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Brand Personality Higher Education Using Rasch Model Approach

Arianis Chan[1], Tetty Herawaty[2], Dadan Suryadipura[3], Asep Miftahuddin[4]

[124]Business Administration, Universitas Padjadjaran, Indonesia
[3]International Relations, Universitas Padjadjaran, Indonesia

[1]arianis.chan@unpad.ac.id, [2]tetty@unpad.ac.id, [3]suryadipura@unpad.ac.id,
[4]asep17012@mail.unpad.ac.id

Abstract: The study presented in this paper analyzes Brand Personality Higher Education. Focusing on higher education in Indonesia, namely Universitas Padjadjaran, this study aims to examine the factors that affect the Brand Personality Higher Education. The empirical application is performed on the basis of a sample of 234 respondents of Universitas Padjadjaran students, analyzed by using Rasch Model. The findings show that student response to the Prestige is high and positively affect student university identification, Appeal factor with the high response, and Conscientiousness factor gets low expectations from Universitas Padjadjaran students identification.

Keywords: *brand personality, higher education, Rasch Model, University Branding, Conscientiousness*

Introduction

During the last decades, many countries (for example, the United States, Australia, Britain, Canada, the Netherlands) have agreed to brand personality to instill brand university values (for example, prestige, sincerity, appeal, lively, conscientiousness, cosmopolitan) in their respective countries and even in people people from other cultures. On the other hand, some countries (eg, Japan, Korea, India, Turkey, China) use popular brand personality as an instrument of brand university. Recent studies in the field of brand personality in higher education have proven that brand university and brand personality can influence student response.

This research contributes to filling literature than brand personality about the university, various marketing strategies that are out there today have been applied to a public company even college especially padjadjaran university which has moved to the form of college are legal entities, the time has come to apply a strategy branding for its institutions (Foroudi et al., 2019; Fazli et al., 2019; Schlesinger et al., 2017; Ng, 2019). Made high unpad brands that have a reputation.

Previous studies have been conducted to increase branding university. Lysytsia et al., (2017) Explain promote education services for the creation of the university positive reputation, Next Panda et al., (2019) research, prioritizing the brand image of different universities plays an important role in the level of student satisfaction in America and India. Eldegwy et al., (2018) that research social augmenters reputation university, student to interactions coach, and student to student interactions influence students social augmenters satisfaction.

Because in research, there is no provides the position of branding university (Lin et al., 2017; Pringle et al., 2019; Gray et al., 2007) from the perspective students, so the purpose of this research is knowing the brand from the perspective of university students. To support research, we use rasch model as the tools. Hope, this method beneficial know position branding universities and determine the process of increasing branding according to the present. so are many educational policy issues faced by officials at universities, where uncertainty, dynamism, and value conflicts can result in ongoing demands for policy actions to resolve existing problems.

Method

This study uses a quantitative approach (Plumeyer et al., 2019), namely quantifying respondents answers on a nominal scale and Likert rating then inputting the statistical data into the parent table or tabulation to be processed with the Winstep software from the Rasch Model (Setiawan el al., 2018). The research method used is descriptive explanatory which describes the characteristics of respondents and the quality of statement items developed from each variable and then explains the results of research based winstep software (Sumintono et al., 2014).

The data sources in this study are respondents in padjadjaran students. The number of respondents is 234 people with purposive sampling technique.

Data analysis techniques using Rasch Model is by measuring and analyzing the quality of statements developed from each research variable and measuring the quality of respondents based on answers to the statements given (Setiawan et al., 2018; Chan et al., 2016). Next, discuss and conclude the results of the research.

Result

The paradigm of this research is a quantitative approach, where non-experimental designs are applied to research phenomena. The collected data is processed by measurements that match the standards to be identified between empirical observations and quantitative mathematical expressions. Primary data was collected through questionnaires designed and distributed online.

Data collected through questionnaires were evaluated by Rasch analysis, analysis methods allow ordinal data from questionnaires to be converted into interval (Sumintono, 2014). note that the Rasch model is the most appropriate method for basic analysis in the field of human sciences where instruments (questionnaires) are used, and measurements produce ordinal data.

Fraser et al., (2011) revealed that the Rasch model is based on probability, it allows people's responses to be accurately predicted on all items according to the measurement model, using only people's parameters (such as people's size) and item parameters on the same scale (such as parameters size of difficulty). The Rasch model changes the item scores measured on a Likert rating scale (which is ordinal data), into an interval scale called "unit of opportunity logarithms" (logit). Statistics of item compatibility and people indicate the extent to which the data obtained is appropriate, reliable and appropriate with basic steps, as well as providing information about the quality of measurements (Sumintono, 2014).

According to Bond & Fox (Bond & Fox, 2007) there are several indications in the Rasch model that are very important for people and goods, including psychometric properties, such as outfit mean square (MNSQ), Z-standardized outfit (ZSTD), and Point measure correlation (PT-Measure Corr.) The model evaluation begins by observing the MNSQ outfit value, where the value must be between 0.5 and 1.5 intervals. This means it is suitable for measurement. If the MNSQ values are not located on their Intervals, it is necessary to study the ZSTD values obtained, which should be between intervals .91.9 and 1.9, indicating that the data has reasonable predictability. Consistency of internal reliability refers to the average correlation between instrument items. The Cronbach α coefficient is used as an internal reliability consistency index: if the value is close to 1 it indicates that the consistency of interval measurements is good (Sumintono, 2014).

The data is tabulated with Microsoft Excel software and analyzed using Winstep software version 3.7, then the data that has the appropriate interval measurement and meets all the criteria of validity and reliability of the instrument is processed by analyzing the Rasch Model.

Table 1. The preferred attributes

Construct	Items	Code
University Brand Personality [18]	Prestige/Prestise (Received, leading, successful, enough)	N1
	Sincerity/authenticity (humane, help, friendly, trustworthy, fair)	N2
	Appeal/ Attractive (attractive, productive, special)	N3
	Lively (atletis, dinamis, hidup, kreatif)	N4
	Conscientiousness / Kesungguhan (terorganisir, kompeten, terstruktur, efektif)	N5
	Cosmopolitan/ Kosmopolitan (jaringan, internasional, kosmopolitan,)	N6

Table 1 shows the attributes of city brand attractiveness used in the questionnaire. Respondents were asked to assess the importance of this attribute. When choosing the city brand attractiveness attribute, they use a Likert rating scale, which is 1. Very Disagree, 2. Disagree, 3. Disagree, 4. Agree, 5. Strongly Agree.

Summary Statistics

Summary Statistics provides overall information about the quality of respondents measured using Winstep software version 3.7, which measures the quality of instruments used and interactions that occur between people and items.

Figure 1 shows the Person Measure = + 1.24 logit showing the average value of respondents in the University brand personality instrument. The average logit value of more than 0.0 shows the tendency of respondents who agree to agree on each question in various items. Person reliability shows logit value 0.81, it can be concluded that the consistency of respondents' answers to items is very good, and MNSQ INFIT MNSQ and OUTFIT for person measure tables are 1.00 and 1.03 this has implications for measurement in good (Sumintono, 2014).

```
INPUT: 234 Person  6 Item  REPORTED: 232 Person  6 Item  5 CATS    WINSTEPS 3.73
-------------------------------------------------------------------------------

     SUMMARY OF 232 MEASURED Person
-------------------------------------------------------------------------------
|          TOTAL                        MODEL         INFIT        OUTFIT    |
|          SCORE     COUNT     MEASURE   ERROR      MNSQ   ZSTD   MNSQ   ZSTD |
|-----------------------------------------------------------------------------|
| MEAN      20.0       5.9        1.24     .79       .99    -.2    .99    -.2 |
| S.D.       3.6        .4        2.07     .08       .85    1.4    .86    1.4 |
| MAX.      29.0       6.0        7.22    1.49      5.15    3.6   5.16    3.6 |
| MIN.       4.0       2.0       -4.23     .74       .01   -2.6    .01   -2.6 |
|-----------------------------------------------------------------------------|
| REAL RMSE    .91 TRUE SD    1.86  SEPARATION  2.05  Person RELIABILITY  .81 |
|MODEL RMSE    .80 TRUE SD    1.91  SEPARATION  2.40  Person RELIABILITY  .85 |
| S.E. OF Person MEAN = .14                                                   |
-------------------------------------------------------------------------------
      LACKING RESPONSES:      2 Person
Person RAW SCORE-TO-MEASURE CORRELATION = .93
CRONBACH ALPHA (KR-20) Person RAW SCORE "TEST" RELIABILITY = .88

     SUMMARY OF 6 MEASURED Item
-------------------------------------------------------------------------------
|          TOTAL                        MODEL         INFIT        OUTFIT    |
|          SCORE     COUNT     MEASURE   ERROR      MNSQ   ZSTD   MNSQ   ZSTD |
|-----------------------------------------------------------------------------|
| MEAN     772.0     229.7         .00     .13       .99    -.1   1.00    -.1 |
| S.D.      25.2       1.5         .47     .00       .14    1.5    .15    1.6 |
| MAX.     804.0     231.0         .78     .13      1.15    1.6   1.17    1.8 |
| MIN.     728.0     227.0        -.68     .12       .77   -2.5    .78   -2.5 |
|-----------------------------------------------------------------------------|
| REAL RMSE    .13 TRUE SD     .45  SEPARATION  3.47  Item   RELIABILITY  .92 |
|MODEL RMSE    .13 TRUE SD     .45  SEPARATION  3.57  Item   RELIABILITY  .93 |
| S.E. OF Item MEAN = .21                                                     |
-------------------------------------------------------------------------------
UMEAN=.0000 USCALE=1.0000
Item RAW SCORE-TO-MEASURE CORRELATION = -.99
1378 DATA POINTS. LOG-LIKELIHOOD CHI-SQUARE: 2110.15 with 1138 d.f. p=.0000
Global Root-Mean-Square Residual (excluding extreme scores): .5205
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Figure 1. Summary Statistics

Item Measure = + 0.92. It can be concluded that the quality of items made in university brand personality instruments is very special with Item Reliability 0.91-0.94. The Cronbach Alpha value seen in Figure 1 is used to measure reliability, namely the interaction between percent and items in a whole, the value of Cronbach Alpha = + 0.88 shows that the interaction that occurs is very good in the measurement process(Sumintono, 2014).

Rating Scale

Rasch Model Analysis provides a verification process for the ranking assumptions given in the instrument, there are five choices in the in University Brand Personality instrument. instrument in the form of a likert rating for each item, figure 2 shows the average observation starts from logit -2.63 logit for the choice of score 1 (i.e. strongly disagree), then the choice with a score of 2 (ie disagree) is -1.49 and increases to logit +4.84 for the choice of score 5 (strongly agree). It can be seen that between choices 1 and 2 there is an increase in logit value, indicating the respondent can confirm choice 1 (strongly disagree) and 2 (disagree).

Another measure that can be done is Andrich Threshold which moves from NONE then negative and continues to lead to positive logit values in sequence, this shows that the options given are valid for the respondent, because the instrument used has met the requirements for further measurement.

```
INPUT: 234 Person  6 Item  REPORTED: 232 Person  6 Item  5 CATS    WINSTEPS 3.73
-------------------------------------------------------------------------------


SUMMARY OF CATEGORY STRUCTURE.  Model="R"
-------------------------------------------------------------------
|CATEGORY   OBSERVED|OBSVD SAMPLE|INFIT OUTFIT|| ANDRICH |CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT|  MNSQ  MNSQ||THRESHOLD| MEASURE|
|-------------------+------------+------------++---------+--------|
|  1   1       8   1| -2.63 -3.34|  1.39  1.35||  NONE   |( -6.51)| 1
|  2   2     156  11| -1.49 -1.37|   .97   .97||   -5.39 |  -3.59 | 2
|  3   3     620  45|   .53   .52|   .93   .93||   -1.77 |   -.07 | 3
|  4   4     518  38|  2.46  2.43|   .98   .99||    1.63 |   3.58 | 4
|  5   5      76   6|  4.84  4.98|  1.11  1.11||    5.53 |(  6.64)| 5
|-------------------+------------+------------++---------+--------|
|MISSING      14   1|   .65      |            ||         |        |
-------------------------------------------------------------------
OBSERVED AVERAGE is mean of measures in category. It is not a parameter estimate.

-------------------------------------------------------------------------------
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Figure 2. Rating Scale

Unidimensionalitas

Instrument unidimensionality is a very important measure for evaluating the instruments developed capable of measuring the extent to which diversity of instruments measures what should be measured, in city brand attractiveness construct in figure 3 raw variance measurement is 55.0%, this indicates that the minimum unidimensionality requirements are 20% has been fulfilled, even more than 40% which means better results.(Sumintono, 2018)

```
INPUT: 234 Person  6 Item  REPORTED: 232 Person  6 Item  5 CATS    WINSTEPS 3.73
-------------------------------------------------------------------------------

     Table of STANDARDIZED RESIDUAL variance (in Eigenvalue units)
                                          -- Empirical --    Modeled
Total raw variance in observations     =         13.3 100.0%         100.0%
  Raw variance explained by measures   =          7.3  55.0%          54.7%
    Raw variance explained by persons  =          5.4  40.8%          40.6%
    Raw Variance explained by items    =          1.9  14.2%          14.1%
  Raw unexplained variance (total)     =          6.0  45.0% 100.0%   45.3%
    Unexplned variance in 1st contrast =          1.6  11.8%  26.3%
    Unexplned variance in 2nd contrast =          1.3   9.6%  21.2%
    Unexplned variance in 3rd contrast =          1.1   8.5%  18.8%
    Unexplned variance in 4th contrast =          1.1   7.9%  17.7%
    Unexplned variance in 5th contrast =          1.0   7.2%  16.0%
```

Figure 3. Unidimensionalitas

Person Measure

Figure 4 provides information about the logit of each respondent, the value of the person logit of the respondent 045PZ and other respondents with the logit value of +7.72 indicating that respondents have a tendency to have a high interest in University Brand Personality instrument. compared to other respondents.

INPUT: 234 Person 6 Item REPORTED: 232 Person 6 Item 5 CATS WINSTEPS 3.73

Person: REAL SEP.: 2.05 REL.: .81 ... Item: REAL SEP.: 3.47 REL.: .92

Person STATISTICS: MEASURE ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL 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%	Person
45	29	6	7.22	1.10	1.25	.6	1.96	1.2	-.65	.18	83.3	83.3	045PZ
100	29	6	7.22	1.10	.75	-.1	.54	-.4	.74	.18	83.3	83.3	100LZ
166	29	6	7.22	1.10	1.15	.5	1.35	.7	-.26	.18	83.3	83.3	166PZ
76	28	6	6.28	.87	.88	-.2	.88	-.1	.38	.22	83.3	67.1	076PZ
110	28	6	6.28	.87	.68	-.7	.62	-.8	.83	.22	83.3	67.1	110PZ
177	28	6	6.28	.87	1.06	.3	1.04	.2	.05	.22	50.0	67.1	177PZ
124	27	6	5.59	.80	1.23	.7	1.25	.8	-.43	.24	33.3	59.0	124LZ
59	26	6	4.95	.80	.74	-.5	.72	-.5	.39	.23	50.0	62.4	059LZ
109	26	6	4.95	.80	1.20	.6	1.24	.6	-.65	.23	50.0	62.4	119PZ
165	26	6	4.95	.80	.94	.0	.93	.0	-.05	.23	50.0	62.4	165PZ
186	26	6	4.95	.80	.59	-.9	.57	-.9	.72	.23	83.3	62.4	186PZ
40	25	6	4.29	.83	4.58	3.4	4.81	3.5	.16	.22	33.3	71.8	040LB
78	25	6	4.29	.83	2.17	1.6	2.29	1.7	-.28	.22	50.0	71.8	078LB
79	25	6	4.29	.83	2.17	1.6	2.29	1.7	-.28	.22	50.0	71.8	079LB
93	25	6	4.29	.83	1.58	1.0	1.59	1.0	.65	.22	50.0	71.8	093PZ
104	25	6	4.29	.83	2.32	1.8	2.44	1.8	-.52	.22	50.0	71.8	104PZ
139	25	6	4.29	.83	1.70	1.1	1.75	1.2	.49	.22	50.0	71.8	149LZ
221	25	6	4.29	.83	.87	.0	.92	.1	-.74	.22	83.3	71.8	221LZ
225	25	6	4.29	.83	.54	-.7	.52	-.7	.26	.22	83.3	71.8	225LZ
155	8	2	4.13	1.49	.01	-1.3	.01	-1.3	.00	.11	100.0	77.4	155PZ

Figure 4. Person Measure

Item Measure

Figure 6 gives information about Items, the item logit value for N5 is + .78 logit shows that this item is the most difficult to approve by the respondent namely the Conscientiousness, in University Brand Personality instrument. While item N1 with value - .68 logit is the item that is most easily approved by the respondent, namely the Prestige /Prestise.

INPUT: 234 Person 6 Item REPORTED: 232 Person 6 Item 5 CATS WINSTEPS 3.73

Person: REAL SEP.: 2.05 REL.: .81 ... Item: REAL SEP.: 3.47 REL.: .92

Item STATISTICS: MEASURE ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL 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%	Item
5	728	231	.78	.12	1.15	1.6	1.17	1.8	.76	.73	62.3	64.5	N5
6	757	231	.33	.12	1.15	1.6	1.17	1.8	.70	.73	61.5	65.7	N6
4	765	229	.09	.13	1.04	.5	1.03	.4	.73	.73	68.6	66.1	N4
2	791	231	-.24	.13	.86	-1.5	.85	-1.6	.75	.73	72.3	67.4	N2
3	787	229	-.27	.13	.77	-2.5	.78	-2.5	.77	.73	75.5	67.5	N3
1	804	227	-.68	.13	.96	-.4	.98	-.1	.70	.73	67.8	68.0	N1
MEAN	772.0	229.7	.00	.13	.99	-.1	1.00	-.1			68.0	66.5	
S.D.	25.2	1.5	.47	.00	.14	1.5	.15	1.6			5.0	1.2	

Figure 5. Item Measure

Conclusion

In conclusion, this research has increased a significant depth for gaining student participation in brand development projects at Universitas Padjadjaran. high prestige and positive influence on the identification of many elements university student who was instrumental in supporting the

Brand Personality; the elements of Brand Personality with each other are interrelated, then with each other to be fully positive, enhance students' perceptions. Student participation in education and brand development in higher education brand personality. This article has enriched and developed the existing knowledge about student participation in Universitas Padjadjaran by adding the relevant findings and knowledge about students' perceptions of the campus. Items Prestidge is the item most high students get a response from the responses unpad describing padjadjaran university campus is, received leading, and of considerable success in the field of management education, but items conscientiousness quite difficult accepted by students in not so it needs to be more organized, competent and structured in the management of brand personality.

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