Development and Psychometric Properties of a Flourishing Scale for University Students: A Rasch Model Analysis

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Abstract
Flourishing is an important indicator of students' psychological well-being, especially in facing academic demands and developmental transitions in early adulthood. However, the measurement of flourishing in Indonesian students still requires a valid, reliable, and more precisely calibrated instrument. This study aims to develop and evaluate the psychometric properties of the Flourishing Scale based on the PERMA model for students using Rasch analysis. This study uses a quantitative approach with instrument development design. Participants consisted of 236 active students of the Indonesian Education University aged 18–22 years. The instrument consists of 50 items arranged based on the five dimensions of PERMA, namely Positive Emotion, Engagement, Relationship, Meaning, and Accomplishment. The data was analyzed using the Rasch Rating Scale Model through the Winsteps program. The results of the analysis showed that the instrument met the assumption of unidimensionality with raw variance explained by measures of 45.3% and unexplained variance in first contrast of 4.3%. The reliability of the person is 0.89 with a separation of 2.91, while the reliability of the item is 0.99 with a separation of 10.78. Item fit analysis showed three items, namely P7, P16, and P34, did not meet the model's suitability criteria and needed to be revised or considered for issue. The Wright map shows that the distribution of items is generally according to the level of flourishing of the respondents, although the instrument is more optimal for measuring students with medium to high flourishing levels. The PERMA-based Flourishing Scale shows good psychometric quality and can be used as an initial assessment tool to map student flourishing, noting that some items still need further refinement.

1. Introduction

Flourishing is one of the main phenomena that has been a major concern in the study of positive psychology over the past two decades. This concept describes an optimal state of well-being, when individuals are not only free from mental disorders, but also feel positive emotions, fully engage in meaningful activities, build positive social relationships, have meaning in life, and achieve achievements (Diener et al., 2010; Huppert & So, 2009; Seligman, 2002). This phenomenon is increasingly studied in the context of higher education because students are in the early adulthood phase, which includes a period of developmental transition that is sensitive and demands complex psychosocial adjustment (Arnett, 2015; Padilla-Walker, Memmott-Elison, & Nelson, 2017; Schulenberg & Zarrett, 2006). In this phase, students are faced with interrelated academic, social, and personal demands, so that the extent to which students are able to achieve the conditions of Flourish is an important issue.

College students, as an early adult group that is going through a transitional period, are vulnerable to psychological distress due to the instability of this developmental period (Padilla-Walker et al., 2017; Schulenberg & Zarrett, 2006). Some of them experience anxiety and serious mental health problems, although this period also holds significant growth potential if these barriers can be overcome, flourishing is an important factor that has a significant impact on students' psychological well-being and academic performance (Faizah, Suminar, & Yoenanto, 2024). Data in the field shows that the level of student flourishing is still relatively low. Research by Lutfianawati (2024) reported that 41% of students were in the low category, 39% were in the medium category, and only 20% were in the high category. Similar findings were reported by Healthy Minds Study by Oh (2023) involving 115,225 students in the United States in the 2020–2021 period, with a generally low flourishing rate. Students with low flourishing rates tend to be more susceptible to academic stress, negative affect, and obstacles in showing self-compassion (Yunanto & Putra, 2023). The more serious impact of this condition is reflected in the emergence of mental health problems that hinder individuals from optimally actualizing themselves (Sirgy, 2021; Ventegodt, Merrick, & Andersen, 2003)

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A survey on the Depression Anxiety stress scale (DASS) in 2025 shows that mental health problems need to receive more serious attention, where the mapping results show that most students are in the category of severe to very severe stress, with very high levels of anxiety as the most dominant condition. This phenomenon shows that anxiety is a psychological issue that needs attention in 2025 accompanied by stress and then depression (Meriana, 2025). Several factors can affect the level of student flourishing, including high academic demands, anxiety, loneliness, and lack of social support. Decreased flourishing in students has an impact on the low finding of meaning and purpose in life which can result in feelings of aimlessness and hopelessness (Faizah et al., 2024). Flourishing has been associated with having a number of long-term impacts, including low readiness for work and difficulty in developing professional skills (Hill, Coughlan, & Mackinnon, 2023; Martinez et al., 2024). So that in this context, flourishing is an important construct to be developed because it plays a role in improving psychological well-being, so that the development of flourishing in students is an urgent need and as a first step in supporting students' mental health.

Well-being is a psychological construct that is widely studied in positive psychology (Nurcahyo & Valentina, 2024). World Health Organization (2005) Define well-being as a mental health condition in which individuals are able to realize their potential, overcome life pressures, and contribute productively to their environment. Individuals who have well-being and positive emotions tend to be more psychologically protected from the risk of depression, while individuals with negative emotions are at a higher risk of developing mental disorders (Zhang, 2023). The two main elements that make up well-being are hedonia and eudaimonia. Hedonia refers to positive emotions such as pleasure and comfort, while eudaimonia refers to the actualization of one's potential, personal growth, and meaning and purpose in life (Fave, Massimi, & Bassi, 2011; Ryan et al., 2021). One of the theories that contributes to positive psychology is flourishing. Seligman (2011) states that flourishing is a condition when individuals achieve optimal development and function fully in various aspects of life, including positive emotions, involvement, meaningful relationships, achievements, and clear life goals.

Flourishing means finding fulfillment in life, completing meaningful tasks, and connecting with others on a deeper level essentially living a good life and being a combination of social, emotional, and psychological well-being (Anand et al., 2024; Huppert & So, 2009; Seligman, 2011). On a more positive level, it can improve functionality (Momtaz et al., 2016; Yanardağ, Budak, & Özer, 2022). Not just feeling good, flourishing involves optimal mental health and living within the ideal range of human function (Butler et al., 2019; Diener et al., 2010; Satici, Uysal, & Akin, 2013). Seligman (2011) It also emphasizes that positive mental health is not just the absence of mental disorders, but the presence of real positive resources such as positive emotions, involvement, good relationships, meaning, and achievement. Because the skill to minimize suffering is completely different from the skill to thrive.

Based on this concept, flourishing is understood as a condition of well-being that reflects the optimal functioning of individuals, not only free from psychological disorders but how individuals are able to develop positive emotions, engagement, relationships, meaning, and accomplishment. The PERMA model is referred to as the 5 pillars as a high level of well-being, namely: 1) Positive emotion which is the tendency of students to feel and experience positive effects in daily life which includes feelings of happiness, gratitude and optimism, 2) Engagement, defined as full student involvement which is characterized by the ability to be fully absorbed in activities, maintain concentration, and show perseverance in completing tasks academic, 3) Relationship is defined as students' perception and experience of the quality of their interpersonal relationships which includes feelings of love, the availability of social support, and the satisfaction of relationships built both in the context of lectures and personal lives, 4) Meaning is a student's appreciation of the goals, values, and significance of the life they live which includes clarity of the direction of life, appreciation that every lecture activity carried out have meaningful values, and the awareness that they contribute to something that goes beyond personal interests, 5) Accomplishment is defined as a student's perception of their achievement and effectiveness which includes real progress towards the academic goals that have been set, confidence in one's ability to carry out lecture assignments, and the ability to manage and complete responsibilities consistently. Flourishing is not a single real thing, but rather a construct similar to the concept of "weather" or "freedom" formed by several measurable elements that contribute to each other without any single element defining it singularly (Seligman, 2011)

There are several instruments that have been developed to measure the flourishing construct, (Keyes, 2002) develop a flourishing instrument through the Mental Health Continuum-Short Form (MHC-SF) which measures emotional, social, and psychological well-being. Diener et al. (2010) also develop The Flourishing Scale with six aspects of well-being, Huppert and So (2013) expanding the conceptual framework with ten positive well-being features including resilience and vitality. Then the instrument that is most widely adopted in the current study is PERMA-Profiler by Butler and Kern (2016) which measures five elements of well-being, namely Positive Emotions, Engagement, Relationships, Meaning, and Achievements based on the PERMA model. This instrument has been adapted and applied to various cultural contexts, including in Indonesia by Elfida et al. (2021) who adapted the PERMA-Profiler to 439 Indonesian adult respondents. Latest Nadhirah et al. (2026) developed a PERMA-based Flourishing scale specifically designed for education students in Indonesia using the

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RASCH model approach and successfully validated 35 out of 55 initial items as a reliable and valid instrument to measure flourishing in this population.

Although various flourishing instruments have been made available and some have been adapted in the Indonesian context, there are still some limitations. First, most of the instruments are still being developed in the context of western individualist culture, so that they have the potential to cause cultural bias when applied to Indonesian society (Elfida et al., 2021). It was also found that some items in the engagement dimension such as "Forgetting time when doing something you like" were interpreted negatively by Indonesian respondents so that they did not represent the concept of engagement. The two dimensions of relationships do not fully reflect the values of kinship and social harmony that are characteristic of Indonesian society (Nadhirah et al., 2026). The three fit item results show that the negative dimension of emotion has the highest number of misfits, which shows that the measurement of negative emotions is not sensitive enough to the experience of Indonesian students. Finally, the validation of the instrument in Indonesia is still limited to certain samples and contexts, so its generalization in a more diverse student population still requires further testing (Elfida et al., 2021; Nadhirah et al., 2026)

Although the PERMA-based flourishing instrument has been developed and tested psychometrically using the Rasch model in the context of Indonesian students by Nadhirah et al. (2026). There is still a need to develop a flourishing instrument that is more in line with the characteristics of Indonesian students. Instrument development is not only focused on the process of language adaptation, but also on the suitability of the construct with the cultural context, population characteristics, and psychometric qualities of each item. In this study, the development of the scale was carried out using the Rasch approach because it was able to provide more comprehensive information about the quality of the instrument, the Rasch model allows a more accurate evaluation of the characteristics of each item so as to produce an instrument that has stronger validity and reliability. Therefore, this study aims to develop and test the psychometric properties of the flourishing scale for Indonesian students based on the PERMA model with the Rasch approach, so that a valid, reliable, and more representative instrument is obtained to measure flourishing in accordance with the Indonesian cultural context.

2. Method

2.1. Study Design

This study uses a quantitative approach with instrument development design, which aims to psychometrically compile and calibrate a new flourishing measurement instrument based on the PERMA model (Seligman, 2011) for students in Indonesia. This study adopts the Item Response Theory (IRT) framework, specifically the Rasch Rating Scale Model, to calibrate item and person parameters. This approach was chosen because it is able to produce sample-free and item-free parameter estimation, allows the preparation of person-item maps, and provides diagnostic evaluation of the function of information response categories (Bond & Fox, 2013; Sumintono & Widhiarso, 2015).

2.2. Participants

This study involved as many as 236 active students from one of public university, who are in the 2nd semester and spread across 8 faculties. Demographic characteristics of participants included the age range of 18-22 years. Data is collected through surveys with google forms. Based on the demographic results, it can be seen in Table 1.

Table 1. Participatory Demographics

No	Demographics	N (Total)	Percentage (%)
1	Gender		
	Male	43	18%
	Female	193	82%
	Total	236	100%
2	Age		
	18 Years	49	21%
	19 Years	142	60%
	20 Years	40	17%
	21 Years	3	1%
	22 Years	2	1%
	Total	236	100%
3	Faculty		
	Faculty of Social Sciences Education	79	33%
	Faculty of Education	81	34%
	Faculty of Economics and Business Education	56	24%

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No	Demographics	N (Total)	Percentage (%)
	Faculty of Mathematics and Science Education	8	3%
	Faculty of Engineering Education and Industry	2	1%
	Faculty of Arts and Design Education	2	1%
	Faculty of Sports and Health Education	1	0%
	Faculty of Language and Literature Education	7	3%
	Total	236	100%

2.3. Instruments

The Flourishing instrument in this study is compiled based on the PERMA model (Seligman, 2011). The definition of flourishing operations in this study refers to the optimal psychological functioning of students during lectures, which includes balance in academic and personal life characterized by the 5 dimensions of PERMA (Positive Emotion, Engagement, Relationship, Meaning, and Accomplishment). Each item is graded using a 4-point Likert scale (1 = Very Inappropriate, 2 = Inappropriate, 3 = Appropriate, 4 = Very Appropriate). Unfavorable items are given a reverse-scored score before being analyzed. This scale consists of 50 statement items arranged based on the readability test, The validity of the content is determined through expert judgment which involves a number of experts in the field of guidance and counseling. The grid on the development of this instrument is presented in Table 2.

Table 2. Examples in Each Dimension

Dimensions	Aspects	Item Favorable (+)	Item Unvaforable (-)	Quantity
Positive Emotion	A Feeling of Happiness	1, 2	3,4	4 items
	Gratitude	5, 6	7, 8	4 items
	Optimism	9, 10	11	3 Items
Engagement	Fully engaged (Flow)	12, 13	14, 15	4 items
	Concentration on activity	16, 17	18, 19	4 items
Relationship	Loved by the surrounding environment	20, 21	22, 23	4 items
	Social support	24, 25	26, 27	4 items
	Relationship satisfaction	28, 29	30, 31	4 items
Meaning	Have a purpose	32, 33	34	3 items
	Appreciation of meaning in life	35, 36	37	3 items
	Have a contribution	38, 39	40, 41	4 items
Accomplishment	Personal Progress	42, 43	44	3 items
	Self-competence	45	46, 47	3 items
	Responsibilities	48	49, 50	3 items
Total item				50 items

2.4. Data Analysis

The data analysis in this study uses an item response theory (IRT) approach, especially the RASCH model, which is operated through the Winsteps program. The RASCH model was chosen because it is able to estimate the ability of people and the difficulty level of an item on the same logit interval scale (Bond & Fox, 2013), thus providing more objective measurements than the classical test theory approach because it is able to evaluate the quality of the instrument thoroughly and provide information about the quality of responses and question items in the same measurement framework (Sumintono & Widhiarso, 2015). Using this analysis, the researcher can ensure that the instrument measures the construct in question accurately, thereby increasing the validity and reliability of the data.

3. Results and Discussion

3.1. Results

The flourishing instrument in this study was developed through several stages. The initial stage begins with formulating the operational definition of the variable, then each dimension of PERMA is elaborated into several aspects that are a reference in the preparation of item items by considering favorable and unfavorable items in each indicator to minimize the tendency of response bias. The validity of the content of the instrument is then determined through an expert judgment process involving three experts in the field of guidance and counseling to assess the suitability of each item with the indicators and dimensions to be measured, both in terms of language clarity, content relevance, and developed constructs. After that, a readability test is carried out to ensure that the language used can be clearly understood by students as the target population. Through

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this process, the final instrument used in this study consisted of 50 statement items that were assessed using a four-point Likert scale (1 = Very Inappropriate to 4 = Very Appropriate), with the score on the unfavorable item reverse-scored before further analysis was carried out. The following presents the results of data analysis based on the Rasch model.

3.1.1. Unidimensionality Analysis

The unidimensional assumption is one of the requirements in the results of Rasch's analysis (Geramipour, 2021; Lambert et al., 2021). The unidimensional criteria can be seen in the Raw variance explained by measures more than 40% (Linacre, 2006). Based on the results of the analysis presented in figure 1, it can be observed that the results of the analysis show that Raw variance explained by measures 45,3%. The value passes the predetermined criterion value so that the instrument test meets the unidimensional criteria. Then on Raw unexplained Variance in 1St Contrast less than 15%, which is at 4.3%, thus explaining that the instrument used meets the requirements and only measures one variable as a whole without being influenced by other variables (see Figure 1).

	-- Empirical --			Modeled
Total raw variance in observations =	91.4	100.0%		100.0%
Raw variance explained by measures =	41.4	45.3%		45.8%
Raw variance explained by persons =	9.8	10.7%		10.8%
Raw Variance explained by items =	31.6	34.6%		34.9%
Raw unexplained variance (total) =	50.0	54.7%	100.0%	54.2%
Unexplned variance in 1st contrast =	3.9	4.3%	7.8%	
Unexplned variance in 2nd contrast =	3.5	3.9%	7.0%	
Unexplned variance in 3rd contrast =	2.7	2.9%	5.4%	
Unexplned variance in 4th contrast =	2.6	2.8%	5.1%	
Unexplned variance in 5th contrast =	2.3	2.5%	4.5%	

Figure 1. Model Unidimensionality Analysis Result

3.1.2. Reliability Analysis

The statistical summary in figures 2 and 3 below shows the reliability of the instrument both at the item level and at the individual level. The Cronbach alpha value measures the reliability, which is the interaction between a person and an item at once. Figure 2 shows a Separation value of 2.91 with a reliability value of 0.89, this shows that the compiled instrument is able to identify easy or difficult items and the respondents can or cannot (Iriyadi et al., 2024a). Meanwhile, in Table Figure 3 for a separation value of 10.78 with a reliability value of 0.99, it shows that psychometrically the quality of the developed instrument is very good. So that the reliability value for respondents and items shows that the flourishing instruments developed are consistently in the category of very good and the quality of the instrument is preferred.

SUMMARY OF 236 MEASURED Person

	TOTAL SCORE	COUNT	MEASURE	MODEL ERROR	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD
MEAN	148.6	50.0	1.16	.24	1.02	-.2	1.02	-.3
S.D.	14.3	.0	.81	.02	.52	2.4	.54	2.3
MAX.	189.0	50.0	4.17	.37	4.34	9.7	4.21	9.4
MIN.	95.0	50.0	-1.57	.22	.31	-4.8	.32	-4.8

REAL RMSE .26 TRUE SD .77 SEPARATION 2.91 Person RELIABILITY .89
MODEL RMSE .24 TRUE SD .78 SEPARATION 3.25 Person RELIABILITY .91
S.E. OF Person MEAN = .05

Person RAW SCORE-TO-MEASURE CORRELATION = 1.00
CRONBACH ALPHA (KR-20) Person RAW SCORE "TEST" RELIABILITY = .91

Figure 2. Summary Measure Person

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SUMMARY OF 50 MEASURED Item

	TOTAL SCORE	COUNT	MEASURE	MODEL ERROR	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD
MEAN	701.2	236.0	.00	.11	1.00	-.1	1.02	.0
S.D.	109.9	.0	1.26	.01	.25	2.7	.29	3.0
MAX.	913.0	236.0	2.69	.20	1.84	7.8	2.16	9.9
MIN.	443.0	236.0	-3.39	.10	.59	-5.1	.60	-5.1
REAL RMSE	.12	TRUE SD	1.26	SEPARATION 10.78	Item	RELIABILITY	.99	
MODEL RMSE	.11	TRUE SD	1.26	SEPARATION 11.26	Item	RELIABILITY	.99	
S.E. OF Item MEAN = .18								

UMEAN=.0000 USCALE=1.0000
Item RAW SCORE-TO-MEASURE CORRELATION = -.99
11800 DATA POINTS. LOG-LIKELIHOOD CHI-SQUARE: 20632.97 with 11513 d.f. p=.0000
Global Root-Mean-Square Residual (excluding extreme scores): .6001

Figure 3. Summary Measure Item

3.1.3. Item Fit Order Analysis

In the framework of the Rasch model, items that do not fit the measurement pattern are categorized as misfit. According to Boone et al. (2014) Item fit is measured based on three criteria: Outfit Mean Square (MNSQ), Z-Standard Outfit (ZSTD) then Pt Measure Correlation (Pt Mean Corr). Items are included in fit when they meet one of the three criteria in Table 3 (Sumintono & Widhiarso, 2015):

Table 3. Fit Item Criteria

Criteria	Interval	Remarks
Outfit Mean Square	0.5 < outfit MNSQ < 1.5	Accepted
Z-Standard Outfit	0.2 < ZSTD < +2.0	Accepted
Pt Measure Correlation	0,4 < Pt Measure Corr < 0,85	Accepted

Figure 4 show the analysis results that three items, namely P7, P16, and P34, were identified as not meeting the criteria for item fit and were declared invalid to measure the construct in question. Item P7 has an MNSQ Outfit value of 2.16 and a ZSTD Outfit of 9.9, both of which far exceed the required upper limit (1.5 and +2.0). Item P16 shows a similar pattern with the MNSQ Outfit of 1.60 and the ZSTD Outfit of 6.3, also exceeding the set threshold. Similarly, item P34 with an MNSQ Outfit of 1.53 and a ZSTD Outfit of 4.9, both of which are outside the acceptable range. These three items indicate an inconsistent or unexpected response pattern from a number of respondents, especially in respondents with high and low ability levels, thus causing distortion in the estimation of item parameters and potentially reducing the validity of the overall instrument construct if it is maintained without revision. Thus, it is recommended that the three items be reviewed from the editorial and content fittest, revised, or excluded from the final instrument.

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Item STATISTICS: MEASURE ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PT-MEASURE CORR.	PT-MEASURE EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	Item
26	443	236	2.69	.10	1.36	4.0	1.36	4.0	.38	.46	43.6	52.0	P26
4	451	236	2.61	.10	.94	-.7	.98	-.3	.42	.47	55.9	52.0	P4
19	490	236	2.23	.10	1.18	2.2	1.26	3.0	-.01	.47	63.6	52.2	P19
16	494	236	2.20	.10	1.44	4.8	1.60	6.3	-.13	.47	56.8	52.1	P16
17	534	236	1.82	.10	.83	-2.2	.84	-2.0	.31	.47	64.8	52.6	P17
3	544	236	1.72	.10	1.11	1.3	1.11	1.3	.43	.47	46.2	52.9	P3
14	555	236	1.62	.10	.96	-.4	.98	-.2	.49	.47	54.2	53.1	P14
44	566	236	1.51	.10	1.00	.0	1.02	.3	.44	.47	57.6	53.4	P44
46	566	236	1.51	.10	.99	.0	1.01	.1	.58	.47	55.1	53.4	P46
18	569	236	1.49	.10	1.13	1.5	1.19	2.2	.16	.47	50.4	53.4	P18
27	588	236	1.30	.10	1.24	2.6	1.25	2.6	.30	.46	48.3	53.8	P27
47	618	236	1.00	.10	1.00	.0	1.01	.1	.56	.46	54.2	55.5	P47
15	623	236	.95	.10	.77	-2.8	.79	-2.5	.53	.46	61.9	56.0	P15
37	646	236	.72	.10	1.14	1.5	1.13	1.3	.60	.45	55.9	57.7	P37
40	656	236	.61	.10	.86	-1.6	.85	-1.7	.67	.45	65.3	58.4	P40
12	682	236	.33	.11	1.00	.0	.99	.0	.46	.44	61.4	59.8	P12
22	693	236	.21	.11	1.05	.5	1.04	.4	.51	.44	60.2	60.4	P22
31	695	236	.18	.11	1.15	1.6	1.16	1.6	.49	.44	55.5	60.4	P31
23	697	236	.16	.11	.85	-1.6	.85	-1.7	.53	.44	61.9	60.5	P23
45	707	236	.05	.11	.73	-3.1	.73	-3.1	.46	.44	69.5	60.5	P45
34	712	236	-.01	.11	1.48	4.5	1.53	4.9	.31	.44	53.0	60.6	P34
24	716	236	-.06	.11	1.13	1.3	1.11	1.2	.51	.43	56.4	60.7	P24
10	722	236	-.13	.11	.66	-4.1	.67	-4.0	.48	.43	72.0	60.7	P10
42	723	236	-.14	.11	.59	-5.1	.60	-5.1	.45	.43	75.0	60.7	P42
2	735	236	-.28	.11	.99	.0	1.03	.3	.38	.43	60.6	60.8	P2
13	735	236	-.28	.11	1.35	3.4	1.35	3.5	.23	.43	55.5	60.8	P13
33	735	236	-.28	.11	1.23	2.4	1.20	2.1	.48	.43	55.1	60.8	P33
25	736	236	-.29	.11	.99	-.1	.99	-.1	.45	.43	68.6	60.9	P25
32	738	236	-.32	.11	.89	-1.2	.88	-1.4	.53	.43	64.4	60.9	P32
21	742	236	-.37	.11	.94	-.6	.95	-.5	.49	.43	63.1	60.8	P21
43	748	236	-.44	.11	.66	-4.2	.67	-4.2	.58	.42	72.5	60.9	P43
1	755	236	-.53	.11	.68	-4.0	.68	-4.0	.58	.42	74.2	60.8	P1
20	759	236	-.58	.11	.94	-.7	.93	-.8	.42	.42	59.3	60.7	P20
29	759	236	-.58	.11	.89	-1.2	1.03	.3	.48	.42	66.5	60.7	P29
28	760	236	-.59	.11	.83	-1.9	.83	-2.0	.56	.42	66.9	60.7	P28
30	764	236	-.64	.11	1.41	4.1	1.37	3.8	.38	.42	55.5	60.6	P30
38	775	236	-.78	.11	.67	-4.2	.67	-4.2	.41	.41	74.2	60.4	P38
35	783	236	-.89	.12	.79	-2.5	.77	-2.8	.58	.41	71.2	60.3	P35
39	783	236	-.89	.12	.63	-4.8	.64	-4.7	.48	.41	74.2	60.3	P39
7	784	236	-.90	.12	1.84	7.8	2.16	9.9	.29	.41	51.3	60.3	P7
48	784	236	-.90	.12	1.01	.1	.98	-.2	.51	.41	62.7	60.3	P48
11	790	236	-.98	.12	.99	-.1	.96	-.5	.53	.41	68.6	60.4	P11
36	794	236	-1.03	.12	.77	-2.9	.77	-2.9	.47	.40	66.5	60.5	P36
41	820	236	-1.40	.12	1.00	.0	.98	-.2	.37	.39	67.8	60.8	P41
6	821	236	-1.42	.12	.78	-2.9	.76	-2.9	.54	.39	69.5	60.9	P6
50	821	236	-1.42	.12	.80	-2.5	.78	-2.7	.49	.39	72.0	60.9	P50
9	842	236	-1.74	.13	1.07	.9	1.33	3.1	.35	.37	67.8	63.9	P9
49	847	236	-1.83	.13	1.25	2.7	1.17	1.7	.36	.36	63.6	65.0	P49
8	849	236	-1.86	.13	1.16	1.8	1.25	2.4	.43	.36	69.1	65.6	P8
5	913	236	-3.39	.20	.92	-.5	.66	-1.7	.40	.25	86.9	87.2	P5
MEAN	701.2	236.0	.00	.11	1.00	-.1	1.02	.0			62.5	59.4	
S.D.	109.9	.0	1.26	.01	.25	2.7	.29	3.0			8.5	5.3	

Figure 4. Item Fit Order Analysis

3.1.4. Wright Map Analysis (Wright Map / Person-Item Map)

The results of the Person-Item Map (Figure 5) show that the distribution of person abilities (logit range -1 to +3, the majority are grouped at 0 to +2) has generally been covered by the difficulty distribution of 50 instrument items (logit range -3.39 to +2.69), indicated by the average position of the person adjacent to the average item, indicating the suitability of the difficulty level of the item with the adequate ability of the respondent (Boone et al., 2014). A good Wright map is characterized by the distribution of people and items that are squeezed together in the same logit range, so that the instrument can efficiently measure the entire range of respondents' capabilities. However, there is a slight gap at the level of high ability (logit +3 to +5), where there are no people in the range while items P26, P4, P16, and P19 (logit above +2.0) are relatively difficult to approve, so they function well to distinguish the top-level respondents. On the other hand, at the low level (below logit -2), only P5 (logit -3.39) is classified as very easy, so this instrument is more optimal to distinguish medium to high ability respondents from very low.

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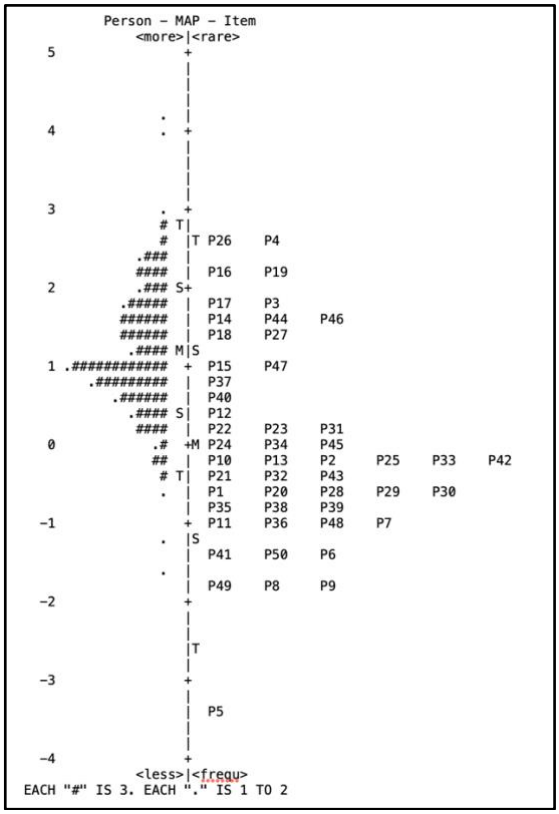


Figure 5. Measure Person-Map_Item

3.2. Discussion

Overall, the results of the development of the instrument with the Rasch model show that this instrument meets the requirements of strong psychometrics, unidimensionality is fulfilled as seen from the raw variance explained by measures of 45.3%, the reliability of persons and items is classified as good to very good, namely 0.89 and 0.99. These findings reinforce the proposition that Flourishing Although it is composed of five conceptually different elements (Positive Emotion, Engagement, Relationship, Meaning, Accomplishment), essentially forms one coherent and measurable psychological construct on a single continuum rather than five separate constructs. These findings are consistent with research (Nurcahyo & Valentina, 2024) which also confirmed the one-factor structure of the Indonesian version of the Flourishing Scale using Confirmatory Factor Analysis, although the approach used was methodologically different. The fundamental difference lies in the depth of diagnostic information: the Rasch approach in this study not only confirms the structure of a single factor but also results in a hierarchy of difficulty levels for each item on the same logit scale as the person's ability. Boone (2016) It also reinforces that analysis with the Rasch model can improve the accuracy in developing instruments, monitoring the quality of instruments, and calculating respondent performance and this analysis helps researchers think in a more sophisticated way related to the construct of the variables to be measured.

The three items identified as misfit (P7, P16, P34) provide interesting findings, based on the pattern of dimension grouping in Table 2, the three items may come from the dimensions of Positive Emotion, Engagement, and Meaning. The pattern of misfit in these items, which is characterized by MNSQ and ZSTD outfits that are well above the threshold, indicates a response that cannot be predicted by the model, especially from respondents with extreme ability levels, because outfit statistics are indeed more sensitive to unexpected responses at very high or very low ability levels (Tesio et al., 2024). This may be due to the redaction of items that are ambiguous, double meaningful, or not in accordance with the cultural and linguistic context of Indonesian students, as found in several validation processes of Indonesian versions of psychological instruments that also identify problematic items due to linguistic factors and local cultural suitability (Asiah et al., 2022; Iriyadi et al., 2024b). This condition is still within normal limits considering that this instrument is a new development and has not gone through many field revision cycles such as the internationally established flourishing instrument.

The results of the Person-Item Map also provide additional insights that are relevant to the context of the flourishing of Indonesian students. The absence of a person in the highest ability range (logit above +3) even though there are items that demand a high flourishing rate, indicating that most of the students in the research sample are at a moderate flourishing level, consistent with the findings Lutfianawati (2024) which reported that only 20% of Indonesian students were in the category of high flourishing, as well as the findings Oh (2023) from

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Healthy Minds Study who reported a generally low flourishing rate in college students. Thus, this research not only produces a more psychometrically precise instrument, but also empirically strengthens the picture that flourishing in Indonesian students is still an area that requires further attention and intervention.

3.3. Implications

Theoretically, the findings of this study strengthen the validity of the PERMA model as a flourishing conceptual framework that can be applied to the context of Indonesian students, while showing that the five dimensions of PERMA can be coherently integrated into a single measurement instrument without losing the representation of each dimension. Practically, this calibrated instrument can be used by counselors, academic supervisors, and guidance and counseling service units in universities as a screening tool to map the flourishing profile of students more precisely

3.4. Limitations

This research has a number of limitations that need to be considered in interpreting the results and in designing follow-up research. First, the research sample only involves 2nd semester students from one university, so generalization of instrument calibration results to other level students or other universities needs to be done carefully and ideally revalidated on a more diverse sample. Second, the composition of the sample shows considerable gender inequality (82% female, 18% male), which has the potential to limit the generalization of cross-gender findings; The study also did not conduct Differential Item Functioning (DIF) testing based on gender or faculty, which should ideally be done at the next validation stage to ensure there is no measurement bias between groups.

4. Conclusion

From the results of the analysis, it can be concluded that the flourishing instrument developed based on PERMA shows good results seen in the analysis of the Rasch model used. However, there are 3 items that are not fit that need to be considered whether to be revised or eliminated. Then the development of this instrument is the first step for education practitioners, especially for universities who want to know about the level of student flourishing as the first step to develop psychological resources. So that this flourishing instrument can be used to measure the level of student flourishing, and overall the consistency between the response of the item and the respondent's answer is considered adequate.

Author Contributions

Tiara Anggun Mauladi contributed to the drafting of concepts, instrument development, data collection, and script writing. Anne Hafina contributes to conceptual and methodological supervision. Eka Sakti Yudha contributed to the methodological review and revision of the manuscript. Reza Hadiwijaya Dynasti contributed to Rasch's analysis, interpretation of the results, and final editing.

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

Data Availability

The datasets generated during and/ or analyzed during the current study are available from the corresponding author on reasonable request.

Declaration on AI Use

The authors state that AI tools are only used to improve language clarity, readability, grammar, and sentence structure under full human supervision. AI is not used to generate research ideas, formulate study designs, collect or analyze data, interpret findings, draw conclusions, or make scientific recommendations. All intellectual content, analysis, and final decisions remain the sole responsibility of the authors.

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