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Examining the Attitude Towards Science Questionnaire for Primary School Students in Sabah using Partial Least Squares Structural Equation Modelling

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The main purpose of this study is to develop a valid and reliable instrument for measuring primary school students' attitude towards science (ATS) in Sabah, Malaysia. The instrument was adapted from the Attitude towards Science Measure (ATSM) based on some theoretical and research review. The instrument focused on six sub-constructs of attitude towards science: Learning science in school, practical work in science, science outside of school, the importance of science, self-concept in science, and future participation in science. A total of 452 primary school students in Sabah had responded to the 37-item questionnaire. The internal consistency reliability (composite reliability and Cronbach's Alpha coefficient), convergent validity (Average Variance Extracted), and discriminant validity (cross-loadings, Fornell-Larcker criterion, and Heterotrait-Monotrait ratio) for each item of the instrument were being assessed. The results of PLS-SEM analysis show that all scales were unidimensional. Internal reliability using Cronbach's alpha varies between .651 to .723, and the composite reliability varies between .801 to .844, indicating a satisfactory level of internal consistency. The instrument assessment has shown that ATS is a valid and reliable instrument to measure 10-12 years old primary school students' interests, attitudes, values, and priorities in issues related to science.

Keywords: Science; PLS-SEM; Validation; Primary Schools; Attitude

I. INTRODUCTION

In cultivating a positive attitude towards science, it should be started at earlier stage, such as from kindergarten or even in primary school. In this study, the Attitude Towards Science Questionnaire for primary school students is re-examined using Partial Least Squares Structural Equation Modelling approach to ensure the validity and reliability of the instrument. In providing such evidence, the researcher highlighted the literature on approaches that had been used by previous researchers who for years had struggled with determining whether questionnaires assessing attitudes really measured what was meant to measure.

Attitude is our appraisal of a person, an idea, or an object. Theory of reasoned actions (TRAs) (Madden *et al.*, 1992) reveals that subjective attitudes and norms are essential in communication, thus crucially for the early development of children. This study gauges how to apply TRA, the constructs involved and other relevant factors to predict the intentions as well as beliefs of a child's behaviour and to lead to behavioural changes (Fishbein & Ajzen, 1975). Penampang district, located in the West Coast of Sabah, was selected as the pilot study location. The schools in this district are in the suburbs to the rural. In this study, several steps used by Kind *et al.* (2007) had been followed to cultivate students' attitudes towards science. The components related to the attitudes seem to be overlapping in nature and the properties are subjective to be interpreted by individuals. Any arguments related to opinions and feelings are free to be pointed out and discussed.

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Therefore, any findings of opinions about science should be verified particularly (Crano & Prislin, 2006) and action needs to be taken. Therefore, a person's attitude is important to be evaluated in seeing something that is also known as an object of attitude. On the other hand, strong influence will be given by individuals who have a high belief in positive things, while for people who have a low belief in intuition for unfamiliar objects; it gives less influence. Thus, comparisons in the formation of attitudes to its object of common realistic attitudes are important in contributing to an understanding of situations that can influence the attitude components of an individual (van Giesen *et al.,* 2015).

Each step is to comprehend and to split specific items in 6 different constructs tested in looking at their relation to attitude items as depicted in Table 1. Indicator of each item to be used for identification in the measurement model is also shown in Table 1.

Table 1. Items in the ATS Questionnaire Specified in 3 Different Attitude Components

Component	**Construct and Code**	**No**	**Item**	**Indicator**
Affective (feelings)	“Learning Science in School” (PS)	1	I learn interesting things in science lessons.	AS_1
		2	I look forward to my science lessons.	AS_2
		3	Science lessons are exciting.	AS_3
		4	I would like to do more science at school.	AS_4
		5	I like science better than most other subjects at school.	AS_5
		6	Science is boring.	AS_6
	“Self-Concept in Science” (KK)	7	I find science difficult.	AS_7
		8	I am just not good at science.	AS_8
		9	I get good marks in science.	AS_9
		10	I learn science quickly.	AS_10
		11	Science is one of my best subjects.	AS_11
		12	I feel helpless when doing science.	AS_12
		13	In my science class, I understand everything.	AS_13
Behavioural (a tendency towards action)	“Practical Work in Science” (KPS)	14	Practical work in science is exciting.	AS_14
		15	I like science practical work because you don’t know what will happen.	AS_15
		16	Practical work in science is good because I can work with my friends.	AS_16
		17	I like practical work in science because I can decide what to do myself.	AS_17
		18	I would like more practical work in my science lessons.	AS_18
		19	I learn science better when we do practical work.	AS_19
		20	I look forward to doing science practicals.	AS_20
		21	Practical work in science is boring.	AS_21
	“Science Outside of School" (PSL)	22	I would like to join a science club.	AS_22
		23	I like watching science programmes on TV	AS_23
		24	I like to visit science museums.	AS_24
		25	I would like to do more science activities outside school.	AS_25
		26	I like reading science magazines and books.	AS_26

		27	It is exciting to learn about new happening in science.	AS_27
Cognitive (beliefs and knowledge)	"Future Participation in Science" (PMD)	28	I would like to study more science in the future.	AS_28
		29	I would like to study science at university.	AS_29
		30	I would like to have a job working with science.	AS_30
		31	I would like to become a science teacher.	AS_31
		32	I would like to become a scientist.	AS_32
	"Importance of Science" (IOS)	33	Science and technology is important for society.	AS_33
		34	Science and technology make our lives easier and more comfortable.	AS_34
		35	The benefits of science are greater than the harmful effects.	AS_35
		36	Science and technology are helping the poor.	AS_36
		37	There are many exciting things happening in science and technology.	AS_37

Kind *et al.* (2007) affirmed that attitudes, or the affective component of attitudes, are therefore associated with these beliefs that a person holds. Attitude towards Science (ATS) questionnaire consists of 6 constructs with several individual items adapted from various sources of quotations. For example, the study by Ng, Soon and Fong in 2010 also revealed indicators to gauge motivation in science include 'self-efficacy, attribution, self-determination, expectancy-values, and interests' theories. The novelty of this study is to propose a newly validated questionnaire using PLS-SEM approach to measure rural primary school student' attitudes towards science in Sabah, Malaysia context.

Learning Science in School (6 items)

Learning undoubtedly has an affective domain and evolving positive attitudes is important for students' achievement (Kind *et al.,* 2007). The conception of learning science in school connecting about teaching and learning which linked to structure of meaning, situated learning, becoming, and apprenticeship as well as value statements ascribed to honouring learners, learners engaging in convincing work, and democratic commitment (Donaldson, 2020). The construct of learning science in the school of this study proposed to examine pupils' attitudes towards science learning activities in the classrooms and what interest them to learn about. The items for the construct; learning interesting things in science lessons, looking forward to science lessons, science lessons are fun, want to study science in school, love science more than any subject in school, and science is not boring. Unexpected findings indicate that light-weight inquiry activities conducted in the school can increase students' initial motivation which can overcome students' fears of failure in tests (Chang *et al.,* 2020).

Practical Work in Science (8 items)

The science curriculum affirms the cultivation of scientific value, the acquisition of knowledge and skills in science, advancing scientific thinking that can enhance science and its application in everyday life (Han & Pang, 2016). Crispina *et al.* (2018) expressed that implementing science practice can inspire students to better understand science, which is to bolster student interest and actively engage students in the field of practical work. In addition, internships provide opportunities for students to learn skills while in the lab and widen their knowledge in science learning. Students not only obtain, memorise, and portray the information as they sit for the examination, but by actively engaging students in learning will contribute meaningful learning. The construct of science practical work of this study aimed to examine pupils' attitudes towards science learning activities in doing practical work. The items for the construct are practical work in science is fun, like to do science practical work due to curiosity, will be able to work with friends, love to do science practical work because can determine what to do, want to do more science practical work, can learn science more by doing science practical work, looking forward to doing science practical work, and science practical work is not boring. Practical in the science laboratory can make students more active in their learning than in the classroom (Demircioglu & Catagay, 2014) and student creativity increased through STEM-based practice (Muhardias *et al.,* 2020).

Science Outside of School (6 items)

The contexts outside the classroom contribute to learning in science and develop students' motivation. This learning approach can determine the pupils' attitude to school science learning. It is certain that activities based on settings outside the classroom present real-world opportunities to recognise scientific concepts which are discovered within special contexts (Guerrero & Reiss, 2020). This construct of science outside of school aimed to measure pupils' attitudes towards science learning activities outside the school. It was presumed that constructs A, B and C displayed meaningful "objects" that students were presumably to have formed beliefs about. The items for the construct are the interest to join science club, love to watch science movies on television, like to visit a science museum, want to get involve more science activities outside the school, love to read science magazines and books, and the joy of learning new things in science. Nga *et al.* (2018) proved that the effectiveness of language teaching using STEM approach outside of school has a positive impact on primary school students.

Importance of Science (5 items)

Science in education is a prerequisite for greater education. Namrata *et al.* (2014) have discovered in their research that the processes and ideas of science are of great attention to people in three ways in their lives; personal, civic, and their economics. Yet, the construct of this research focused to examine pupils' belief in the content of science in a wider social context. The items for this construct are science and technology are important to society, science and technology make lives easier, science and technology help the poor people, the benefits that science brings are more than harmful and there are so many fun things in science and technology. The importance of science is promoted nowadays through various technological activities such as Augmented Reality and found that students showed no signs of anxiety when using AR applications and academic achievement and student attitudes in the experimental group showed intermediate and significant positive correlations (Sahin & Yilmaz, 2019).

Self-Concept in Science (7 items)

Self-concept can be defined as the totality of a perplexing, coordinated, and yet dynamic system of learned attitudes, beliefs, and evaluative judgments that people hold about themselves (Wehrle & Fasbender, 2018). This construct aimed to examine pupils' self-concept. It is based on beliefs about one's own ability to adapt school science, which in turn is believed to form attitudes towards the subject as divulged from literature. For example, the study by Ng *et al.* (2012) revealed the relationship between positive affect towards science and mathematics as well as achievement in science and mathematics among Malaysian and Singaporean Grade 8 students. The items for the construct are to determine the students' perception whether science is a difficult subject for them, are they weak in science, do they score good marks in science, can they learn science fast, science is the best subject for them, feeling helpless when studying science, and understand what is being learned in science class. The results show that self-concept differs according to the subject and self-concept in science needs to be studied because there was an interaction of gender and cultural background that may affect the self-concept in chemistry (Rüschenpöhler & Markic, 2020).

Future Participation in Science (5 items)

There is a substitute way of seeing presence in science learning. Chilvers and Kearnes (2019) explained that the alternative way of seeing participation is as co-produced, relatively, diversify, and emergent. In this research participation focuses on future involvement in science. Hence, the construct aimed to examine pupils' attitude towards involving more with science in the future. Such future participation in science will be reviewed whether the student will learn science in the future, study science in university, seek a job related to science, want to be a science teacher, and want to be a scientist in the future. Gamification scientists are trying to understand and meet their goals through the design of gamification interventions, which with the intervention can gauge the new generations' interest and participate in science (Landers *et al.*, 2018).

The components related to the attitudes seem to be overlapping in nature and the properties are subjective to be interpreted by individuals. Any arguments related to opinions and feelings are free to be pointed out and discussed. Therefore, any findings of opinions about science should be verified particularly (Crano & Prislin, 2006) and action needs to be taken. Therefore, a person's attitude is important to be evaluated in seeing something that is also known as an object of attitude. On the other hand, strong influence will be given by individuals who have a high belief in positive things while for people who have a low belief in intuition for unfamiliar objects; it gives less influence. Thus, comparisons in the formation of attitudes to its object of common realistic attitudes are important in contributing to an understanding of situations that can influence the attitude components of an individual (van Giesen *et al.*, 2015).

The research objective of this study was to validate the Attitude towards Science (ATS) questionnaire to examine the 10-12 years old Malaysian primary students' attitude in science. This study was important to determine the attitude items that positively reflect the positive attitude of primary school children towards science. It also helped the teacher to tackle the children to engage in the science lessons.

II. MATERIALS AND METHOD

A quantitative survey research design which involves a data gathering method via direct surveys to the samples was used. In this study, the population for Year 4 students in four schools was 528 and the total of Year 5 students was 543. The sample size was determined from Krejcie and Morgan's Sampling Table (1970) in which the sample for this study was 226 students aged 10 and 226 students aged 11, who were studying in year 4 and year 5 in four primary schools in Sabah, Malaysia as depicted in Table 2. Preliminary considerations of the chosen method include the use of PLS-SEM; an approach to Structural Equation Models (SEM) that allows researchers to analyse the relationships of latent constructs, simultaneously, the recommended sample size, distributional assumptions, the use of secondary data, and the need for suitability testing. Next, practical rules were used to evaluate the PLS-SEM results according to the recommended indices for measurement model analysis as depicted in Table 3.

A. Sampling Technique

A random sampling procedure was used in rural and urban schools from the Penampang district. Two schools that were situated in a rural area and two schools that were from the urban area were selected. These four schools showed a higher number of students in school data enrolment. For the selection of students, random sampling was used in which the teachers in the school acted as administrators for the sampling. The Attitude Towards Science (ATS) questionnaire was used to determine the attitude towards science of primary school students aged 10 to 12 years old. The items are shown in Table 2, which the components and domains are also listed. The evaluation scale used consists of 5-Likert scale items (from a five-point score; strongly agree, agree, agree, or disagree, disagree, strongly disagree). Students respond to all items in ATS of the same construct and different construct. The attitude scale in this study is the most used to measure attitude. Students read and chose statements consistently to reflect their attitudes. The differentiation scale (semantic) required students to evaluate specific objects.

Table 2. Determination of Population and Sample Size

School	No of Y4 Classes	Year 4 Students (Population)	Sample	No of Y5 Classes	Year 5 Students (Population)	Sample
SKKC	3	102	50	4	134	60
SKT	3	119	56	3	120	50
SKB	3	102	50	3	99	50
SPP	6	205	70	6	190	66
Total		**528**	**226**		**543**	**226**

B. Smart PLS 3.0 Statistical Analysis

The Smart PLS 3.0 statistical analysis software for Partial Least Squares-Structural Equation Modelling (PLS-SEM) was used to evaluate the validity and reliability of the instrument. PLS-SEM can incorporate latent variables; a hypothesised and unobserved concept such as "attitude" in this study context that can only be justified by observable or measured variables or indicators into the analysis (Hair *et al.*, 2017). Standard of acceptance value and fit indices for measurement model analysis are shown in Table 3.

The collected data were pre-screened. Results from the statistical analysis were being reviewed and evaluated in terms of the strength of relationships among items in the measurement model as shown in Figure 1. To ascertain the validity and reliability of the Attitude towards Science Questionnaire, the internal consistency reliability (ICR), convergent validity (CV), and discriminant validity (DV) of each individual item were being assessed. Internal consistency reliability for each sub-scale was determined through the composite reliability (CR) and Cronbach's Alpha (CA) coefficient. The Average Variance Extracted (AVE) was evaluated to assess the convergent validity of the instrument items. Cross-loadings, Fornell-Larcker criterion, and Heterotrait-Monotrait ratio (HTMT) were also assessed to evaluate the discriminant validity for each item in the ATS Questionnaire.

Table 3. Indices for Measurement Model Analysis using Partial Least Square SEM (PLS-SEM)

Assessment Test	Name of Index	Level of Acceptance	Literature Support
1. Reliability	**Internal Consistency Reliability**	Cronbach Alpha > 0.7	Robinson, Shaver & Wrightsman (1991)
		Composite Reliability > 0.708	Hair, Black, Rabin, Anderson & Tatham (2010), Hair *et al.* (2014)
2. Convergent Validity	**Average Variance Explained (AVE)**	AVE score > 0.5	Hair *et al.* (2010), Hair *et al.* (2014)
	Factor Loadings	Loadings for indicators > 0.708	Hair *et al.* (2014)
3. Discriminant Validity	**Cross-Loadings Assessment**	Cross-loadings scores differ by 0.1	Vinzi, Henseler, Chin & Wang (2010)
	Fornell and Larcker criterion (1981)	AVE > r2	Hair *et al.* (2010), Hair *et al.* (2014)
	HTMT criterion (2014)	HTMT.85, HTMT.90, HTMT inference	Henseler *et al.* (2014)
		HTMT.85	Kline (2011)
		HTMT.90	Gold, Malhotra & Segar (2001)

III. RESULT AND DISCUSSION

A. Average Variance Extracted

Table 4 shows the elimination of several items that did not meet the minimum requirement of model fit indices in Table 3. According to Hair *et al.* (2017), the threshold value of the composite reliability (CR) ranges from .70 to .95 for exploratory research, whereas the threshold value for Average Variance Extracted (AVE) is above .50. After adjustment, the AVE of items in particular construct has been improved. After adjustment, the reflective measurement model has decreased in term of item numbers. Indicator 'x' in Table 4 means elimination. From the 37 items analysed, only 22 items remained to be included in the ATS questionnaire for testing in the primary schools as shown in Figure 1. The Fornell-Larcker Criterion analysis showed that indicators showed a strong relationship in the same construct between the constructs in the model as shown in Table 6.

Table 4. Item Adjustment

	Before			After		
Code	**Indicators**	***Outer Loading***	**AVE**	**Indicators**	***Outer Loading***	**AVE**
PS	AS_1	**0.647**	0.442	x	x	0.582
	AS_2	0.684		AS_2	0.719	
	AS_3	0.658		AS_3	0.689	
	AS_4	0.604		AS_4	0.737	
	AS_5	0.661		AS_5	0.733	
	AS_6	**-0.400**		x	x	
KK	AS_7	**-0.461**	0.362	x	x	0.516
	AS_8	**-0.572**		x	x	
	AS_9	0.639		AS_9	0.638	
	AS_10	0.782		AS_10	0.800	
	AS_11	0.702		AS_11	0.744	
	AS_12	**0.281**		x	x	
	AS_13	0.633		AS_13	0.679	
KPS	AS_14	0.676	0.391	AS_14	0.669	0.547
	AS_15	**0.632**		x	x	
	AS_16	**0.547**		x	x	
	AS_17	**0.551**		x	x	
	AS_18	0.743		AS_18	0.794	
	AS_19	0.681		AS_19	0.741	
	AS_20	0.684		AS_20	0.747	
	AS_21	**-0.435**		x	x	
PSL	AS_22	0.664	0.419	AS_22	0.697	0.643
	AS_23	0.658		AS_23	0.653	
	AS_24	**0.534**		x	x	
	AS_25	**0.569**		x	x	
	AS_26	0.762		AS_26	0.806	
	AS_27	0.669		AS_27	0.710	
PMD	AS_28	0.718	0.493	AS_28	0.810	0.518
	AS_29	0.740		AS_29	0.791	
	AS_30	0.801		AS_30	0.805	
	AS_31	**0.607**		x	x	
	AS_32	**0.628**		x	x	
IOS	AS_33	0.736	0.389	AS_33	0.784	0.582
	AS_34	0.717		AS_34	0.721	
	AS_35	**0.524**		x	x	
	AS_36	**0.270**		x	x	
	AS_37	0.737		AS_37	0.782	

AVE = Average Variance Extracted

B. Cronbach's Alpha

The range of Cronbach's Alpha values after adjustment is .651 to .723. While the value of CR is between .801 to .844 as shown on Table 5.

Table 5. Internal Consistency and Convergent Validity Reporting

Reflective Construct	Item	Loading	Cronbach's Alpha	CR	AVE
PS	AS_2	0.719	0.651	0.807	0.582
	AS_3	0.689			
	AS_4	0.737			
	AS_5	0.733			
KK	AS_9	0.638	0.689	0.809	0.516
	AS_10	0.800			
	AS_11	0.744			
	AS_13	0.679			
KPS	AS_14	0.669	0.722	0.828	0.547
	AS_18	0.794			
	AS_19	0.741			
	AS_20	0.747			
PSL	AS_22	0.697	0.723	0.844	0.643
	AS_23	0.653			
	AS_26	0.806			
	AS_27	0.710			
PMD	AS_28	0.810	0.69	0.811	0.518
	AS_29	0.791			
	AS_30	0.805			
IOS	AS_33	0.784	0.688	0.801	0.582
	AS_34	0.721			
	AS_37	0.782			

After adjustment, the reflective measurement model has decreased in term of item numbers. From the 37 items analysed, only 22 items remained to be included in the ATS questionnaire for testing in the primary schools as shown on Figure 1.

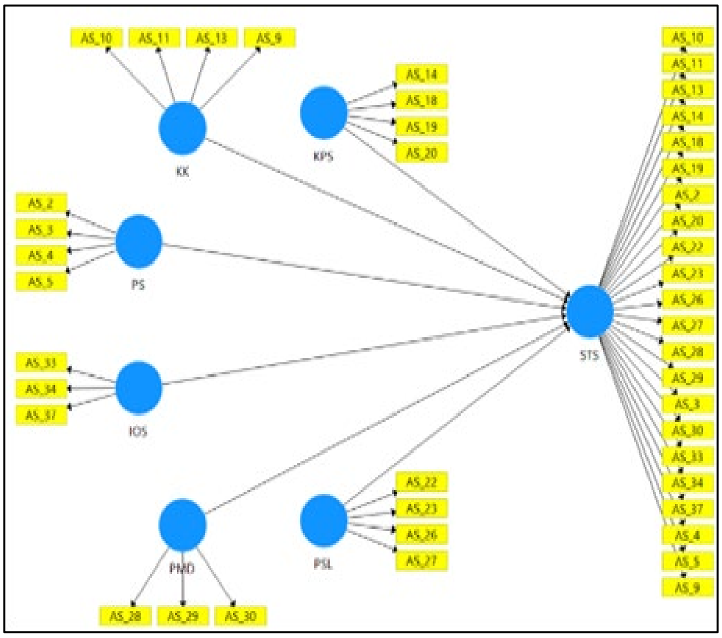

Figure 1. Measurement Model of ATS after adjustment
(Reflective Measurement Model)

C. Discriminant Validity

Discriminant validity is defined as two or more different concepts that do not show correlation with each other (Sekaran & Bougie, 2010). There are three methods that can be used to prove discriminant validity, namely cross-loading analysis as shown on Table 6, Fornell-Larcker Criterion as shown in Table 6 and Heterotrait-Monotrait (HTMT) Criterion as shown on Table 7. HTMT is a new method in assessing the discriminant validity in PLS-SEM, which HTMT can prove the validity more accurately than the previous two techniques. All indicators in Table 6 are strongly related in their construct and lower than other constructs indicating that discriminant validity has been achieved where each construct was clearly differentiated from one construct to another.

Table 6. Loading and Cross-loading of Constructs

	KK	KPS	PS	PSL	PMD	IOS
AS_ 9	**0.638**	0.159	0.299	0.291	0.234	0.151
AS_ 10	**0.8**	0.323	0.411	0.366	0.418	0.229
AS_ 11	**0.744**	0.354	0.499	0.474	0.45	0.191
AS_ 13	**0.679**	0.215	0.348	0.279	0.303	0.176
AS _14	0.231	**0.669**	0.288	0.276	0.215	0.284
AS_ 18	0.261	**0.794**	0.266	0.333	0.291	0.299
AS_ 19	0.315	**0.741**	0.327	0.388	0.318	0.263
AS_ 20	0.315	**0.747**	0.335	0.268	0.197	0.183
AS_ 2	0.415	0.299	**0.719**	0.273	0.364	0.282
AS_3	0.288	0.291	**0.689**	0.298	0.338	0.32
AS_4	0.403	0.263	**0.737**	0.439	0.409	0.334
AS_5	0.476	0.331	**0.733**	0.381	0.439	0.253
AS_22	0.362	0.298	0.323	**0.697**	0.454	0.239
AS_23	0.272	0.284	0.179	**0.653**	0.353	0.203
AS_26	0.459	0.319	0.452	**0.806**	0.409	0.211
AS_27	0.335	0.337	0.404	**0.71**	0.537	0.419
AS_28	0.401	0.303	0.46	0.527	**0.81**	0.4
AS_29	0.388	0.209	0.385	0.509	**0.791**	0.367
AS_30	0.426	0.326	0.455	0.444	**0.805**	0.248
AS_33	0.205	0.209	0.328	0.237	0.296	**0.784**
AS_34	0.132	0.26	0.174	0.198	0.233	**0.721**
AS_37	0.243	0.318	0.397	0.394	0.405	**0.782**

Based on Table 7, all values have met the criteria of HTMT .90 (Gold *et al.*, 2001) and HTMT .85 (Kline, 2011). Also, HTMT results showed that confidence interval did not show a value of 1 in any construct (Henseler *et al.*, 2015), and this has proven discriminatory validity.

Table 7. Fornell-Larcker Criterion

	IOS	KK	KPS	PMD	PS	PSL
IOS	**0.763**					
KK	0.262	**0.718**				
KPS	0.349	0.381	**0.739**			
PMD	0.423	0.505	0.35	**0.802**		
PS	0.412	0.554	0.411	0.541	**0.72**	
PSL	0.38	0.503	0.432	0.616	0.488	**0.719**

Note: Diagonal elements shaded and highlighted in bold represent the square root of AVE. Off-diagonal elements are simple bivariate correlations between the constructs. HOFC denotes a Higher-Order Formative Construct.

Based on Table 8, all values have met the criteria of HTMT .90 (Gold *et al.,* 2001) and HTMT .85 (Kline, 2011). Also, HTMT results show that confidence interval does not show a value of 1 in any construct (Henseler *et al.*, 2015), and this has proven discriminatory validity.

Table 8. Heterotrait-Monotrait Criterion

	IOS	KK	KPS	PMD	PS	PSL
IOS						
KK	0.372					
KPS	0.498	0.516				
PMD	0.59	0.692	0.477			
PS	0.584	0.778	0.583	0.76		
PSL	0.528	0.701	0.605	**0.865**	0.678	

Note: Discriminant validity is established at HTMT0.85 / HTMT0.90

IV. CONCLUSION

In this study, we found that the ATS instrument is reliable to be used for Malaysian primary school students. Besides, we also observed the strengths and weaknesses of the attitude items in a particular construct based on the understandings of children aged 10 to 12 years. This study contributes to a collection of reliable instruments to determine children's attitudes towards science. The collaboration between the school community and the university has provided opportunities as well as platforms in conducting an attitude-related study among primary school students, especially those in rural areas. The engagement of community or group of people with common attitudes and interests towards science is important in building future anchored on the advancement in science and technology. This study provides significant findings related to the positive attitude of students in learning science that will pave the way for community improvement to help solving problems.

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