

## **Instrument Validation: Self-Efficacy In K-Pop Dance Cover**

**Dinny Devi Triana<sup>1\*</sup>, Rivo Panji Yudha<sup>2</sup>, Putri Puspa Hidayati<sup>3</sup>, Melaprilya Anggun Tafarannisa<sup>4</sup>**

<sup>1 3 4</sup>State University of Jakarta, Indonesia

<sup>2</sup>University of 17 August 1945 Cirebon, West Java, Indonesia

\*[dinnydevi@unj.ac.id](mailto:dinnydevi@unj.ac.id)

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**ABSTRACT:** This study aims to analyze the instruments of self-efficacy and learning independence in K-Pop Dance Cover Learning. This instrument was used by 66 K-Pop dance cover students at the K-star Academy. The instrument was analyzed quantitatively with the Rasch Model approach using Winsteps software. The result of this research is the availability of an appropriate instrument to measure students' self-efficacy in learning K-Pop Dance, which fulfils the requirements as a valid, reliable instrument.

**Keywords:** Validity, reliability, self- efficacy

### **Introduction**

Generally, dance assessment is subjective, but now some scholars use an objective performance assessment instrument that are reliable (Krasnow and Chatfield 2009). There are differences in language and culture, so adapting the dance assessment instrument is needed in order to develop the testing tool and to adjust it with Indonesian culture.

The adapted instrument is a self-efficacy instrument formulated by Dr. James and E. Mandzux from the University of George Mason, based on Stanford Albert Bandura's theory. Bandura defines self-efficacy as an individual's belief that they are able to control situations and obtain positive results. Bandura also refers self-efficacy as one of the strongest factors in one's behavioral change, and self-efficacy causes them to take the first action towards their goal, motivating them to do something based on a group's agreement, and the success will give them courage to keep going even when things get tough (Bandura, Freeman, and Lightsey 1999). The purpose of adapting the instrument is to test the validity and reliability of K-Pop Dance Cover self-efficacy instrument.

Based on the background mentioned above, the problems of the research were (1) The self-efficacy scale is an instrument that can be used to reveal one's self-efficacy. Therefore, its validity and reliability need to be tested in order to be used to determine students' self-efficacy in learning the K-Pop Dance. (2) How to determine the characteristics of a good self-efficacy instrument, in a sense that it has to meet the validity and reliability requirement, as well as the item analysis that can reveal the students' self-efficacy level. From the development and the validity and reliability test of self-efficacy scale, the K-Pop Dance learning instrument that will meet the condition of measuring principles will be able to be obtained, and it can be used to assess students both individually or in groups.

As it is known, most Indonesian teenagers are entranced and somewhat hypnotized by the K-Pop culture, from the K-Pop music to K-Pop idols. The amount of boy group and girl group concerts keep growing and happening in Indonesia since 2000. A music onlooker, Bens Leo, as cited in Portal Komunitas and online news [tnol.co.id](http://tnol.co.id), stated that the K-Pop music emerging in Indonesia in around 2009 has indeed gained popularity; all of this is thanks to information networking and internet technology, where people can easily access something in the form of audiovisual. Internet and social media become the pillars for K-Pop to dominate the world's music chart. Without the existence of distribution and online marketing, K-Pop wouldn't be as famous as it is now (Pearson and Vu 2017). K-Pop's engaging appearance succeed in attracting all the world's attention, and the fascinating performances of the idols in pictures or videos have become an additional point for the fans.

Consequently, self-efficacy is one of the potentials that needs to be developed, especially for teenagers. In this era, each individual has the need to express themselves freely and to find their own identity. Their reasoning becomes more abstract, logical, and idealistic (John W. Santrock 2017). Self-efficacy can give a significant effect towards students' results in learning, because self-efficacy affects their choice of task, energy, tenacity, and achievement (Bandura et al. 1999; Schunk and Meece 2006). Students need self-efficacy in order to keep up with this advancing era.

Students who have a high self-efficacy will be able to reach their goals in life. It will be more possible for an individual to be involved in a certain behavior when they are sure that they can carry out that action successfully, which is when they have a high self-efficacy (Ormrod 2006). With that said, teachers need to pay attention more in students' self-efficacy, so that their potential can be optimized. In the context of education, if a student has a self-efficacy, they will be motivated so they can reach the lesson's goal and can overcome difficulties when doing tasks, because self-efficacy affect how they think, feel, as well as to self-motivate and to act upon (Zulkosky MSN, RN, CCRN 2009). This is aligned with Schunk's theory, that a student who has self-efficacy towards learning tend to be able to find ways to overcome obstacles, so that the learning process can be more effective (Schunk, 1990).

Self-efficacy is an important factor that has the correlation with internal strength and the many efforts that an individual determines. This matter applies in the process of K-Pop dance cover learning where individuals need internal strength, like self-efficacy, which can help them undergo all kinds of activity so that the competency will be attained. Self-efficacy in learning K-Pop dance cover is needed in order to arrange strategies to finish the expected actions.

In this research, researcher wanted to identify the quality of self-efficacy used to determine students' ability in learning the K-Pop dance cover with Rasch model approach. This quality was measured based on some indicators, which were question numbers fitted to Rasch's model and question numbers' reliability. Therefore, the self-efficacy instrument was designed and the questions were sorted whether or not they fitted the Rasch model. Moreover, with the help of Winsteps software, the Cronbach alpha score would be determined to identify the reliability of the question items.

### **Literature Review**

Bandura (2004) stated that self-efficacy is related to self-ability and capability to finish a task and overcoming obstacles. According to Bandura, self-efficacy is an individual's faith in his own ability to finish a certain task. Bandura (Handayani, 2013) stated that self-efficacy is an individual's faith to regulate and finish an action program needed to produce expected results. From the above definitions, it can be concluded that self-efficacy is emphasized more in the process of motivating one's self that will affect their learning process.

Increasing someone's self-efficacy through education will create a positive outcome. There are four basic methods to help developing self-efficacy. The first method is based on the idea that when someone succeeds, their self-efficacy will increase; and when they don't, their self-efficacy will decrease. The second method is through observation, that the success of actions based on observation will increase an individual's self-efficacy. It will be more optimal if there's a resemblance between the model and the observer, so the observer will be more assertive and have the mindset of "If they can do it, then I can do it too." The third method in developing self-efficacy is through verbal motivation. For example, if an instructor motivates a student verbally during the practical subjects, then their self-efficacy will increase. The fourth method to increase self-efficacy is to control the psychological reaction that derives from an emotional state (Karabacak et al. 2019).

Bandura argued that the stronger someone's self-efficacy is, the bigger the chance they will choose a more challenging task; they will be more tenacious in their works, and they do it successfully (Pajares 1996). On the other hand, a high self-efficacy will help creating a more stable emotional state. As a result of these effects, self-efficacy is a significant determinant and becomes a predictor of an individual's achievement level (Pajares 1996). According to Bandura (1997) in Sherer and Maddux, self-efficacy is the most significant determinant of someone's behavioral change, because the expectation of self-efficacy determines the first decision of doing something, what actions they should take, and the persistence to overcome obstacles (Maddux, Sherer, and Rogers 1982).

Bandura also explained that an individual who has a high self-efficacy in a certain field or situation doesn't mean that they also have the same amount of self-efficacy in another field (Lester 2019). The faith in self-efficacy varies from one situation to another, depending on the competency needed in each activity. That faith depends on the environment, on another human being, and on their own persistence in carrying out tasks. When the persistence is strong and the environment is responsive, it is likely possible that they will succeed. When the persistence is weak, combined with a responsive environment, an individual might get depressed when they realize that other people are actually succeeding in completing the seemingly difficult tasks. When a person with a high self-efficacy faces a situation with a non-responsive environment, they will usually intensify their effort in order to change the surroundings.

Self-efficacy is highly affected by an individual's learning goal, that if a student can decide their own goal, then their self-efficacy will increase (Schunk 1991). A student who determines their own performance goal show a bigger motivation than those whose goals are determined by their teachers or instructors; a student who determines their own goal will be more tenacious and have higher level skills. However, teacher or instructor can give a high score or a positive verbal feedback as a reward; it can also motivate the students more to learn effectively so that their self-efficacy can increase.

Zimmerman emphasized that self-efficacy is proved to hold an important role for students as a turning point in motivating them through the process of self-regulation, such as determining the learning goal and strategy, as well as self-evaluation. The more adept someone is in taking actions, the more challenging the goals are that they have. This is related to an individual's self-efficacy. Zimmerman explained that the level or one's self-efficacy affects the choice of actions they take, how much effort they make, how tenacious they are in learning, as well as the amount of emotional reactions they show (Zimmerman and Martinez-Pons 1990).

## Methods

### Research Plan

The research plan used was quantitative descriptive, which was to identify the quality of the material and language on self-efficacy instrument.

### Data Analysis

This research used self-efficacy as its variable. Self-efficacy is an individual's faith of their own capability to succeed in a certain situation. The instrument used to collect the data was a self-efficacy measuring scale, developed by Dr. James E. Maddux from George Mason University, consisted of 18 items based on 3 constructs, which are based on Bandura's self-efficacy theory. There was no information reported regarding the prior validity and reliability.

The data analysis was done with Rasch model, helped by Winsteps software that was developed by Linacre (Linacre 2020). The Rasch model can identify the interactions between respondents and question items at once. In the Rasch model, a score cannot be identified based on raw scores, but based on logit score that shows the probability of whether or not the item would be chosen by a group of respondents. This was used to anticipate the raw score from *likert* rating, formed ordinally and doesn't have any interval similarity between the scores. The use of Rasch model for polytomy data was developed by Andrich, still grounded on the two basic theorems, which are the level of one's ability or agreement, and the item's difficulty to be agreed on (Sumintono and Widhiarso 2015). Psychometric tool used in this research was the reliability on the instrument's level (respondents and items), the validity of respondents and items, how the instrument is unidimensional, and bias detection on items and the precision of used responses in total.

From the Winsteps software's output, some questions' parameter that fitted the Rasch model were obtained. Furthermore, the alpha Cronbach score as the overall's result of the reliability test was also obtained. Meanwhile for MNSQ Outfit, ZSTD Outfit and one question item's score correlation with the overall questions showed the item's limit that fitted the model. With that said, if the MNSQ Outfit score is between 0,5 and 1,5; then the ZSTD Outfit score is between -2,0 and 2,0; and the correlation of the question and the total score is between 0,4 and 0,85 (Sumintono and Widhiarso 2015).

## Results

The analysis was done with data sourced from 113 respondents who were students. The data was tabulated in Ms. Excel software, then it was converted and analyzed with the help of Winsteps 4.47 software in Windows 10 operating system.

Based on the data analysis using Winsteps software, Figure 1 indicated the item of outfit plot, and was used to see whether or not the items fit with the Rasch model. From the figure below, all items are in between -2 and 2, so we can conclude that all items fit the Rasch model.

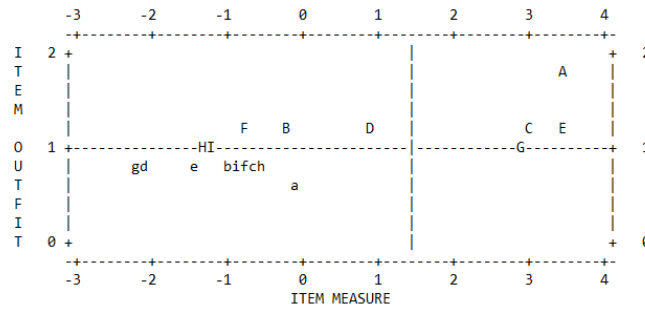


Figure 1. Outfit Plot Item

From the table above, it can be interpreted that the question items are ordered from the most difficult, which are items 5 and 6, all the way to the easiest, which are item 11 and 17. Score of items 12, 13, and 4 are parallel; meaning that the score item of 10 is higher than the score of item 13, and the score of item 13 is higher than the score of item 4. For a clearer display, it can be seen from item table of fit measure, that the scores of item 13 and 4 are the same.

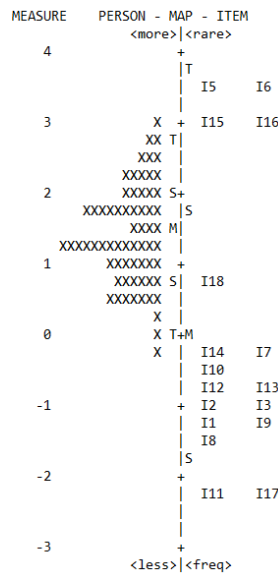


Figure 2 . Item Map

The Fit Order Item Table 1 below is to indicate the items' suitability to the model. To see whether or not the items fit the model, the score in MNSQ OUTFIT column was used. If the score in the column is between 0,5 and 1,5, then the item does fit the model. From the table above, it can be concluded that all items fit the Rasch model.

Table 1. Fit Order Item

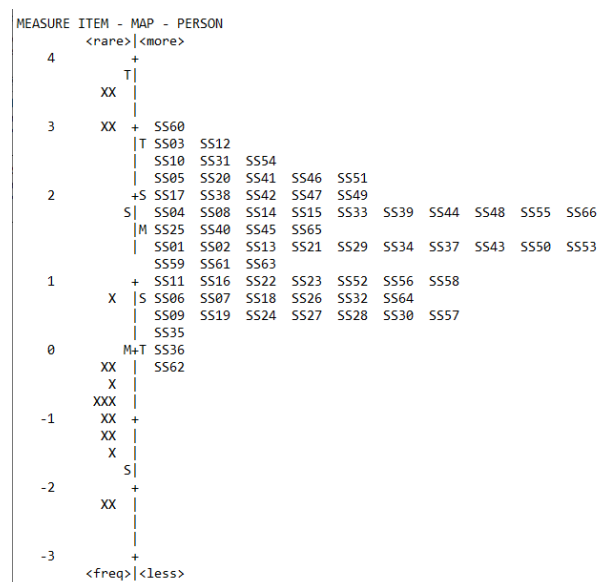
ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MODEL MEASURE	S.E.	INFIT MNSQ	ZSTD	OUTFIT MNSQ	ZSTD	PTMEASUR-AL CORR.	EXP.	EXACT OBS%	MATCH EXP%	ITEM	
6	118	66	3.48	.21	1.73	1.87	1.44	1.25	A	.06	.38	45.5	57.6	I6
14	203	66	-.23	.22	1.23	1.27	1.22	1.24	B	.44	.36	54.5	65.4	I14
16	130	66	2.96	.21	1.20	1.24	1.20	1.23	C	.16	.39	65.2	59.5	I16
18	100	66	.85	.21	1.20	1.14	1.20	1.15	D	.38	.37	60.6	60.8	I18
5	118	66	3.48	.21	1.17	1.06	1.17	1.11	E	.02	.38	63.6	57.6	I5
4	215	66	-.83	.23	1.06	-.41	1.12	.77	F	.28	.36	59.1	62.6	I4
15	131	66	2.92	.20	.99	-.03	.98	-.10	G	.10	.39	71.2	59.6	I15
1	225	66	-1.35	.23	.94	-.38	.93	-.46	H	.46	.35	65.2	60.8	I1
9	225	66	-1.35	.23	.94	-.40	.93	-.42	I	.46	.35	62.1	60.8	I9
3	217	66	-.93	.23	.89	-.68	.88	-.77	J	.34	.35	60.6	62.0	I3
10	209	66	-.53	.22	.89	-.62	.89	-.63	K	.50	.36	68.2	64.1	I10
17	240	66	-2.22	.26	.89	-.75	.87	-.75	L	.35	.31	69.7	66.3	I17
13	215	66	-.83	.23	.88	-.73	.87	-.78	M	.61	.36	66.7	62.6	I13
8	226	66	-1.40	.23	.84	-1.11	.83	-1.20	N	.50	.35	69.7	61.2	I8
11	239	66	-2.15	.25	.84	-1.09	.83	-1.03	O	.40	.31	71.2	65.7	I11
12	215	66	-.83	.23	.82	-1.11	.81	-1.17	P	.58	.36	66.7	62.6	I12
2	217	66	-.93	.23	.70	-2.02	.70	-2.06	Q	.58	.35	63.6	62.0	I2
7	201	66	-.13	.22	.60	-2.59	.60	-2.58	R	.42	.36	74.2	65.3	I7
MEAN	195.8	66.0	.00	.22	.99	-.1	.99	-.1				64.3	62.0	
P.SD	40.5	.0	1.85	.01	.25	1.4	.25	1.5				6.6	2.5	

From table 2, in the Raw variance explained by measures row and Empirical column is 30,5% > 20%, which meant that the Unidimensional assumption was proven (Reckase 1979).

**Tabel 2.** Standardized Residual Variance

	Eigenvalue	Observed	Expected
Total raw variance in observations	42.7270	100.0%	100.0%
Raw variance explained by measures	24.7270	57.9%	58.1%
Raw variance explained by persons	2.5539	6.0%	6.0%
Raw Variance explained by items	22.1731	51.9%	52.1%
Raw unexplained variance (total)	18.0000	42.1%	41.9%
Unexplained variance in 1st contrast	3.7806	8.8%	21.0%

From table 2 above, in the Raw variance explained by measures row and Empirical column is 57.9% > 20%, which meant that the Unidimensional assumption was proven (Reckase 1979).



**Figure 3.** Map Person Item

Figure 3 explains about the most difficult person to answer an item, which was person SS60, with the ability of 3,03 logit, having the biggest difference with the person right below, which was person number SS03 and SS12; those persons have the same ability which was 2,86 logit. Person with the low ability was person number SS62.

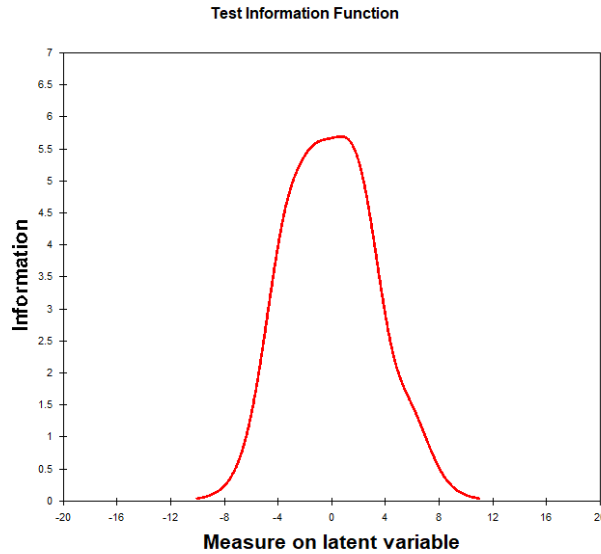


Figure 4. Test Information Function

In the figure above, X axis showed the level of a person’s ability in doing a self-efficacy question item, with the domain of probability and statistic; whereas Y axis showed the range of information’s function. The person’s ability was started with the very low ability (most left), low ability, average ability, and the very high ability (most right). It can be seen from the very low-level ability, that the information obtained was also relatively low (this also applied to the very high-level ability). On the average-level ability, the information obtained by the measurement was very high. This indicates that those items produced optimal information when it was given to persons with average ability. The conclusion of the graphic above is that the 18 items given to 66 persons showed that the items were suitable to determine only the average-level ability. The items’ information’s function also showed the reliability of the measuring given; that the higher the information’s graphic went, the higher the reliability became.

Table 3. The Instrument Analysis of Rasch Model

SUMMARY OF 66 MEASURED PERSON									
	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	ZSTD	OUTFIT MNSQ	ZSTD	
MEAN	53.4	18.0	.72	.43	1.01	-.14	.99	.00	
SEM	.5	.0	.09	.00	.06	.20	.06	.19	
P.SD	3.8	.0	.70	.01	.47	1.62	.45	1.57	
S.SD	3.8	.0	.70	.01	.47	1.63	.45	1.58	
MAX.	62.0	18.0	3.09	.49	2.12	2.94	2.00	2.76	
MIN.	44.0	18.0	-.27	.42	.25	-3.41	.25	-3.37	
REAL RMSE	.47	TRUE SD	.51	SEPARATION	1.09	PERSON RELIABILITY	.54		
MODEL RMSE	.43	TRUE SD	.55	SEPARATION	1.28	PERSON RELIABILITY	.62		
S.E. OF PERSON MEAN = .09									
PERSON RAW SCORE-TO-MEASURE CORRELATION = 1.00									
CRONBACH ALPHA (KR-20) PERSON RAW SCORE "TEST" RELIABILITY = .60 SEM = 2.40									
SUMMARY OF 18 MEASURED ITEM									
	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	ZSTD	OUTFIT MNSQ	ZSTD	
MEAN	195.8	66.0	.00	.22	.99	-.14	.99	-.14	
SEM	9.8	.0	.45	.00	.06	.35	.06	.36	
P.SD	40.5	.0	1.85	.01	.25	1.44	.25	1.48	
S.SD	41.7	.0	1.90	.01	.25	1.48	.26	1.52	
MAX.	240.0	66.0	3.48	.26	1.73	3.87	1.74	4.00	
MIN.	118.0	66.0	-2.22	.20	.60	-2.59	.60	-2.58	
REAL RMSE	.23	TRUE SD	1.83	SEPARATION	7.86	ITEM RELIABILITY	.98		
MODEL RMSE	.22	TRUE SD	1.83	SEPARATION	8.16	ITEM RELIABILITY	.99		
S.E. OF ITEM MEAN = .45									
ITEM RAW SCORE-TO-MEASURE CORRELATION = -1.00									
Global statistics; please see Table 44.									
UMEAN=.0000 USCALE=1.0000									

Person measure = 0,72 logit indicates the average of all the person's score of the question items. The average score was less than 0.00 logit score; meaning that the student's ability tendency was greater than the difficulty of the items.

The score of alpha Cronbach (to measure the overall's reliability between persons and items) is the criteria of alpha Cronbach according to Sumintoro, Bambang, and Widhiarso Wahyu (Sumintono and Widhiarso 2015). On the table above, the score of alpha Cronbach was 0.60, so the reliability of this instrument was enough. On the table above, the person's reliability was 0.54 and the reliability item was 0,98, so it is interpretable that the consistency of a person's reliability is low, and the quality of the instrument's item is special.

The Separation Score was a classification of persons and question items. The higher the separation score is, the better the quality of the instrument would be, because the group of persons and items are able to be identified.

## Conclusion

Based on the discussion above, it can be concluded that the analysis' result with the help of Winstep software showed that 18 question items obtained from 66 persons fitted the Rasch model. The Person Reliability on self-efficacy instrument was 0,54, whereas the Item Reliability was 0,99. It is interpretable that the consistency of persons' reliability's answer was low, and the items' quality in the instrument was special. The Person Measure score was 0.72 logit, showing that the average of all the persons in doing the items was 72%; meaning that the students' ability was higher than the items' difficulty.

The Alpha Cronbach score (measuring the overall's reliability between persons and items) was 0,60, so it is interpretable that the instrument's reliability of this research was Enough.

Other information we obtained was that the most difficult items were item 5 and 6, whereas the easiest ones were item 11 and 17.

Other information we also obtained, was that the assumption test on the Rasch modeling was Unidimensional. The Unidimensional assumption test was proven if the Raw variance explained by measures row was 57.9% > 20%, meaning that the Unidimensional assumption was proven ((Reckase 1979).

The conclusion from the Test Information Function graphic above was that 18 items that were given to the 66 persons showed that they fitted to determine only the average ability's level. Item Information Function also showed the measuring reliability given, whereby the higher the graphic of the information function was, the higher the reliability of the score was.

The analysis use of Rasch model is very recommended to be used by every rater in order to help them determine students' ability in learning the K-Pop dance, so that the raters can analyze and improve the learning activities.

## Limitations and Future Studies

The data collecting was not affected by the K-Pop dance cover material that was being learned when the data was collected, but the result of collecting the data was affected by the overall's K-Pop dance cover material; from the early times where respondents were learning, as well as the few sample totals taken due to the limit of time and expenses.

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