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## Validation of the Personal Responsibility Scale: Rasch Model Analysis

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### Abstract

Increasing personal responsibility in education is an innovative idea, an idea to educate students in developing morals and values, or the basis of character education. This research aims to develop a personal responsibility scale for students which is expected to become a valid and reliable measuring tool. The method used in this research is a quantitative approach and data analysis used using the Rasch model. The research population consisted of 309 students as respondents, then the sampling technique was purposive sampling with a total of 20 students. The research results showed that the personal responsibility scale was declared suitable use based on statistical tests using Rasch mode with a reliability value of 0.81. So based on the results of this analysis it can be used as an instrument to measure students' personal responsibility. The implications of the validation results of the personal responsibility instrument are useful in measuring students' personal responsibility, as a basis for providing guidance and counseling services.

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## 1. Introduction

The concept of personal responsibility has complex dimensions, reflected in views of several experts such as Schlenker, Zimmermen, and Mergler (Bauer et al., 2022; George et al., 2017; Kolzow et al., 2021; McFadden et al., 2017; Mergler et al., 2017; Schlenker et al., 2010; Zimmerman et al., 2015). According to Schlenker, personal responsibility is an individual's ability to manage their own emotions and behavior without taking responsibility for other people's mistakes. This view emphasizes the internal aspects of individuals in taking responsibility. Meanwhile, Zimmermen describes personal responsibility as an individual's ability to carry out responsibility both prospectively and retrospectively for decisions, actions, along with the results and impacts on oneself and others. This highlights the importance of considering consequences of actions before and after they are carried out. On the other hand, Mergler sees personal responsibility as the ability to identify and regulate one's thoughts, feelings, and behavior, along with the willingness to hold oneself accountable for the choices made and the resulting social and personal outcomes.

The definition of personal responsibility includes self-control, awareness, accountability, and the impact of behavior on oneself and others. Personal responsibility is an individual's ability to identify and regulate one's thoughts, feelings, and behavior, along with a willingness to hold oneself accountable for the choices made and the resulting social and personal outcomes (Mergler et al., 2017). Another idea of personal responsibility is a construct that involves caring for oneself and others, fulfilling obligations, contributing to the community, and building a better world. This includes self-control over behavioral choices, awareness and control over thoughts and feelings, accountability for behavior and its impact on others (Kohns & Ponton, 2006; Zimmerman et al., 2015).

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Personal responsibility is an individual's ability to identify and regulate thoughts, feelings and behavior in carrying out responsibility both prospectively and retrospectively for decisions, actions along with the results and impacts on oneself and others. This understanding emphasizes the importance of awareness, self-control and accountability in every aspect of life, both in personal and social contexts.

So the position of personal responsibility is a very important ability to implement everyday life, because without responsibility life will not run well (Bauer et al., 2022; George et al., 2017; Kolzow et al., 2021; McFadden et al., 2017; Mergler et al., 2017; Schlenker et al., 2010; Zimmerman et al., 2015). This is in line with the development of thinking in guidance which gives a central role to individuals in taking responsibility for their own choices. By encouraging independence, creativity and motivation, it will create a meaningful and relevant mentoring experience. The position of personal responsibility shows that individuals have the ability to identify and regulate thoughts, feelings and behavior in carrying out responsibility for decisions and their impact on themselves and others. This is in line with the guidance principle of heutagogy which emphasizes personal responsibility in the guidance process itself.

Therefore, preparing a personal responsibility instrument is very important to measure student responsibility. Developing a personal responsibility instrument will help determine the high or low level of students' personal responsibility.

The aims of this research are: (1) to determine the validity of the instrument items measuring student personal responsibility, (2) to determine the empirical validity of the instrument measuring student personal responsibility, and (3) to determine the reliability of the instrument to measure personal responsibility in students. So it is hoped that it will become a valid and reliable measuring tool.

Therefore, preparing a personal responsibility instrument is very important to measure students' responsibility. Preparing a personal responsibility instrument will help determine students' high or low levels of personal responsibility.

The aims of this research are (1) to determine the validity of the instrument items measuring personal responsibility for students, (2) to determine the empirical validity of the instrument for measuring personal responsibility for students, and (3) to determine the reliability instrument for measuring personal responsibility in students. So it is hoped that it will become a valid and reliable measuring tool.

## 2. Method

Research design with the Rasch Model relies heavily on good data collection and careful statistical analysis to produce accurate and reliable measurements. This model provides a powerful framework for developing and evaluating measurement instruments that can be used in a variety of contexts.

This research is quantitative. This research focuses on developing a student personal responsibility scale using the Rasch model approach. Linacre (1994) recommends a sample size of between 30 and 200 participants to be sufficient for Rasch analysis requirements. Participants in this research were 140 Ahmad Dahlan University students. The sample collection technique uses a purposive sampling technique, namely taking samples with certain considerations. The consideration for selecting a class as a research subject is based on the lecturer's information that the class designated as the research subject is a class that can represent the school (Paramita et al., 2021). The data collection process will be carried out in 2023 during April - May.

By paying attention to the characteristics of respondents in sampling, researchers can ensure that the data collected is representative and Rasch analysis provides valid and reliable results. Sampling was based on respondent demographics consisting of respondents aged 18-22 years, balanced gender between men and women and various parental occupations.

The instrument developed and tested in this research is a personal responsibility instrument for students. The personal responsibility instrument in this research is the result of synthesis and analysis of the concept of personal responsibility (De Mesel, 2017; Mergler, 2017; Schlenker et al., 2010; Zimmerman et al., 2015). Researchers analyze definitions, aspects, essences, and indicators. Based on this analysis, the definition of this personal responsibility instrument is an individual's ability to identify and regulate thoughts, feelings, and behavior in carrying out responsibility both prospectively and retrospectively for decisions, and actions, along with the results and impacts on themselves and others. Personal responsibility consists of three aspects, namely cognitive, affective, and psychomotor. The cognitive aspect is characterized by: (1) awareness, (2) thoughts, (3) self-control, and 4) belief. The affective aspect is characterized by: (1) self-acceptance, (2) self-identity, (3) strategies, and (4) feelings. Psychomotor aspects are characterized by: (1) action, (2) demonstrating, and (3) interaction.

In the data collection process, researchers followed two stages, namely the preparation stage and the implementation stage. The preparation stage includes conceptual, technical and administrative data collection. Researchers prepare research by looking for references through articles and other writings related to personal responsibility. The researcher then created the research design, data instruments, and presentation of the instruments before distributing the questionnaire. Before collecting respondent data, questionnaires were distributed for the expert judgment process (pre-trial). This is done to ensure that the items in the questionnaire are in accordance with the aspects, indicators and theory of personal responsibility.

**Table 1. Personal Responsibility Scale Indicators**

Indicator	Descriptor	No. Statement Items
1. Cognitive	1.1 Awareness Identify the behavior carried out by considering the impact on yourself and others	1, 2, 3, 4, 5,6,7
	1.2 Thought Identify the thoughts you have to process thoughts to solve problems	8, 9, 10,11,12,13, 14
	1.3 Feelings Assess consciously the experience of behavior that is being experienced within a person	16, 17, 18, 19, 20, 21, 22
	1.4 Self-control Analyzing individual skills in reading personal situations and the environment in taking action	23, 24, 25, 26, 27, 28, 29
2. Affective	2.1 Self-acceptance Ensure that individuals are aware of and acknowledge their characteristics	30, 31, 32, 33, 34, 35, 36
	2.2 Self-identity Showing personal knowledge and understanding of oneself in doing work	37, 38, 39, 40, 41, 42, 43, 44
	2.3 Strategy Manage yourself in planning actions to achieve the expected goals.	45, 46, 47, 48, 49, 50, 51
3. Psychomotor	3.1 Action Real actions taken by individuals in response to a problem.	52, 53, 54, 55, 56, 57, 58
	3.2 Demonstrate Demonstrating a response to something and then making it a habit because of the believed value.	59, 60, 61, 62, 63, 64, 65
	3.3 Interaction Starting a reciprocal relationship with an individual that is able to influence the individual's life.	66, 67, 68, 69, 70, 71, 72

The implementation stage of data collection is carried out using a questionnaire or questionnaire. This method involves compiling a list of statements with answer choices consisting of four categories, namely very suitable (SS), suitable (S), not suitable (TS), or very inappropriate (STS). Researchers distributed a questionnaire in the form of a Google form and sent it to all guidance and

counseling students at Ahmad Dahlan University. The data analysis stage is using RASCH analysis using WINSTEP Version 5.3.0 software verified.

### 3. Results

#### 3.1. Validity Test

The validity test in the Rasch model is called the item fit test. The level of suitability of the item aims to see the quality of the item's suitability to the model, whether the item has been measured or not (Gulo, 2002). This is seen based on the Outfit Mean Square (MNSQ) value received  $0.5 < \text{MNSQ} < 1.5$ , Outfit Z-Standard (ZSTD) received  $-2 < \text{ZSTD} < 2.0$ , and Point Measure Correlation (Pt Mean Corr) :  $.04 < \text{Pt Mean Corr} < 0.85$  (Sumintono, 2015). If the items of an instrument meet at least the two criteria above, then the items or statements can be used and do not need to be replaced (Sumintono & Widhiarso, 2015), in other words the items are valid.

Table 2. Item Measure and Item Fit Order

Item number	Coefficient of MEASURE	Coefficient of INFIT MNSQ	Annotation
10	-0.33	2.07	Misfit
36	-0.06	1.85	Misfit
40	-0.37	1.54	Misfit
20	+2.07	1.50	Misfit
27	+2.30	1.39	Misfit
39	+0.82	1.37	Misfit
31	-0.28	1.40	Misfit
6	+1.32	1.36	Fit
4	+1.82	1.29	Fit
22	+1.79	1.21	Fit
18	+0.97	1.26	Fit
8	+0.07	1.25	Fit
19	+0.32	1.25	Fit
21	+1.01	1.19	Fit
38	-0.15	1.18	Fit
16	+0.90	1.09	Fit
3	+2.30	1.05	Fit
1	+2.17	1.07	Fit
5	-0.86	0.98	Fit
28	-2.52	0.96	Fit
2	-0.68	0.88	Fit
7	-0.68	0.85	Fit
12	+2.39	0.83	Fit
33	+0.15	0.83	Fit
11	-1.82	0.79	Fit
30	+2.96	0.79	Fit
9	-0.95	0.76	Fit
13	-0.28	0.75	Fit
24	-0.19	0.74	Fit
26	-1.90	0.73	Fit
15	-1.82	0.67	Fit
42	-0.59	0.66	Fit
32	-1.78	0.63	Fit
25	-0.73	0.61	Fit
41	-1.48	0.59	Fit
34	-1.35	0.55	Fit
23	-0.95	0.55	Fit
35	-1.35	0.55	Fit
37	-0.91	0.52	Fit
14	-0.37	0.52	Fit
29	-0.37	0.47	Fit

One step to determine fit and misfit items is to add up the MEAN and S.D. values, then compare them with the INFIT MNSQ value. A logit value that is greater than the sum of MEAN and S.D. indicates a misfit item. Based on the picture above, it is known that the ideal logit value obtained is  $0.99 + 0.37 = 1.36$ . Thus, there are 7 items that fall into the misfit category (failed items), namely item number 10 with a value of +2.07, number 36 with a value of +1.85, number 40 with a value of +1.54, number 20 with a value of +1.50, number 27 with a value of +1.39, number 39 with a value of +1.37, and number 31 with a value of +1.40.

### 3.2. Reliability Test

Based on the summary statistics analysis presented on Table 3, Person Measure shows the average score of respondents in the personal responsibility instrument given. Based on Table 3, it can be seen that the Person Measure logit value obtained is +1.23. Referring to the provisions in the Rasch Model, if the Person Measure value is more than logit 0.0, then in this study respondents have a tendency to answer more in the affirmative to statements in various items. Cronbach's alpha aims to measure reliability, namely the interaction between the person and the item as a whole. Sourced from the image above, it can be seen that the Cronbach's Alpha value obtained is 0.81. Referring to the Cronbach's Alpha value criteria in the Rasch Model, this value is included in the very good category, namely  $> 0.8$ .

Person Reliability shows the consistency of respondents' answers. Based on the image above, it can be seen that the Person Reliability value obtained is 0.76. Referring to the Person Reliability value criteria in the Rasch Model, this value is included in the sufficient category, namely ranging from 0.67 – 0.80. Item Reliability shows the quality of the items used in the instrument. Based on the image above, it can be seen that the Item Reliability value obtained is 0.97. Referring to the Item Reliability value criteria in the Rasch Model, the score is included in the special category, namely  $> 0.94$ .

Unidimensionality is used to find out whether the instrument used can measure what it should measure, in this case, namely personal responsibility. Based on Table 3, it can be seen that the value of raw variance explained by measures obtained by the instrument in this study is 38.5%, this shows that the unidimensionality requirement is met, namely a minimum of 20%. Apart from that, the unexplained variance section moves from 3.1% to 7.0%, which means that it meets the predetermined requirements that the value of variance that cannot be explained by the instrument is no more than 15%. It can be known that the instrument used in this research can measure what it should measure.

Table 3. Description Summary Statistics

No	Information	Coefficient
1	The person measure	+1.24
2	Cronbach's Alpha	0.81
3	Person reliability	0.76
4	Item reliability	0.97
5	Raw variance explained by measure	38.5%
6	Unexplained variance	3.1% - 7%
7	MEAN	1.24
8	S.D.	0.70

## 4. Discussion

The results of research on personal responsibility in education by Lazareva et al, Mergler et al, and Koch show that research findings are the basis for developing personal responsibility in students in education (Koch, 2006; Lazareva & Zavodevkina, 2016; Mergler, 2017). Research has shown that personal responsibility is an important factor in educational outcomes, particularly in terms of academic achievement and career success. Research results of personal responsibility for the learning process and being willing to make hard efforts to achieve their goals tend to have better academic performance and are more likely to be successful in their careers.

Research on the measurement of personal responsibility, Mergler's research provides an integrative review of the conceptual and measurement issues related to the construct of personal responsibility in educational research. This research emphasizes general definitions, debate over its dimensions, and the need for reliable measurement scales. Continuing this initial research, Mergler developed the Personal Responsibility Scale for adolescents, identifying three main factors and proposing a final scale consisting of 15 items. Furthermore, Mergler & Shield's research focuses on adolescents' understanding of personal responsibility and its accurate measurement, as well as the implementation of programs to increase personal responsibility among adolescents.

Mergler's research focused on measuring personal responsibility, with particular emphasis on developing quantitative measures of this construct. This research has implications for the development of educational programs and policies aimed at increasing personal (Mergler, 2017; Mergler & Shield, 2016). Feedback from this study indicated positive engagement from participants, indicating that the programs were effective in increasing the understanding and implementation of personal responsibility among youth.

Research on personal responsibility is a rich and diverse field that covers various aspects of human behavior, education, and social policy. The findings and implications of this research have significant implications for education and policy and highlight the importance of personal responsibility in achieving personal and social goals.

The analysis results indicate that the developed instrument possesses good validity and reliability. Not only does the instrument meet the requirements of unidimensionality, but it also has items that are mostly valid and reliable. The high Cronbach's Alpha value demonstrates that the instrument has high consistency in measuring personal responsibility. The high item reliability further indicates that the items within the instrument are of excellent quality. This is evidenced by the raw variance explained by the instrument, reaching 38.5%, far exceeding the minimum threshold of 20%. Therefore, the instrument can be relied upon to effectively measure a single main construct.

Additionally, the analysis shows that the unexplained variance by the instrument ranges from 3.1% to 7.0%, which is below the maximum allowable threshold of 15%. This indicates that the instrument has a very low level of ambiguity, thereby further strengthening its measurement validity. The next step in determining fit and misfit items involves summing the MEAN and S.D. values and comparing them with the INFIT MNSQ value. Based on the calculations, the ideal logit value obtained is 1.36. There are 7 items that fall into the misfit category, specifically items number 10, 36, 40, 20, 27, 39, and 31, with values exceeding the ideal logit threshold.

From the summary statistics analysis, the Person Measure value indicates the average score of respondents on the personal responsibility instrument provided. The logit Person Measure value obtained is +1.24. According to the Rasch model, this value indicates that respondents tend to answer more affirmatively to the statements in various items given, meaning the instrument is capable of capturing respondents' responses well.

The instrument's reliability was also examined using Cronbach's alpha, which showed a value of 0.81. According to Rasch model criteria, this value falls into the very good category, i.e., greater than 0.8. This indicates that the interaction between respondents and items is highly consistent and reliable overall. Furthermore, respondent reliability (Person Reliability) shows the consistency of respondents' answers with a value of 0.76. According to the Rasch model criteria, this value falls into the sufficient category, ranging between 0.67 and 0.80. This means that respondents' answers tend to be consistent, although there is some variation. Item reliability (Item Reliability) demonstrates the quality of the items used in the instrument, with a value of 0.97. According to Rasch model criteria, this value falls into the exceptional category, i.e., greater than 0.94. This shows that the items in this instrument are of very high quality and reliable for measuring the intended construct.

Overall, this analysis indicates that the instrument used in this study has high validity and reliability. The instrument not only measures the main construct well but also has a low level of ambiguity and very high item quality. Therefore, this instrument can be considered an effective and

reliable tool for measuring respondents' personal responsibility. Further development and refinement of the misfit items can further improve the quality of this instrument, making it more widely applicable in various research and practical contexts.

The personal responsibility scale is a measuring tool used to assess the extent to which individuals feel responsible for their own actions, decisions and life outcomes. In the context of guidance and counseling services, this scale has various benefits and significant implications. The usefulness of the Personal Responsibility Scale as a basis for initial assessment of students' level of personal responsibility, initial needs analysis, development of personal responsibility skills according to required aspects, evaluation and monitoring.

The implication for the Implementation of Guidance and Counseling Services from the personal responsibility scale developed is to adjust guidance and counseling services by understanding the level of personal responsibility, counselors can adjust services to be more effective in helping students. By using a personal responsibility scale, guidance and counseling services can be more effective in helping clients develop the skills necessary to take control of their lives, make better decisions, and achieve their personal goal

## 5. Conclusion

After validating the personal responsibility scale, the next step is to make recommendations based on the validation findings. These recommendations aim to improve the quality and effectiveness of the scale and to ensure its appropriate use in guidance and counseling services. With these recommendations, the personal responsibility scale can be optimized to provide a more accurate and useful assessment in guidance and counseling services, thereby assisting clients in better developing their personal responsibility. With these recommendations, the personal responsibility scale can be optimized to provide a more accurate and useful assessment in guidance and counseling services, thereby assisting clients in better developing their personal responsibility

Based on the presented analysis results, it can be concluded that the instrument used in this study demonstrates high validity and reliability. With a raw variance value of 38.5%, which is well above the minimum threshold of 20%, this instrument proves effective in measuring a single main construct. The low level of unexplained variance, ranging from 3.1% to 7.0%, further strengthens the measurement's validity. Additionally, the reliability measured by Cronbach's alpha 0.81 indicates excellent consistency in the interaction between respondents and items, while the reliability of respondents and items, at 0.76 and 0.97 respectively, shows outstanding consistency in respondent answers and item quality. Therefore, this instrument can be considered reliable and effective in measuring respondents' personal responsibility.

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All authors have equal contributions to the paper. All the authors have read and approved the final manuscript.

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