Impact of Digital and Social Media on children aged 3 to 6 years: EFA and CFA approach

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***Abstract**: Digital and social networking media have become an integral part of human life; people, even kids, spend significant time on digital and social media. Socialization, culture, communication and learning are deeply impacted by digital and social media. This research paper finds impact of digital and social media on children in the age group 3 to 6 years; it uses exploratory and confirmatory factor analysis (EFA and CFA) to study the impact of digital and social media on children. This research study concluded twenty variables grouped into five factors, having impact of digital and social media, grouped and named as child's behavior, child's psychology, academic development, socio-cultural development and parents' behavior.*

***Keywords:** Digital and social media, Child behavior, EFA and CFA*

Introduction

The electronic visual mass media like television and internet-based digital media have a lot of influence on the audience. Since the invention of TV in 1927, people started getting multimedia based exposure to national and international events, the advent of the new media particularly the World Wide Web or the internet in 1990 and social media in 1997 with Six Degrees and other major sites like Facebook and YouTube in 2005, that presently form a major source of social interaction across the globe, has developed a new dimension on the issue of socialization. be exposed to predators, bullying and phishing or malware attack. It is important to note that India has not laws equal to children's online privacy protection act. Jain (2019) published in The Times of India, a study conducted by Fortis, mentioned that social networking media plays a vital role in influencing the attitude and opinion of school-going children, spreading positivity and awareness about the physical and mental health of children. This study highlighted children spend a lot of time on social networking media and feel an urgent need to critically evaluate the information on social media. Valkenburg et al. (2022) in their review study found most previous researchers concluded weak association in social media use and adolescent mental health, however

a few studies highlighted substantial impact. On the basis on eight years longitudinal research, Coyne et al. (2020) concluded on adverse impact of more time spent on social media and mental health of adolescents. More research is needed to find association between social media use and deliberate self-harm among youth (Biernesser et al., 2020). It is difficult to conclude impact on social media on youth mental health, on the basis of existing research studies, as these researches are based on cross sectional self reported survey, there is need of having experimental and longitudinal research (Nesi, 2020).

Previous research studies have found favourable as well as unfavourable impact of digital and social media on children. However, such studies in Indian context are rare, moreover such studies are not age specific, mainly with reference to early childhood. In order to fill this gap, this research study was conducted for children of age group three to six years, Exploratory and Confirmatory Factor Analysis was used in this research.

Many previous research studies have been conducted to investigate the impact of digital and social media on communication. Research studies conducted in past concluded that social media is a source of effective communication (Kim, 2003; O'keeffe & Clarke-Pearson, 2011; Richards et al., 2015; Wang, n.d.). Richards et al. (2015) in their research study mentioned that a large number of the young population use social media sites like Facebook and social media is very useful to communicate with children. Okafor and Malizu (2013) concluded that digital and social media is very helpful and useful for informing the users about the happenings of the world; users are not only informed but educated also about events of the world. However, Globokar (2018) found social media is not very effective means of communication, communication on social media does not result into the meaning full and true relationship, this research explained that communication on social media is devoid of meta-communication, body language, so feelings behind communication cannot be explained adequately. It is very difficult to solve conflicts.

Research studies found digital and social networking media is important source of socialization (Kardefelt-Winther, 2017; Kim, 2003; O'keeffe & Clarke-Pearson, 2011; Thaichon, 2017), this finding is supported by findings of (Allcott et al., 2019; Globokar, 2018) as these researchers investigated that digital media helped exchange information. Okafor and Malizu (2013) found that people learn social norms from social media, this learning may be direct or indirect, conscious or unconscious, it was also mentioned that people may learn social norms by people who learnt social norms from digital and social media. Allcott et al. (2019) concluded Facebook can improve the lives of people by way of organizing a charity or activist group. Digital and social networking media has been found a major source of exchanging culture among the users (Globokar, 2018). During Covid 19 lockdown digital media helped children in socialization and emotional support but there was a need of parents' controlling on excessive watching of digital screen by children (Benedetto et al., 2021).

It has been the result of some research studies that as children use digital and social networking media, children start influencing the purchase decision of the family, children share their learning of social and digital media in purchase decision being taken in the family (Chaudhary & Gupta, 2014; Myrick, 2015). Allcott et al. (2019) concluded that if users stop using digital and social media for a few weeks, users after deactivation become less informed. However, a study by Undiyaundeye (2014) found the use of digital and social media is resulting in a social relationship that is not strong but defective. Richards et al. (2015) mentioned that increased use of digital media has a negative impact on social support means the perception that he or she is being cared for by others.

Few research studies found that though internet addicts are connected to many users on social media, users feel lonely despite a large number of contacts and friends on digital and social media (Globokar, 2018; Whang et al., 2003). Internet addicts tend to move away from persons, avoid

direct face to face interaction, such internet addicts prefer using internet-based digital and social media for contacting other persons and their interpersonal relationships, in reality, are stressful. Barker (2009) highlighted that those who feel less secure in face to face interaction and have a disconnect with peer group are more likely to use the internet for interaction.

Researchers in the past tried to measure the relationship between the impact of digital and social media on the learning and creativity of the children. Swist et al. (2015) found digital and social media provides an avenue of formal and informal learning of the users. This finding was supported by a research study by O'keeffe and Clarke-Pearson (2011) which mentioned digital media enhances the opportunity to learn. Undiyaundeye (2014) found a favourable impact on literacy skills, numeracy skills, and social skills, intellectual benefits like problem-solving and critical thinking. Lindsay et al. (2009) highlighted digital and social media as a tool to learn English. Digital and social media was highlighted as an important platform for being creative and show the creativity of teens (Rideout & Robb, 2018). Habib and Soliman (2015) mentioned watching cartoons by children on digital and social media teaches children the teachings of parents and school. However, some research studies did not support these positive impacts of digital and social media on learning and creativity. Globokar (2018) found new-age digital media has a threat to infringement of intellectual property rights. Playing video games on digital and social media harm the academic performance of children and adolescent (Ferguson, 2015). It was also found that if a child spends more time on digital and social media, the child tends to spend less time on other media like books (Twenge et al., 2018).

A large number of researchers studied the impact of digital and social networking media on psychological wellbeing and resultant behavior. Higher use of digital devices has resulted in higher mental and physical health issues (Maurer, 2020). Prolonged use of digital and social media has been found to have adverse impact on psychological wellbeing including cyber bullying (Richards et al., 2015), violence and risky sexual behaviour (Wang, n.d.), sexting, depression (Ferguson, 2015; Okafor & Malizu, 2013; Richards et al., 2015; Whang et al., 2003). Ostrov et al. (2006) said digital and social media develops a feeling of hostility or violence among preschool children. This research highlighted the development of relational hostility among girls and physical hostility and violence among boys. Due to social media use and smartphones there is increase in mental distress, tendency to cause self harm and suicide also (Abi-Jaoude et al., 2020). Use of personal computers and mobile phones caused problems related to sleeping habit due to digital and social media (Brunborg et al., 2011; Gentile & Walsh, 2002). Ferguson (2015) found children develop attention deficit symptoms due to the use of digital and social media. Vaterlaus et al. (2016) concluded in their research that there is a development of annoying and jealously behavior among young adults due to the use of snap chat. Digital and social media causes a distorted sense of reality (Undiyaundeye, 2014) and risk-taking behavior (Richards et al., 2015). Jan et al. (2017) found that increasing the use of social media reduces self-esteem; one hour spent on social media reduces self-esteem by 5.5 points. Undiyaundeye (2014) researched that internet addiction results in emotional and social irrational fear among children. Use of social media has U shape relationship, No use and excessive use has a negative impact on psychological health, while moderate use has a small favourable impact on psychological well-being (Kardefelt-Winther, 2017).

However, some research studies found a favourable impact on the psychological well-being of children. Swist et al. (2015) asserted that digital and social media has a positive impact on the psychology of children. Wang (n.d.) said social media benefits children and adolescents by improving self-esteem. Dillman Carpentier et al. (2008) studied the relationship between digital and social media use and mood management theory, it was found the use of digital and social media plays a role in sustaining the existing mood

of children. Watching online cat media provides digital pet theory and media has been found to provide stress relief, positive emotions and positive energy (Myrick, 2015).

Exposure to digital screens can result into adverse physical health of children and excessive watching must be controlled (Singh and Balhara, 2021). It has been found that digital and social media use causes obesity in children (Jago et al., 2015; Ray & Jat, 2010). Watching food and drink advertisements on social media results into more consumption of unhealthy food and drinks (Gascoyne et al., 2021). As a child spends more time on digital and social media; the child spends more time on physical activities (Kim, 2003). Campbell et al. (2016) found that watching overweight cartoon characters can activate overweight stereotypes and can increase the level of food intake. Ray and Jat (2010) found electronic media may promote the use of alcohol and tobacco among children. Trend of challenges like lip challenge, deodorant challenge etc on social media can cause skin diseases in tweens and teens (Young & Oza, 2021).

Few researchers have found a favourable relationship between the use of digital and social media and physical health. Swist et al. (2015) said social media has a positive impact on physical health. Social media has been used to spread health care information among teenagers and young adults (Bolton et al., 2013). However, Orben (2020) mentioned that relationship between digital media and good health is not clear.

Parents say an important development in child's growth is starting of use of digital and social media, however, parents feel pressure to conform to technology (van Hatch, 2014) and using digital and social media brings social pressure (Britain, 2013), parents must take action to protect children from adverse effects of digital and social media (Britain, 2013; Collier et al., 2016; van Hatch, 2014). Ghosh et al. (2018) found that if parents use a mobile app developed for online safety of children, children had not a good opinion about such app, which were found to be overly restrictive, invading their privacy by children.

Research by Wang (n.d.) found parents and children have limited self-control to use digital and social media. Parents found the development of internet addiction in their children (Undiyaundeye, 2014). Parents who are less confident in using the internet take a restrictive approach in internet use by their kids, parents, but parents skilled in using the internet; support their children in digital skills (Livingstone et al., 2017).

Swist et al. (2015) concluded in their research that social media has a positive impact on family and intergenerational relationships. Social media is a vital tool of information related to parenting (Duggan et al., 2015). Previous research found that parents use digital and social media working as a baby sitter (Lindsay et al., 2009); parents want digital and social media to be used by their children when they are doing household chores. Kabali et al. (2015) reported that parents found as a child uses digital and social media, the child wants to be away from other persons. Parents feel risky if the information of their child is shared on digital and social media by others (Duggan et al., 2015).

Mothers consider the adoption of social media by their children is a major psychosocial development (van Hatch, 2014). Online networking sites help in identity creation and helps in peer acceptance (Dunne et al., 2010). Research found watching digital and social media helps in developing a balanced child with proper mental state (Habib & Soliman, 2015) and digital and social media is a source of play and recreation for child (Allcott et al., 2019; Swist et al., 2015; Undiyaundeye, 2014).

However, it has also been found that due to digital media child is not able to fulfill other commitments of life (van Hatch, 2014) and child tend to develop addiction to digital and social media. Mcdool et al. (2016) found children spending more time on social networking sites have less satisfaction with all aspects of life; girls have a more adverse effect that boys, spending one hour of chatting reduce the chance of being satisfied by 14%. Vaterlau et al. (2016) found

social media Snapchat results into generational differences and deviant behavior and there is adverse relationship between cyber bullying and mental health of children and young people (Kwan et.al., 2020).

Method of Study

This section mentions the research methodology used in this research paper. On the basis of literature review 29 variables/items were developed related to topic of the research. Google Scholar was used to download research papers related to studies on the impact of digital and social networking media on children and adults. About 40 research papers, survey reports, dissertations theses, newspaper reports were found useful for the purpose and studied to decide the dimensions of impact on children and young adults. A structured questionnaire was developed using these variables. On each dimension, the nature of impact was also studied.

The sample size is 110 parents of children between age group of 3 to 6 years; these parents were contacted in the play schools of these children. Printed questionnaire was given to the parents for seeking responses. For the convenience of respondents, questionnaire was written in English and Hindi language both. About 150 questionnaires were emailed, out of which 120 respondents replied; after review incomplete questionnaires were not included, so final 110 questionnaires were used for research data analysis. Respondents were chosen by using convenient and judgmental sampling. Exploratory Factor Analysis was initially conducted for factor analysis using SPSS software. After EFA, Confirmatory Factor Analysis, using Maximum likelihood method, was also conducted using AMOS software. Five point likert scale was used in questionnaire.

Analysis & Results

Test of Sample Adequacy

To analyze the strength of association among variables the Kaiser-Mayer-Olkin (KMO) measure of sampling adequacy was applied. The KMO measure of sampling adequacy was computed to determine the suitability of using factor analysis. The results are shown in Table 1.

Table 1: Kaiser-Mayer-Olkin (KMO) and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.774
Bartlett's Test of Sphericity	Approx. Chi-Square	690.724
	df	190
	Sig.	.000

Kaiser-Mayer-Olkin (KMO) measure of sampling adequacy certifies whether data are suitable to perform factor analysis. The value of KMO varies from 0 to 1 and high values (close to 1.0) generally indicate that a factor analysis may be useful with the data. KMO score should be 0.60 to be adequate for testing. KMO score in this research was obtained at 0.774, it indicates adequacy of data to perform factor analysis.

Communalities

Initial communalities are estimates of the variance in each variable accounted for by all components or factors. For principal components analysis, this is always equal to 1.0 (for correlation analyses) or the variance of the variable (for covariance analyses). Extraction communalities are estimates of the variance in each variable accounted for by the factors (or components) in the factor solution. Small values (less than .5) indicate variables that do not fit well with the factor solution and should possibly be dropped from the analysis. In this research paper, total of 29 variables were developed using literature review, on these items responses were obtained from respondents and exploratory factor analysis (EFA) was applied, items with eigen value less than 0.5 were dropped from further analysis. Six variables were reverse coded, after obtaining responses, for EFA analysis, as these variables had reverse meaning in comparison to other variables. Table no. 2 shows the communalities extracted and in the table no. 3 six reverse coded items are shown starting with N.

Table 2: Communalities

Statements	Initial	Extraction
Digital and social media causes annoying behavior in my child	1.000	.658
Digital and social media lead to jealously behavior in my child	1.000	.721
Digital and social media promotes violence in my child	1.000	.669
Digital and social media promotes more relational aggression in my child	1.000	.716
Digital and social media promotes more physical aggression in my child	1.000	.774
As my child uses digital and social media, I find attention deficit symptoms in my child	1.000	.687
As my child uses digital and social media, there is some adverse effect on sleeping habits	1.000	.633
Increased use of Digital and social media is harmful to mental health of my child	1.000	.658
Digital and social media causes obesity in my child	1.000	.614
As a parent I feel risky if information of my child is shared on digital and social media	1.000	.758
As a parent I find using digital and social media works as a baby sitter	1.000	.743
As my child uses digital and social media, my child wants to be away from persons	1.000	.597
Due to digital media my child is not able to fulfill other commitments of life.	1.000	.765
My child is developing addiction to digital and social media	1.000	.640
N_oppor_Learning	1.000	.668
N_Socialization	1.000	.773
N_Learning_culture	1.000	.709
N_Promote_Academ_Perfo	1.000	.768
N_Teaching_Parents	1.000	.636
N_Teaching_School	1.000	.759

Extraction Method: Principal Component Analysis.

Table No 3: Reverse Coded Items/Variables

Sl. No.	Code	Original item in questionnaire	Item after reverse coding , in further analysis
1	N_oppor_Learning	Digital and social media provides opportunity for enhanced learning to my child	Digital and social media does not provide opportunity for enhanced learning to my child
2	N_Socialization	Digital and social media promotes socialization of my child	Digital and social media does not promote socialization of my child
3	N_Learning_culture	Digital and social media helps in learning culture by my child	Digital and social media does not helps in learning culture by my child
4	N_Promote_Academ_Perfo	Digital and social media promotes academic performance of my child	Digital and social media does not promote academic performance of my child
5	N_Teaching_Parents	Digital and social media teaches my child teachings of parents	Digital and social media does not teach my child teachings of parents
6	N_Teaching_School	Digital and social media teaches my child teachings of school	Digital and social media does not teach my child teachings of school

Total Variance Explained

Table 4 shows that 69.20% of variation is explained by six factors. In the table, the first panel gives values based on initial Eigen values. For the initial solution, there are as many components or factors as there are variables. The "Total" column gives the amount of variance in the observed variables accounted for by each component or factor. The "% of Variance" column gives the percent of variance accounted for by each specific factor or component, relative to the total variance in all the variables. The "Cumulative %" column gives the percent of variance accounted for by all factors or components up to and including the current one. In a good factor analysis, there are a few factors that explain a lot of the variance and the rest of the factors explain relatively small amounts of variance. Therefore, we can leave all those remaining factors which account for a very small amount of cumulative variance. In our case, we have taken first five components or factors as Eigen value for them is more than 1 and account for a cumulative variance of 62.4 % and dropped remaining factors which account for only 38.6% of cumulative variance. The Extraction Sums of Squared Loadings group gives information regarding the

extracted factors or components. For principal components extraction, these values are the same as those reported under Initial Eigen values. Next is "Rotation Sums of Squared Loadings" group. This column is displayed when we have requested for rotation of factors. In our case we have gone for Varimax Rotation. The variance accounted for by rotated factors or components may be different from those reported for the extraction but the Cumulative % for the set of factors or components will always be the same.

Table 4: Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.655	31.895	31.895	7.655	31.895	31.895	4.690	19.542	19.542
2	2.892	12.050	43.946	2.892	12.050	43.946	3.039	12.663	32.205
3	1.980	8.248	52.194	1.980	8.248	52.194	2.642	11.009	43.215
4	1.686	7.024	59.217	1.686	7.024	59.217	2.345	9.770	52.984
5	1.285	5.354	64.572	1.285	5.354	64.572	2.266	9.442	62.426
6	1.111	4.628	69.200	1.111	4.628	69.200	1.626	6.774	69.200
7	.954	3.974	73.174						
8	.865	3.602	76.776						
9	.746	3.108	79.885						
10	.656	2.734	82.618						
11	.583	2.431	85.049						
12	.492	2.049	87.098						
13	.463	1.930	89.028						
14	.425	1.772	90.800						
15	.405	1.689	92.489						
16	.358	1.491	93.980						
17	.267	1.114	95.095						
18	.255	1.061	96.156						
19	.224	.932	97.087						
20	.192	.799	97.886						
21	.163	.679	98.565						
22	.141	.587	99.153						
23	.106	.440	99.592						
24	.098	.408	100.000						
Extraction Method: Principal Component Analysis.									

Rotated Component Matrix

Through Factor Analysis we have been able to extract five factors out of 20 retained items/ variables. In other words we have transformed 20 attributes into 5 representative factors.

Table 5: Rotated Component Matrix

Statements	Component				
	1	2	3	4	5
Digital and social media causes annoying behavior in my child	.755				
Digital and social media lead to jealously behavior in my child	.811				
Digital and social media promotes violence in my child	.592				
Digital and social media promotes more relational aggression in my child	.757				
Digital and social media promotes more physical aggression in my child	.784				
As my child uses digital and social media, I find attention deficit symptoms in my child	.730				
As my child uses digital and social media, there is some adverse effect on sleeping habits		.670			
Increased use of Digital and social media is harmful to mental health of my child		.789			
Digital and social media causes obesity in my child	.643				
As a parent I feel risky if information of my child is shared on digital and social media					.806
As a parent I find using digital and social media works as a baby sitter					.837
As my child uses digital and social media, my child wants to be away from persons		.558			
Due to digital media my child is not able to fullful other commitments of life.		.721			
My child is developing addiction to digital and social media		.714			
N_oppor_Learning			.734		
N_Socialization				.837	
N_Learning_culture				.681	
N_Promote_Academ_Perfo			.840		
N_Teaching_Parents			.567	.557	
N_Teaching_School			.819		

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

As is visible in the Table 5, seven variables are correlated with first factor, five variables have correlated with second factor, four variables have correlated with third factor, two variables with fourth factor and remaining two variables have correlated with factor five. One variable N_Teaching_Parents was loaded into two factors 3rd and 4th, as this variable has higher loading in 3rd factors; it was retained in 3rd factor not in 3th factor.

Confirmatory Factor Analysis

The goodness of fit of the measurement model was established by confirming the content validity and construct validity. To confirm the content validity, factor loadings can be used to ensure that all the items designed to measure a construct should load highly and significantly on the constructs they were designed to measure (Hair et al., 2010). Figure 1 shows that all the items have significant loading on the constructs, they are related, and so the content validity of the measurement model is established. The convergent validity measures and explains the extent to which a set of indicators converges in measuring the concept of concern (Hair et al., 2010). The convergent validity can be confirmed using the item's reliability, internal consistency, composite reliability and the average variance extracted.

Test of Reliability

Cronbach's alpha is generally used as a measure of internal consistency or reliability of an instrument. Many researchers recommend a minimum α coefficient between 0.65 and 0.8 (or higher in many cases); α coefficients that are less than 0.5 are usually unacceptable.

The internal reliability of the scale items was analyzed by using Cronbach's Alpha values, in our research these values, given in table no. 6, were found as mentioned for factor 1 child's behavior is 0.89 , factor 2 child's psychology is 0.81, factor 3 academic development is 0.8 , factor 4 socio-cultural development is 0.79, factor 5 parents' behviour is 0. 71. These values are above acceptable value 0.70 for Cronbach alpha (Nunnally, 1978). Value of Cronbach's alpha is also dependent on the number of items a construct have, as there are few items in a construct, little less value is also acceptable.

Table 6: Test of Reliability

Factor 1 Child's Behviour	**Cronbach Alpha**
Digital and social media causes annoying behavior in my child	0.89
Digital and social media lead to jealously behavior in my child	
Digital and social media promotes more relational aggression in my child	
Digital and social media promotes more physical aggression in my child	
Digital and social media promotes violence in my child	
As my child uses digital and social media, I find attention deficit symptoms in my child	
Digital and social media causes obesity in my child	

Factor 2 Child's Psychology	**Cronbach Alpha**
As my child uses digital and social media, there is some adverse effect on sleeping habits	0.81
Increased use of Digital and social media is harmful to mental health of my child	
As my child uses digital and social media, my child wants to be away from persons	
Due to digital media my child is not able to fulfill other commitments of life.	
My child is developing addiction to digital and social media	

Factor 3 Academic Development	**Cronbach Alpha**
Digital and social media does not provide opportunity for enhanced learning to my child	0.8
Digital and social media does not promote academic performance of my child	
Digital and social media does not teach my child teachings of parents	
Digital and social media does not teach my child teachings of school	

Factor 4 Socio-Cultural Development	**Cronbach Alpha**
Digital and social media does not promote socialization of my child	0.79
Digital and social media does not helps in learning culture by my child	

Factor 5 Parents' Behaviour	**Cronbach Alpha**
As a parent I find using digital and social media works as a baby sitter	0.71
As a parent I feel risky if information of my child is shared on digital and social media	

Test of Validity

Average Variance Extracted is used to find out the convergent validity. In this research study value of AVE ranged from 0.475 to 0.693, AVE value should be higher than 0.5, AVE for socio-cultural development is 0.693, AVE for child's behaviour is 0.545, AVE for child's psychology is 0.475 and AVE for academic development is 0.619 and AVE for parent's behavior is 0.574. In this research AVE is less by 0.5 in case of child's psychology. If AVE is less than 0.5, but the value of composite reliability is higher than 0.6, the value of AVE less than 0.5 is also acceptable (Fornell & Larcker, 1981). As the Value of CR, composite reliability is higher than 0.6, these values of AVE are acceptable. The table no. 6 has been developed by using statistics package tools provided by Dr. James Gaskin. This table has calculated values of CR, AVE, and MSV and it is concluded that there is no validity issue in our data set. So, we can say that there is no reliability and validity issue including discriminant validity.

Table 7: Test of Validity

	CR	AVE	MSV	MaxR(H)	sociocult	Behaviour	Psychology	Academic	parent beh
Sociocult	0.815	0.693	0.266	0.917	**0.833**				
Behaviour	0.892	0.545	0.465	0.908	0.439	**0.738**			
Psychology	0.815	0.475	0.465	0.868	0.327	0.682	**0.689**		
Academic	0.761	0.619	0.266	0.822	0.516	0.177	0.385	**0.787**	
parent beh	0.726	0.574	0.235	0.763	0.268	0.450	0.485	0.267	**0.757**

In table no.6, **Sociocult** = Socio-cultural Development**, Behaviour**= Child's Behaviour**, Psychology**= Child's Psychology**, Academic**= Academic Development**, parent beh**= Parent behaviour

The Measurement Model Results

According to the CFA results reported, the factor loadings for all items were significant and were more than the acceptable value of .60 (Hair et al., 2010; Hulland, 1999; Truong & McColl, 2011), except for one 0.59.

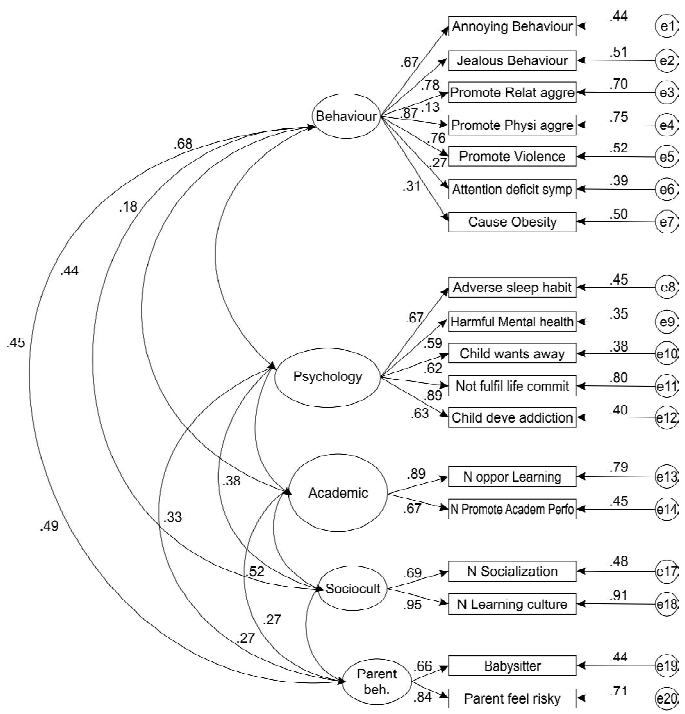

Figure 1: The Measurement Model

The table no. 6 shows the five constructs and 20 items related to four constructs, factor 1 child's behaviour has 7 items, all were retained in confirmatory factor analysis, factor 2 child's psychology has five items all were retained in CFA, factor 3 academic development has four items, and two items were deleted during CFA, as they had loading lower than 0.60, factor 4 socio-cultural development has two items, factor 5 parents' behavior has two items.

According to the CFA results reported, the factor loadings for all items were significant and were more than the acceptable value of .60 (Hair et al., 2010; Hulland, 1999; Truong & McColl, 2011), except for harmful mental health for factor child's psychology.

The overall goodness of fit of the model was acceptable when compared to the threshold

values suggested in the SEM literature. The normed chi-square was 1.346 which is less than 3.0; the AGFI was 0.723, slight lower than the threshold value of 0.80; the NNFI (or TLI) was 0.962 and CFI was 0.914, higher than the 0.90; and RMSEA was 0.073, which is lower than 0.08. Hence, the model has a good fit considering the threshold values suggested by Bagozzi and Yi (1988).

Discussion and Conclusion

The invention of electronic media TV paved the way to connect the people with audio & video effects; it has a deep impact on communication, learning, entertainment, and socialization. Invention of the internet, digital and social media beefed up the process of connection, communication and exchange of information among people of the world. Mobile phones further sped up the process; while households had one TV at home, now almost a person has one smartphone in pocket, by which people are always connected. YouTube, Facebook, Instagram are commonly used. Children and young adults spend a considerable part of daily time on digital and social media sites. Literature review studies the past research papers related to the impact of digital and social media sites usage on children and young adults. Impact of communication, learning & creativity, mental health, physical health, socialization and culture, parental and children self-efficacy, the relationship between family, and overall development were studied. This literature review finds the use of digital and social favourable as well as unfavourable impacts on the above-mentioned areas.

This research study grouped impact of digital and social media on kids into five constructs or factors, construct one with seven item was names as child's behaviour, it was concluded that digital and social media has negative impact on child's behavior, children develop annoying and jealous behavior, mental and physical aggression, violence, attention deficit symptoms and obesity.

Factor two, having five variables was named as child's psychology, digital and social media caused adverse impact on child's psychology. There is adverse impact on sleeping habits, mental health, child wants to move away from persons, child is not able to fulfill other commitments of life and they develop addiction to digital and social media.

Factor three with four variables during EFA and two variables after CFA, was named as academic development**,** found that digital and social media does not provide opportunity for academic development of children. Children do not get to learn teaching of parents and teaching of school from digital and social media.

Factor four with two variables was named as socio-cultural development, it concluded that digital and social media does not improve socialization and does not help in learning culture.

Factor five with two variables was named as parents' behavior, it found that parents find digital and social media to work as baby sitter, however parents feel risky as the information about their children is shared on digital and social media.

Managerial and Social Implication

This research study provides a list of important factors to be used to understand and evaluate

the impact of digital and social media on children. On the basis of variables studied and their finding managers of digital and social media can decide strategies to improve and make these platforms suitable and beneficial for children. At the same time society can also take reference of this study to decide, how much and in what form they may allow their kids to use digital and social media.

Future Research Agenda

This research study can be conducted on age groups other than 3 to 6 years' children. It is also possible to study a specific digital and social media like YouTube. Similar study can also be conducted with reference to a specific gender.

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