

Assessing Self-Reliance among Generation Z in Junior High School: An Analysis Using Rasch Model

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Abstract: Generation Z in Indonesia is facing conditions where there are a lot of challenges such as violences in school, career, and sustainability development. Therefore, Indonesia has developed an Independent Curriculum to accommodate and promote student's self-reliance as a part of Pancasila Profile dimensions as a preventive action to face 21st century challenges. This research aims to assess student's self-reliance among generation Z in Junior High School. This study is quantitative research explaining the quality of instrument and classifying student's abilities based on questionnaire analyzed by using Rasch Model. The sample used in this research consist of 104 students from Junior High School that have been given a P5 program and required to be tested using 26 test items. The result of self-reliance questionnaire is analyzed using the Rasch model. The findings explained that students score and mostly get the lowest score in gender or demographic analysis. In conclusion, student's self-reliance among generation Z is still unequal and low neither in gender or demographic. Furthermore, school should train student's self-reliance intensively to prepare students facing future challenges.

Keywords: Generation Z; Rasch model; Self-reliance

Introduction

Generation Z also known as any Individual born from 1997 to 2012 is a generation that concern about 21st century challenges. Generation Z is dominated in Junior High School in 2023 and their development are affected and faced by school violence, career development demands, and massive sustainable development program. School violence is often happened in Indonesia and it gives traumatic for the victims. The Indonesian Child Protection Commission reported that there are 2355 cases and 93 cases is happened in school until September 2023. One type of violences is bullying which often happened in Junior High School. It is reported in Wang et al (2023) that 4864 (age under 13 to 15) adolescents in China is bullied and in Spain also reported by Isorna et al. (2022) there are 1092 involvement in school bullying. Bullying is potentially giving serious problem to the victim in short and long (Johansson et al., 2022). Generation Z or

called "internet generation term (Ozkan & Solmaz, 2015) is an object that easily conducts in bullying activities especially in cyberbullying (Tamrin et al., 2022). Furthermore, they also have some abilities such as criticized the environment explicitly (Wee, 2019), support sustainability (Orea-Giner & Fusté-Forné, 2023; Pinho & Gomes, 2023), and proficient in digitalization (Parahita et al., 2023). These abilities of Gen Z can affect their future career and how they decide to involve in sustainability development program. Therefore, students categorized as Generation Z should be trained and facilitated by school to concentrate their ability to address school violence issues.

Accommodating and developing student's ability in school is not an easy task. In Indonesia, many programs have been developed to accommodate student's ability. Nowadays, Indonesia is conducting Independence Curriculum to emphasize student's Pancasila Profile and give freedom for students and teachers to gain better learning quality to face disruption era (Prahani et

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al., 2020). The Ministry of Education, Culture, Research, and Technology in Indonesia divides Pancasila Profile into 6 dimensions namely 1) faithful, devoted to God Almighty, and noble, 2) self-reliance, 3) cooperative, 4) globally diverse, 5) critically reasoning, and 6) creative. Each dimension in the Pancasila Profile has a meaning that is adapted to the psychological and cognitive development of learners.

One of ability in 21st century needed to be developed is self-reliance. The Ministry of Education, Culture, Research, and Technology Indonesia defines self-reliance as responsible for the learning process and results. Self-reliance in Pancasila Profile is divided into two elements: self-understanding and situation, also self-regulation. Self-reliance is reported as high category after conducting digital or online learning (Palumpun et al., 2022; Respati & Atun, 2023) but in some cases especially in school has not been evaluated or assessed (Palumpun et al., 2022). Self-reliance is crucial and should be promoted by educational system to gain an equal score yet in high level so it can emerge equality concept in every school activity. School plays an important role to improve student’s self reliance. It is important to analyse student’s self-reliance because it can be a solution to increase cognitive ability (Yudho et al., 2022), prevent bullying in school (Nasti et al., 2023), develop habit of mind (Rikizaputra et al., 2021), and understand sustainability program (Susanti et al., 2023).

Based on the importance of students' self-reliance in preventing bullying at school, developing student’s career, and understanding sustainability development program, it is necessary to measure students' self-reliance so that if they still have not achieved equality, further action can be taken.

Method

This study used quantitative approach to address research problems, which was utilizing 26 items of questionnaire to be tested to 104 students in Junior High School with age range around 12 to 16 years old. The scale used in questionnaire is *summative rating scale* consisted of statement about student’s belief about their self-reliance in certain situations. Each statements have five options from agree to very agree. The questionnaire is developed through three steps (Kivipõld & Vadi, 2010). The first step is designing the preliminary questionnaire by analysing self-reliance elements in Pancasila Profile through focused group discussion (FGD) consisted of 11 teachers, 2 undergraduate students, and 1 lecture. The FGD is focused on how the instrument can be understood by students and relevance to Independence Curriculum demand. The second step is testing the questionnaire to

45 male and 49 female students which categorized based on demographic (live in Urban, Village, and Sub Urban) then analysing the validity and reliability with Rasch Model. The third step is designing the final questionnaire by selecting feasible item based on validity and reliability.

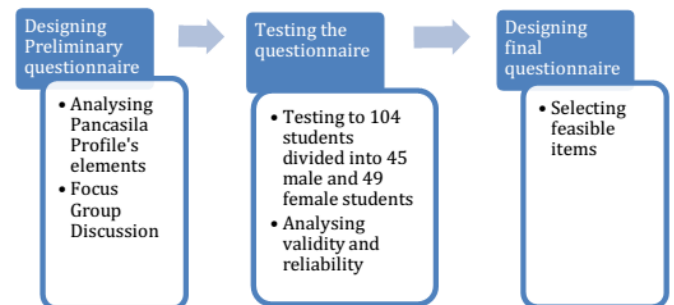


Figure 1. Research flow

Result and Discussion

In this study, the quantitative data were analyzed using Rasch model to measure validity, reliability, and student’s self-reliance. Rasch model has some opportunities such as resulting measurement scale at equal intervals (Widhiarso, 2015), performing as a more accurate unidimensional linear (O’Donovan, 2023), and measuring the latent nature of humans (Mulyanti et al., 2022). The summary statistics of person and items is described in Table 1.

Table 1. Summary Statistics of Person and Items

	Person	Item
N	104	26
Measure	1.43 logit	
Reliability	0.85	0.93
Separation	2.45	3.76
Infit MNSQ	1.09	
Outfit MNSQ	1.08	
Infit ZSTD	-0.09	
Infit SZTD	-0.11	
Cronbach’s Alpha	0.86	

Table 1 show that the reliability is 0.86 (Cronbach’s alpha), 0.85 (person reliability) and 0.93 (item reliability). It can be concluded that the data is consistent or reliable (Noll, 1965; Thorndike, 1977). The difficulty level distribution is figured out in Figure 1 which tends to be normal and balance among difficult, moderate, and easy item.

The item-fit analysis is explained in Table 2. There are some data that doesn’t fit in some criteria. In Measure correlation there are several items gained score lower than 0.40 and these out of the range (0.40 < Pt Measure Corr < 0.85) such as Item M2 (0.39), M3

(0.35), and M22 (0.31). Several items are founded out of range outfit Z-Standard ($-2.00 < ZSTD < 2.00$) such as item M9 (2.38), M13 (3.68), M17 (2.96), M22 (4.35) and for the outfit Mean Square ($0.50 < MNSQ < 1.50$) are item M13 (1.75), M22 (1.93). The item is considered as misfit if three criteria (Outfit MNSQ, Outfit ZSTD, and Pt. Measure Corr) are not met. So, if that only one or two criteria are not met, it can be used to measure the purpose (Chan et al., 2021). In this study only item M22 didn't meet the requirement. Thus, only 25 items are analyzed in subsequent analysis.

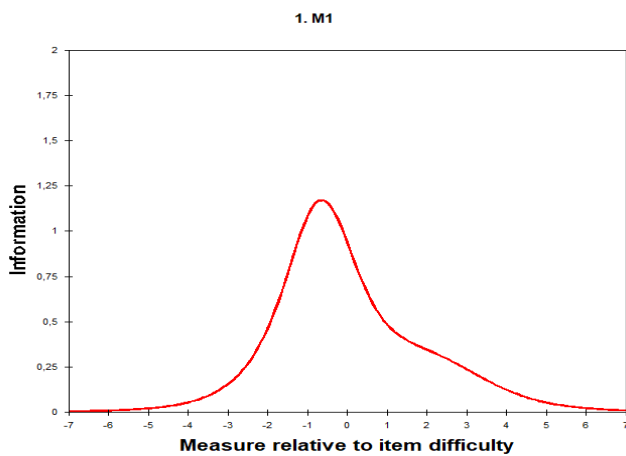


Figure 2. The difficulty level distribution

Table 2. Item-Fit Analysis

Item	Measure	Infit MNSQ	Outfit MNSQ	Outfit ZSTD	Pt. Measure Corr.
M1	0.48	0.71	0.90	-0.58	0.40
M2	0.69	0.88	1.14	0.89	0.39
M3	-0.09	1.01	1.16	0.96	0.35
M4	0.62	0.97	1.09	0.63	0.44
M5	0.54	0.97	1.03	0.26	0.38
M6	-0.01	0.74	0.74	-1.59	0.52
M7	-0.12	1.01	0.91	-0.50	0.52
M8	-0.03	0.84	0.80	-1.22	0.56
M9	0.25	1.48	1.44	2.38	0.43
M10	-0.51	0.83	0.82	-1.08	0.51
M11	1.55	0.87	1.10	0.81	0.40
M12	-0.86	0.82	0.77	-1.41	0.50
M13	0.06	1.66	1.75	3.68	0.40
M14	-0.28	1.13	1.15	0.92	0.47
M15	0.48	1.06	1.08	0.54	0.46
M16	-0.35	0.76	0.70	-1.90	0.54
M17	1.01	1.41	1.48	2.96	0.41
M18	-0.48	1.13	1.06	0.40	0.48
M19	-0.59	1.12	1.06	0.38	0.46
M20	0.33	0.70	0.71	-1.91	0.51
M21	-1.04	1.16	1.13	0.77	0.40
M22	-0.38	1.82	1.93	4.35	0.31
M23	0.48	1.04	1.07	0.47	0.47
M24	-0.38	1.16	1.02	0.16	0.45
M25	-0.48	1.10	1.08	0.51	0.46
M26	-0.89	1.04	0.94	-0.32	0.51

Based on Wright Map analysis, it explained there are 3 students consisted of 1 female from village (DP068), 1 male from sub urban (PL075) and 1 female from urban (KP062) gain more than +3 logit, thus these students are categorized as high ability in self-reliance. However, student in low category based on wright map is not emerged. Mostly students gain moderate score.

For item analysis in Wright Map, it can be seen in item M11 there are 47 students (45%) hesitate about how student activities outside of school is filled by academic-related matters. However, item M21 showed 60 students (58%) very agree with statement "To achieve better results, we must increase efforts".

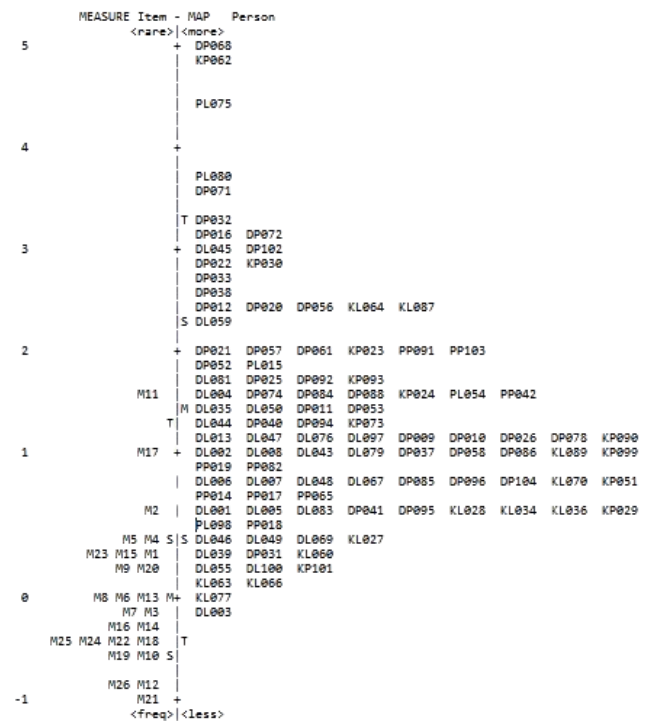


Figure 3. Wright map

Student's self-reliance ability results are shown in Table 3 and Table 4. It is categorized in 4 level based on norm reference test: very high ($LVP > 5.36$), high ($+5.36 \geq LVP \geq +3.55$), moderate ($+3.54 \geq LVP \geq +1.72$), and low ($LVP < +1.72$). The differences between male and female is explained in Table 3. The differences based on demographic is presented in Table 4. Table 3 explained that there is similarity between male and female students in self-reliance. The domination from both which 37 male students and 35 female students gained low score. Only 1 female student categorized in very high level. In high level there are 2 male students and 1 female student, also in moderate is consisted of 6 male students and 22 female students.

Table 4 shown that the domination among students who live in village, sub urban, and urban gained low score. Only 1 student who live in village is categorized in very high level.

Table 3. Analysis of Student’s Self-Reliance Ability Based on Gender

Gender	Very High LVP > 5.36	High +5.36 ≥ LVP ≥ +3.55	Moderate +3.54 ≥ LVP ≥ +1.72	Low LVP < +1.72
Male	0	2	6	37
Female	1	1	22	35

Table 4. Analysis of Student’s Self-Reliance Ability Based on Demographic

Demographic	Very High LVP > 5.36	High +5.36 ≥ LVP ≥ +3.55	Moderate +3.54 ≥ LVP ≥ +1.72	Low LVP < +1.72
Village	1	1	19	46
Urban	0	1	5	17
Sub Urban	0	2	3	9

Self-reliance and Generation Z

Based on the results, student’s self-reliance among generation Z is variative. There are differences but also similarity in gender and demographic. Most of students gain low score whether based on gender or demographic. It means that student’s self-reliance should be improved and equal among students. So that will be potentially promotes balance system in school environment that can assure sufficient quality of education in perspective of preventing bullying, developing student’s career, and also understanding sustainability development program. This condition also be founded in other research (Kumala, 2023). Kumala explained that student’s self-reliance is still low especially in self-regulation.

In this study, there are one questionnaire item that rarely choosen in “very agree” option, so the score is lowest than other items. Almost a half of sample (45%) hesitate about “how student activities outside of school is filled by academic-related matters”. This can be influenced by generation Z students who tend to spend their free time traveling (Damanik et al., 2023), playing mobile game (Ankara & Baykal, 2022), sharing their contents about food and place in social media (Orea-Giner & Fusté-Forné, 2023) and also the habit of using gadget as their daily routine activities (Natsir et al., 2022) especially when they acquired learning loss experience during pandemic Covid-19 so they need to do every school activity in online (Parahita et al., 2023).

In other case, there is a questionnaire item showed student’s enthusiasm in “achieving better results, so students must increase efforts”. More than a half of

sample (58%) choose very agree with this statement, and it is identic with generation Z character. Beside concerning about sustainability, travel, and close to digital-based technology, generation Z also often to be perfectionist individuals who set standard to themselves and others, the more individual feel perfectionist, the more they will indifferent to others (Shafiq et al., 2024), so in another hand they will be more focus on their objectives. Generation Z also have massive desire to create and produce something valuable (Berfin Ince et al., 2023), and thus can be a motivation among generation Z to increase their effort in achieving greatest results.

There are some factors affecting student’s self-reliance, but the important one related to school acitivities is learning environment beside compromising student’s psychological aspects such as stress management, feeling of safety, negative or positive thought, and belief. Students need learning environment that provides adequate support in how they learn (Daud & Mutia, 2020), gives student freedom to explore (Utari et al., 2023), and utilizes technology that conducting independent learning (Palumpun et al., 2022; Setianingrum et al., 2022).

In Pancasila Profile Framework, students must recognize the quality, interest, and challenge faced. Students also demanded to develop self-reflection, can control emotion, determine learning goals, achivement, and create effective strategy for self-development. Beside that, students also need to show initiative, work independently, discipline, resilient, adaptive, and self-confidence.

Conclusion

From this study, it can be concluded that student’s self-reliance among generation Z is still unequal and low neither in gender or demographic. Student’s self-reliance is an important aspect to conduct good quality of education. School should assess student’s self-reliance as a need analysis to prevent bullying, develop student’s career, and understand about sustainability development program.

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Author Contributions

The author contributed in this research; Isma Aziz Fakhrudin as a lead author has a role to conduct the research, collect the data, analysis the data, and write the article. Budi Utami, Nurma Yunita Indriyanti, Annisa Nur Khasanah, Riezky Maya Probosari, Supurwoko as a member of Research Group Innovation in Science Classroom help lead auditor as a

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Conflicts of Interest

The authors declare no conflict of interest.

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