

**A CONFIRMATORY FACTOR ANALYSIS OF THE  
REVISION STRATEGIES QUESTIONNAIRE IN  
MALAYSIAN ESL WRITERS' CONTEXT**

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**ABSTRACT**

A review of literature has indicated that the possible reasons for Malaysian students' lack of English proficiency are primarily on extraneous variables such as students' perception and attitude, social environment and linguistic factors. It appears that these extraneous variables are hindrances to Malaysian students mastering the language and eventually this affects their performance in a language test, in this case MUET. The present study used a confirmatory factor analysis (CFA) on a data set of 527 participants. We propose a theoretical model of the relationship between (1) writing behaviour, (2) writing difficulties, and (3) writing strategies. These three factors were tested for the reliability and validity of the constructs, including item loading, construct reliability, and average variance extracted. The CFA revealed that the standardised loading items are beyond 0.70 on their anticipated factor, representing the construct validity is adequate. The analysis revealed that the standardized loadings for each items were above 0.70, Cronbach's Alpha and composite reliability exceeds 0.70, and AVE values beneath 0.50 (Hair et al., 2010). Hence, the factors are reliable, and have a good convergent validity and reasonable to be used for the further analysis, that is structural model. On the basis of these current data it appears that the students' English writing behaviour, attitude and difficulties could influenced their writing abilities.

**Keywords:** Process Writing, difficulty, attitude, behavior, confirmatory factor analysis

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## **Introduction**

In second language writing research, second language educators have been moving towards an emphasis on process, rather than product, and in consequence, there are a variety of available sources providing research findings on how students learn to write, suggesting new teaching strategies, and arguing for curricular changes. All these are carried out in the interest of second language writing.

This new focus on the learners and what they do to learn the L2 more effectively is encouraging. Even more heartening are the studies that report positive interactions between strategy use and language test performance (Gu & Johnson, 1996; Park, 1996, Ghafournia & Afghari, 2013). The time is, therefore, for more research into the investigation of relationships between writing behavior (strategy use), difficulties and attitude and L2 writing ability, given the crucial role played by the latter in the academic success and, by extension, the educational and career prospects of L2 learners.

In order to fully understand the complexity of the writing skill, the current theory of composition instruction, namely the process approach will be considered first. Hedge (2000: 359) stated that the focus of a process approach 'is not so much on what learners need to cover but on how they acquire language through performing it in the classroom'. The process approach generally considers writing to be a learner-focused cognitive activity (e.g., composing processes or strategies). Writing is essentially a cognitive activity, completely under the control of the individual learner and used primarily to impart information.

Following this developing research, an increasing number of teachers and programs began to emphasise what Susser (1994) identified as the two essential features of process pedagogy: awareness and intervention. There is no doubt that the process movement helped to call for attention to aspects of writing that had been neglected in many writing classrooms; it also contributed to the professionalisation of composition studies.

The purpose of the current study was to examine the relationships between writing behaviour, attitude and difficulties, and second language (L2) writing ability in academic writing. The questionnaire data underwent three stages of analysis. The first stage, i.e. the scale development stage, the scales used in the study were validated mainly through exploratory factor analysis (EFA) and later confirmatory factor analysis (CFA). Then a model was hypothesized and tested through structural equation modelling approach to reflect the relationships between students' writing attitude, behaviour and difficulties in ESL writing. Confirmatory factor analysis (CFA) was used to identify the latent factors the students' writing behaviour, attitudes and difficulties.

## **Confirmatory Factor Analysis**

For the purpose of this second part of the analysis, CFA was performed to test the reliability and validity of the constructs, including item loading, construct reliability, and average variance extracted (AVE). CFA was again executed via Structural Equation Modeling (SEM) technique utilizing Analysis of Moment Structure (AMOS) computer programme version 21. Also, as indicated earlier, it is a requirement that item loadings for every factor to exceed 0.50 to be considered as items having sufficient loading values to represent its expected factor (Hair, et al., 2010).

After items load heavily to its respective factor in the EFA, the next analysis, which is confirmatory factor analysis (CFA) is performed to further test the reliability and validity of the constructs in the model, including item loading, construct reliability, and average variance extracted (AVE). CFA is executed via Structural Equation Modelling (SEM) technique utilizing Analysis of Moment Structure (AMOS) computer programme version 21. It is a requirement that item loadings for every factor to exceed 0.70 to be considered as items having sufficient loading values to represent its expected factor (Hair, et al., 2010). There are three sets of CFA are examined: (i) writing attitude, (ii) writing behaviour, and (iii) writing difficulties. Details are as follows:

### Confirmatory Factor Analysis for Writing Attitude Factor

The CFA for writing attitude factor comprises two latent constructs, i.e. opinion about English writing, and writing practice attitude. CFA results presented in Table 3 shows that each of the standardised loading items is beyond 0.70 on their anticipated factor, representing the construct validity is adequate. Before that, three items were removed i.e. 'OEW3: To what extent does essay writing help you understand the content (subject matter) of what you are writing?', 'WPA2: Improper referencing format format', and 'WPA3: Little or no use of references' as having item loadings below the cut-off value of 0.70.

Next, the reading of composite reliability for this construct was exceeded the acceptable level of 0.70, specifying a relatively high level of constructs reliability. In terms of AVE results, convergent validity is recognized as the AVE value is larger than the cut-off value of 0.50 (Hair et al., 2010), signifying that the indicators are well representative of the latent constructs. Hence, the current data have a good convergent validity.

Table 1: Standardized Item Loadings, Reliabilities and Validities of Writing Attitude Factor

Items	Label	Standardized Loadings	Cronbach's Alpha	Composite Reliability	Average Variance Extracted
<b>Opinion about English Writing</b>			<b>0.754</b>	<b>0.851</b>	<b>0.746</b>
Do you enjoy writing essays?	OEW1	0.997			
How confident are you in writing?	OEW2	0.705			
<b>Writing Practice Attitude</b>			<b>0.818</b>	<b>0.886</b>	<b>0.563</b>
Plagiarizing (using someone's ideas without saying so)	WPA1	0.734			
Not sticking to word length	WPA5	0.770			
Poor essay organization (no introduction, main body, and conclusion)	WPA6	0.709			
No evidence of research	WPA7	0.789			
No links between ideas	WPA8	0.761			
Not developing an argument	WPA9	0.738			

Next, the fit of the measurement model for writing attitude factor was measured by examining several goodness-of-fit indices. The parameter for e1 is constrained to 0.005, and correlations between e10 and e11 are made in order to fit the model for further analysis (see Figure 1). Thereafter, the fit indices results as detailed in Table 4 are improved. For instance, the  $\chi^2$  of the model was 40.956 with 19 degrees of freedom ( $\chi^2/df=2.156$ ), the comparative fit index (CFI), goodness of fit index (GFI), and normed fit index (NFI) were above 0.90 and root mean square error of approximation (RMSEA) below 0.08, indicating a satisfactory fit.

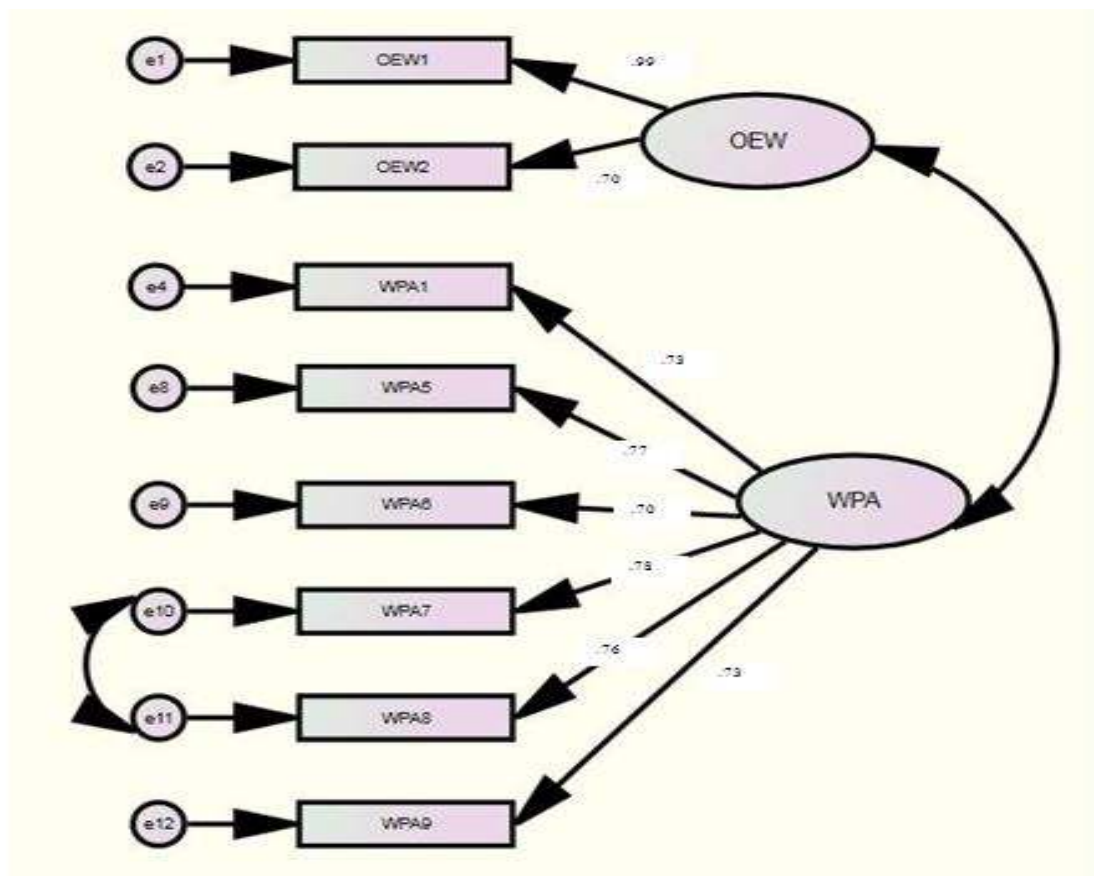


Figure 1: Measurement Model of Writing Attitude Factor

Table 2: Goodness-of-fit Indices of Writing Attitude Factor

Fit Indices	Accepted Value	Model Value
Absolute Fit Measures		
$\chi^2$ (Chi-square)		40.956
df (Degrees of Freedom)		19
Chi-square/df ( $\chi^2/df$ )	< 3	2.156
GFI (Goodness of Fit Index)	> 0.90	0.993
RMSEA (Root Mean Square Error of Approximation)	< 0.10	0.029
Incremental Fit Measures		
AGFI (Adjusted Goodness of Fit Index)	> 0.90	0.986

NFI (Normed Fit Index)	> 0.90	0.986
CFI (Comparative Fit Index)	> 0.90	0.992
Parsimony Fit Measures		
PCFI (Parsimony Comparative of Fit Index)	> 0.50	0.673
PNFI (Parsimony Normed Fit Index)	> 0.50	0.669

### Confirmatory Factor Analysis for Writing Behaviour Factor

As for writing behaviour factor, all of the standardised loading items for each of the latent constructs (i.e. planning, awareness of audience, revision, awareness of writing conventions, and awareness of writing purpose) are beyond 0.70 on their predicted factor, representing the construct validity is acceptable (see Table 5). However, two items were initially removed i.e. AWP1: “To summarize the available literature (information on a particular topic)”, and R2: “If your answer to question 16 was YES, how important were the following when revising your last essay?” as having item loadings below the limit value of 0.70. Next, the reading of composite reliability for this construct surpassed the acceptable level of 0.70, inferring a relatively high level of constructs reliability. Next, convergent validity is recognized when the AVE value is superior to the endpoint value of 0.50 (Hair et al., 2010), implying that all indicators are well representative of the predicted factor.

Table 3: Standardized Item Loadings, Reliabilities and Validities of Writing Behaviour Factor

Items	Label	Standardized Loadings	Cronbach's Alpha	Composite Reliability	Average Variance Extracted
<b>Planning</b>	<b>P</b>		<b>0.723</b>	<b>0.895</b>	<b>0.811</b>
When you write an essay, did you make a rough plan before starting to write?	P3	0.986			
If your answer to Question 11 was YES, what type of plan did you make?	P4	0.806			
<b>Awareness of Audience</b>	<b>AAD</b>		<b>0.745</b>	<b>0.925</b>	<b>0.862</b>
When you write your essay, did you have an audience (readers of your essay) in mind when writing?	A1	0.990			
If your answer to question 9 was YES, which audience did you have in mind?	A2	0.862			
<b>Revision</b>	<b>R</b>		<b>0.726</b>	<b>0.876</b>	<b>0.783</b>
Did you have others to help you revise (e.g. read your essay to check spelling/grammar/punctuation mistakes, etc.) your last essay before handing in for marking?	R3	0.994			
If your answer to question 18 was YES, who helped you revise your last essay?	R4	0.760			

<b>Awareness of Writing Conventions</b>	<b>AWC</b>		<b>0.729</b>	<b>0.869</b>	<b>0.570</b>
Proper referencing	AWC1	0.793			
Organizing/structuring ideas	AWC2	0.737			
Using appropriate academic language	AWC3	0.767			
Engaging/interacting with content/subject Matter	AWC4	0.718			
Develop understanding of content/subject matter	AWC5	0.758			
<b>Awareness of Writing Purpose</b>	<b>AWP</b>		<b>0.714</b>	<b>0.743</b>	<b>0.591</b>
To summarize the available literature and add your own comments/criticisms /	AWP2	0.806			
To use literature in order to generate your own comments, ideas or response to the topic in general	AWP3	0.730			

Before structural model is examined, several goodness-of-fit indices of the measurement model for writing attitude factor are measured. The model is fit after constraining the parameter for e1, e4, and e6 to 0.005 as illustrated in Figure 2. This leads the fit indices boosted further with the  $\chi^2$  of the model was 144.923 with 58 degrees of freedom ( $\chi^2/df=2.499$ ), the comparative fit index (CFI), goodness of fit index (GFI), and normed fit index (NFI) were above 0.90 and root mean square error of approximation (RMSEA) beneath the accepted value of 0.08, designating the model has an agreeable fit.

Table 4: Goodness-of-fit Indices of Writing Behaviour Factor

<b>Fit Indices</b>	<b>Accepted Value</b>	<b>Model Value</b>
<i>Absolute Fit Measures</i>		
$\chi^2$ (Chi-square)		144.923
df (Degrees of Freedom)		58
Chi-square/df ( $\chi^2/df$ )	< 3	2.499
GFI (Goodness of Fit Index)	> 0.90	0.984
RMSEA (Root Mean Square Error of Approximation)	< 0.10	0.033
<i>Incremental Fit Measures</i>		
AGFI (Adjusted Goodness of Fit Index)	> 0.90	0.976
NFI (Normed Fit Index)	> 0.90	0.974
CFI (Comparative Fit Index)	> 0.90	0.984
<i>Parsimony Fit Measures</i>		
PCFI (Parsimony Comparative of Fit Index)	> 0.50	0.732
PNFI (Parsimony Normed Fit Index)	> 0.50	0.724

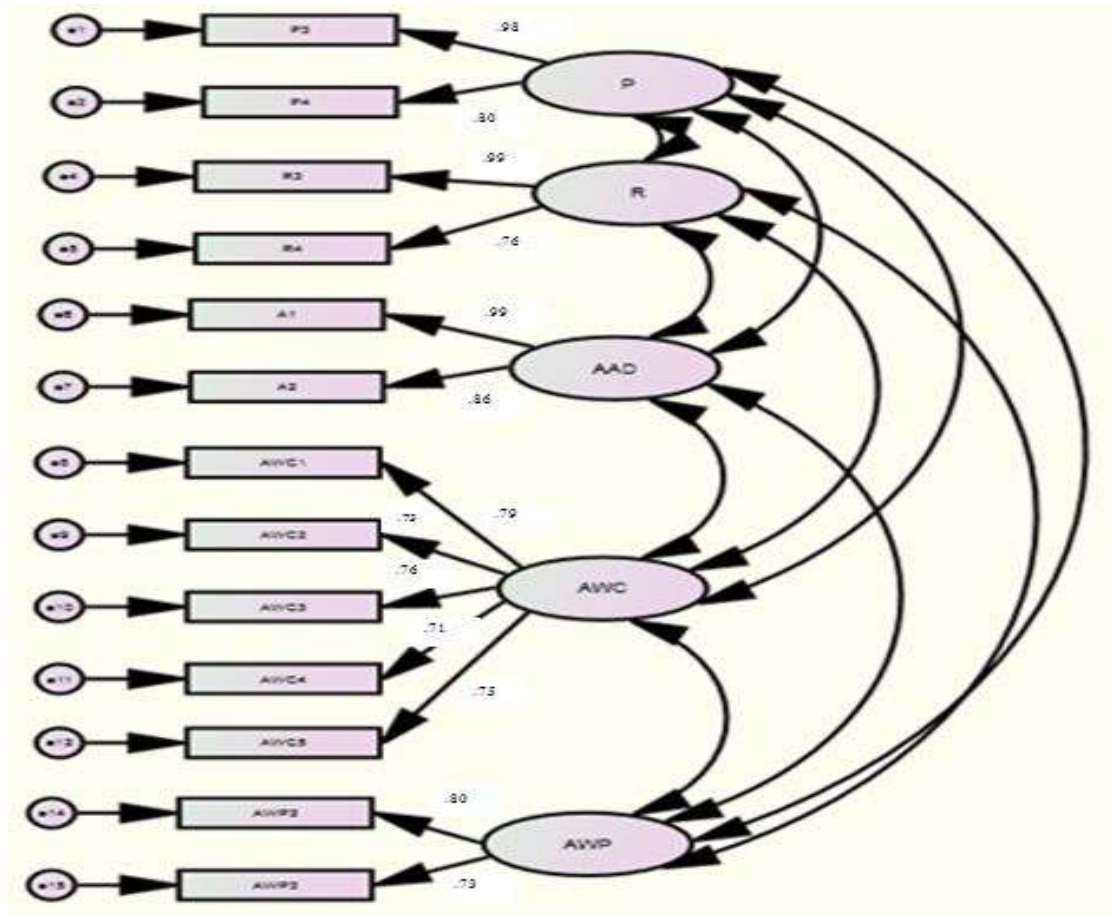


Figure 2: Measurement Model of Writing Behaviour Factor

### Confirmatory Factor Analysis for Writing Difficulties Factor

Table 7 demonstrates the standardized item loadings, reliabilities, and validities of writing difficulties factor which composes of two latent constructs, namely writing difficulties and strategies difficulties. Results expose that the standardized loadings for each items above 0.70, Cronbach's Alpha and composite reliability exceeds 0.70, and AVE values beneath 0.50 (Hair et al., 2010). Hence, the factor is reliable, and has a good convergent validity and reasonable to be used for the further analysis, that is structural model. This results is well in placed after elimination of four items as having standardised loadings lesser than the edge value of 0.50. The items includes 'GD2: Finding sufficient/relevant information', 'WD4: Paraphrasing/ summarizing other authors' ideas', 'WD5: Expressing ideas clearly/logically', 'WD6: Writing well linked (coherent) Paragraphs', and 'WD7: Using appropriate academic writing Style'.

Table 5: Standardized Item Loadings, reliabilities and Validities of Writing Difficulties Factor

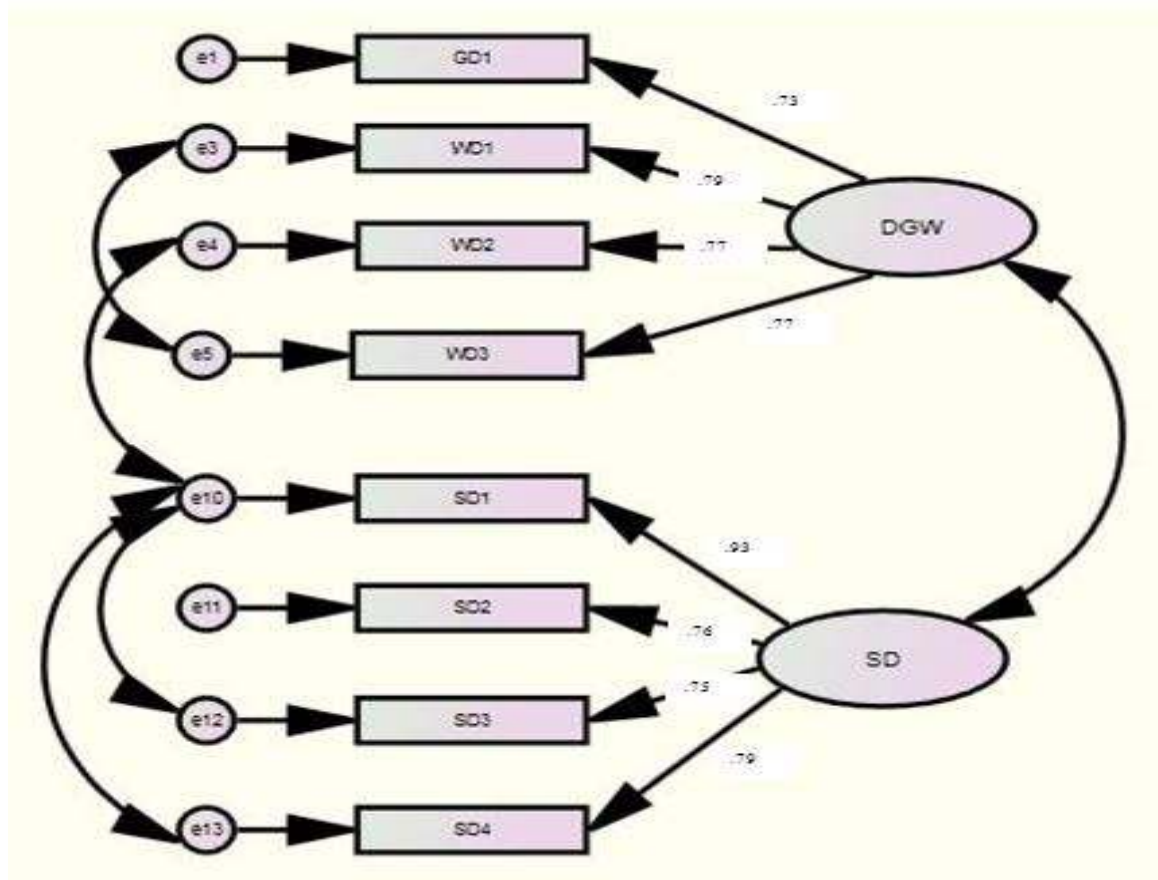
Items	Label	Standardized Loadings	Cronbach's Alpha	Composite Reliability	Average Variance Extracted
<b>Writing Difficulties</b>	<b>DGW</b>		<b>0.776</b>	<b>0.853</b>	<b>0.592</b>
Understanding essay question	GD1	0.737			
Writing introduction	WD1	0.793			
Writing main body	WD2	0.775			
Writing conclusion	WD3	0.772			
<b>Strategies Difficulties</b>	<b>SD</b>		<b>0.796</b>	<b>0.888</b>	<b>0.667</b>
Revising	SD1	0.935			
Peer-reviewing	SD2	0.766			
Editing	SD3	0.755			
Referencing and writing bibliography	SD4	0.797			

Before proceeds to structural model, the model fit of the writing difficulties factor is checked utilizing several goodness of fit indices. This leads the fit indices results to be better with the  $\chi^2$  of the model was 40.956 with 19 degrees of freedom ( $\chi^2/df=2.156$ ), the comparative fit index (CFI=0.996), goodness of fit index (GFI=0.995), and normed fit index (NFI=0.993) were above 0.90 and root mean square error of approximation (RMSEA=0.027) below 0.08, indicating a satisfactory fit. However, several pair of correlations, as illustrated in Figure 3, are firstly imposed to generate a good model fit, which includes (i) between e10 and e13, (ii) between e10 and e12, (iii) between e10 and e4), and (iv) between e3 and e5.

Table 6: Goodness-of-fit Indices of Writing Difficulties Factor

Fit Indices	Accepted Value	Model Value
<i>Absolute Fit Measures</i>		
$\chi^2$ (Chi-square)		30.034
df (Degrees of Freedom)		15
Chi-square/df ( $\chi^2/df$ )	< 3	2.002
GFI (Goodness of Fit Index)	> 0.90	0.995
RMSEA (Root Mean Square Error of Approximation)	< 0.10	0.027
<i>Incremental Fit Measures</i>		
AGFI (Adjusted Goodness of Fit Index)	> 0.90	0.988
NFI (Normed Fit Index)	> 0.90	0.993
CFI (Comparative Fit Index)	> 0.90	0.996
<i>Parsimony Fit Measures</i>		
PCFI (Parsimony Comparative of Fit Index)	> 0.50	0.534
PNFI (Parsimony Normed Fit Index)	> 0.50	0.532





**Figure 3: Measurement Model of Writing Difficulties Factor**

**CONCLUSION**

In the full model, CFA for writing attitude, writing behaviour, and writing difficulties as shown earlier, were brought together under one structural model, and the analysis were run simultaneously in order to examine the hypotheses testing. Table 9 reveals the standardized item loadings, reliabilities, and validities for full model. Results expose that the standardized loadings for each items were above 0.70, Cronbach’s Alpha and composite reliability exceeds 0.70, and AVE values beneath 0.50 (Hair et al., 2010). Hence, the factor is reliable, and has a good convergent validity and reasonable to be used for the further analysis, that is structural model.

Table 7: Standardized Item Loadings, Reliabilities and Validities for Full Model

Items	Label	Standardized Loadings	Composite Average Reliability	Variance Extracted
<b>Planning</b>	<b>P</b>		0.893	0.808
When you write an essay, did you make a rough plan before starting to write?	P3	0.986		
If your answer to Question 11 was YES, what type of plan did you	P4	0.802		

Items	Label	Standardized Loadings	Composite Average Reliability	Variance Extracted
make?				
<b>Revision</b>	<b>R</b>		0.725	0.600
Did you have others to help you revise (e.g. read your essay to check spelling/grammar/punctuation mistakes, etc.) your last essay before handing in for marking?	R3	0.994		
If your answer to question <b>18</b> was <b>YES</b> , who helped you revise your last essay?	R4	0.460		
<b>Awareness of Audience</b>	<b>AAD</b>		0.925	0.862
When you write your essay, did you have an audience (readers of your essay) in mind when writing?	A1	0.990		
If your answer to question <b>9</b> was <b>YES</b> , which audience did you have in mind?	A2	0.862		
<b>Awareness of Writing Conventions</b>	<b>AWC</b>		0.867	0.565
Proper referencing	AWC1	0.788		
Organizing/structuring ideas	AWC2	0.733		
Using appropriate academic language	AWC3	0.765		
Engaging/interacting content/subject Matter with	AWC4	0.716		
Develop understanding of content/subject matter	AWC5	0.755		
<b>Awareness of Writing Purpose</b>	<b>AWP</b>		0.743	0.592
To summarize the available literature and add your own comments/criticisms /	AWP2	0.802		
To use literature in order to generate your own comments, ideas or response to the topic in general	AWP3	0.735		
<b>Opinion about English Writing</b>	<b>OEW</b>		0.750	0.625
Do you enjoy writing essays?	OEW1	0.997		
How confident are you in essay writing?	OEW2	0.505		
<b>Writing Practice Attitude</b>	<b>WPA</b>		0.864	0.515
Plagiarizing (using someone's ideas without saying so	WPA1	0.741		
Not sticking to word length	WPA5	0.771		

Items	Label	Standardized Loadings	Composite Reliability	Average Variance Extracted
Poor essay organization (no introduction, main body, and conclusion)	WPA6	0.712		
No evidence of research	WPA7	0.687		
No links between ideas	WPA8	0.756		
Not developing an argument	WPA9	0.631		
<b>Writing Difficulties</b>	<b>GDWD</b>		0.841	0.570
Understanding essay question	GD1	0.722		
Writing introduction	WD1	0.737		
Writing main body	WD2	0.747		
Writing conclusion	WD3	0.812		
<b>Strategies Difficulties</b>	<b>SD</b>		0.832	0.564
Revising	SD1	0.935		
Peer-reviewing	SD2	0.773		
Editing	SD3	0.737		
Referencing and writing bibliography	SD4	0.491		

Therefore, the results of this study should be beneficial to teachers of English writing because it is based on an extensive data involving 1401 Malaysian students scoring from MUET band 1 to MUET band 5. The issues mentioned above should be taken into consideration in the teachers' course plans.

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