possible to bias because there is the difference in person (for example different gender, ethnic, the lecturer when guiding, less concentration level, and so on) in which there is item taking the side to one certain type. Rasch analysis displays differential item functioning, DIF). Table 5 visualises DIF analysis result that shows the item detected bias; this can be recognised from the probability value $\leq 5\%$ (0,05) (Sumintono & Widhiarso, 2014).

Table 5: Differential Item Functioning (DIF)

Person Classes	Summary Dif Chi-Squared	D.F.	Prob.	Between-Class/Group		Item Number	Item Name
				Unwtd Mnsq	Zstd		
1	15.7865	3	.0034	.8223	-.0675	1	p1
1	20.2526	3	.0029	.7085	-.0820	2	p2
1	12.7810	3	.0060	.8402	-.3104	3	p3
1	6.1325	3	.3197	.1564	-1.9873	4	p4
1	3.9145	3	.4000	.1640	-1.9426	5	p5
1	10.3478	3	.0515	.3546	-1.2430	6	p6
1	2.1017	3	.2098	.1002	-2.0078	7	p7
1	14.1358	3	.0125	.6018	-.5237	8	p8
1	40.3257	3	.0342	.3653	1.1143	9	p9
1	22.7625	3	.0094	.8451	-.2836	10	p10
1	1.432	3	.6099	.0298	-2.3780	11	p11
1	8.6460	3	.1370	.2542	-1.0983	12	p12
1	19.6785	3	.0089	.9200	.1183	13	p13
1	25.6888	3	.0008	1.1682	.4366	14	p14
1	7.4324	3	.1901	.2530	-1.8710	15	p15
1	16.5673	3	.0078	.7845	.1006	16	p16
1	5.2893	3	.4520	.1259	-2.1340	17	p17
1	32.6732	3	.0000	2.0923	2.2445	18	p18
1	3.8568	3	.7821	.0798	-2.0037	19	p19
1	10.5590	3	.0523	.3451	-1.1269	20	p20
1	12.3597	3	.0327	.3568	1.0982	21	p21
1	5.3459	3	.3502	.1536	-1.9621	22	p22
1	15.7923	3	.0098	.8759	-.0374	23	p23
1	25.5621	3	.0011	2.4326	2.0862	24	p24
1	16.9032	3	.0080	1.0987	-.4590	25	p25
1	40.3257	3	.0342	.3653	1.1143	26	p26
1	3.8288	3	.4020	.1430	-1.6410	27	p27

Based on Table 5, it can be seen that the items that are not identified by item 4, 5, 6, 7, 11, 12, 15, 17, 19, 20, 22 and 27. Many items detected bias. This shows that the students' perception assessment towards academic self-efficacy is affected by various factors that cannot be determined yet, such as gender, ethnic, culture at the university the students' strategy in learning the counselling theory, how the students' accept and apply the counselling practice.

Scale Rank Validity

Scale rank validity is used to determine what is needed to measure thoroughly. Rasch analysis gives an interesting verification process to the ranking assumption given on a scale. This research obtained four answers in the form of semantic differential for each item. The respondents gave answers for each item given, by looking at the tendency, if the respondents' answer tends to choo the most suitable column (SS) or not suitable (TS).

Table 6: Validity of Scale Rank

Category Label	Observed Score	Obsvd Sample Count %	Avrge Expect	Infit Mnsq	Outfit Mnsq	Andrich Threshold	Category Measure
1	1	170 9	-.52 -.60	1.07	1.07	NONE	(-2.67) 1 (Not Suitable)
2	2	493 26	-.19 -.08	.81	.75	-1.42	-.81 2
3	3	679 36	.84 .74	.89	.89	-.01	.81 3
4	4	533 28	1.56 1.60	1.14	1.12	1.43	(2.68) 4 (Very Suitable)

In table 6, it can be seen the average observation started from logit -0.52 for the choice 1 (TS = not suitable), increase until logit 1.56 choice 4 (SS = very suitable). It means, showing the consistent increase, thus choices 1 – 4 show suitable scale level for this scale development.

Discussion

This article presents the research about developing and validating academic self-efficacy scale of counselling practice. Nine descriptors based on the literature study about academic self-efficacy, each construct consisted of three constructs that have the same weight, in the form of parallel scale (Scale A, B, C, D, and E) that were designed for equivalent time-series research, arranged by giving four answer choices in the form of semantic differential. Respondents in the amount of 487 students at semester 7 in East Java, Indonesia, selected randomly by filling in the scale voluntarily.

The analysis results by using the Rasch scale showed overall scale item level and person have good reliability. The result of item testing shows there are two misfit items and two same items, showed by the same logit value until two items previously need to be rearranged while the item with the same logits needs to make the new item.

The research scale shows that measuring what is going to be measured is fulfilling the unidimensionality requirement. Some items were also identified bias, and this shows that the prevalent thing because reviewed from students' diversities from the aspect of gender, ethnic, culture in Indonesia, the way how the students study the counselling theory, how students accept and apply the counselling practice. From the validity aspect, the level scale obtained that giving choice 1 to 4 makes the students sure assessing themselves related to counselling practice correctly.

The findings from other research are that number 41.9% in table 4, which means the scale can explain 41.9% of students' academic self-efficacy in counselling practice. The remaining 58.1% are still cannot be explained through instruments. Reviewed from the conclusion



beforehand, then the rest of the raw variance unexplained by measures is 58.1% will be explained in the next research. The preliminary study which studies the students' academic self-efficacy scale, certainly needs much criticism from other scientist and the researchers in the field of guidance and counselling in deepening about the similar study.

Conflict of Interest

The authors of this article declare no conflict of interest.

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