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Distribution Map Analysis of Independent Living Skills through Rasch Model in Primary School Students

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Abstract: Independent living skills must be mastered by every student in everyday life and the school environment in the 21st century. Students must develop their life skills to be independent and develop optimally. This study aims to analyse the grouping of the level of choice of Independent Living Skills items in elementary schools based on the teacher's perception of students through a combination of the standard deviation value (SD) and the logit average value (Mean). The research was conducted on elementary school teachers in West Java. The analysis was carried out through the Rasch Model with the Winstep application. The results of this analysis indicate various levels of choice of Independent Living Skills items. The grouping is based on hard-to-select items with a logit value greater than +1SD, difficult categories with a logit value of 0.0 logit +1SD; easy-to-select categories 0.0 logit – 1SD; and it is very easy to select with a value smaller than -SD. From this study, it can be concluded that the Independent Life Skills instrument items can identify various levels of student independence. This instrument can be used for initial semester assessments in "Kurikulum Merdeka".
Keywords: independent living skills, elementary school, Rasch model

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Introduction

Independence is a solid foundation for everyone striving to live with full responsibility and maturity. In navigating the vagaries of life, every individual needs to have the ability to be independent, able to make their own decisions, be responsible for actions, plan their career (Basuki & Kurniawan, 2022; Wray-Lake et al., 2010) and manage his or her own life. Independence is included in self-regulation (Williams et al., 2023), and life is not just physical ability but also involves psychological, emotional and social aspects so that the individual can be considered competent. Independent living skills are a person's ability to depend on decisions based on experience and understanding of what they gained, which relates to student satisfaction needs (Conesa et al., 2022). Independence existed and was published by Ralph Waldo Emerson in 1841 (Emerson, 2019) with the term self-reliance. Independence also contains beliefs and perspectives about views on society that hurt individual growth. Independence can also be referred to as individuals who can do everything on their own, which is a way for us to avoid bad influences on us. In other words, independence is expected to help someone's life better now and in the future. In general, self-reliance will teach about self-direction and independence that directs a person towards individuality to try to be independent (Santrock, 2003).

In this century, students are challenged to become competent and skilled individuals without neglecting their national character and identity, especially in the era of globalisation. Current education emphasizes the importance of creating students who are not only skilled in creation, knowledge and understanding, thinking, communication, application, and collaboration skills (Özmen, 2024; Vuk, 2023; Zhu et al., 2021) but also have character (Irvan & Mustadi, 2021; Ramadhani & Ayriza, 2019) and attitudes like increase student friendship between student, improvement of student's self-esteem and confidence (Martín del Pozo et al., 2017). Ki Hajar Dewantara revealed that education must form a more

independent human character, both in terms of independence of heart, mind, and body based on one's strength (Taufikin et al., 2021) because independence shows the level of individual maturity (Sugiyanto et al., 2023). Education is about transferring knowledge or learning and educating people to be more beneficial for the physical and spiritual interests of individuals and society (Makhromi, 2017). Education must also rely on its strength, in which all education that wants to live must remain consistent with standing alone. In line with what was stated by Ki Hajar Dewantara (Rohn, 2020), independence relies on one believing that decisions are made based on learning outcomes, experience, understood philosophy, and being responsible for what happens to oneself. From the opinion expressed, it can be concluded that education is not only about transmitting knowledge but also focuses on shaping physically and spiritually beneficial individuals. Self-reliance in education, where individuals are expected to rely on their internal strengths, is also emphasised. Self-reliance is not just a desired value but also a principle that must be applied in the educational process to create individuals who can stand independently and make positive contributions to their lives and society.

Ki Hajar Dewantara also stated that independence is an important process in education because students are given the freedom to get used to thinking (intellectually) and behaving (psychomotor) to achieve their goals (Burhanuddin et al., 2021). Therefore, student independence cannot be formed in a short time. It must go through a certain process, and not only school responsibility but also family and society must support it (Sayekti et al., 2023). An independent attitude is not a selfish attitude or living alone, but an attitude that is willing and able to build its own life in the framework of togetherness.

Independence is important because by preparing yourself, you will increase your chances of success in the future and become a competitive and superior generation (Gularso, 2023). On the other hand, if you don't prepare yourself, then this is the chosen decision. As a consequence of not being prepared, a person must be responsible for what affects him and his career (Rohn, 2020). In learning at school, independence is closely related to the role of students, just like learning. That way, students are expected to continue to develop and be able to solve the problems they face independently. One must have high learning independence, hoping to produce other high order thinking abilities as expected. Students with high learning independence will find it easier to manage time and control their thinking (Fathoni & Retnawati, 2021). In addition, independent learning will allow students to find the process of academic continuity for themselves with everyday life (Rompas, 2021). In line with this, elementary school students need to have independent learning, which is expected to be more creative so that they can seek learning information from various sources (Rulianto, 2019). Students with independence and good autonomy showed more self-control and were more motivated (Ahmed Alismail, 2023).

There are several reasons for the importance of independent learning for elementary school students, including that students can solve problems and make their own decisions, feel happy with themselves, and develop themselves (Moore et al., 2021). On the other hand, students in elementary school learn better by feeling, seeing and trying things independently (Rindengan, 2023). From this opinion, student learning independence is needed in learning without dependence on the teacher so that the learning process will be carried out more optimally.

In the current era, many elementary school students are still not yet independent because almost everything is prepared by other people, be it fathers, mothers, brothers, sisters, or helpers, which makes their independence still low. Elementary school students are still easily tempted by various advertisements such as toys or other materialistic things, so schools need to be designed in such a way as to create a good learning environment that can develop the independence of elementary school students. Student learning independence is still not optimal. This is known because students still depend on the resources provided by the teacher, so students lack the initiative to find other sources (Kurnia Bungsu et al., 2019). In addition, most students still often cheat and cheat on friends, so this phenomenon can cause mental disorders that are sustainable when entering junior high school (Pratiwi & Laksmiwati, 2016). The teacher additionally mentions that students' learning independence is insufficient, as students lack the initiative to seek information from various sources. Furthermore, almost 75% of students usually depend solely on information found in the handbook (Handayani, 2018). Because of this, independence needs to be something that must be developed and become a priority (Dike & Parida, 2020).

Elementary school students are currently observed to have built learning independence, including building student enthusiasm in class by applying innovative learning models, providing complete learning resources and creating reading corners, and compiling notes for monitoring student learning at home by involving the role of parents (Tasaik & Tuasikal, 2018). In addition, a mental health counsellor

offers several practical steps in helping the development of children's independence such as accepting yourself, being your own best friend, having inner confidence, making your own decisions, recognizing and managing dependencies, and accepting yourself as you are. This will have a good impact on life in the future, including students can solve their problems, students can make their own rules for playing, students can make schedules and manage their own time, students can develop their minds, and finish what they started, and students will easily make friends and not hesitate to ask for help.

Education related to independence in elementary schools will help shape the Indonesian nation that be more independent, advanced, strong, and based on national interests (Kiptiah & Agus, 2020). By growing insight into society, the government wants to build Indonesia with quality human resources like the following countries (Ali, 2014).

1. A Mexico that places great importance on family and teaches children to respect and obey adults and elders.
2. China focuses on parenting patterns in developing children's independence and independent reading habits (Wang et al., 2020)
3. Finland who let their children go home alone to achieve independence.
4. The Japanese teach how to thank, prepare food, and clean dirty dishes after eating.

The level of learning independence can be determined based on the initiatives and responsibilities of students to play and play an active role in learning planning, learning processes, and learning evaluation (Gunawan et al., 2021). If students are increasingly dependent on learning, the more optimal their learning outcomes, the more students whose knowledge will increase. Increasing student independence, teachers can illustrate a positive example of habituation within their role as effective educators (Suharno et al., 2022).

Concerning learning and teaching activities in Indonesia itself, the formation of independent character has begun to be carried out through a project to strengthen the profile of Pancasila students in the independent curriculum, including the dimensions 1) Faith and Devotion to God Almighty and Having Noble Morals, 2) Global diversity, 3) Mutual Cooperation, 4) Independent, 5) Critical Reasoning, 6) Creative which is implemented through a project developed over 1 semester. Therefore, integrating the values of independent living skills in daily life needs to be done through an ongoing independent curriculum. Apart from being integrated, independent living skills assessments need to be carried out to determine the achievements of everyone. Assessment can be carried out through special instruments. This instrument provides a detailed view of the extent to which students can manage themselves and provides a basis for developing their potential to achieve independence. With this instrument, teachers can more accurately assess the development of children's independent living skills, enabling them to provide appropriate support according to each student's needs. Apart from that, this instrument can also be a guide for developing more effective learning strategies to support student independence in the elementary school environment. Thus, the integration of independent measurement instruments in the Independent Curriculum improves the quality of education and provides a strong foundation for forming a young generation who are independent and ready to face various aspects of life in the future.

In connection with the above, the independent living skills instrument was created based on theories from (Santrock, 2003, Loevinger, 1997, Dewantara, 1977, Gardner, 2011, Hurlock, 1991, Hendrick, 1996, and Widjaja, 1986) which consists of four aspects, namely being able to recognize problems, taking the initiative to make their own decisions, solving problems/tasks that are their responsibility without the help of other people, and being able to be relied on by others based on personal experience. Next, the instrument was analyzed more deeply using the Rasch Model.

Methods

This study used a survey design with a descriptive method (Notoatmodjo, 2010). The descriptive method involved collecting data collecting data using research instruments and conducting data analysis. This descriptive method focuses more on events or problems that are happening at the moment to get a new picture or design (Creswell, 2012).

This research was conducted in West Java, targeting elementary school teachers. The participants in this study were elementary school teachers from 10 cities and 20 districts in West Java including Bandung, Banjar, Bekasi, Bogor, Cimahi, Cirebon, Depok, Garut, Tasikmalaya, Sukabumi and country

areas namely Bandung, West Bandung, Bekasi, Bogor, Ciamis, Cianjur, Cimahi, Cirebon, Depok, Garut, Indramayu, Karawang, Kuningan, Majalengka, Pangandaran, Purwakarta, Subang, Sukabumi, Sumedang and Tasikmalaya. Data was obtained from 369 respondents. However, during the data verification process, three respondents were declared outliers, so the number of respondents analyzed amounted to 366. Data analysis used the Rasch Model with the Winstep application.

Results and Discussion

Results

The first thing that can be done for instrument analysis with Rasch modelling can be done by looking at the statistical summary table output. Table 1 is a display of the output summary statistics table.

Table 1. Summary Statistics of Independent Living Skills

No.	Description	Mean Measure	Separation	Reliability	α Cronbach
1	Person	1,12	4,67	0,96	0,96
2	Item	0,00	8,50	0,99	

From the table the score of the person ranges from 5.87 to -3.01 logit. The mean value is at 1.12 logit. The mean value, which is more than logit 0.0, shows the tendency of respondents who answer more to agree with statements on various items (Fauzi & Hamdu, 2021).

Furthermore, the Cronbach Alpha value (KR-20) is at a logit value of 0.96, which means Very Good (Suryana et al., 2023). Cronbach Alpha measures reliability, the interaction between the person and the item. That way, the interaction of persons and items can be said to be of very good quality (Suryana et al., 2023)

From the table above, a person reliability value of 0.96 was obtained, and item reliability was 0.99 which can be concluded that the consistency of answers from respondents and the quality of the items on the instrument were also good (Hidayat et al., 2021).

Other data can be seen are the INFIT MNSQ and OUTFIT MNSQ on persons and items (Nor Amelia, 2021). It is known that the values from the table above for people are 1.01 and 1.01 logit, where the closer to 1.00, the better the condition for measurement. In addition, the data that can be seen again are the INFIT ZSTD and OUTFIT ZSTD values for people with a logit value of -0.41 and -0.47 where the closer to the value of 0.0 the better the quality. Likewise for the item table. MNSQ INFIT and MNSQ OUTFIT on items 1.00 and 1.01 logit which means good and INFIT ZSTD and OUTFIT ZSTD values on items 10.13 and -0.7 which means also good.

Other data that can be seen is the separation value which can be used to group persons and items. The greater the value, it can be said that the instrument in terms of overall items and persons is better because it can identify groups of respondents and items (Abdullah et al., 2022; Parkitny et al., 2012). Grouping can be seen by the formula.

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

It is known that the separation value in the person table is 4.67 logit and after processing with the formula above, the value is 6.56 which is rounded to 7. This means that there are 7 groups of respondents. Furthermore, for grouping items, it can be seen in the item table with a value of 8.50 which after being entered into the formula, the number 11.7 is obtained which is rounded to 12 so that it can be said that the instrument can identify 12 groups of items.

The next thing that needs to be analyzed is unidimensionality which is an important measure to find out whether the instrument being made is capable of measuring what it is supposed to measure, in this case Independent Living Skills. The Rasch Model analysis uses the Principal Component Analysis of the residuals which measure the diversity of the instrument measuring what is to be measured. Table 2 displays the results of the unidimensionality analysis.

Table 2. Unidimensionality

Table of Standardized Residual Variance (in Eigenvalue Units)				
	Empirical			Modeled
Total raw variance in observations	89.5364	100.0%		100.0%
Raw variance explained by measures	39.5364	44.2%		44.0%
Raw variance explained by persons	21.0638	23.5%		23.4%
Raw variance explained by items	18.4726	20.6%		20.6%
Raw unexplained variance (total)	50.0000	55.8%	100.0%	56.0%
Unexpailned variance in 1st contrast	5.2457	5.9%	10.5%	
Unexplained variance in 2nd contrast	4.5305	5.1%	9.1%	
Unexplained variance in 3rd contrast	3.0121	3.4%	6.0%	
Unexplained variance in 4th contrast	2.1700	2.4%	4.3%	
Unexplained variance in 5th contrast	1.9844	2.2%	4.0%	

From the output table, it can be seen that the raw variance data value is 44.2%, which means that it meets the requirements for unidimensionality of 20%, which means that the instrument can measure a single dimension (Shofia & Nawangwulan, 2019). Another thing that can be seen is the unexplained variance value, which ideally does not exceed 15%. The Unexplained variance value in the table above is known to be 2.2%-5.9% so it meets the requirements.

Other information about the items can be seen in the table (give the number). The table provides information on the level of items that are difficult to agree on until they are easily agreed upon by respondents. grouping of items is obtained through a combination of the logit mean and standard deviation with the item category being very difficult to agree on with a logit value greater than +1SD; difficult item categories approved with a value of 0.0 logit +1SD; easy item categories approved with a value of 0.0 logit -1SD; item categories are very easy to agree with values less than –1SD. Table 3 in detail displays the value of each item of the instrument.

Table 3. Item Statistics: Item Measure

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PTMEASUR-AL CORR.	PTMEASUR-AL EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	Item
29	838	366	1.76	.10	1.09	1.16	1.05	.60	.59	.59	66.7	67.9	I0029
17	850	366	1.64	.10	1.21	2.67	1.17	2.12	.57	.60	63.9	67.3	I0017
28	862	366	1.51	.10	.99	-.09	.95	-.57	.64	.60	68.3	66.8	I0028
15	866	366	1.47	.10	1.12	1.56	1.06	.76	.63	.60	71.9	66.6	I0015
18	876	366	1.36	.10	1.20	2.62	1.18	2.33	.56	.60	63.4	66.2	I0018
16	878	366	1.34	.10	.92	-1.07	.90	-1.39	.67	.60	71.9	66.2	I0016
44	902	366	1.10	.10	.99	-.08	.97	-.36	.67	.60	63.9	65.4	I0044
14	921	366	.91	.10	.91	-1.26	.90	-1.40	.67	.60	70.2	64.9	I0014
47	930	366	.82	.10	1.05	.73	1.04	.55	.67	.60	62.6	64.8	I0047
27	931	366	.81	.10	.86	-2.10	.84	-2.38	.66	.60	71.9	64.7	I0027
49	936	366	.76	.10	.94	-.87	.92	-1.05	.69	.60	69.4	64.7	I0049
48	939	366	.73	.10	.95	-.65	.94	-.81	.71	.60	69.1	64.6	I0048
6	940	366	.72	.10	1.11	1.57	1.11	1.44	.53	.60	62.6	64.6	I0006
13	964	366	.48	.10	.91	-1.31	.90	-1.40	.64	.60	69.4	64.5	I0013
19	966	366	.46	.10	1.07	1.01	1.06	.84	.52	.60	66.9	64.4	I0019
12	971	366	.41	.10	.87	-1.87	.86	-2.06	.69	.60	67.2	64.5	I0012
45	971	366	.41	.10	.85	-2.16	.85	-2.15	.71	.60	69.4	64.5	I0045
50	983	366	.29	.10	1.05	.66	1.04	.61	.66	.61	67.8	64.5	I0050
33	988	366	.24	.10	1.42	5.36	1.43	5.32	.56	.61	59.0	64.5	I0033
46	994	366	.18	.10	.78	-3.40	.77	-3.40	.71	.61	71.6	64.6	I0046
20	1001	366	.12	.10	.95	-.69	.95	-.72	.63	.61	68.3	64.7	I0020
32	1011	366	.02	.10	1.26	3.46	1.29	3.68	.58	.61	60.1	64.7	I0032
43	1011	366	.02	.10	1.27	3.59	1.27	3.50	.61	.61	61.5	64.7	I0043
23	1012	366	.01	.10	.81	-2.92	.79	-3.10	.67	.61	73.8	64.7	I0023
40	1022	366	-.09	.10	.87	-1.85	.87	-1.93	.64	.61	70.5	64.9	I0040
9	1026	366	-.13	.10	.95	-.64	.95	-.66	.59	.61	67.5	65.0	I0009
10	1027	366	-.14	.10	.97	-.39	.97	-.35	.62	.61	67.5	65.0	I0010
4	1031	366	-.18	.10	.98	-.29	1.03	.37	.56	.61	68.9	65.0	I0004
30	1045	366	-.31	.10	.81	-2.81	.80	-2.90	.68	.60	71.0	65.3	I0030
26	1046	366	-.32	.10	1.29	3.77	1.39	4.79	.27	.60	63.9	65.3	I0026
5	1049	366	-.35	.10	1.15	2.00	1.20	2.59	.52	.60	60.7	65.4	I0005
42	1053	366	-.39	.10	.74	-3.96	.73	-4.08	.70	.60	73.0	65.5	I0042
2	1056	366	-.42	.10	1.14	1.91	1.30	3.76	.42	.60	70.8	65.5	I0002
25	1063	366	-.49	.10	.95	-.66	.95	-.71	.62	.60	65.3	65.6	I0025
35	1067	366	-.53	.10	.81	-2.78	.81	-2.80	.69	.60	68.9	65.7	I0035
39	1067	366	-.53	.10	.95	-.75	.95	-.65	.61	.60	68.0	65.7	I0039
7	1068	366	-.54	.10	.87	-1.82	.89	-1.56	.64	.60	70.5	65.8	I0007
3	1070	366	-.56	.10	.95	-.71	1.00	.00	.59	.60	67.8	65.8	I0003
11	1074	366	-.60	.10	1.26	3.32	1.28	3.47	.55	.60	57.9	65.8	I0011
24	1074	366	-.60	.10	.72	-4.30	.71	-4.43	.71	.60	75.7	65.8	I0024
21	1080	366	-.66	.10	1.10	1.32	1.15	2.01	.46	.60	69.7	65.9	I0021
41	1081	366	-.67	.10	.85	-2.25	.88	-1.69	.61	.60	71.6	65.9	I0041
22	1086	366	-.72	.10	1.23	2.99	1.47	5.53	.34	.60	68.6	66.0	I0022
8	1090	366	-.76	.10	.81	-2.84	.82	-2.55	.60	.60	74.6	66.0	I0008
38	1095	366	-.81	.10	.89	-1.51	.88	-1.62	.65	.60	69.1	66.1	I0038
34	1110	366	-.96	.10	.89	-1.50	.88	-1.63	.61	.60	71.9	66.1	I0034
31	1114	366	-.99	.10	.99	-.14	.99	-.08	.55	.60	68.6	66.2	I0031
37	1174	366	-1.60	.10	.89	-1.52	.93	-.91	.52	.59	70.5	66.1	I0037
36	1177	366	-1.63	.10	.93	-1.03	.91	-1.18	.62	.59	72.4	66.1	I0036
1	1265	366	-2.58	.11	1.30	4.00	1.30	2.79	.41	.55	62.3	67.9	I0001
MEAN	1013.0	366.0	.00	.10	1.00	-.1	1.01	-.1			68.0	65.5	
P.SD	88.6	.0	.88	.00	.16	2.2	.18	2.4			4.1	.9	

Based on the table above, the SD value was 0.88 logit, then the analysis of the items in the instrument can be grouped as shown in Table 4 below.

Table 4. Analysis of Items By Aspect

No.	Difficulty Level	Item	Total	Aspect
1	Very Hard	29, 17, 28, 15, 18, 16, 44, 14	8	Majority in identify problems aspect such as Knowing one's strengths & weaknesses to find suitable strategies or other alternative solutions in carrying out tasks or solving problems faced by students; Initiate in taking a decision aspect such as Proposing a task that needs to be worked on or a problem that the student must solve independently; Solve tasks/ problems aspect such as Solve the task/problem on time; and Relied on by others aspect such as Plan, implement and evaluate the developed strategy
2	Hard	47, 27, 49, 48, 6, 13, 19, 12, 45, 50, 33, 46, 20, 32, 43, 23	16	Majority in identify problems aspect such as Identify tasks, problems & solutions that students will do, Knowing one's strengths & weaknesses to find suitable strategies or other alternative solutions in carrying out tasks or solving problems faced by students; initiate in taking decision aspect such as Dare to make decisions independently in the completion of tasks or solving problems faced by students; solve tasks/problems aspect such as Solve the task/problem on time, Identify influencing factors; and relied on by others such as Plan, implement and evaluate the developed strategy
3	Easy	40, 9 ,10, 4, 30, 26, 5, 42, 2, 25, 35, 39, 7, 3, 11, 24, 21, 41, 22, 8, 38	21	Majority in identifying problems aspect such as Identifying tasks, problems & solutions that students will do, Explore in details the task, problem & solution that students need to do, Knowing one's strengths & weaknesses to find suitable teachers or other alternative solutions in carrying out tasks or solving problems faced by students; initiate in taking a decision such as Dare to make decisions independently in the completion of tasks or solving problems faced by students; solve tasks/problems such as Solve the task/problem on time,

					Identify influencing factors; and relied on by others such as Tring new things and being adaptive, Complete tasks and challenges
4	Very Easy	34, 31, 37, 36, 1	5		Majority in identify problems aspect like Identify tasks, problems & solutions that students will do; solve tasks/problems aspect like Identify influencing factors; and relied on by others aspect like Not afraid to try new things

From the table above, it can be seen that of the 50 items in the instrument, 21 items were easy, 16 items were difficult, 8 items were difficult, and 5 items were very easy. This shows the diversity of the Independent Living Skills instruments. The following is table 5 which displays the output of the fit order item table.

Table 5. Fit Order Items

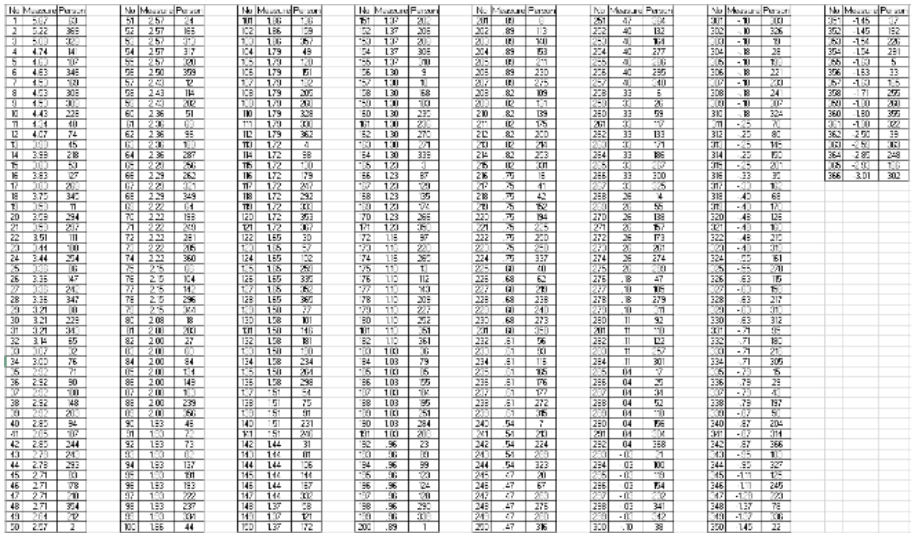
ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PTMEASUR-AL CORR.	PTMEASUR-AL EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	Item
1	1265	366	-2.58	.11	1.30	4.00	1.30	2.79	.41	.55	62.3	67.9	I0001
2	1056	366	-.42	.10	1.14	1.91	1.30	3.76	.42	.60	70.8	65.5	I0002
3	1070	366	-.56	.10	.95	-.71	1.00	.00	.59	.60	67.8	65.8	I0003
4	1031	366	-.18	.10	.98	-.29	1.03	.37	.56	.61	68.9	65.0	I0004
5	1049	366	-.35	.10	1.15	2.00	1.20	2.59	.52	.60	60.7	65.4	I0005
6	940	366	.72	.10	1.11	1.57	1.11	1.44	.53	.60	62.6	64.6	I0006
7	1068	366	-.54	.10	.87	-1.82	.89	-1.56	.64	.60	70.5	65.8	I0007
8	1090	366	-.76	.10	.81	-2.84	.82	-2.55	.60	.60	74.6	66.0	I0008
9	1026	366	-.13	.10	.95	-.64	.95	-.66	.59	.61	67.5	65.0	I0009
10	1027	366	-.14	.10	.97	-.39	.97	-.35	.62	.61	67.5	65.0	I0010
11	1074	366	-.60	.10	1.26	3.32	1.28	3.47	.55	.60	57.9	65.8	I0011
12	971	366	.41	.10	.87	-1.87	.86	-2.06	.69	.60	67.2	64.5	I0012
13	964	366	.48	.10	.91	-1.31	.90	-1.40	.64	.60	69.4	64.5	I0013
14	921	366	.91	.10	.91	-1.26	.90	-1.40	.67	.60	70.2	64.9	I0014
15	866	366	1.47	.10	1.12	1.56	1.06	.76	.63	.60	71.9	66.6	I0015
16	878	366	1.34	.10	.92	-1.07	.90	-1.39	.67	.60	71.9	66.2	I0016
17	850	366	1.64	.10	1.21	2.67	1.17	2.12	.57	.60	63.9	67.3	I0017
18	876	366	1.36	.10	1.20	2.62	1.18	2.33	.56	.60	63.4	66.2	I0018
19	966	366	.46	.10	1.07	1.01	1.06	.84	.52	.60	66.9	64.4	I0019
20	1001	366	.12	.10	.95	-.69	.95	-.72	.63	.61	68.3	64.7	I0020
21	1080	366	-.66	.10	1.10	1.32	1.15	2.01	.46	.60	69.7	65.9	I0021
22	1086	366	-.72	.10	1.23	2.99	1.47	5.53	.34	.60	68.6	66.0	I0022
23	1012	366	.01	.10	.81	-2.92	.79	-3.10	.67	.61	73.8	64.7	I0023
24	1074	366	-.60	.10	.72	-4.30	.71	-4.43	.71	.60	75.7	65.8	I0024
25	1063	366	-.49	.10	.95	-.66	.95	-.71	.62	.60	65.3	65.6	I0025
26	1046	366	-.32	.10	1.29	3.77	1.39	4.79	.27	.60	63.9	65.3	I0026
27	931	366	.81	.10	.86	-2.10	.84	-2.38	.66	.60	71.9	64.7	I0027
28	862	366	1.51	.10	.99	-.09	.95	-.57	.64	.60	68.3	66.8	I0028
29	838	366	1.76	.10	1.09	1.16	1.05	.60	.59	.59	66.7	67.9	I0029
30	1045	366	-.31	.10	.81	-2.81	.80	-2.90	.68	.60	71.0	65.3	I0030
31	1114	366	-.99	.10	.99	-.14	.99	-.08	.55	.60	68.6	66.2	I0031
32	1011	366	.02	.10	1.26	3.46	1.29	3.68	.58	.61	60.1	64.7	I0032
33	988	366	.24	.10	1.42	5.36	1.43	5.32	.56	.61	59.0	64.5	I0033
34	1110	366	-.96	.10	.89	-1.50	.88	-1.63	.61	.60	71.9	66.1	I0034
35	1067	366	-.53	.10	.81	-2.78	.81	-2.80	.69	.60	68.9	65.7	I0035
36	1177	366	-1.63	.10	.93	-1.03	.91	-1.18	.62	.59	72.4	66.1	I0036
37	1174	366	-1.60	.10	.89	-1.52	.93	-.91	.52	.59	70.5	66.1	I0037
38	1095	366	-.81	.10	.89	-1.51	.88	-1.62	.65	.60	69.1	66.1	I0038
39	1067	366	-.53	.10	.95	-.75	.95	-.65	.61	.60	68.0	65.7	I0039
40	1022	366	-.09	.10	.87	-1.88	.87	-1.93	.64	.61	70.5	64.9	I0040
41	1081	366	-.67	.10	.85	-2.25	.88	-1.69	.61	.60	71.6	65.9	I0041
42	1053	366	-.39	.10	.74	-3.96	.73	-4.08	.70	.60	73.0	65.5	I0042
43	1011	366	.02	.10	1.27	3.59	1.27	3.50	.61	.61	61.5	64.7	I0043
44	902	366	1.10	.10	.99	-.08	.97	-.36	.67	.60	63.9	65.4	I0044
45	971	366	.41	.10	.85	-2.16	.85	-2.15	.71	.60	69.4	64.5	I0045
46	994	366	.18	.10	.78	-3.40	.77	-3.40	.71	.61	71.6	64.6	I0046
47	930	366	.82	.10	1.05	.73	1.04	.55	.67	.60	62.6	64.8	I0047
48	939	366	.73	.10	.95	-.65	.94	-.81	.71	.60	69.1	64.6	I0048
49	936	366	.76	.10	.94	-.87	.92	-1.05	.69	.60	69.4	64.7	I0049
50	983	366	.29	.10	1.05	.66	1.04	.61	.66	.61	67.8	64.5	I0050
MEAN	1013.0	366.0	.00	.10	1.00	-.1	1.01	-.1			68.0	65.5	
P.SD	88.6	.0	.88	.00	.16	2.2	.18	2.4			4.1	.9	

In order to find out which items are fit, and misfit can be identified by looking at the OUTFIT MNSQ mean square, OUTFIT ZSTD (z-standard), and PT MEASUR CORR (point measure correlation). The following are the criteria for checking non-conforming items (Bond & Fox, 2013; Boone et al., 2014; Qodriyah, R. L., Susilaningsih, E., Haryani, S., 2021).

a. MNSQ OUTFIT value received $0.5 < \text{MNSQ} < 1.5$
b. Accepted ZSTD OUTFIT value $-2.0 < \text{ZSTD} < 2.0$
c. The value of PT MEASUR CORR received is $0.4 < \text{Pt Measure Corr} < 0.85$.

Judging from Table 5, there are three groups that meet the criteria above. First, 28 items meet the criteria, namely item number 3, 4, 6, 7, 9, 10, 13, 14, 15, 16, 19, 20, 25, 28, 29 31, 34, 36, 37, 38, 39, 40, 41, 44, 47, 48, 49 and 50. Second, 20 items meet the two criteria, namely numbers 1, 2, 5, 8, 11, 12, 17, 18, 21, 23, 24, 27, 30, 32, 33, 35, 42, 43, 45, and 46. Third, 2 items meet one criterion: item numbers 22 and 26. All items are included in the fit order item, which means that all items are fit or valid because they fit at least one criterion.

Table 6. Person Measure



Categorizing is done by looking at the combination of the mean value and standard deviation. Furthermore, categorizing is done with the formula Height = Mean+1SD < X; Moderate = Mean -1SD ≤ X ≤ Mean +1SD; Low = X< Mean -1SD. The mean used is 1.12 logit and the standard deviation is 1.45 logit based on table 1. Table 7 below regarding the categories of Independent Living Skills.

Table 7. Frequency Distribution of Independent Living Skills

Category	Total	Interpretation
High 2.57 < X	49 (13.39%)	The teacher considers that students are already at an independent stage which is marked by children not needing verbal/physical assistance but are still under supervision for safety.
Moderate -0.33≤ X ≤ 2.57	268 (73.32%)	The teacher assumes that their student are at a developing stage which is marked by receiving a maximum of 2 verbal/physical commands.
Low X < -0.33	49 (13.39%)	The teacher assumes that their students are at the stage where students understand concepts but do not want to take the initiative in doing so and need more than 2 verbal/physical assistance

From Table 7, it can be seen that the tendency of Independent Living Skills is in the medium category.

Discussion

The main objective of this journal is to make a valid and reliable instrument which can measure independent living skills. From the presentation that has been made, it can be seen that it is very important for students to develop independent living skills. These skills relate to namely being able to recognize problems, taking the initiative to make their own decisions, solving problems/tasks that are their responsibility without the help of other people (Liao et al., 2022; Yang & Lin, 2024) and being able to be relied on by others based on personal experience. Many factors influence a student's development from within and outside him. In order to improve this, of course, initial measurements through instruments will be very helpful in creating programs that can later be designed in such a way and are also useful for teaching and learning activities following the applicable curriculum. From the analysis carried out above, a valid and reliable instrument was obtained. The data above also provides an initial picture of the profile of existing independent living skills.

Conclusion

Disclosure of independent living skills distribution can be seen using the Rasch model. The Rasch model analysis can provide a very good picture in terms of the reliability and validity of the instrument

so that the information obtained is intact. This can be considered for teachers to develop independent living skills and can also be used as initial assessment material because schools are currently using an independent curriculum that requires an initial assessment of learning. The optimal development of Independent Living Skills will make students more advanced and able to adapt well.

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