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THE BASIC PSYCHOLOGICAL NEEDS IN THE ENGLISH SUBJECT: A RASCH MEASUREMENT MODEL

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ABSTRACT

A matter of great interest to researchers in the field of education today is how to improve students' well-being, engagement, or learning achievement in tertiary level contexts. Some scholars suggest to start from the assessment of students' satisfaction upon their basic psychological needs. However, recently, the number of validated tools to assess the satisfaction of the basic psychological needs is still rare. This study measured the validity and reliability of an adapted basic psychological needs theory used in foreign language learning. There were two developed questionnaires to identify basic psychological needs which covers a different number of indicators. The study presented empirical evidence of validity and reliability using the Rasch Model. This pilot study was conducted in two different universities and cities, Indonesia. There were 34 students as a participant in this study. Data were analyzed using WINSTEPS version 3.69.1.11. Results show that the instrument that can measure BPN in the context of English courses at the tertiary level is feasible to use in measuring BPN. The researchers only got one invalid item from the "relatedness" indicator.

Keywords: Basic Psychological Needs; Self-determination; Rasch Measurement Model

1. INTRODUCTION

The basic-psychological needs (BPN) has been regarded as one of the main encouraging components of self-determination theory (SDT) (E. L. Deci & Ryan, 1990). Referring to SDT perspectives, BPN initiates the innate psychological nutriments that are essential for ongoing psychological growth, integrity, and well-being (Alamer, 2021; Conesa & Duñabeitia,

2021; Ryan & Deci, 2017). BPN theoretically involves the need for autonomy, competence, and relatedness. It is the satisfaction of which leads to psychological well-being and success in academic performance (Edward L. Deci & Ryan, 2000). The SDT originated from the premise that learners have a natural tendency toward growth and healthy development. The fundamental motivational energy that makes individuals grow and develop originated from a such of basic psychological needs that are crucial for a person to experience, endure, promote welfare, internalization, and learning (Alamer, 2021; Noels et al., 2019). Recently, several researchers have proposed new candidate needs to be incorporated into the BPN in addition to the three indicators autonomy; competence, and relatedness. One of the things suggested by some experts is the "need for novelty" as a construct/indicator to measure the level of BPN (González-Cutre et al., 2016, 2020). The need for novelty is also defined as a psychological need, such as the need to experience something previously unknown or different from ordinary activities (González-Cutre et al., 2016). Therefore, the experience of something new in psychology phrase, termed as the experience of novelty, has been claimed to be important for the development of students' internal motivation and very relevant in the school context. In their description, (González-Cutre et al., 2016, 2020; Trigueros et al., 2019) illustrate that in the perspective of novelty there is an element of satisfaction if it is fulfilled at an adequate level to meet the psychological needs of students. Hence, it can be recommended in the scope of education by continuously providing opportunities for students to have new learning experiences continuously. Several recent studies using three common indicators to measure BPN have led the research results to the conclusion that novelty satisfaction significantly manifests to a person's motivation in terms of life satisfaction, vitality, and general well-being (González-Cutre et al., 2020; Trigueros et al., 2019). However, until now, although some evidence from research results have pointed to the contribution of novelty as part of the indicator for measuring BPN variables, only a few researchers have paid attention to this (Conesa & Duñabeitia, 2021; González-Cutre et al., 2016, 2020; Vansteenkiste et al., 2020). In addition, because this may not have been widely discussed by researchers in the context of motivation to learn English in Indonesia, therefore limited researchers have recommended a valid and reliable instrument.

Terms that are common for researchers about instruments as measuring tools, such as surveys, tests, questionnaires, etc. Instruments for research purposes is measurement device in the form of a survey, test, questionnaire, etc. which were designed from the beginning, adopted, or adapted from previous researchers to obtain data or responses that are in line with research objectives. In some cases for novice researchers, or even experienced ones, similar instruments employed in different settings may produce varied responses due to socio-cultural variations, espoused values,

and personal factors of the respondents. Thus, the functional and useful instruments in a study must be valid and reliable (Kimberlin & Winterstein, 2008). In research, the reliability and validity of the instrument are the basis for the quality of the study results. The instrument development process used is mostly focused on efforts to reduce errors in the measurement process (Kimberlin & Winterstein, 2008; Zamanzadeh et al., 2015). To evaluate the stability and consistency of measurement, it is necessary to measure the reliability of the instrument. Meanwhile, to find out how the interpretation of test results is guaranteed, the validity of the measuring instrument is required (Zamanzadeh et al., 2015).

The validity that is usually contemplated in research instruments is the content, indicator, and criteria validity. The content validity can be established from the relevant expert's input that is suitable to the scope of the study (Zamanzadeh et al., 2015). Experts who are experienced in their fields can justify the content term by considering the location, the sample, and the purpose of the study (Ng et al., 2018). To obtain indicator validity usually throughout some assessments such as correlation, measurement criteria, factor analysis, and research models. Those are prevalently employed in the Rasch Measurement Model (Linacre, 2020; Ng et al., 2018).

Instrument reliability is the ability of an instrument to measure what it is supposed to measure consistently. The reliability of the instrument is determined from several things, one of which is commonly used by researchers is Cronbach's alpha. However, in the analysis method that uses the Rasch model, the interpretation mode includes items and persons. Some statisticians state that the interpretation of person reliability is equivalent to Cronbach's alpha coefficient (Linacre, 2020).

2. LITERATURE REVIEW

Considering the importance of the validity and reliability of the questionnaire as a research instrument, and seeing the need for an instrument tool to measure BPN in the context of learning English at the university level, this research was conducted to limit the loophole. The overall objective of the present study was to study how the Rasch measurement model assesses the reliability and validity of the two main indicators (Alamer, 2021; González-Cutre et al., 2016, 2020; Ilardi et al., 1993) that form BPN, as illustrated in the figure 1. The developed BPN scale generally contains three indicators, namely autonomy, competence, and relatedness (Alamer, 2021; Alamer & Lee, 2019; Ilardi et al., 1993). The instrument was adapted by (Alamer, 2021) from the guidance of previous researchers (Ilardi et al., 1993).

There are several versions of the questionnaire that aim to measure the level of student motivation in terms of basic psychological needs, but those three major indicators are dominant (Olafsen et al., 2018; Ryan & Deci, 2017). Meanwhile, other scholars continue to suggest the importance of incorporating the element of novelty into BPN measurements with arguments that are proven through a series of studies, supported by the valid reliability and validity (Conesa &

Duñabeitia, 2021; González-Cutre et al., 2016, 2020). To obtain the reasonable instrument of the two types of construct that form the variable BPN, researchers in the present study then listed the following objectives: a) To analyze the reliability and separation strata of item/person. b) To analyze the validity of the item with the reference of PTMEA CORR. c) To determine whether the items are developed according to item fit in measuring the latent variables by conformity Item (Item fit). d) To identify the items or person having duplication construct or locally independent.

3. RESEARCH METHOD

The researchers employ surveys by distributing questionnaires adopted and adapted from (Alamer, 2021; González-Cutre et al., 2020; Trigueros et al., 2019) by combining the two constructs into one. This is a pilot study that involves 34 students as participants. The students were taking English classes as a general education subject from 2 different Universities in Batam and Karimun, Indonesia. At many universities in Indonesia, general education subject is taken up by most of the undergraduate students during their first two years of study, and English is one of them. The respondents answered the questionnaires given under their English language lecturer's supervision. The 34 respondents in the present study were considered satisfactory, as suggested by (Cooper & Schindler, 2014), the sum of respondents appropriated in a pilot study is in the range of 25 to 100 persons. Other scholars eg. (Johanson & Brooks, 2010) suggest 30 participants is the minimum in a pilot study, particularly the study on a development scale. The Data were analyzed by software Winsteps Version 3.69.1.11.

3.1 Instrument

Instrument of basic psychological needs was modified by researchers based on the 2 types of questionnaire of basic psychological needs proposed by (Alamer, 2021) proposed autonomy, competence, and relatedness as the main indicator for the BPN, meanwhile (González-Cutre et al., 2020) proposed the three indicators as well novelty. The two questionnaires consist of 18 items divided into 4, each for the first three indicators, and 6 for the novelty. All items were measured based on the five-point Likert scale, ranging from 1=strongly disagree to 5=strongly agree. The two types of the questionnaire are merged and translated into Indonesian. Considering all respondents are students who do not use English as a daily communication language, then every statement given was in Indonesian. Two language experts participated in the back-to-back translation from English to Indonesian (Wang et al., 2021; WHO, 2017). The list of items of the questionnaire is stated in the appendix.

3.2 Data Analysis

Item analysis uses WINSTEPS version 3.69.1.11 to test the reliability and validity. Winsteps is a Windows-based software that helps with the computation of the Rasch model, especially in the areas of educational evaluation, attitude surveys, and scale

analysis. The main purpose of the pilot study is to test the effectiveness of the survey instrument/questionnaire as a communication tool between researchers and respondents (In, 2017). The adopted and adapted instruments were translated to Indonesian and coded as Q1-Q4 for autonomy; Q5-Q8 for competence, Q9-Q12 for relatedness, and Q13-Q18 for novelty. The main criteria of the Rasch model are as stated in table 1.

4. RESULT AND DISCUSSION

Through Rasch model analysis, the researchers examined the two types of constructs that form the BPN. theoretically, The analysis steps are a) reliability and separation of measures (item/person); b) item polarity based on point measure correlation (PTMEA CORR) value; c) conformity item (Item fit); and d) standardized residual correlations in identifying a dependent item.

4.1 Reliability and separation of measures (item/person)

The reliability and separation of item/person analysis are to determine reliability and separation item/person which is based on the statistics summary. WinstepsRasch software report reliability and separation of measures treating the sample as the population. The respondent reliability index means the assumption of individual abilities in a sample is consistent even if it is given a different set, still can measure the same indicator (Linacre, 2020). The item reliability index is expressed as the difficulty of the item remains the same, if it is compared to other samples with equivalent abilities. Based on the Rasch measurement model, the reliability of items and respondents can be determined. The item reliability and respondents can indicate the extent of item compatibility to the Rasch model. The criteria of strongly accepted reliability value are if it is more than 0.8. Another expert eg. (McMillan & Schumacher, 2014) stated that the alpha value of .70 to .90 is an acceptable range to ensure and enable research instruments to be used in research.

According to (Linacre, 2020; Ng et al., 2018), a respondent isolation index is an estimate of the isolation or difference of an individual group according to the level of ability in a measured variable. The index indicates the number of respondents strata's ability to give an identified perception in a sample group measured at 2 standard errors. Meanwhile, the item isolation index indicates the isolation for the item level difficulty where it refers to the number of item difficulty strata on the 2 standard errors obtained on the test set used. The isolation values of respondents and items greater than 2 are good (Linacre, 2005).

From table 2, the value indicates the reliability of the item/person of the present study is 0.95 and 0.98. The score exceeds the minimum reliability level of 0.8 (Bond & Fox, 2007). The reliability value item/person is considered as excellent as it is >0.94 rating scale (Fisher, 2006). The separation value item/person is 4.27/6.30 which is >2.0 minimum level of separation (Linacre, 2005).

4.2 Item polarity based on point measure correlation (PTMEA CORR) value

The Examination of the point measure correlation (CORR PTMEA) is intended to identify polarity items and test, the degree to which the construction of the indicator achieves the goal. If the value of the PTMEA CORR is positive, it means the item measure the indicators should be measured (Bond & Fox, 2007). But if the value is negative, indicates that the item of all indicators on the BPN is not developed to measure the indicators should be measured. Then the treatment toward the item is to be revised or discarded, as it is difficult to be answered by the respondents. The validity of the items is measured concerning the PTMEA CORR. It is the value of the item polarity. Examination of polarization item is intended to test whether the indicator has been built to achieve its objectives. If the PTMEA CORR value is positive (> 0), it can be said that the item can measure what it should measure (Bond & Fox, 2007; Rachman & Napitupulu, 2017). Conversely, if the value is negative (< 0), then it can be concluded that the item is not developed to measure indicators that should be measured, so that the item should be revised or discarded. This is because the item is out of focus or hard to be answered by the respondents. Table 3 indicated that there is no negative values were detected in the Pt-Measure Corr values. The smallest value is 0.63. In this study, the researcher did not see any discrepancies in the elements of the questionnaire that combined the two major opinions regarding the measurement of the BPN variable on students. This research instrument is considered worthy to be continued.

4.3 Conformity Item (Item fit)

The suitability of the items can be determined based on the examination performed on the data results. The appropriateness of the item being referenced is to determine the appropriateness of the item that changes an indicator or latent variable. Analysis in Rasch usually shows item fit statistics (the chi-square ratio of infit), the outfit means square (MNSQ), and the item fit. The examination refers to the MNSQ index of infit and outfit. Each observation made involves the index, but the weights for each index are different. However, the MNSQ outfit index needs to be considered first, over the MNSQ infit, to determine the fit of an item or fit item that changes a latent construct or variable. According to (Rachman & Napitupulu, 2017), the accepted index or range for the Likert scale (polytomous data) is 0.6 - 1.4 and for multiple-choice (dichotomous data) is 0.7 - 1.3. In addition to the outfit and infit MNSQ values, the ZSDT values should also be considered in determining item suitability. It is the t-test to test hypotheses about the suitability of the data with the model. A value of 0.00 is the expected value, while the value less than 0.00 indicates the item is too predictable, and if greater than 0.00 means were difficult to predict. According to (Bond & Fox, 2007), the acceptable value of ZSDT is ± 2.00. However, according to (Linacre 2020), if the MNSQ value has been accepted, then the ZSDT index can be ignored.

Table 4 shows that there is only one item, Q12, that exceeded the limit value of Infit MNSQ. According to (Linacre, 2020; Sumintono & Widhiarso, 2015), the assessment of respondents and items are considered not fit (outliers or misfits), as per three criteria: (a) outfit mean square (MNSQ) value is accepted if 0.5 < MNSQ < 1.5 ; (b) outfit Z-standard (ZSTD) value is accepted if -2.0 < ZSTD < +2.0; and (c) point measure correlation (Pt Mean Corr) value is accepted if 0.4 < Pt Measure Corr < 0.85. In the present study, specific item # Q12 *Guru Bahasa Inggris saya peduli dengan kemajuan belajar saya* show two of the three criteria was not fulfilled. Therefore the item was eliminated for the objectives of research to measure "relatedness". The actual score of outfit MNSQ was 0.46 (<0.5 minimum value) and Pt Mean Corr. was 0.87 (>0.85). But outfit ZSDT was -1.6, which was within the acceptable range (-2.0 to 2.0). Other items eg. Q3, Q4 were only one case misfit. Thus the instrument has a total of 17 measurement items that are valid and reliable according to the Rasch Model above, are included and one of them is a negative Point Measure Correlation value (Wibisono, 2019). Therefore only 1 item (Q12) is considered to be eliminated from the BPN instrument.

4.4 Standardized residual correlations in identifying dependent item

Residuals are those parts of the data not explained by the Rasch model. A high correlation of residuals for two items or persons indicates that they may not be locally independent, either because they duplicate some feature of each other or because they are both incorporate some other shared dimension. Based on the analysis of the data in table 5, no items were detected to overlap with other items, nor similar characteristics to each other, nor combining with other dimensions, and nor sharing. However, if the correlation value between the two items exceeds 0.7, means a high correlation value, interdependent, not singular, and only one item is required for measurement (Linacre, 2020; Ng et al., 2018). If it is, the selection of the items is to be dropped, based on the MNSQ outfit value. But if it is close to 1.00, can be retained in the item list. This means that the item has shared more than half of the random variance as having similar characteristics to each other or because of the combination of some other shared dimension. To develop a good and quality instrument, one of the two items needs to be dropped concerning the MNSQ value, but if close to 1.00 can remain. Items that are singular and independent will result in a unidimensional measurement construct (Linacre, 2020).

Table 1. Rasch Model analysis

Measurement	Criteria
1. Reliability and separation of measures (item/person)	Person and item reliability: Poor <0.67, Fair 0.67-0.8, Good 0.81-0.9, very good 0.91-0.94, excellent >0.94 (Linacre, 2005). Separation index >2 as good
2. Item polarity based on point measure correlation (PTMEA CORR)	If value is positive (> 0), means the item can measure what it should measure (Bond and Fox 2007; Rachman and Napitupulu 2017). If negative (< 0), means the item is not succeeded to measure indicators that should be measured, can be revised or discarded
3. Conformity Item (Item fit)	Range for likert scale (polytomus data) is 0.6 - 1.4 and for multiple choice (dichotomous data) is 0.7 - 1.3. Acceptable value of ZSDT is ± 2.00
4. Standardized residual correlations in identifying dependent item	If the correlation value between items producing values above 0.7, means the items are interdependent and not singular

Table 2. Reliability and separation value

SUMMARY OF 34 MEASURED PERSON

	TOTAL SCORE	COUNT	MEASURE	MODEL ERROR	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD
MEAN	72.4	18.0	1.79	.53	1.00	.0	.89	.0
S.D.	10.3	.0	3.50	.04	.18	.6	.23	.5
MAX.	84.0	18.0	5.11	.63	1.34	.9	1.25	.8
MIN.	49.0	18.0	-6.70	.47	.55	-1.4	.45	-1.3

REAL RMSE	.55	TRUE SD	3.45	SEPARATION	6.30	PERSON RELIABILITY .98
MODEL RMSE	.53	TRUE SD	3.46	SEPARATION	6.54	PERSON RELIABILITY .98

S.E. OF PERSON MEAN = .61

PERSON RAW SCORE-TO-MEASURE CORRELATION = .99
CRONBACH ALPHA (KR-20) PERSON RAW SCORE RELIABILITY = .96

SUMMARY OF 18 MEASURED ITEM

	TOTAL SCORE	COUNT	MEASURE	MODEL ERROR	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD
MEAN	136.7	34.0	.00	.38	.98	-.1	.89	.0
S.D.	9.4	.0	1.75	.03	.21	.9	.25	.7
MAX.	146.0	34.0	2.68	.44	1.36	1.5	1.35	1.4
MIN.	111.0	34.0	-3.13	.33	.62	-1.7	.46	-1.6

REAL RMSE	.40	TRUE SD	1.70	SEPARATION	4.27	ITEM RELIABILITY .95
MODEL RMSE	.38	TRUE SD	1.71	SEPARATION	4.44	ITEM RELIABILITY .95

S.E. OF ITEM MEAN = .42

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Table 3. Item polarity based on point measure correlation

ENTRY NUMBER	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PT-MEASURE CORR.	PT-MEASURE EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	DISPLACE	ITEM	G
2	142	34	-.98	.42	.78	-1.3	.56	-1.1	.63	.58	79.4	74.0	-.01	Q2	0
5	135	34	2.68	.34	1.36	1.5	1.16	.5	.63	.69	52.9	65.7	.00	Q5	0
13	119	34	.81	.35	.92	-.3	.89	-.4	.68	.67	73.5	69.3	-.01	Q13	0
15	111	34	-3.13	.36	.97	-.1	.82	-.6	.74	.73	70.6	71.1	-.01	Q15	0
1	120	34	-1.13	.33	1.07	.4	1.10	.5	.75	.76	55.9	64.6	-.01	Q1	0
16	139	34	2.16	.36	.83	-.6	.70	-.1	.76	.74	76.5	71.5	.00	Q16	0
17	143	34	1.38	.40	1.20	.8	1.02	.3	.77	.79	70.6	77.3	.00	Q17	0
14	139	34	2.16	.36	.77	-.9	.69	-.2	.77	.74	76.5	71.5	.00	Q14	0
10	141	34	-1.51	.38	1.15	.7	1.20	.8	.78	.81	73.5	73.9	-.01	Q10	0
7	137	34	-.99	.38	1.20	1.0	1.24	.9	.79	.82	58.8	70.7	-.01	Q7	0
6	142	34	1.46	.41	1.02	.2	.88	.2	.79	.79	76.5	76.9	.00	Q6	0
11	142	34	-1.57	.38	1.16	.7	1.12	.5	.79	.81	67.6	74.3	-.01	Q11	0
9	143	34	1.38	.40	.98	.0	.86	.2	.80	.79	76.5	77.3	.00	Q9	0
18	140	34	-.96	.37	1.29	1.2	1.35	1.4	.81	.86	67.6	71.6	-.01	Q18	0
3	139	34	2.02	.39	.62	-1.7	.51	-.3	.81	.75	91.2	73.5	.00	Q3	0
8	144	34	.46	.44	.95	-.1	.78	-.4	.83	.81	79.4	79.0	.00	Q8	0
12	138	34	-1.87	.42	.65	-1.7	.46	-1.6	.87	.80	85.3	75.8	-.01	Q12	0
4	146	34	-2.38	.41	.78	-.9	.70	-1.1	.88	.84	82.4	76.5	-.01	Q4	0
MEAN	136.7	34.0	.00	.38	.98	-.1	.89	.0			73.0	73.0			
S.D.	9.4	.0	1.75	.03	.21	.9	.25	.7			9.6	3.8			

Table 4. Outfit based on MNSQ and ZSTD Value

ENTRY NUMBER	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PT-MEASURE CORR.	PT-MEASURE EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	DISPLACE	ITEM	G
5	135	34	2.68	.34	1.36	1.5	1.16	.5	A .63	.69	52.9	65.7	.00	Q5	0
18	140	34	-.96	.37	1.29	1.2	1.35	1.4	B .81	.86	67.6	71.6	-.01	Q18	0
7	137	34	-.99	.38	1.20	1.0	1.24	.9	C .79	.82	58.8	70.7	-.01	Q7	0
17	143	34	1.38	.40	1.20	.8	1.02	.3	D .77	.79	70.6	77.3	.00	Q17	0
10	141	34	-1.51	.38	1.15	.7	1.20	.8	E .78	.81	73.5	73.9	-.01	Q10	0
11	142	34	-1.57	.38	1.16	.7	1.12	.5	F .79	.81	67.6	74.3	-.01	Q11	0
1	120	34	-1.13	.33	1.07	.4	1.10	.5	G .75	.76	55.9	64.6	-.01	Q1	0
6	142	34	1.46	.41	1.02	.2	.88	.2	H .79	.79	76.5	76.9	.00	Q6	0
9	143	34	1.38	.40	.98	.0	.86	.2	I .80	.79	76.5	77.3	.00	Q9	0
15	111	34	-3.13	.36	.97	-.1	.82	-.6	1 .74	.73	70.6	71.1	-.01	Q15	0
8	144	34	.46	.44	.95	-.1	.78	-.4	h .83	.81	79.4	79.0	.00	Q8	0
13	119	34	.81	.35	.92	-.3	.89	-.4	g .68	.67	73.5	69.3	-.01	Q13	0
16	139	34	2.16	.36	.83	-.6	.70	-.1	f .76	.74	76.5	71.5	.00	Q16	0
2	142	34	-.98	.42	.78	-1.3	.56	-1.1	e .63	.58	79.4	74.0	-.01	Q2	0
4	146	34	-2.38	.41	.78	-.9	.70	-1.1	d .88	.84	82.4	76.5	-.01	Q4	0
14	139	34	2.16	.36	.77	-.9	.69	-.2	c .77	.74	76.5	71.5	.00	Q14	0
12	138	34	-1.87	.42	.65	-1.7	.46	-1.6	b .87	.80	85.3	75.8	-.01	Q12	0
3	139	34	2.02	.39	.62	-1.7	.51	-.3	a .81	.75	91.2	73.5	.00	Q3	0
MEAN	136.7	34.0	.00	.38	.98	-.1	.89	.0			73.0	73.0			
S.D.	9.4	.0	1.75	.03	.21	.9	.25	.7			9.6	3.8			

Table 5. Largest standardized residual correlations (to identify dependent item)

CORRELATION	ENTRY NUMBER	ITE	ENTRY NUMBER	ITE
.65	2	Q2	12	Q12
.38	1	Q1	3	Q3
-.47	4	Q4	7	Q7
-.39	13	Q13	15	Q15
-.38	12	Q12	14	Q14
-.38	5	Q5	15	Q15
-.37	1	Q1	15	Q15
-.35	6	Q6	7	Q7
-.34	3	Q3	17	Q17
-.33	2	Q2	14	Q14

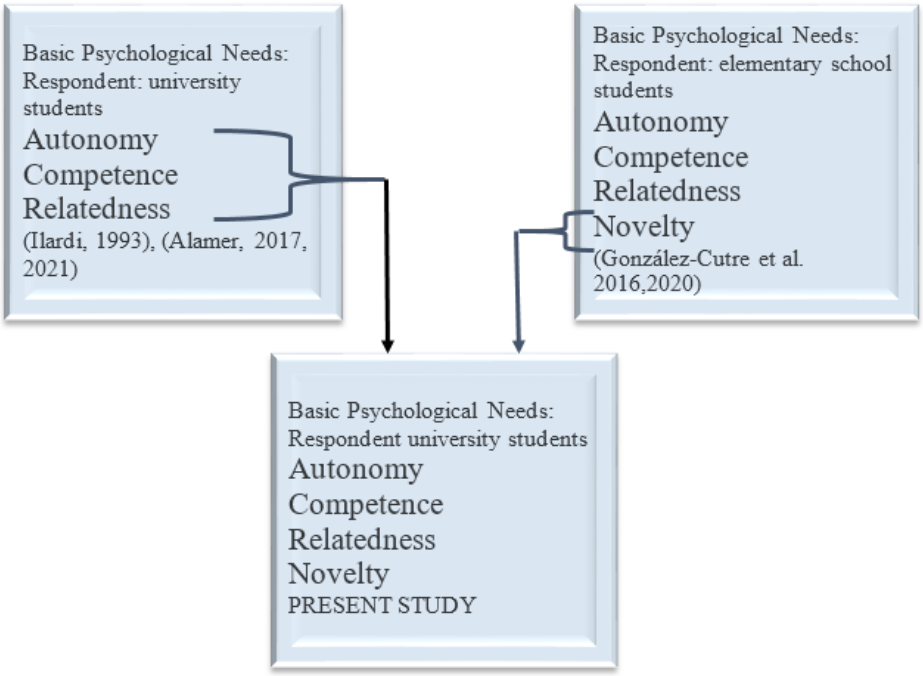

Figure 1. Present research model

5. CONCLUSION

Drawing from the present study, the researchers found high reliability and validity of the instrument that forms BPN using the Rasch model analysis approach. Reliability analysis through the Rasch approach also takes into account the consistency of answers made by respondents, not only items of the four tests (reliability and separation, item validity, item fit, and duplication construction), but also the results were ideal for so-called research. There is only one item that deserves to be removed because it is indicated as not 'fit'. The statement that *Guru bahasa Inggris saya peduli dengan kemajuan belajar saya* (My English teacher cares about my progress (Relatedness) may not be suitable for Indonesian people because the word '*peduli* (care)' as if being more personal, seems not suitable of the students. The basic psychological needs as a variable, has various versions of the questionnaire that are commonly used in various discipline study. However, the researcher saw significant results from the present study indicating that the basic psychological need as a variable is recommended to include the novelty s an indicator in its measurement. None of the novelty items proposed to be dropped. However, researchers still see an opportunity for each item to be developed again by taking a larger sample and in a wider scope in the context of the tertiary level in Indonesia. Learning English has its characteristics where the basic psychological need is an important element in measuring motivation to learn. The Rasch model assists researchers in identifying appropriate instruments to use. In conclusion, the analysis of the present study proved the appropriateness of the basic psychological need instrument and novelty part of it The results of this

study seem to support what previous researchers proposed (Alamer, 2021; Alamer & Lee, 2019; González-Cutre et al., 2016, 2020).

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