

Adaptation of Student Interpersonal Relationship Measurements: Validity and Reliability of Instruments with the Rasch Model

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Abstract

Interpersonal relationships are an essential foundation for identity formation, improving the quality of life, and mental wellbeing. This study aims to validate an instrument to measure the interpersonal relationships of high school and vocational school students. Survey research design, a quantitative approach, is used to provide a comprehensive understanding of interpersonal relationships. The theoretical framework for psychometric measurement is item response theory (IRT), specifically the RASCH model, using the Winstep application. The study's respondents were 351 students from 19 high schools and vocational schools across the island of Sumatra. The instrument consists of 74 statements across two aspects communication quality and participation each with 20 indicators. The results of the study showed that the interpersonal relationship was valid and reliable, meeting the criteria for item suitability, inventory dimensionality, and person and item reliability. Therefore, Guidance and Counseling Teachers can conduct more accurate assessments, detect students' various interpersonal problems early, and design interventions tailored to their needs.

Keywords: validity, reliability, instrument, interpersonal relationships

Abstrak

Hubungan interpersonal merupakan fondasi penting dalam pembentukan identitas, peningkatan kualitas hidup, dan kesejahteraan mental. Penelitian ini bertujuan untuk memvalidasi instrumen untuk mengukur hubungan interpersonal siswa SMA dan SMK. Desain penelitian survei dengan pendekatan kuantitatif adalah pendekatan penelitian yang digunakan untuk memberikan pemahaman yang komprehensif tentang hubungan interpersonal. Kerangka teoritis pengukuran psikometrik adalah teori respons item (IRT) dengan model RASCH menggunakan aplikasi Winstep. Responden penelitian ini adalah 351 siswa dari 19 sekolah menengah dan sekolah kejuruan yang tersebar di seluruh pulau Sumatera. Instrumen tersebut terdiri dari 74 pernyataan dengan dua aspek, yaitu kualitas komunikasi dan partisipasi dengan 20 indikator. Hasil penelitian menunjukkan bahwa hubungan interpersonal terbukti valid dan dapat diandalkan dengan memenuhi kriteria kesesuaian barang, dimensi inventaris, dan keandalan orang dan barang. Oleh karena itu, Guru Bimbingan dan Konseling dapat melakukan penilaian yang lebih akurat, mendeteksi berbagai masalah interpersonal siswa sejak dini, dan merancang intervensi sesuai dengan kebutuhan.

Kata kunci: validitas, reliabilitas, instrumen, hubungan interpersonal

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INTRODUCTION

On the way to adulthood, teenagers go through phases full of challenges and changes. Amid this upheaval of identity and pressure, one thing that can provide a stable foothold for adolescents is interpersonal relationships. Entering the all-connected 5.0 era, the ability to interact effectively with others in a relationship has become increasingly crucial for the realization of personal, professional, and social success (Furqon, 2024). Adolescents must possess good interpersonal relationships because with the skills of building interpersonal relationships, adolescents will find it easier to establish cooperation and friendship (Fatmah et al., 2014). One of the developmental tasks in adolescence is to achieve more mature relationships with peers which is characterized by an increased desire to get along, and an urge to be accepted in the peer environment, as well as a tendency to be liked and accepted by peers (Hurlock in Latifah et al., 2023).

Heider (2013) defines interpersonal relationships as an essential aspect of daily life because they involve interactions between individuals. Nock et al. (Hanan et al., 2024) stated that the importance of emotional and social connections for adolescents cannot be ignored, as these relationships play a central role in adolescent development, including preventing the onset of interpersonal stress. Interpersonal relationships involve interactions between individuals and encompass aspects such as trust, mutual understanding, cooperation, and interdependence. Further, interpersonal relationships include the exchange of emotions, information, support, and communication between individuals (Jackson-Dwyer, 2013).

This means that interpersonal relationships are inevitable in everyday life (Gray & Larson, 2011). Peers play a significant role in interpersonal relationships, providing emotional support, acceptance, identity formation, and social skills development. Interaction with peers can enrich an individual's social experience and help in building positive relationships with others (Orehek et al., 2018). Peer groups and positive friendships play an essential role as models and sources of information for adolescents. If adolescents have negative relationships with peers, it can lead to bullying, delinquent behavior, and social exclusion (Donlan et al., 2015). When teens have friends they can rely on for support, they'll be better able to cope with difficult situations and take better care of their mental and emotional wellbeing (Lu et al., 2023). When teens have friends they can rely on for support, they are better able to cope with difficult situations and take care of their mental and emotional wellbeing (Rufaida, L. et al., 2022). Additionally, teens who feel well accepted by peers tend to be more comfortable and confident in social interactions. This makes them more likely to show prosocial behavior because they feel supported and valued by their peers (Hartati, 2022).

According to Bruno (Tiska, 2012), adolescents who have difficulty building interpersonal relationships tend to experience loneliness. Loneliness as a negative emotion is positively correlated with a decline in adolescent psychological wellbeing (Lyyra et al., 2021). To get rid of the feelings of loneliness they experience, some teenagers will commit maladaptive acts. Some adolescents will misuse the internet, others will go clubbing to seek the affection they need from others, and some adolescents experience a decrease in self-esteem, as well as become vulnerable victims of bullying (Yola Tiska, 2012; Agusti & Leonardi, 2015; Sherlyanita & Rakhmawati, 2016; Acquah et al., 2016). In addition, adolescents who cannot overcome their loneliness will also consume drinks with high alcohol content, engage in fights, use illegal drugs, smoke, and make suicide attempts (Hidayati & Muthia, 2015).



Therefore, it is necessary to measure valid and reliable interpersonal relationships among adolescents, so that BK teachers can provide services that address students' needs. Various measurement instruments have been developed internationally, so validity and reliability need to be adjusted to the local culture. In contrast, some instruments remain self-report scales that can introduce bias in data interpretation. In this study, the measurement of the validity and reliability of the instrument was carried out using Rasch modeling, which has the advantage, namely, the use of item response theory (IRT), which allows an in-depth evaluation of each statement item, or in other words, each item is analyzed separately to assess how well the item can measure interpersonal relationships. In addition, IRT can identify item inconsistencies and indicate how difficult it is for respondents to understand the item in a given statement (Embretson & Reise, 2013a; Zanon et al., 2016).

The use of IRT allows for an in-depth analysis of each item, enabling evaluation of how well each item measures the desired construct. In addition, this study seeks to overcome the limitations of the self-report scale commonly used to measure interpersonal relationships. Using Rasch and IRT modeling, the study identified item inconsistencies and assessed respondents' difficulty understanding statement items, thereby reducing bias in data interpretation. This research also contributes to the development of a valid and reliable instrument for measuring interpersonal relationships among adolescents in the Indonesian cultural context. The results of this study can serve as a reference for BK teachers in providing services that align with students' needs, as well as a basis for further research on interpersonal relationships among adolescents in Indonesia. Thus, this research is expected to provide new insights and significant contributions to the field of psychological measurement, particularly regarding interpersonal relationships among adolescents in the context of Indonesian culture.

METHOD

Research Design

This study uses a quantitative approach with a survey research design. Survey research design is a data collection procedure by distributing questionnaires to identify trends in behavior, opinions, or attitudes of a group of people (Creswell, 2012). The survey was disseminated through a google form with time and cost efficiency considerations, as well as a broader range of representative respondents, so that a more accurate picture could be obtained of students' interpersonal relationships. The psychometric scale used, namely the Likert Scale with four answer choices, includes very appropriate (SS), pertinent (S), inappropriate (TS), and wildly inappropriate (STS). The collected data were then analyzed using RASCH modeling to assess the quality of interpersonal relationship instruments, including item suitability (MNSQ, ZSTD, Pt Mean Corr), inventory dimensions (raw variance explained by the measure, unexplained variance in 1st), and reliability of people and items.

Respond

This study involved 351 respondents from 19 high schools and vocational schools spread across various Sumatra islands. The sampling method in this study is purposive random sampling, ensuring that respondents represent the research objectives and the geographical areas to be studied. Thus, the data produced can be representative and relevant (Gay et al., 2012). Respondents in this study were voluntary. Before filling out the Google Form, the researcher explained the purpose of the survey and that all data



entered by respondents would be used solely for coding during analysis, and would not be disseminated.

Table 1.

Demographic Profile of Interpersonal Relationship Instrument Respondents			
Demographic Profile	Category	Frequency	Percentage
Gender	Woman	227	65%
	Man	124	35%
Age	Under 17 years old	300	85%
	Over 17 years old	51	15%
Class	X	246	70%
	XI	78	22%
	XII	27	8%
School Type	High School	275	78%
	Vocational High School	76	22%
Personality Type	Extrovert	92	26%
	Introvert	141	40%
	Ambivert	118	34%

Research Instruments

The instrument of interpersonal relationships is adapted from Dewi's thesis (2013) based on the grand theory of Davis and Yoder. The grand theory is then synthesized with various expert opinions into operational definitions, leading to the conclusion that interpersonal relationships are students' ability to establish positive relationships with others, characterized by quality communication and participation in student life. The instrument consists of 2 aspects: communication quality and participation. In terms of communication quality, it is divided into five sub-aspects, namely openness, empathy, supportive attitudes, positive attitudes, and equality. Meanwhile, the participation aspect is divided into two sub-aspects: mental involvement and emotional involvement. Alternative answers on the interpersonal relationship instrument used a four-point Likert scale response format, namely 1) very appropriate (SS); 2) fit (S), 3) inappropriate (SS), and 4) severely inappropriate (STS) (Croasmun & Ostrom, 2011).

Data Analysis

The statistical procedure used to analyze the data in this study uses the WinSteps application version 3.73. Data analysis includes general factor analysis and RASCH modeling. RASCH modeling was chosen for its high levels of accuracy, reliability, and validity (Bond & Fox, 2015). The steps in the development of instruments consist of 1) the creation of a framework based on UNESCO-APNIEVE (Asia-Pacific Network of International Education and Values Education) guidelines in building research constructs, 2) configuration of instrument grids, 3) preparation of item items, 4) consultation with guidance and counseling experts, 5) testing of instrument readability, and 6) distribution of instruments to high school and vocational school students on the island of Sumatra. Meanwhile, the analysis stages in the WinSteps application are 1) testing the accuracy of the interpersonal relationship scale; 2) item conformity level testing (MNSQ; ZSTD; Pt Mean Corr), 3) dimensionality testing (raw variance explained by measure; unexplained variance in 1st), and 4) reliability of people and items.



RESULTS AND DISCUSSION

The results of this research will be divided into four main parts based on what is to be revealed, including:

Accuracy Test of the Interpersonal Relationship Scale

The results of the analysis are seen from the Andrich Threshold criteria. If the accuracy of the scale starts from zero to negative to positive, then the scale meets the appropriate criteria (Sumintono & Widhiarso, 2015). Table 1 shows the Andrich Threshold values moving from none, -1.13, -0.41, and 1.54. This means that the choices in the interpersonal relationship scale are valid and do not cause confusion for respondents.

Table 1.

Summary of Category Structure

Category	Observed	Obsvd Sample	Infit	Outfit	Andrich	Category
Label	Score	Count %	Avrge Expect	Mnsq Mnsq	Threshold	Measure
1	1	2578 10	-.50 -.72	1.23 1.26	None	(-2.49) 1
2	2	5390 21	-.24 -.05	.77 .73	-1.13	-0.85 2
3	3	11294 43	.73 .69	.89 .88	-0.41	0.7 3
4	4	6712 26	1.36 1.34	1.05 1.04	1.54	-2.74 4

Fit Item Fit Test

The suitability of items (item fit) is assessed using three criteria: the mean-square outfit, Z-standardized outfit, and point-biserial correlation. For the outfit mean square value, if the value is between 0.5 and 1.5 ($0.5 < MNSQ < 1.5$), the item on the instrument can be accepted. Meanwhile, for the Z-Standard outfit value, if the value falls within -0.2 to 2.0 ($-2.0 < ZSTD < +2.0$), then the instrument item is accepted. As for the point measure correlation value, if the value falls within 0.4 and 0.85 ($0.4 < Pt\ Measure\ Corr < 0.85$), the instrument item is accepted (Boone et al., 2013; Cantó-Cerdán et al., 2021). If there are items that do not meet all these criteria, then the statements items that have been made are not good, and need to be corrected or replaced (Sumintono & Widhiarso, 2015).

In table 2, all statement items meet the outfit mean square criteria. However, there are some items that do not meet the requirements of Z-Standard outfit and point measure correlation. Items that meet the Z-Standard outfit criteria are at numbers 25, 26, 30, 29, 6, 3, 67, 65, 27, and 60. Meanwhile, items that meet the point measure correlation criteria are 3, 67, 60, 50, 56, 54, 20, 46, 33, 13, 21, 7, 47, 59, 22, and 66. Because all statement items already meet one of the criteria, no statement items need to be changed or corrected.

Table 2.

Item Fit Rate (Item Fit)

Entry	Total	Total	Model	Infit	Outfit	Pt-Measure	Exact Match
Number	Score	Count	Measure	Mnsq Zstd	Mnsq Zstd	Corr. Exp.	Obs% Exp%
	S.E.						Item
5	851	351	.78 .07	1.44 6.1	1.48 6.5	A .13 .35	33.6 42.9 KH.5-
74	1125	351	-.59 .08	1.47 5.3	1.46 5.3	B .31 .29	46.4 52.9 P.74-
8	1058	351	-.20 .07	1.40 4.7	1.41 4.8	C .23 .31	40.5 53.2 KH.8
57	784	351	1.07 .07	1.33 4.9	1.33 4.9	D .36 .36	34.5 41.1 H.57-
73	762	351	1.17 .07	1.28 4.2	1.31 4.6	E .18 .36	41.6 40.7 P.73-
28	734	351	1.29 .07	1.27 4.1	1.30 4.5	F-.13 .36	45.0 40.1 H.28-
37	704	351	1.43 .07	1.26 4.0	1.30 4.4	G .06 .36	42.5 40.0 H.37-



11	674	351	1.57	.07	1.24	3.6	1.26	3.9	H.07	.36	39.9	40.2	KH.11-
72	1143	351	-.70	.08	1.25	3.0	1.26	3.1	I.30	.28	51.3	52.5	P.72
41	1054	351	-.18	.07	1.25	3.1	1.24	3.0	J.39	.31	43.6	53.1	KH.41
69	661	351	1.63	.07	1.19	2.8	1.25	3.6	K.25	.36	42.5	40.2	P.69-
70	817	351	.93	.07	1.21	3.1	1.23	3.4	L.24	.36	41.3	41.7	P.70-
10	703	351	1.43	.07	1.19	2.9	1.21	3.2	M.17	.36	40.2	40.0	KH.10-
18	1004	351	.08	.07	1.16	2.2	1.18	2.4	N.31	.32	50.7	51.5	KH.18-
48	853	351	.78	.07	1.16	2.4	1.17	2.6	O.37	.35	38.7	42.9	KH.48-
16	589	351	2.00	.07	1.14	1.9	1.17	2.3	P.02	.35	40.2	45.1	KH.16-
32	1074	351	-.29	.07	1.15	1.9	1.16	2.1	Q.33	.30	56.1	53.3	KH.32-
43	953	351	.33	.07	1.16	2.2	1.16	2.2	R.30	.33	42.5	48.3	KH.43
64	866	351	.72	.07	1.13	2.0	1.16	2.3	S.31	.35	44.4	43.4	P.64
4	951	351	.34	.07	1.13	1.9	1.16	2.2	T.27	.33	47.6	48.2	KH.4-
25	565	351	2.13	.08	1.08	1.1	1.15	1.9	U-.36	.34	35.9	48.8	KH.25-
26	832	351	.87	.07	1.11	1.7	1.13	2.0	V.20	.35	39.9	42.4	KH.26-
30	1165	351	-.84	.08	1.12	1.6	1.11	1.4	W.34	.27	53.0	52.5	KH.30-
29	1304	351	-2.08	.11	1.12	1.3	.96	-.3	X.38	.20	74.9	72.6	KH.29
6	1164	351	-.84	.08	1.11	1.4	1.10	1.3	Y.37	.28	51.6	52.3	KH.6
3	1001	351	.10	.07	1.10	1.3	1.10	1.4	Z.40	.32	42.2	51.4	KH.3
67	1027	351	-.04	.07	.89	-1.6	.89	-1.6	z.45	.32	56.7	52.3	P.67
65	812	351	.95	.07	.87	-2.2	.88	-1.9	y.31	.36	47.9	41.4	P.65-
27	1195	351	-1.06	.09	.87	-1.8	.85	-1.9	x.33	.26	61.8	52.7	KH.27
60	1070	351	-.26	.07	.84	-2.2	.86	-1.9	w.47	.31	56.7	53.3	P.60
50	1132	351	-.63	.08	.85	-1.9	.84	-2.2	v.48	.29	59.3	52.7	KH.50
56	1146	351	-.72	.08	.83	-2.2	.83	-2.3	u.40	.28	60.1	52.5	KH.56
1	1092	351	-.39	.08	.83	-2.3	.83	-2.3	t.37	.30	57.0	53.3	KH.1
51	1155	351	-.78	.08	.80	-2.7	.80	-2.8	s.39	.28	59.8	52.4	KH.51
31	1114	351	-.52	.08	.80	-2.7	.80	-2.7	r.35	.29	60.1	53.1	KH.31
54	1161	351	-.82	.08	.80	-2.8	.79	-2.9	q.45	.28	61.5	52.4	KH.54
20	1175	351	-.91	.08	.79	-2.8	.77	-3.2	p.46	.27	63.0	52.5	KH.20
46	1192	351	-1.04	.09	.77	-3.2	.75	-3.5	o.46	.26	64.4	52.6	KH.46
35	1191	351	-1.03	.09	.76	-3.3	.75	-3.4	n.36	.26	65.0	52.7	KH.35
33	1093	351	-.39	.08	.76	-3.4	.75	-3.5	m.43	.30	57.8	53.3	KH.33
36	1185	351	-.98	.08	.75	-3.4	.76	-3.4	l.36	.27	64.7	52.5	KH.36
13	1161	351	-.82	.08	.75	-3.4	.74	-3.7	k.43	.28	61.0	52.4	KH.13
39	1076	351	-.30	.07	.70	-4.3	.74	-3.7	j.31	.30	66.7	53.4	KH.39
21	1151	351	-.75	.08	.73	-3.8	.73	-3.9	i.41	.28	61.0	52.4	KH.21
7	1185	351	-.98	.08	.72	-3.9	.73	-3.9	h.42	.27	63.8	52.5	KH.7
12	1063	351	-.23	.07	.71	-4.3	.71	-4.3	g.38	.31	65.0	53.3	KH.12
47	1130	351	-.62	.08	.71	-4.2	.69	-4.4	f.49	.29	62.4	52.8	KH.47
63	1052	351	-.17	.07	.70	-4.4	.70	-4.4	e.39	.31	64.1	53.0	P.63
59	1117	351	-.54	.08	.69	-4.4	.67	-4.9	d.54	.29	67.0	53.0	P.59
17	1182	351	-.96	.08	.66	-4.9	.67	-4.8	c.38	.27	66.1	52.4	KH.17
22	1161	351	-.82	.08	.61	-5.8	.62	-5.7	b.41	.28	67.5	52.4	KH.22



66	1118	351	-.54	.08	.54	-7.1	.56	-6.9	a .43	.29	69.8	53.0	P.66
MEAN	1001.2	351.0	.00	.08	.99	-.2	.99	-.1			52.8	49.5	
S.D.	179.5	.0	.92	.01	.21	2.9	.21	3.0			10.1	6.0	

Dimensionality Test

Dimensionality tests, or convergent and discriminant validity tests, are used to evaluate the extent to which indicators measure the items on interpersonal relationship instruments. The dimensionality test is based on the raw variance explained by the measures, with 20% considered adequate, 40% better, and 60% exceptional. In addition, the dimensionality test is evident from the unexplained variance in the 1st contrast. If the value obtained is less than 15%, the instrument construct is considered ideal (Andrich & Marais, 2019; Boone, 2020; Sumintono & Widhiarso, 2015). In table 3, the raw variance explained by the measures is 37.5%, indicating that the interpersonal relationship instrument has adequate quality. Meanwhile, regarding the unexplained aspect, the variance in the 1st contrast was 8.2%. This means that the instrument has met the criteria for measuring the interpersonal relationships of high school and vocational school students.

Table 3.
Dimensionality

TABLE 23. 0 Student Interpersonal Relationship Inventory ZOU539WS.TXTs May 25 1:43 2024			
INPUT: 351 PERSON 74 ITEM REPORTED: 351 PERSON 74 ITEM 4 CATS WINSTEPS 3.73			
Table of STANDARDIZED RESIDUAL variance (in Eigenvalue units)			
Total raw variance in observations	=	118.5	100.0% 100.0%
Raw variance explained by measures	=	44.5	37.5% 38.2%
Raw variance explained by persons	=	6.6	5.6% 5.7%
Raw Variance explained by items	=	37.8	31.9% 32.5%
Raw unexplained variance (total)	=	74.0	62.5% 100.0% 61.8%
Unexplned variance in 1st contrast	=	9.7	8.2% 13.2%
Unexplned variance in 2nd contrast	=	5.0	4.2% 6.7%
Unexplned variance in 3rd contrast	=	2.6	2.2% 3.5%
Unexplned variance in 4th contrast	=	2.4	2.0% 3.3%
Unexplned variance in 5th contrast	=	2.2	1.8% 2.9%

Item and Person Reliability

The reliability test of the research used the internal consistency method, namely alpha cronbach to measure the interaction between people and items in the instrument. If the Cronbach's alpha is 0.8 or higher, the instrument is in the outstanding category (Sumintono & Widhiarso, 2015). In addition, reliability is evident from the values of person and item reliability. If the score is in the range of 0.8 – 0.9, it means good, 0.9 – 0.94 means very good, and > 0.94 means special (Sumintono & Widhiarso, 2015). Based on table 4 above, the alpha Cronbach value obtained is 0.88. This shows that the interaction between the person and the item as a whole is excellent. Meanwhile, the person's reliability value is 0.86. This means students' answers are consistent. Meanwhile,



the item reliability value obtained is 0.99. This means that the quality of the statement items in the instrument is a matter of reliability.

Table 4.

Person and Item Reliability

Student Interpersonal Relationship Inventory ZOU539WS.TXTe May 25 1:43 2024									
INPUT: 351 PERSON 74 ITEM REPORTED: 351 PERSON 74 ITEM 4 CATS WINSTEPS 3.73									
SUMMARY OF 351 MEASURED PERSON									
	TOTAL		MODEL	INFIT	OUTFIT				
	SCORE	COUNT	MEASURE	ERROR	MNSQ	ZSTD			
	MNSQ	ZSTD							
MEAN	211.1	74.0	.57	.16	1.02	-.4	.99	-.6	
S.D.	17.8	.0	.48	.01	.58	3.3	.58	3.1	
MAX.	273.0	74.0	2.73	.24	5.01	9.9	5.50	9.9	
MIN.	172.0	74.0	-.39	.15	.24	-7.4	.24	-7.2	
REAL RMSE .18 TRUE SD .45 SEPARATION 2.48									
PERSON RELIABILITY .86									
MODEL RMSE .16 TRUE SD .45 SEPARATION 2.79 PERSON RELIABILITY .89									
S.E. OF PERSON MEAN = .03									
PERSON RAW SCORE-TO-MEASURE CORRELATION = 1.00									
CRONBACH ALPHA (KR-20) PERSON RAW SCORE "TEST" RELIABILITY = .88									
SUMMARY OF 74 MEASURED ITEM									
	TOTAL		MODEL	INFIT	OUTFIT				
	SCORE	COUNT	MEASURE	ERROR	MNSQ	ZSTD			
	MNSQ	ZSTD							
MEAN	1001.2	351.0	.00	.08	.99	-.2	.99	-.1	
S.D.	179.5	.0	.92	.01	.21	2.9	.21	3.0	
MAX.	1304.0	351.0	2.13	.11	1.47	6.1	1.48	6.5	
MIN.	565.0	351.0	-2.08	.07	.54	-7.1	.56	-6.9	
REAL RMSE .08 TRUE SD .92 SEPARATION 11.68 ITEM RELIABILITY .99									
MODEL RMSE .08 TRUE SD .92 SEPARATION 12.12 ITEM RELIABILITY .99									
S.E. OF ITEM MEAN = .11									

The results of the validity and reliability test on the student's interpersonal relationship instrument showed that the instrument's items met the criteria as a valid and reliable measuring tool. Rasch modeling provides an in-depth analysis of the accuracy of an instrument, ensuring that each item contributes to measuring the desired concept



(Boone et al., 2014). The validity of this instrument is also supported by a strict psychometric approach, which ensures that the measurement results remain consistent in various situations (Linacre, 2011). Thus, this instrument can be used in academic assessment as well as psychological interventions for students (Embretson & Reise, 2013b).

The measurement scale's accuracy in this study also showed positive results. A good scale must clearly represent respondents' perceptions and not confuse (Linacre, 2019). This indicates that the scale used is in accordance with the basic principles of psychometric measurement. In addition, a valid scale must be able to comprehensively describe the level of interpersonal relationships, so that it can be used by guidance and counseling experts in understanding students' social dynamics (Zanon et al., 2016).

In the analysis of fit items, some items did not fully meet the criteria for Z-Standard outfit and point measure correlation but were still acceptable in the context of these measurements. Not all items in an instrument have to be perfect, the most important thing is that the instrument as a whole still reflects the concept being measured (Sumintono & Widhiarso, 2020). In addition, in the development of psychological instruments, the presence of slight variations in some items is often considered natural due to the diverse characteristics of individual responses (De Ayala, 2013).

The dimensionality test showed that this instrument has a strong structure, with an unexplained variance of 8.2% in the 1st contrast, which is within acceptable limits (Sumintono & Widhiarso, 2020). A good instrument structure should be able to measure the desired concept without being influenced by other irrelevant factors (Andrich & Marais, 2019). Therefore, this instrument is qualified to be used as a measuring tool in academic and research contexts (Boone, 2020).

The very high reliability of the instrument, with an item reliability value of up to 0.99, indicates remarkable consistency (Hanan et al., 2024). High reliability ensures that an instrument can be used in a variety of contexts without losing its consistency (Nock et al., 2024). Therefore, this instrument is well-suited for use in longitudinal research that monitors the development of students' interpersonal relationships over time (Lu et al., 2023).

CONCLUSION

After conducting a contrast test using RASCH modeling, the interpersonal relationship instrument, consisting of 74 statement items, is valid and reliable and suitable for use as a measuring tool for students' interpersonal relationships. The interpersonal relationship instrument has met the criteria for scale accuracy, item suitability, instrument dimensionality, and reliability of persons and items. In the scale accuracy test, the alternative answer was shown to be valid and did not confuse respondents. Meanwhile, the item conformity test shows that all statement items meet one of the criteria, namely the MNSQ outfit, so none need to be changed or corrected. Meanwhile, in the dimensionality test, the instrument met the criteria for measuring the interpersonal relationships of high school and vocational school students. Furthermore, in the reliability test, the consistency of the students' answers was good, and the reliability of the statement items was high. The validity and reliability of interpersonal relationship instruments in high school and vocational school students make a positive contribution to the development of Guidance and Counseling services in schools. The existence of valid and reliable interpersonal relationship instruments can provide an accurate picture of the



dynamics of students' interpersonal relationships at school, enabling BK teachers to identify potential problems and plan appropriate interventions tailored to students' needs.

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