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Development Of Body Image Scale in Digital Natives

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ABSTRACT

This study aims to test the development of a body image measurement tool that focuses on measuring appearance in the context of digital natives. The testing was conducted on a measurement tool developed based on Cash's (2000) body image construct in the form of a Likert scale. Data from 285 digital native samples was obtained through an online questionnaire. Item discrimination analysis, CFA, EFA, and reliability were conducted to test the reliability and validity of the items in the scale. The EFA results showed that there were 3 factors based on the eigenvalues criteria and 4 factors based on the fixed number criteria, all of which were multidimensional. In CFA, it was found that the 3-factor and 4-factor models were fit and met the construct validity criteria. The Cronbach's alpha reliability test showed that the two models met the reliability criteria for the entire scale and for each aspect. Although the body image measurement tools with 3 and 4 factor models in this study met the validity and reliability criteria in the context of digital natives, this study did not compare the 3 and 4 factor body image measurement tools in more specific demographic aspects such as culture and gender in the digital native population. It is hoped that comparisons can be made in future studies.

Keywords: Body image, digital native, scale development, EFA, CFA

ABSTRAK

Penelitian ini bertujuan ini melakukan uji coba pengembangan alat ukur body image yang berfokus dalam aspek ukur penampilan pada konteks digital native. Pengujian dilakukan pada alat ukur yang dikembangkan berdasarkan kosntruk body image milik Cash (2000) berbentuk skala likert. Data 285 sampel populasi digital native didapatkan melalui kuesioner online yang disebarkan. Analisis daya beda butir, CFA, EFA dan reliabilitas dilakukan untuk menguji reliabilitas dan validitas butir dalam skala. Hasil EFA menunjukan terdapat 3 faktor yang dihasilkan berdasarkan kriteria eigenvalues dan 4 faktor berdasarkan kriteria fixed number yang semua bersifat multidimensional. Pada CFA diketahui model 3 faktor dan 4 faktor memiliki model yang fit dan memenuhi kriteria validitas konstruk. Uji reliabilitas chronbach alpha menunjukan 2 model tersebut memenuhi reliabilitas yang sesuai kriteria pada keseluruhan skala serta pada aspek. Meskipun alat ukur body image dengan model 3 dan 4 faktor pada penelitian ini sudah memenuhi kriteria validitas dan reliablitas pada konteks digital native, namun penelitian ini tidak melakukan perbandingan pada alat ukur body image model faktor 3 dan 4 pada aspek demografis yang lebih spesifik seperti budaya dan jenis kelamin pada populasi digital native. Diharapkan pada penelitian selanjutnya perbandingan dapat dilakukan.

Kata Kunci: *Body image, digital native, pengembangan skala, EFA, CFA*

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Introduction

The development of digital technology has had an impact on cognitive, behavioral, and affective aspects of humans (Barak, 2008). One of the fundamental aspects that has changed due to technology is the nature of communication. Due to the existence of internet technology, communication can take place quickly and without limits (Barak, 2008). The extensive connectivity offered by the internet has led to its use as a means of communication on social media. Young people use the internet to communicate with their friends (Tapscott, 2009; Barak, 2008).

Technological developments have also given rise to certain characteristics in generations or cohorts. Prensky (2001) classified generations based on their exposure to technology, namely digital natives and digital immigrants. Digital natives are a generation that has lived and grown up with technology since birth (Prensky, 2001). According to Prensky (2001), technology has become an important part of the digital native generation's existence, where technology has had a permanent effect on the lifestyle and activities of digital natives. In addition, digital natives also have a need for speed in accessing information and connecting with others, as well as an attachment to being constantly online compared to previous generations (Tapscott, 2009; Prensky, 2001).

Although it provides benefits in the field of communication, the use of the internet in communication also has negative impacts, one of which is cyberbullying in the form of body shaming. Based on a survey conducted by Girls Attitudes Survey, it is known that 94% of teenagers reported experiencing cyberbullying in the form of body shaming due to their appearance. According to Tapscott (2009), this is indeed inevitable because the digital native generation of internet users does have a “dark side”, namely that they are rude, do not care about others, and bully their friends. In addition, environmental pressure and social comparison related to appearance make the phenomenon of body shaming more likely to occur (Rodgers, 2016). The importance of appearance and the dynamics of social interaction cause individuals to evaluate their appearance. One concept that explains appearance evaluation is the concept of body image. Body image is a multidimensional construct that measures an individual's experience, consisting of perceptions of body shape and weight as well as behaviors that lead to the individual's evaluation of their physical appearance (Cash, 2000). The concept of body image can be focused on the aspect of appearance in measuring individuals' perceptions of their physicality.

The concept of body image was first introduced by Schilder (1935) and defined as a mental image of one's own body that expresses how our body looks (Slade, 1994). In the field of psychological measurement, Cash (2000) also provided a definition of the concept of body image. Body image is a multidimensional construct that measures an individual's experience consisting of perceptions of body shape and weight as well as behaviors that lead to the individual's evaluation of their physical appearance (Cash, 2000). The conceptualization of body image is reflected in two aspects of psychology, namely cognitive and behavioral, which are specifically measured in three domains, namely appearance, health, and fitness (Swami et al., 2019; Cash, 2000).

There have been several previous studies that developed/modified measurement tools based on Cash's concept of body image (2000) (Roncero et al., 2015; Swami et al., 2019; Vossbeck-Elsebusch et al., 2014). In the study conducted by Vossbeck-Elsebusch et al. (2014), it was found that the German version of the body image scale was consistent with the sample data from the German population based on the results of Confirmatory Factor Analysis (CFA). Meanwhile, in the study by Swami et al. (2019), the results showed that several indicators in Confirmatory Factor Analysis (CFA) stated that the Malaysian language version of the Body Image Scale model was sufficiently suitable for the Malaysian adult population sample.

In order to address the phenomenon of cyberbullying in the form of body shaming, the development of a body image measurement tool for digital natives is important as a component of exploratory or explanatory research assessments in digital communication that discusses aspects of appearance. Although research related to the development/modification of body image measurement

tools has been conducted (Roncero et al., 2015; Swami et al., 2019; Vossbeck-Elsebusch et al., 2014), Research discussing the development/modification of body image measurement tools in the context of digital natives, especially in Indonesia, is still lacking. Therefore, this study aims to test the development of a body image measurement tool using Cash's (2000) body image concept, which focuses on measuring appearance in the context of digital natives. This study is a preliminary study in the development of a body image measurement tool in the context of digital natives.

Material and Method

Participants

The criteria for respondents in the study selected using purposive sampling included individuals who could use Indonesian properly and correctly, users of digital technology (social media, internet, gadgets), and those aged 16-40. The data collection procedure was approved by the lecturer, the UGM Psychology Ethics Commission, and the respondents. Respondent consent was obtained through informed consent included in the questionnaire. Data collection from respondents was conducted using an online questionnaire, namely Google Forms. There were 285 individuals who met the criteria to be respondents in this study. Specifically, in terms of gender demographics, the respondents in this study consisted of 27.4% men (N=78) and 72.6% women (N=207). In terms of age demographics, the age range of the respondents who participated in this study was 16-40 years (Mean=24.34; SD= 5.422). In terms of employment status, 40.7% of the respondents were employed (N=116), 51.9% were students (N=148), and 7.4% were unemployed (N=21).

Procedure

a. Preparation of Indicators and Items

The aspects of body image used in this research scale are based on Cash's (2000) theoretical concept of body image appearance. These aspects include (1) Appearance Evaluation, (2) Appearance Orientation, (3) Overweight Preoccupation, and (4) Self-Classified Weight. In determining the indicators, in addition to being based on the definition of aspects (top-down), the researcher also conducted a bottom-up process to verify the indicators in relation to the population context using open-ended interviews with 10 respondents. The questions asked included (1) what do you know about body image? (2) what is your description of body image? The data from the interviews were then condensed and coded using thematic analysis based on themes derived from the dimensions in Cash's (2000) body image appearance theory. The researchers then created items based on the indicators obtained into a Likert scale with answer options ranging from 1 (very disagree) to 5 (very agree). The blueprint of the body image scale developed by the researcher can be seen in Table 1.

Table 1. The blueprint of the body image scale

Aspect	Indicator	Weight	Total Item
Appearance Evaluation	Having feelings about whether or not physical appearance is attractive	11%	5
	Feeling satisfied or dissatisfied with physical appearance	11%	5
	Feeling satisfied/dissatisfied with the appearance of one's body parts	11%	5

		11%	5
Appearance Orientation	Paying attention to one's appearance		
		11%	5
	Taking care of your appearance		
Overweight Preoccupation		11%	5
	Having anxiety about being fat (fear of being fat)		
	Being careful about maintaining weight	11%	5
Self-Classified Weight	Perceiving and classifying one's weight	11%	4
	Performing weight-related labeling	11%	5

b. Content Validity

Content validity was conducted to determine the suitability of the scale content to be sufficiently representative of the concept being sought so that it could be a good measuring tool in this study. The content validity technique used in this study is the Content Validity Index (CVI). The Content Validity Index (CVI) is a method of content validity that is carried out by calculating the average score given by a team of expert reviewers to achieve interrater agreement, congruence, and relevance of items on the scale with the construct being measured (Polit & Beck, 2006). The indicators of the CVI assessment on the scale items are relevance, importance, and clarity.

In this study, the CVI content validity was tested by five reviewers with a master's degree in psychology. The results of the CVI content validity on the body image scale developed by the researcher obtained a score of 0.98 for the CVI scale (S-CVI). This score indicates that the body image scale developed by the researcher has met the S-CVI validity standard according to Waltz et al. (2005), which is above 0.90 (Polit & Beck, 2006).

C. Empirical Testing

In this study, empirical testing was conducted to fulfill the research objectives, namely to test the development of a body image measurement tool using Cash's (2000) body image concept, which focuses on measuring appearance in the context of digital natives. Empirical testing was conducted to determine the quality of the body image scale in the context studied. The testing was conducted using exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) to examine construct validity, as well as Cronbach's alpha analysis to examine scale reliability.

Data Collection

The data collection procedure was approved by the lecturer, the UGM Psychology Ethics Commission, and the respondents. Respondent consent was obtained through informed consent included in the questionnaire. Data collection from respondents was conducted using an online questionnaire, namely Google Forms. A total of 44 body image measurement items constructed by researchers based on the blueprint were used in the study.

Data Analysis

In this study, the analysis was conducted in several stages. The first stage was descriptive statistical analysis to determine the demographic characteristics and normality of the collected respondent data. The second stage was a discrimination test on the items by reviewing the item correlations. In the third stage, exploratory factor analysis (EFA) was conducted to explore the

underlying factors in the variables and determine whether the body image scale tested in this study was multidimensional or unidimensional (Hair et al., 2014). At this stage, the researcher conducted item analysis using the maximum likelihood extraction method and the orthogonal quartimax rotation technique. The orthogonal quartimax rotation technique was chosen because it refers to previous studies explaining that the measurement aspects in the concept of body image are not correlated (Cash, 2000; Swami et al., 2019). The number of factors was determined based on eigenvalues above 1 and based on the fixed number criterion. In the eigenvalues analysis, Kaiser's (1970) criterion was used in reviewing the factors, namely factors that can be generated if they have eigenvalues above 1 (Field, 2018). Meanwhile, analysis based on the fixed number criterion was carried out to review the correlation between the items and the factor model designed in the scale development.

In stage five, Confirmatory Factor Analysis (CFA) was performed on the factor formation model obtained from exploratory factor analysis (EFA). Confirmatory Factor Analysis (CFA) was performed to examine the factor model obtained from exploratory factor analysis (EFA). Confirmatory Factor Analysis (CFA) was performed to examine the factor model obtained from exploratory factor analysis (EFA). Confirmatory Factor Analysis (CFA) was performed to examine the factor model obtained from exploratory factor analysis (EFA). Confirmatory Factor Analysis (CFA) was performed to examine the factor model obtained from exploratory factor analysis.

Result

A. Descriptive Analysis

The results of descriptive analysis show that the unidimensional body image scale value is (M=136; SD:15.9) with a range of 92. Based on the normality test using the Shapiro Wilk technique, it is known that the research data has a normal distribution with a P value above 0.05, namely 0.634 (skewness=0.176; Kurtosis=-0.138).

B. Item Discrimination Test

In the analysis, a difference test was conducted by looking at the correlation values between items using a minimum criterion of above 0.3 for each item (Field, 2018). Based on the results of the analysis, there were 17 items that needed to be eliminated because they had correlation values below 0.3. The items that were eliminated included items 2, 3, and 4 on the indicator “Feeling about the attractiveness or unattractiveness of physical appearance”; items 7 and 9 on the indicator “Feeling satisfied or dissatisfied with physical appearance”; items 12, 13, 14, and 15 on the indicator “Feeling satisfied/dissatisfied with the appearance of one's body parts”; items 28 and 29 on the indicator “Having anxiety about being fat (fear of being fat)”; items 34 and 35 on the indicator “Having a cautious attitude towards maintaining weight”; item 38 on the indicator “Perceiving and classifying weight”; items 40, 41, and 44 on the indicator “Labeling related to weight”. After elimination, there were 27 items with a correlation value range of 0.311-0.655 that could be used. Furthermore, these 27 items were analyzed using exploratory factor analysis (EFA) and confirmatory factor analysis (CFA).

C. Exploratory Factor Analysis (EFA)

In this study, exploratory factor analysis (EFA) was conducted using maximum likelihood extraction and orthogonal quartimax rotation techniques. The number of factors was determined based on the eigenvalues criterion and the fixed number criterion. Under the eigenvalues criterion, factors with values above 1 were included. Under the fixed number criterion, four factors were determined in accordance with the factor model designed in the scale development. The analysis was conducted using data from 285 respondents on 27 items in the scale. Regarding the elimination and

retention of items, in this study, the items retained were those with factor loadings above 0.4 in accordance with Steven's (2002) criteria (Field, 2018).

The results of the analysis based on the eigenvalues criteria show that the KMO test value is 0.881, which according to Kaiser and Rice (1974) is considered “meritorious” or meets the criteria required for factor analysis (Field, 2018). Bartlett's test of sphericity yielded a value that met the criteria, which was significant below 0.05. The extraction and rotation results based on the eigenvalues criterion produced three factors with eigenvalues above 1. Furthermore, the three factors were labeled according to the characteristics of the items contained in those factors. The items in factor 1 (Appearance Orientation) produced factor loading values ranging from 0.438 to 0.770; items in factor 2 (Appearance Evaluation) produced factor loading values ranging from 0.405 to 0.776; and items in factor 3 (Overweight Preoccupation) produced factor loading values ranging from 0.437 to 0.743. In this analysis, there were 5 items that were eliminated because their factor loading values were below 0.4, namely items 10, 24, 31, 32, and 39. Based on these results, it was also found that this construct is multidimensional. The complete results of the analysis based on the eigenvalues criteria can be seen in Table 2.

Table 2. Results of Exploratory Factor Analysis Based on Eigenvalues Criteria

Item	**Factor 1** ***Appearance Orientation***	**Factor 2** ***Appearance Evaluation***	**Factor 3** ***Overweight Preoccupation***
1		0.776	
5		0.770	
6		0.405	
8		0.626	
10		Eliminated	
11		0.759	
16	0.728		
17	0.702		
18	0.681		
19	0.697		
20	0.561		
21	0.677		
22	0.438		
23	0.770		
24		Eliminated	
25	0.623		
26			0.743
27			0.728
30			0.668
31		Eliminated	
32		Eliminated	
33			0.437
36		0.655	
37		0.641	
39		Eliminated	
42		0.713	
43		0.496	

Similar to the previous analysis, in exploratory factor analysis (EFA) using fixed number criteria, the KMO test and Bartlett's test of sphericity had the same values, meaning that they met the criteria required for factor analysis. There were four factors based on the number of factors determined by the researcher. Furthermore, the four factors were labeled according to the characteristics of the items contained in each factor. Items in factor 1 (Appearance Orientation) produced factor loading

values ranging from 0.418 to 0.787; items in factor 2 (Appearance Evaluation) produced factor loading values ranging from 0.636 to 794; items in factor 3 (Self-Classified Weight) produced factor loading values ranging from 0.743 to 0.818; and items in factor 4 (Overweight Preoccupation) produced factor loading values ranging from 0.423 to 0.778. In this analysis, there were 6 items that were eliminated because their factor loading values were below 0.4, namely items 6, 10, 24, 32, 39, and 43. The complete results of the analysis based on the fixed number criteria can be seen in Table 3.

Table 3. Results of Exploratory Factor Analysis Based on Fixed Number

Butir	Faktor 1 *Appearance Orientation*	Faktor 2 *Appearance Evaluation*	Faktor 3 *Self-Classified Weight*	Faktor 4 *Overweight Preoccupation*
1		0.749		
5		0.794		
6	Dieliminasi			
8		0.636		
10		Dieliminasi		
11		0.775		
16	0.723			
17	0.720			
18	0.699			
19	0.681			
20	0.583			
21	0.664			
22	0.418			
23	0.787			
24		Dieliminasi		
25	0.614			
26				0.708
27				0.778
30				0.638
31				0.423
32		Dieliminasi		
33				0.472
36			0.743	
37			0.818	
39		Dieliminasi		
42			0.815	
43		Dieliminasi		

Based on exploratory factor analysis (EFA) with the above eigenvalues and fixed number criteria, it can be seen that items with factor loadings above 0.4 can represent the measured aspects/latent variables.

D. Confirmatory Factor Analysis (CFA)

In this study, an analysis was conducted to test whether the items were valid as measurement indicators in the factor model produced by exploratory factor analysis (EFA). In this analysis, construct validity can be examined from the value of the items against factors or latent variables (Hair, et al., 2014; Kline, 2011). There were two analysis models tested, namely the factor model produced by EFA eigenvalue criteria and the factor model produced by EFA fixed number criteria. A model is considered good/fit if it has a CFI value ≥ .90; an RMSEA value ≤ .08; and a TLI value ≥ .90 (Schumacker & Lomax, 2010).

Based on the results of the first Confirmatory Factor Analysis (CFA) conducted on the EFA factor model using the eigenvalues criterion, the values obtained were CFI = 0.776; RMSEA = 0.109; and TLI = 0.749. These results indicate that the model does not fit the data. According to Schumacker & Lomax

(2010), the model modification method can be used if the model does not fit. After performing model modification, the analysis was repeated on the eigenvalue criterion EFA factor model, and the results obtained were CFI = 0.905; RMSEA = 0.0729; and TLI = 0.888. In the post-model modification results, it was found that the eigenvalue criterion EFA factor model fit based on the CFI and RMSEA indicators, but did not fit based on the TLI indicator. The test model results can be seen in Figure 1.

The results of the estimation of item contributions to aspects/factors in the EFA factor model using the eigenvalues criterion can be seen in Table 4. Based on Table 4, it can be seen that the items in the Appearance Orientation factor have standardized loading factors ranging from 0.533 to 0.830 (all significant with p values < 0.001). the Appearance Evaluation factor has a standardized loading factor ranging from 0.425 to 0.832 (all significant with p value < 0.001); the Overweight Preoccupation factor has a standardized loading factor ranging from 0.476 to 0.846 (all significant with p value < 0.001). These results indicate that the items in each factor can explain the construct model and achieve construct validity (Hair, Black, Babin, & Anderson, 2014; Kline, 2011).

Meanwhile, the results of the first Confirmatory Factor Analysis (CFA) conducted on the fixed number EFA factor model obtained a CFI value of 0.861; RMSEA = 0.0905; and TLI = 0.840. These results indicate that the model does not fit the data. According to Schumacker & Lomax (2010), model modification can be carried out if the model does not fit. After performing model modification, the analysis was repeated on the fixed number criterion EFA factor model, and the results obtained were CFI = 0.921; RMSEA = 0.0716; and TLI = 0.906. In the results after model modification, it was found that the fixed number criterion EFA factor model fit based on the CFI, RMSEA, and TLI indicators. The model test results can be seen in Figure 2.

Figure 1. Confirmatory Factor Analysis model based on Eigenvalues Criteria

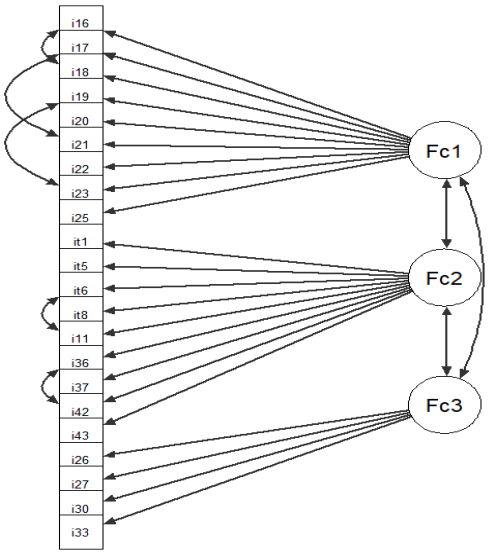

Table 4.
Estimated contribution of items to aspects/factors of the EFA model based on eigenvalues criteria

	Path		Standardized Estimate
Butir16	←	*Appearance Orientation*	0.618
Butir17	←	*Appearance Orientation*	0.681
Butir18	←	*Appearance Orientation*	0.607
Butir19	←	*Appearance Orientation*	0.750
Butir20	←	*Appearance Orientation*	0.622
Butir21	←	*Appearance Orientation*	0.756
Butir22	←	*Appearance Orientation*	0.533

Butir23	←	*Appearance Orientation*	0.830
Butir25	←	*Appearance Orientation*	0.678
Butir1	←	*Appearance Evaluation*	0.832
Butir5	←	*Appearance Evaluation*	0.799
Butir6	←	*Appearance Evaluation*	0.470
Butir8	←	*Appearance Evaluation*	0.686
Butir11	←	*Appearance Evaluation*	0.820
Butir36	←	*Appearance Evaluation*	0.556
Butir37	←	*Appearance Evaluation*	0.525
Butir42	←	*Appearance Evaluation*	0.601
Butir43	←	*Appearance Evaluation*	0.425
Butir26	←	*Overweight Preoccupation*	0.797
Butir27	←	*Overweight Preoccupation*	0.846
Butir30	←	*Overweight Preoccupation*	0.682
Butir33	←	*Overweight Preoccupation*	0.476

The results of the estimation of item contributions to aspects/factors in the fixed number criterion EFA factor model can be seen in Table 5. Based on Table 5, it is known that the items in the Appearance Orientation factor have standardized loading factors ranging from 0.540 to 0.791 (all significant with p-values < 0.001); the Appearance Evaluation factor has standardized loading factors ranging from 0.670 to 0.836 (all significant with p-values < 0.001); the Self-Classified Weight factor has a standardized loading factor ranging from 0.805 to 0.901 (all significant with p value < 0.001); and the Overweight Preoccupation factor has a standardized loading factor ranging from 0.464 to 0.824 (all significant with p value < 0.001). These results indicate that the items in each factor can explain the construct model and achieve construct validity (Hair, Black, Babin, & Anderson, 2014; Kline, 2011).

Figure 2. Confirmatory Factor Analysis model based fixed number

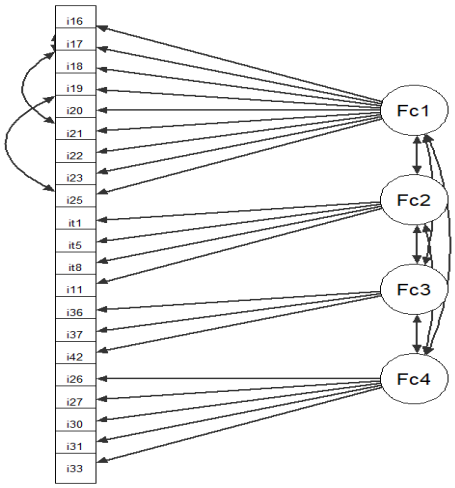

Table 5.
Estimated contribution of items to aspects/factors of the EFA model with fixed number criteria

	Path		**Standardized Estimate**
Butir16	←	*Appearance Orientation*	0.633
Butir17	←	*Appearance Orientation*	0.688
Butir18	←	*Appearance Orientation*	0.630
Butir19	←	*Appearance Orientation*	0.737
Butir20	←	*Appearance Orientation*	0.627
Butir21	←	*Appearance Orientation*	0.759

Butir22	←	*Appearance Orientation*	0.540
Butir23	←	*Appearance Orientation*	0.791
Butir25	←	*Appearance Orientation*	0.712
Butir1	←	*Appearance Evaluation*	0.831
Butir5	←	*Appearance Evaluation*	0.816
Butir8	←	*Appearance Evaluation*	0.670
Butir11	←	*Appearance Evaluation*	0.836
Butir36	←	*Self-Classified Weight*	0.805
Butir37	←	*Self-Classified Weight*	0.865
Butir42	←	*Self-Classified Weight*	0.901
Butir26	←	*Overweight Preoccupation*	0.818
Butir27	←	*Overweight Preoccupation*	0.824
Butir30	←	*Overweight Preoccupation*	0.689
Butir33	←	*Overweight Preoccupation*	0.464

E. Reliability

An item can be considered reliable and good if it has a Cronbach's alpha value ≥ 0.8, but items with a Cronbach's alpha value of 0.7 can still be used (Hair, Black, Babin, & Anderson, 2014; Field, 2018). In this study, reliability analysis was performed on CFA model factors based on the eigenvalues and fixed number criteria. The reliability of the CFA model scale based on the eigenvalues criterion yielded a Cronbach's alpha value of 0.867. Specifically, each aspect produced a Cronbach's alpha value of 0.881 (Appearance Orientation aspect); 0.875 (Appearance Evaluation aspect); and 0.789 (Overweight Preoccupation aspect). In addition, the Corrected item-total correlation values for all items were above 0.3 for each aspect on the CFA model scale based on the eigenvalues criterion, indicating good discrimination (Field, 2018). The results of the reliability analysis of the CFA model scale aspects based on the eigenvalues criterion can be seen in Table 6.

Table 6.
results of reliability analysis of CFA model scale aspects based on eigenvalues criteria

Aspect	reliability	Item	Corrected item-total correlation
Appearance Orientation	0,881	16	0.648
		17	0.636
		18	0.617
		19	0.683
		20	0.593
		21	0.663
		22	0.480
		23	0.741
		25	0.625
Appearance Evaluation	0,875	1	0.711
		5	0.656
		6	0.427
		8	0.582
		11	0.658
		36	0.684
		37	0.665
		42	0.739
		43	0.438
Overweight Preoccupation	0,789	26	0.666
		27	0.730
		30	0.606
		33	0.408

The reliability analysis of the CFA model scale based on the fixed number criteria obtained a Cronbach's alpha value of 0.865. Each specific aspect produced a Cronbach's alpha value of 0.881 (Appearance Orientation aspect); 0.864 (Appearance Evaluation aspect); 0.892 (Self-Classified Weight aspect); and 0.789 (Overweight Preoccupation aspect). The corrected item-total correlation values for all items were above 0.3 for each aspect on the CFA model scale based on the eigenvalues criteria, indicating good discriminating power (Field, 2018). The results of the reliability analysis of the CFA model scale aspects based on the fixed number criteria can be seen in Table 7.

Table 7.
results of reliability analysis of CFA model scale aspects based on fixed number criteria

Aspect	reliability	Item	Corrected item-total correlation
Appearance Orientation	0,881	16	0.648
		17	0.636
		18	0.617
		19	0.683
		20	0.593
		21	0.663
		22	0.480
		23	0.741
		25	0.625
Appearance Evaluation	0,864	1	0.736
		5	0.736
		8	0.620
		11	0.771
Self-Classified Weight	0,892	36	0.754
		37	0.801
		42	0.813
Overweight Preoccupation	0,789	26	0.666
		27	0.730
		30	0.606
		33	0.408

After conducting all of the above analysis stages, it can be concluded that the body image scale developed by researchers in the context of digital natives is valid and reliable. Furthermore, the items that can be retained are compiled based on the aspects in the table. Table 8 shows the body image scale with a 3-factor model (eigenvalues), while Table 9 shows the body image scale with a 4-factor model (fixed number).

Table 8. Body image scale with 3-factor model (eigenvalues)

Aspect	Items on the resulting scale
Appearance Orientation	16, 17, 18, 19, 20, 21, 22, 23, 25
Appearance Evaluation	1, 5, 6, 8, 11, 36, 37, 42, 43
Overweight Preoccupation	26, 27, 30, 33

Table 9. body image scale with a 4-factor model (fixed number).

Aspect	Items on the resulting scale
Appearance Orientation	16, 17, 18, 19, 20, 21, 22, 23, 25
Appearance Evaluation	1, 5, 8, 11
Self-Classified Weight	36, 37, 42
Overweight Preoccupation	26, 27, 30, 33

Discussion

This study aims to test the development of a body image measurement tool using the concept of body image cash (2000), which focuses on measuring appearance in the context of digital natives as a preliminary/introductory study. In testing the development of this body image measurement tool, EFA and CFA analyses were specifically used to review construct validity, and Cronbach's alpha was used to review the reliability of each item and the scale as a whole. The results of the analysis show that the developed body image measurement tool meets the criteria for construct validity and reliability.

The EFA results produced two types of factor models, namely a 3-factor model based on the EFA eigenvalues criteria and a 4-factor model based on the fixed number EFA criteria. In the 3-factor model based on the EFA eigenvalues criterion, factor loading values ranging from 0.438 to 770 were obtained for the Appearance Orientation factor; 0.405 to 0.776 for the Appearance Evaluation factor; and 0.636 to 794 for the Overweight Preoccupation factor. In addition, there were 5 items that were eliminated because they did not have factor loading values within the specified criteria, which was above 0.4. The five items that were eliminated were items 10, 24, 31, 32, and 39; these five items could not be indicators of the resulting factors due to their low correlation with the measurement aspect (Field, 2018). After eliminating these items, it can be said that the retained items have construct validity in every aspect of the body image measurement tool with a 3-factor model (Hair, Black, Babin, & Anderson, 2014; Field, 2018). Based on these results, it is also known that this construct is multidimensional. The findings of the 3-factor model in EFA analysis were also found in previous research conducted by Swami et al. (2019) on the development of a body image measurement tool using the concept of body image cash (2000) which focuses on measurement aspects. Additionally, in the study conducted by Swami et al. (2019), factors with indicators similar to the results of this study were found, namely the Appearance Orientation factor, the Appearance Evaluation factor, and the Appearance Evaluation factor.

In the 4-factor model analysis based on fixed number EFA criteria, factor loadings ranged from 0.418 to 0.787 for Appearance Orientation; 0.636 to 0.794 for Appearance Evaluation; 0.743 to 0.818 for Self-Classified Weight; and 0.423–0.778 for the Overweight Preoccupation factor. Six items were eliminated because they did not have factor loadings that met the criteria, namely items 6, 10, 24, 32, 39, and 43. After eliminating these items, it can be said that the retained items have construct validity in every aspect of the body image measurement tool with a 4-factor model (Hair, Black, Babin, & Anderson, 2014; Field, 2018). The findings of the 4-factor model in EFA analysis were also found in previous research conducted by García et al. (2009) regarding the development of a multidimensional body image measurement tool.

CFA testing was conducted on two models generated by EFA, namely the 3-factor model and the 4-factor model. In the first analysis of the 3-factor model, the CFA indicators showed that the model did not fit the data well. Therefore, the researchers performed model modification according to the procedure described by Schumacker & Lomax (2010). According to Schumacker & Lomax (2010), if a model in CFA does not fit, model modification can be performed by eliminating residual covariances with high values. After performing the Schumacker & Lomax (2010) model modification procedure, the 3-factor model in this study had fit indicators of CFI = 0.905; RMSEA = 0.0729; and a TLI value close to the fit criteria of 0.888. Pada hasil standardize loading factor semua butir di semua aspek memiliki nilai yang sesuai kriteria, yaitu diatas 0,4. Hal tersebut menunjukan bahwa butir dalam masing-masing faktor dapat menjelaskan model konstruk dan mencapai validitas konstruk (Hair, Black, Babin, & Anderson, 2014; Kline, 2011). Hasil penelitian ini cukup berbeda dengan analisis CFA yang dilakukan oleh dalam penelitian Swami dkk. (2019), dimana analisis CFA dengan model 3 faktor yang dilakukan oleh Swami dkk. (2019) menunjukan hasil yang tidak fit pada CFI dengan nilai dibawah 0,9.

In the CFA analysis of the 4-factor model, the model modification procedure of Schumacker & Lomax (2010) was also performed because the model did not fit based on the initial analysis. After performing the model modification procedure, the 4-factor model can be said to fit well with a CFI value of 0.921, RMSEA of 0.0716, and TLI of 0.906. In the standardized loading factor results, there was one item with a value below 0.4, namely item 31, which needed to be eliminated because it did

not sufficiently meet the validity criteria (Hair, Black, Babin, & Anderson, 2014). After eliminating this item, the standardized loading factor results for all items in all aspects met the criteria, which is above 0.4. This shows that the items in each factor can explain the construct model and achieve construct validity (Hair, Black, Babin, & Anderson, 2014; Kline, 2011). Based on the two CFA analyses in this study, it can be seen that the four-factor model is better at measuring body image constructs in the context of digital natives. In addition, the findings of Vossbeck-Elsebusch et al. (2014) explain that the four-factor model is quite valid and fits based on the CFA analysis they conducted.

The reliability of the 3-factor and 4-factor body image measurement tools was found to meet the criteria, at 0.867 and 0.865, respectively. This is consistent with previous studies conducted by Vossbeck-Elsebusch et al. (2014) and Swami et al. (2019), who obtained reliability values for body image measurement tools using Cash's (2000) concept in 3-factor and 4-factor models. Specifically, each aspect in the two models tested in this study also showed reliability that met the criteria, namely above 0.7 (Hair, Black, Babin, & Anderson, 2014).

Although the body image measurement tools with 3- and 4-factor models in this study met the criteria for validity and reliability in the context of digital natives, several weaknesses were found in this study. The weakness in this study was that no comparison was made between the 3- and 4-factor body image measurement tools in terms of more specific demographic aspects such as culture and gender in the digital native population. Culture and gender play an important role in the formation of body image concepts (Wardle et al., 1993; Ricciardelli et al., 2007). It is hoped that future studies will conduct further development by considering cultural and gender aspects in the digital native population.

The consistency of SWB across levels may reflect shared challenges in the Indonesian educational system, particularly frequent curriculum changes. As highlighted in the introduction, teachers are often required to adapt to new policies, administrative tasks, and subject demands, such as integrating programming and artificial intelligence into their teaching. These systemic pressures are experienced across all levels of schooling, which could explain why teachers' well-being does not vary significantly between educational stages. At the same time, this uniformity may also suggest a certain stability in teachers' well-being across contexts, indicating that despite differences in teaching content and student age, teachers are able to maintain comparable levels of well-being. This stability can be seen as a strength of the teaching profession, showing resilience in the face of systemic demands.

At the same time, the results suggest that factors outside of teaching level—such as social support, resilience, motivation, and religiosity—may play a stronger role in shaping well-being. Previous studies confirm that these internal and external resources are more predictive of SWB than job position or school level (Putra & Suryani, 2024; Santoso, 2023; Arifin, 2025). Therefore, rather than focusing interventions solely on teachers in specific educational levels, schools and policymakers should prioritize strategies that strengthen these protective factors across the entire teaching workforce.

From a practical standpoint, the findings emphasize the importance of system-wide policies to enhance teacher well-being. Professional development programs, workload management, and supportive school leadership may provide more effective means of promoting well-being than interventions targeting only particular school levels. Future research should extend this work by examining how personal resources and organizational culture interact with systemic factors, such as curriculum reforms, to influence teachers' well-being. Longitudinal designs may also provide a deeper understanding of how well-being changes over time as teachers navigate ongoing reforms in the Indonesian education system.

Conclusion

The results of this study indicate that the measurement tool tested in the development of a body image measurement tool using Cash's (2000) body image concept, which focuses on measuring appearance in the context of digital natives, has met the criteria for validity and reliability. Specifically, the 4-factor body image measurement tool in this study has a better model fit than the 3-factor model.

This study has a limitation in that it did not compare the 3-factor and 4-factor body image measurement tools in more specific demographic aspects such as culture and gender in the digital

native population. It is hoped that future research can develop the measurement tools in this study by making comparisons related to cultural and gender aspects in the digital native population.

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