

Lock, Talk, or Stop? Measuring How Parents Mediate Their Young Children's Use of Digital Devices in The Malaysian Context

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Abstract

The impact of the use of, and exposure to, digital devices is more pronounced on young children. This impact, however, can be mitigated by parental mediation. Although several scales have been developed to measure parental mediation, they tend to demonstrate a western focus, youth-oriented, or confined to educational settings. This study adapted and investigated the psychometric properties of the Parental Mediation Practices Scale (PMPS) in a Malaysian sample. Three hundred and forty parents who met the inclusion criteria participated in this study. The factor structure, internal consistency, correlational analyses, and mean differences by category groupings of parent's gender, age, and education levels, as well as children's gender, age, frequency of digital device use, and time spent, were examined. The principal axis factoring results revealed a five-factor structure accounting for 66.65% of the total variance. The internal consistencies of the sub-scales were excellent, ranging from .88 to .97. All sub-scales were also intercorrelated, with coefficients of

association ranging from .527 to .794. Parental mediation of young children's digital devices was found to differentiate based on the child's age, parent's age, and educational levels. In conclusion, the PMPS is a valid and reliable instrument for assessing parental mediation practices among Malaysian populations.

Keywords: Parental mediation, Young children, Digital devices, Scale adaptation, Psychometric properties, Malaysia

Introduction

Over recent years, the rapid growth of digital device users among children has been documented in various parts of the world, with developing countries like Malaysia following the same trend. In particular, a growth of 155% of Internet users among children ranging around five to 17 years old is reported from 2016 to 2020 in the country, with 70.5% of them accessing it from home and smartphones being the most preferred medium (Malaysian Communications and Multimedia Commission, 2020). The age at usage onset in the country is also getting younger. Recent studies reported that parents introduced their children to mobile devices before 18 months, with an average of 2.64 hours of daily screen time (Joginder Singh et al., 2021). This trend, in turn, led to the early acquisition of skills to operate digital devices and emergent digital literacy (Abdullah et al., 2022). Nevertheless, the short and long-term adverse effects linked to early digital device usage are also well-documented in the literature, particularly on physical health, obesity, disrupted sleep schedules, eyes, mental health, and overall well-being (e.g., Abdullah et al., 2022; Dickson et al., 2018; Hutton et al., 2020; Park & Park, 2021; Sohn et al., 2019; Walsh et al., 2018). As such, finding ways to empower parents on how best to support, protect, and improve children's digital device use is of utmost importance.

Previous research (e.g., Blum-Ross, & Livingstone, 2016; Dias et al., 2016) suggested that parental mediation could be one of the mechanisms for shaping children's digital device use, particularly the young ones aged six years old and below, who are the most vulnerable (Lammers et al., 2022; Munsamy, Chetty, & Ramlall, 2022). Parental mediation refers to parents' practices or efforts to manage, monitor, or regulate their children's experiences with digital media and the Internet (Livingstone et al., 2015). Studies have shown that parental mediation practices can act as a protective measure against the negative effects of digital device use (Nikken & Jansz, 2014; Sobel et al., 2017). Some of the well-established parental mediation practices in the literature include active mediation, co-use, restrictive mediation, technical mediation, and monitoring (Nikken & Jansz, 2014). Active mediation refers to efforts between parents and children in communicating and discussing online activities and Internet content, while co-use involves parents sharing the digital media experience with children. On the other hand, restrictive mediation refers to imposing rules and limitations regarding digital device use, whereas technical mediation refers to using software to regulate or restrict children's device use. Finally, monitoring involves parents checking their children's device use and online activities.

It is within this context that several scales were developed to measure parental mediation practices for young children. A recent review by Mohd Mahudin and Janon (2021) highlighted eight such scales, which include the Parental Mediation of Children's Videogame Playing Scale (Nikken & Jansz, 2006), the Parental Mediation of Children's Internet Use Scale (Livingstone & Helsper, 2008), the Internet Parenting Style Instrument (Valcke et al., 2010), the EU Kids Online Questionnaire (Livingstone et al., 2011), the Parental Mediation Scale (PMS: Sonck, Nikken, & de Haan, 2013), the Parental Mediation of Young Children's Internet Use Scale (PMYCIUS: Nikken & Jansz, 2014), the Parental Mediation Strategies Scale (Nevski & Siibak, 2016), and the Parental Mediation of Children's Internet Use Scale (Livingstone et al., 2017). Out of these scales,

the PMS by Sonck, Nikken, and de Haan (2013) and the PMYCIUS by Nikken and Jansz (2014) are the most compendious to measure parental mediation strategies because of their broad coverage and open availability for research use. Both scales were developed by Nikken and his team in a developmental manner in which items were built upon each other.

The PMS (Sonck, Nikken, & de Haan, 2013) contains 25 items on four types of parental mediation, i.e., active mediation, co-use, restrictive mediation, and monitoring, to measure the practices parents adopt with respect to their children's digital device use. Meanwhile, the PMYCIUS (Nikken & Jansz, 2014) consists of 20 items measuring active mediation, co-use, restrictive mediation general, restrictive mediation content specific, and supervision. Both scales have been found to be reliable measurement tools for parental mediation strategies in their original studies as well as in the subsequent validation or adaptation research in different languages or cultures (e.g., Belgium: Symons et al., 2017; China: Zhang, Wu, & Zhou, 2020; Estonia: Nevski & Siibak, 2016; and Turkey: Durak & Kaygin, 2019, among others).

Unfortunately, the PMS and PMYCIUS have yet to be adapted and validated for use in Malaysia. Furthermore, no other validated scales were available in the Malay language to measure how parents mediate their young children's use of digital devices within the Malaysian context. Due to the cultural differences and languages used among Malaysians, it is crucial to adapt and examine the psychometric properties of these scales in the country. Therefore, this study was conducted to adapt and validate a scale in which its items were derived from the PMS and PMYCIUS using Malaysian samples. This scale, named the Parental Mediation Practices Scale (PMPS), comprised 42 items after removing redundant items. It was conceptualised as a multidimensional measure of practices, consisting of five sub-scales: active mediation, co-use, restrictive mediation, technical mediation, and monitoring. Scores for each

sub-scales are placed along a continuum that ranges from low to high use of that particular strategy (see the Method section for more details).

Accordingly, data were analysed in three steps. First, the principal axis factoring method with a direct oblimin rotation was carried out in IBM SPSS version 21 to evaluate the factor structure or structural validity of the scale. Next, Cronbach's alpha coefficients were performed to examine the scale's reliability, while intercorrelations were analysed to examine the relationships between the five factors of the scale. Finally, independent samples t-tests and one-way analyses of variance (ANOVAs) were carried out to test for significant overall mean differences of the PMPS sub-scales by category groupings of parent's gender, age, and education levels, as well as children's gender, age, frequency of digital device use, and time of use. Post hoc tests for ANOVAs were conducted using Tukey HSD for data showing homoscedasticity, while the Games-Howell test results were reported when homogeneity of variance was not met.

It is hypothesised that the PMPS would follow the five-factor model that is related to each other as conceptualised by Nikken and colleagues (Hypothesis 1), possesses good internal consistency (Hypothesis 2), its sub-scales positively correlate with one another (Hypothesis 3), and differentiation status of parental mediation of young children's digital device use based on parents and children characteristics is established (Hypothesis 4). By determining the psychometric properties of the PMPS, it is envisaged that the effectiveness and credibility of the scale would be useful in local settings, and researchers would be able to generate reliable and valid findings about parental mediation practices in Malaysia.

Method

A cross-sectional, self-report questionnaire was developed to gather data for

psychometric evaluation and associated analyses of the PMPS. The first part of the questionnaire contained questions about participants' demographic characteristics such as gender, age, ethnicity, education levels, the state they live in, family size, as well as the age and gender of their youngest children. The PMPS made up the second part of the questionnaire, with a five-point Likert scale response format anchored from 1 = Never to 5 = Very Often for its 42 items. The scale measures active mediation (17 items), co-use (6 items), restrictive mediation (8 items), technical mediation (4 items), and monitoring (7 items). Higher scores for each sub-scale represented higher usage of the measured parental mediation strategy.

All items were translated into Bahasa Melayu by the authors who are bilingual (Bahasa Melayu and English) experts in psychology using the forward-only translation (Maneesriwongul & Dixon, 2004). An online survey link containing the items in dual language was then generated using Google form and shared using social media platforms to pilot test the items for adequacy and suitability in terms of wording, layout, sequencing, and reliability. Sixty participants (Male = 30; Female = 30) who met the inclusion criteria of (i) a parent or caregiver of at least one child aged six years old and below, (ii) currently working in Malaysia, (iii) having a spouse/partner who also works full-time, and (iv) able to complete the questionnaire in English or Malay language, responded to the pilot test. Satisfactory Cronbach's alphas were obtained for each PMPS sub-scale, i.e., active mediation = .94, co-use = .79, restrictive mediation = .82, technical mediation = .86, and monitoring = .82. All sub-scales were also significantly and positively correlated with each other. Based on these results, the items are deemed appropriate and useful for use in the next phase of the study.

Social media platforms were again used to distribute the questionnaire for the main study to reach the potential participants. A total of 340 parents (Male = 165; Female = 175) with the same inclusion criteria completed the questionnaire. These participants

were from 14 states, with the majority being Malay (97.1%), from Selangor (34.1%), and aged 18 to 63 years old ($M = 32.73$, $SD = 7.04$). About 48.5% were Bachelor’s degree holders, followed by diploma holders (25%), primary or secondary school leavers (19.4%), and PhD, Master’s degree, or others (7.1%). Fifty- three percent of the youngest child reported were boys, with an average age between two to three years old. Of the total, more than 78% of the participants reported that their youngest child uses digital devices. These demographic data are summarised in Table 1.

	Frequency	%		Frequency	%
Parent’s gender			Age of youngest child		
Male	165	48.5	0-1 years old	108	31.8
Female	175	51.5	2-3 years old	108	31.8
			4-5 years old	94	27.7
			6-7 years old	30	8.8
Education			Gender of youngest child		
Primary or secondary school	66	19.4	Male	180	52.9
Diploma or equivalent	85	25.0	Female	160	47.1
Bachelor’s degree	165	48.5	Use of digital devices by youngest child		
PhD, Master’s degree, or Others	24	7.1	Yes	266	78.2
			No	74	21.8
Ethnicity			Frequency of use of digital devices by youngest child		
Malay	330	97.1	Several times a day	124	36.5
Chinese	6	1.8	About once a day	76	22.4
Indian	3	0.9	3-5 days a week	28	8.2
Other	1	0.3	1-2 days a week	39	11.5
State currently living in			Time youngest child spend using devices		
Terengganu	7	2.1	Every few weeks	11	3.2
Johor	42	12.4	Every few months	4	1.2
Kedah	14	4.1	Time youngest child spend using devices		
Kelantan	14	4.1	Never	52	15.3

Kuala Lumpur	47	13.8	Don't know	6	1.8
Melaka	22	6.5	Never	52	15.3
Negeri Sembilan	8	2.4	Below 30 minutes	122	35.9
Pulau Pinang	2	0.6	30 to 59 minutes	74	21.8
Pahang	41	12.1	1 hour to 1 hour 59 minutes	35	10.3
Perak	18	5.3	2 hours to 2 hours 59 minutes	24	7.1
Perlis	4	1.2	3 hours to 3 hours 59 minutes	14	4.1
Sabah	3	0.9	4 hours to 4 hours 59 minutes	2	0.6
Sarawak	2	0.6	5 hours or more	13	3.8
Selangor	116	34.1	Other	4	1.2

RESULTS

(a) Hypothesis 1: Does the PMPS measure the constructs for which it was devised in the Malaysian context (i.e., structural validity)?

Yes - results of a principal axis factor analysis with direct oblimin rotation suggest that the 42 items of the PMPS scale have structural validity for use within the Malaysian context. In particular, the determinant of the correlation matrix is greater than .001, indicating no multicollinearity. The Kaiser-Meyer-Olkin measure of sample adequacy was .959, exceeding the value of .60 (Pallant, 2020) and Bartlett's test of sphericity (Bartlett, 1954) significant ($p < .0001$), with all diagonal elements of the anti-image correlation matrix greater than .50, indicating that the data met the premise of factor analysis and the correlation matrices are factorable (Field, 2017). The results also identified five factors, accounting for 66.65% of the total variance. The scree plot further confirmed the five factors on the slope of the plot before the plots of other

insignificant factors levelled off. Means, standard deviations, factor loadings for the rotated factors, and communalities of each item are reported in **Table 2**.

The goal of achieving a simple structure in structural validity is materialised when an item loads highly on one factor, and its factor loading is negligible on all other factors. For active mediation, all of its items are loaded in one factor as expected. Four items had some overlapped with other factors; however, their loadings are less than .40, hence, negligible. The pattern of factor loadings for co-use items was also as expected, with values ranging from .532 to .792. Similarly, all items for technical mediation loaded into the third factor, with an eigenvalue of 9.979. On the other hand, two items in restrictive mediation (i.e., *“Tell my child to stop when he or she is using a device too long”* and *“Tell your child when or how long he/she can use the Internet”*) and three items in monitoring, i.e., *“Keep an eye on the devices when your child is using it”*, *“Allow the child to web surf only when you are present”*, *“Stay close to the computer to help the child if necessary”*) appear to load in the fourth factor. The rest of the restrictive mediation and monitoring items are loaded in the final factor (see **Table 2**). However, due to the exploratory nature of the study, we retained the items within their original conceptually-specified factors for subsequent analyses.

Table 2 Factor loadings and communalities for direct oblimin rotated five-factor solution for 42 PMPS items (n = 340)

Item	M	SD	Factor Loading					Communality
			1	2	3	4	5	
Active Mediation	57.26	18.86						
Tell your child what to do about online strangers.	3.40	1.432	.795					.688
Tell your child to protect personal information.	3.46	1.478	.887					.784
Tell your child what to do if they are bullied or harassed.	3.64	1.351	.791					.692

Talk to your child about what rules of conduct to follow.	3.99	1.177	.639		-.305	.627
Explain how to behave on social media sites and online.	3.40	1.384	.835			.748
Explain to your child what he/she may do on websites.	3.44	1.393	.741			.665
Explain to your child how to use email.	2.22	1.379			.377	.486
Suggest ways to use the internet safely.	3.11	1.444	.707			.684
Suggest ways to behave towards other people on the internet.	3.14	1.437	.799			.774
Talk to your child about what he/she would do if something on the internet bothered him/her.	3.19	1.434	.828			.763
Explain why some websites are good or bad.	3.34	1.412	.840			.781
Helped your child in the past when something has bothered him/her on the internet.	3.20	1.413	.533			.660
Praise your child when he or she makes good use of a digital device.	3.61	1.218	.504	.404		.633
Tell my child how to use electronic media properly.	3.60	1.273	.754			.695
Help your child when he/she finds something difficult to do on the internet.	3.57	1.245	.495	.324		.642
Explain to your child how to use the internet safely.	3.44	1.361	.676			.804
Talk to your child about what is 'good' in digital and online media.	3.49	1.347	.724			.764
Co-use	20.00	5.79				
Surf the internet together because your child wants to.	3.59	1.195		.532	-.340	.598

Surf the internet together because you want to.	3.34	1.260		.584		.520
Surf the internet together with the child for entertainment or fun.	3.58	1.101		.652		.582
Talk with your child about what is fun on the internet.	3.21	1.269		.714		.704
Suggest to your child to use an interesting game, website, or app that you like.	2.94	1.293		.645		.535
Do shared activities	3.34	1.183		.792		.622
together with your child on the internet.						
Restrictive Mediation	27.61	8.165				
Tell my child which websites or games are allowed.	3.44	1.312	.331	.397		.574
Tell my child to stop when he or she is using a device too long.	4.23	1.084			-.565	.608
Tell your child when or how long he / she can use the internet.	4.06	1.212	.321		-.562	.746
Allow my child to use a specific app, game, or website that he or she picked.	3.41	1.274		.321		.503
Explain that online games are unsuitable.	3.54	1.286			-.357	.504
Say what music may be listened or downloaded.	3.11	1.437			-.471	.625
Tell which films may be downloaded.	3.02	1.495		.372	-.420	.615
Explain which products that can be bought online.	2.81	1.515			-.546	.589
Technical Mediation	13.35	5.13				

Use parental control applications or other means of blocking or filtering websites.	3.63	1.399			-0.668	.625	
Use a service or contract that limits your child's internet usage.	3.16	1.490			-0.635	.598	
Use software to prevent spam or junk mail or viruses	3.13	1.518			-0.729	.683	
Use parental control applications or other means of keeping track of the websites your child visits.	3.44	1.477			-0.816	.790	
Monitoring	24.60	7.79					
Keep an eye on the devices when your child is using it.	3.87	1.167			-0.574	.715	
Allow the child to web surf only when you are present.	3.73	1.225	.313		-0.449	.617	
Stay close to the computer to help the child if necessary.	3.67	1.216	.324		-0.474	.644	
Check the friends or contacts the child adds to a social media account, instant messaging service, or online games.	3.33	1.508			-0.705	.751	
Check your child's profile on a social networking or online community.	3.23	1.545			-0.814	.830	
Check the messages in your child's email or instant messaging account.	3.15	1.552			-0.809	.804	
Check which websites your child visited.	3.62	1.424			-0.347	-0.484	.720
Eigenvalues		17.412	11.104	9.979	5.037	14.398	

% of variance	49.532	7.686	3.841	3.670	1.923
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Note: Loadings < .30 are suppressed.

(b) Hypothesis 2 and 3: How reliable is the PMPS (i.e., internal consistency)? How well its sub-scales correlate with one another?

Reliability analyses for the scale suggest good internal consistency for each mediation strategy, with no deletion of items considered necessary or appropriate. The Cronbach’s alpha coefficients for all practices ranged from .88 to .97, indicating excellent reliability (see Table 3). Within the factors in the PMPS, all sub-scales were significantly and positively correlated with each other, as evidenced in Table 3.

Table 3 Means, standard deviations, Cronbach’s alphas, and intercorrelations of the sub- scales of the PMPS ($n = 340$)

		<i>M</i>	<i>SD</i>	α	1	2	3	4	5
1	Active mediation	57.26	18.86	.97		.557**	.794**	.587**	.740**
2	Co-use	20.00	5.79	.88			.703**	.527**	.643**
3	Restrictive mediation	27.61	8.17	.89				.621**	.787**
4	Technical mediation	13.37	5.13	.89					.715**
5	Monitoring	24.60	7.79	.91					

** Correlation is significant at the 0.01 level (2-tailed).

(c) Hypothesis 4a: How the PMPS relates to parent’s gender, age, and education levels?

The scale did not show a significant difference in parental mediation practices based on parent’s gender, i.e., active mediation: $t = .321, p = .749$; $t = -1.708$, co-use: $p = .089$; restrictive mediation: $t = -1.090, p = .277$; technical mediation: $t = .546, p = .586$, and monitoring: $t = -1.599, p = .111$. However, results of the analysis of variances of parents

by age showed that parents between 38 – 47 years old used active mediation ($F(4, 332) = 3.98, p = .004$), restrictive mediation ($F(4, 332) = 3.27, p = .012$), and monitoring ($F(4, 332) = 2.78, p = .027$) more than those in the 28 – 37 age group. All other comparisons were not statistically significant.

For educational levels, results indicated that the use of active mediation tended to be significantly higher for parents with a primary or secondary school education or a diploma than for parents with a bachelor’s degree, $F(3, 336) = 5.28, p = .001$. Technical mediation is also higher in parents with a primary or secondary school education compared to the bachelor’s degree holders, $F(3, 336) = 3.07, p = .028$. Interestingly too, those with a primary or secondary school education used restrictive mediation significantly more than those with a bachelor’s degree, $F(3, 336) = 3.87, p = .010$. Means and standard deviations for these results are summarised in **Table 4**.

Table 4 Means and standard deviations of parental mediation practices relative to parent’s gender, age, and education levels

	Parent’s Gender						Parent’s Age														
	Male			Female			18 - 27			28 - 37			38 - 47			48 - 57			58 - 67		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Active mediation	165	57.60	18.17	175	56.94	19.54	65	57.34	22.13	208	54.98	18.18	48	66.54	14.79	12	54.50	18.76	4	64.00	15.23
Co-use	165	19.45	5.96	175	20.52	5.61	65	20.80	6.88	208	19.72	5.42	48	20.31	6.09	12	18.25	5.33	4	22.25	5.91
Restrictive mediation	165	27.11	8.29	175	28.07	8.04	65	27.91	9.09	208	26.63	7.99	48	30.96	6.32	12	26.50	8.565	4	32.25	9.67
Technical mediation	165	13.52	4.98	175	13.22	5.28	65	14.32	5.47	208	12.64	5.193	48	14.33	4.09	12	14.67	5.05	4	16.75	2.50
Monitoring	165	23.91	7.92	175	25.26	7.63	65	25.79	8.16	208	23.56	7.86	48	27.15	6.42	12	24.25	7.68	4	27.50	7.33

	Parent's Education Levels											
	Primary & Secondary School			Diploma or Equivalent			Bachelor's Degree			PhD, Master's Degree, or Others		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Active mediation	66	61.80	15.65	85	61.48	19.59	165	53.33	19.26	24	56.83	16.49
Co-use	66	21.01	5.68	85	19.93	6.46	165	19.76	5.58	24	19.00	5.03
Restrictive mediation	66	29.47	7.46	85	28.59	9.24	165	26.10	7.85	24	29.33	6.47
Technical mediation	66	14.21	4.12	85	14.17	5.53	165	12.50	5.23	24	14.13	4.79
Monitoring	66	25.82	6.85	85	25.73	8.63	165	23.33	7.74	24	26.00	6.38

(d) *Hypothesis 4b*: How the PMPS relates to children's gender, age, frequency of digital device use, and time of use?

An examination of children's variables suggested some degree of similarity. For example, no significant difference in parental mediation practices based on children's gender, i.e., active mediation: $t = -.720, p = .472$; co-use: $t = .843, p = .400$; restrictive mediation: $t = .797, p = .426$; technical mediation: $t = 748, p = .45$; and monitoring: $t = .745, p = .457$.

Results of the analysis of variances of children by age showed that parents with a six-year-old child used active mediation significantly higher than other children's age group, $F(6, 333) = 7.60, p < .001$. They also used restrictive mediation, $F(6, 333) = 8.41, p < .001$, technical mediation, $F(6, 333) = 4.84, p < .001$, and monitoring, $F(6, 333) = 8.41, p < .001$, more compared to other children's age group. Meanwhile, co-use is lowest in parents with a one-year-old child compared to other children's age group, $F(6, 333) = 4.11, p = .001$. Means and standard deviations for these results are summarised in **Table 5**.

Table 5 Means and standard deviations of parental mediation practices relative to children’s age

	Children’s Age																				
	Below 1			1 years old			2 years old			3 years old			4 years old			5 years old			6 years old		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Active mediation	46	57.24	20.54	62	46.65	24.71	59	55.29	16.68	49	56.63	16.15	54	59.46	14.27	40	65.36	13.51	30	69.37	10.71
Co-use	46	21.07	5.44	62	16.89	7.74	59	20.76	4.99	49	20.20	4.55	54	21.20	4.94	40	20.03	4.89	30	20.77	5.78
Restrictive mediation	46	28.52	7.81	62	21.84	10.89	59	27.86	6.88	49	27.43	6.43	54	29.43	7.03	40	29.85	6.15	30	31.63	5.32
Technical mediation	46	14.69	5.07	62	11.19	6.07	59	12.93	5.32	49	12.76	4.64	54	13.72	4.30	40	13.73	4.63	30	16.53	3.31
Monitoring	46	26.67	6.25	62	19.52	10.27	59	25.03	6.44	49	23.82	6.72	54	24.63	7.36	40	26.90	6.29	30	29.27	4.86

It was also found that parental mediation practices differed based on how frequent children use digital devices. For active mediation, children who use digital devices every few weeks ($M = 41.81, SD = 18.35$) differed significantly from those who use the devices several times a day ($M = 59.61, SD = 17.78$) or three to five days a week ($M = 63.75, SD = 13.37$), $F(7, 332) = 3.38, p = .002$. Co-use was used more by parents whose children use digital devices several times a day ($M = 20.76, SD = 5.33$), about once a day ($M = 20.99, SD = 4.86$), or three to five days a week ($M = 20.93, SD = 3.85$) compared to those who use the devices every few weeks ($M = 15.36, SD = 4.32$), $F(7, 332) = 4.35, p < .001$. Meanwhile, for technical mediation, parents who reported that their children use digital devices every few months ($M = 19.00, SD = 2.00$) differed significantly from those who stated that they do not know about their children’s device usage ($M = 8.00, SD = 4.60$), $F(7, 332) = 2.93, p = .006$. All other comparisons were not statistically significant.

Finally, no significant difference in parental mediation practices based on children’s time of using digital devices, i.e., active mediation: $F(8, 331) = .70, p = .69$, co-use: $F(8, 331) = .99, p = .44$; restrictive mediation: $F(8, 331) = 1.41, p = .19$; technical mediation: $F(8,$

331) = .99, $p = .44$; and monitoring: $F(8, 331) = .33, p = .96$ (see Table 6 for the means and standard deviations of these results).

Table 6 Means and standard deviations of parental mediation practices relative to children’s time spent using digital devices

	Children’s Time Spent Using Digital Devices																							
	Several times a day			About once a day			3-5 days a week			1-2 days a week			Every few weeks			Every few months			Never			Don't know		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Active mediation	124	59.61	17.78	76	55.89	17.33	28	63.75	13.37	39	58.74	19.07	11	41.82	18.35	4	69.00	22.17	52	53.54	21.92	6	38.83	25.22
Co-use	124	20.76	5.33	76	20.99	4.86	28	20.93	3.85	39	20.08	5.59	11	15.36	4.32	4	23.00	9.45	52	17.65	7.53	6	13.83	6.99
Restrictive mediation	124	28.94	7.24	76	28.46	6.41	28	29.32	5.91	39	27.28	8.87	11	20.09	8.83	4	33.50	8.54	52	25.04	10.35	6	15.33	7.66
Technical mediation	124	14.09	4.76	76	13.45	5.06	28	13.43	5.25	39	13.36	5.19	11	10.55	5.09	4	19.00	2.00	52	12.25	5.51	6	8.00	4.60
Monitoring	124	25.39	7.38	76	25.09	6.17	28	25.75	6.23	39	25.64	7.99	11	20.00	9.56	4	30.25	5.85	52	22.23	9.56	6	15.33	10.23

Discussion

This study sets out to examine the psychometric properties of the PMPS in a sample of Malaysian parents. Results support a five-factor structure model with good internal consistencies, in which some items are cross-loaded on different factors or loaded on different factors compared to previous studies. This phenomenon is common in the adaptation of a scale to different cultures where items can load into different factors from the original and even be grouped under different names (Iyigun et al., 2018). Further examination is required to identify possible reasons for this phenomenon. Still, the results echo similar structure patterns in previous studies, thus demonstrating the reliability and validity of the scale in measuring active mediation, co-use, restrictive mediation, technical mediation, and monitoring as practices used by parents in Malaysia.

The Cronbach's alpha values for the PMPS sub-scales varied between .88 and .97, consistent with the values obtained in the original studies, i.e., between .75 and .94 in Nikken and Janz (2014) and between .54 and .81 in Sonck, Nikken, and de Haan (2013). The reliabilities of the sub-scales are also in tandem with previous studies performed in different countries, e.g., between .73 and .82 in the Chinese version (Zhang, Wu, & Zhou, 2020) and between .72 and .91 in the Turkish version (Durak & Kaygin, 2019). Meaningful, positive relationships were found among the sub-scales, with good correlation coefficients within the range of .527 to .794. Altogether, these results support excellent internal consistency and stability of the PMPS.

The results showed that the PMPS scores did not differ significantly based on parents' or children's gender. These results, which are consistent with those obtained in Durak and Kaygin's (2019) study, suggest that gender may not be an influencing factor in practising parental mediation practices. Other factors, such as features specific to the child or other environmental constraints, might be more responsible for differences in the mediation practices parents provide to their children (Wood et al., 2016). Indeed, with respect to active mediation, restrictive mediation, technical mediation, and monitoring, the child's age has a significant impact on parental mediation practices in such a way that as the age of the child increases, the amount of these mediation practices also increased, with six years old children receiving more of these strategies. Importantly, these findings suggest that parents were increasing mediation, consistent with the child's developmental stages and capabilities. Effective parental mediation presumes that supports are tailored to the child's needs, which is evident in this study.

As shown in **Table 4**, parental mediation practices are not equally distributed across parents' age groups, with parents aged between 38 – 47 years old using active mediation, restrictive mediation, and monitoring significantly more than those in the

28 – 37 age group. It also appears that the older the parents are, the more they engage in mediation strategies. Meanwhile, parents' educational levels suggest that those with primary or secondary school education reported the highest usage of active mediation, co-use, restrictive mediation, and technical mediation. This factor could play a crucial role in how parents interact with their children when using digital devices, given the increasing use of technologies, especially in lower socioeconomic status groups (Kabali et al., 2015; Wood et al., 2016).

Conclusion

The results of this study indicate that the PMPS is a valid and reliable instrument to measure parental mediation practices in the Malaysian context. It demonstrated good psychometric properties, with strengths in the ease of administration, convenient self-reporting, and straightforward scoring that could be used for research and testing purposes. However, the generalisation of the results is limited due to the imbalance in the number of ethnicities, as most of the participants were of the Malay ethnicity; hence, it does not reflect the overall Malaysian population. Care is recommended as further investigations among a demographically diverse population of parents in Malaysia are essential. Future studies may explore whether this adapted scale is valid and reliable within other ethnicities in the country.

In addition, research has shown that parental mediation may change over time, with active mediation being more common with young children, and restrictive mediation with some co-use increases as children enter middle childhood and then decreases during adolescence (Coyne et al., 2017; Connell, Lauricella, & Wartella, 2015). In short, parental mediation practices may differ at each developmental stage. Consequently, it is suggested that future research explore the PMPS's sensitivity to changes. Finally, further work in this area may be valuable in designing interventions that could help

parents effectively mediate their young children's use of digital devices.

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