Parental Controls and Mediation of Children's Digital Media Use: a Study of Parents at Federal University of Technology, Minna, Nigeria

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Abstract: *Digital media in the present age of digital technologies have become an integral part of the lives of children across the globe. Children spend many hours on a daily basis with the media, and the media have had tremendous influence on children. The influence is both healthy and unhealthy for their development. As a way of maximizing the healthy influences and mitigating the unhealthy ones, some scholars have suggested the intervention of parental controls (the use of filters and monitoring software to keep track of children's use of digital media). A pertinent observation however is that many parents in developing countries and even in the developed countries do not put to use this parental mediation strategy, not minding its projected theoretical advantages and effectiveness in mediating children's use of digital media. This study, a survey of parents (academic staff) at Federal University of Technology, Minna, Nigeria, investigates awareness, attitudes, use and perceptual effectiveness of parental controls. A sample of 262 parents was drawn for the research using proportionate stratified random sampling technique. A 29-item questionnaire -* **Parental Controls and Mediation of Children's Digital Media Lives Questionnaire** *was used to obtain data. Findings revealed low awareness, negative attitude, and abysmally low use of parental controls. Reasons for the low use centre on parents' positive perception of children as responsible digital media users, perceived complexity and difficulty in the use of parental controls, perception that management of children's digital media use is not as important as the management of their day-to-day family life, and parents belief of the existence of better alternatives to parental controls. The study also found that parents perceive parental controls as effective tools in mediating children's digital media use. The conclusion reached is that parental controls are yet to be a veritable parental mediation strategy in a less technological developed country like Nigeria. It is recommended that stakeholders in parenting and child development should ensure parents acquire critical digital literacy, and that manufacturers of parental controls should put into consideration peculiarities of parents in less technological developed countries in designing parental controls which should be less complex and easily affordable.*
Key Words: *Children, Digital Media, Parents, Parental Controls, Parental Mediation.*

I.   Introduction/Background

From a technical point of view, digital media is the opposite of analogue media, and it is information stored in computer language format, which uses binary numbers with ones and zeros representing arbitrary data (Creeber & Martin, 2009; Danesi, 2009). From a social perspective point of view, digital media refers to digitalized content transmitted over the internet and computer networks. It is any type of media that is in an electronic or digital format for the convenience of consumers (Centre for Digital Media, 2016). Digital media products are found in a variety of forms which include wikis, virtual reality world, photo sharing, blogs, microblogs, vlogs, digital story-telling, video sharing, machinima, data sharing, social networks and chat apps, conversion tools, social bookmarks, podcasts, content sharing, itunes, google tools, rich media, internet calling, writing communities, digital scrapbooking, ebooks, memes, infographics, and CD-Roms and DVDs (Kur & Iorpagher, 2016; Smith, 2013).

Children across the world are heavily involved in the use of digital media. Subrahmanyam and Smahel (2011) surveyed digital media use among children in 20 countries from the regions of America, South America, Europe, Asia, the Middle East and Oceania. The result revealed that children and adolescents are heavily involved in the following digital media practices: instant messaging, email usage, browsing the web, downloading/listening to music, playing online games, getting information for school work,

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downloading/watching videos, finding/checking a fact, looking up the definition of a word, looking for news, and reading blogs. Others are chatting in chat rooms, looking for humorous content, writing blog, looking at sites with sexual content, making phone calls online, and looking for health related information. The situation is not different with children in Nigeria and Africa in general (Nyabuga & Booker, 2013; Okoro, Nwafor, & Odoemelam, 2015).

Digital media have both positive and negative influences on children. For the positive influences, it has been found that digital media connect children with family and friends, encourage children develop better perspective on various issues, provide a better platform for enhancing child's knowledge on various issues, motivate better communication and freedom of self-expression in children, and facilitate the development of technical expertise in children (Santhosh, 2016). Other healthy influences of digital media on children include ability to exhibit acts of perseverance, respond to challenges and frustration, manage situations effectively (Kur & Essien, 2014; Kur, Orhewere, & Nyam, 2015).

The negative influences of digital media on the lives of children are numerous. Digital media are associated with hate speech, social distrust, cyber bullying, identity theft, cyber stalking, violence, online grooming, low self-esteem or confidence, and lack of interpersonal skills in children (Barnes & Laird, 2012). Drug abuse and alcoholism, criminality; disrespect for law and constituted authority, sexual promiscuity, indecency in language and dressing, vulnerability to online dangers, attention problems, digital media addiction, depression, confusion of reality and fantasy, aggressive thoughts and behaviour, and wrong values are other negatives themes associated with children's use of digital media (Kur, Orhewere, Nyam, 2015).

A number of scholars have suggested the use of parental controls as an approach towards maximizing the healthy influences and mitigating the risks associated with children's use of digital media (Donoso, 2014; Kuppusamy, Francis & Aghila, 2013; Mitchell, Finkelhor, & Wolak, 2005; Ofcom, 2012a; Ofcom, 2014; Subrahmanyam & Smahel, 2011). Parental controls are online or offline installations, tools or devices (software and filters) used by parents to monitor, track, and restrict children's use of digital media (Ofcom, 2014). In the context of this study, parental controls are conceptualized along the definition offered by Zaman and Nouwen (2016) as technologies that arm caregivers (adults who may be parents or guardians) with tools to monitor or track children's digital media use so as to explore opportunities and minimize threats associated with the use of digital media. These technological tools include those offered by Internet Service Providers (ISP) and Computer Operating Systems as well as programmes installed or downloaded in the household. Parental controls also include browser-based controls like safe search, time-limiting software, You Tube safety mode, and content provider guidance such as pin protected content (Ofcom, 2014). Some scholars have gone to the extent of saying that parental controls are a better parental mediation strategy than other parental mediation strategies (active, co-use, restrictive, and monitoring) in the digital age (Donoso, 2014; Knorr, 2016; Ofcom, 2012c). An advantage of parental controls over the other parental mediation strategies is that they are easier ways of blocking children from having access to unwanted content. Other advantages are that they are easy to install – self-explanatory, and easy to find – many are free (Knorr, 2016).

Notwithstanding the theoretical advantages and effectiveness of parental controls in mediating children's use of digital media, it is observed that the strategy is unpopular among parents in developing countries. Even among parents in developed countries, it is not as popular as it should be. While research findings on use of parental controls in Africa are non-existent or difficult to come by, that in the developed world show that the use of parental controls is low. Ofcom (2014) reports that only 35 percent of parents in the US and Canada used one form or other of parental controls. Strider, Third, Lock, and Richardson (2012) report that only 33 percent of parents with children 10 – 17 years old used parental controls in Australia. Ponte, Simoes, and Azevedo (2014) found in 2010 and 2014 in Portugal that only 29 percent and 23 percent of parents respectively used parental controls. This picture of low popularity of parental controls gives rise to the following questions: Are parents aware of parental controls? If they do, what is their attitude towards the devices as a strategy of parental mediation? Do the parents use parental controls? If they do not, why? If they do, how effective do they find the devices in mediating children's experience with digital media? Finding answers to these questions is the thrust of this paper, which is an attempt to explore the use and non-use of parental controls in Nigeria.

II.   Aim and Objectives

The aim of the study is to find out parents' awareness, attitude and use of parental controls in mediating children's use of digital media. The objectives are to: (1) Ascertain parents' awareness of parental controls, (2) determine parents' attitude towards parental controls, (3) find out extent of use of parental controls among parents, (4) identify reasons responsible for non-use of parental controls, and (5) evaluate perceptual effectiveness of parental controls.

Hypotheses

The following null hypotheses were tested in the study:

HO₁: Level of awareness of parental controls is not significantly related to level of use of parental controls.

HO₂: Level of awareness of parental controls is not significantly related to attitude towards parental controls.

HO₃: Attitude towards parental controls is not significantly related to level of use of parental controls.

HO₄: Level of use of parental controls is not significantly related to perceptual effectiveness of parental controls.

III. Review of Literature: Parental Awareness, Attitude and Use of Parental Controls

There are quite a few empirical studies on parents' experience with parental controls. Some of the studies focus on parents' awareness, perception and use of parental controls. One of the earliest studies in this regard was that by Mitchell, Finkelhor, & Wolak (2005). Findings of the study revealed that 33 percent of parents with internet access used parental controls on computers used by their children at home. Parents with younger children (10-15 years) were more likely than those with older children to use parental controls. Some parents (5%) said they discontinued use of parental controls when they realized that their children had grown older, were using internet responsibly, were troubled and became high internet users. Even though Mitchell, *et al* (2005) did not find a significant relationship between computer literacy and use of parental controls, Nikken and Jansz (2014), nine years later, established this relationship: computer literate parents were more likely to use parental controls then computer illiterate parents.

Hart Research Associates (2011) found that as many as 87 percent of parents were aware of parental controls, but only 54 percent reported using them. The 26 percent who did not use parental controls gave two basic reasons for their non-use: rules and limits in parental controls are already in place (60%), and they have the trust that their children are safe (30%). The study also found that parents who had never used parental controls felt parental controls were unnecessary (60%). In an almost similar trend, Pew Research Centre (2011) found that 54 percent of parents who use internet applied parental controls on their children, with 34 percent applying the controls on children's use of cell phone.

Ofcom (2012b) studied parental views on parental controls using qualitative methods, and arrived at the findings that there are three levels of awareness of parental controls: (1) Those who know something (not everything) about different options of parental controls; (2) those with just basic knowledge of parental controls, but lack knowledge of how they work and the different options available; and (3) those who have never heard of parental controls or have heard but do not know what they are. The study also found that lack of or low knowledge of parental controls was largely responsible for non-use. Other factors found responsible for non-use were gaps in understanding the technology, perceived complexity of use, degree of effort required to use them, and lack of day to day experience with them. Another study by Ofcom (2012c) found similar reasons as factors responsible for non-use of parental controls. Other findings of Ofcom's (2012c) study show that parental controls are perceived as devices to be used in combination (not in place) of other forms of parental mediation.

Livingstone, Haddon, Gorzig, and Olafsson (2011), in a study of children and parents in 25 European Countries, found contrary a low use of parental controls (28% use of blocks or fitters and 24% of tracking apps). Livingstone, Olafsson, O'Neill and Donoso (2012) also found among parents in 25 European countries that at least one in every three parents use parental controls, with middle class parents and parents of younger children more likely to use the devices. The study found further that parents who use parental controls are those who are regular and confident users of the internet, who worry a lot about their child being exposed to inappropriate content online, older parents, parents of older children, parents of children who are regular users of the internet, and parents of high socio-economic status. Donoso (2014) came up with similar findings.

Ponte, Simoes, and Azevedo (2014) studied children's perception of parents' use of parental mediation strategies. They found that technical mediation (use of parental controls) was the least used mediation strategy, attracting only 29 percent in 2010 and 23 percent in 2014. The other mediation strategies accounted for the following percentages: active mediation, 92 and 74 percentages in 2010 and 2014 respectively; restrictive mediation, 92 and 77 percentages in 2010 and 2014 respectively. Ofcom (2014) found that six in ten parents use technical mediation (parental controls) in mediating children's online experience. This is lower than the use of other parental mediation strategies; eight in ten parents using active mediation and over seven out of ten parents using restrictive and monitoring strategies.

Concerning the effectiveness of parental controls, a number of studies have shown that parents who use them attest to their effectiveness. Livingstone, Olafsson, O'Neill, and Donoso (2012) and Ofcom (2012c) found that use of parental controls reduces online risks and enhances digital skills and opportunities in children. Similarly, Donoso (2014) observed that when parental controls are in place children don't visit pornographic websites; but when they are not in place, they do. Davidson (2015) observes that parental controls are effective if used correctly, and that they are not necessarily perfect.

Other researchers, however, have noted that parental controls are not effective. They argue that evidence of the effectiveness of parental controls cannot be generalized, noting that parental controls used on older children (16-17 years) did not stop their exposure to online pornography (Ybarra, Finkelhor, Mitchell, & Wolak, 2009). Similarly, Durager and Livingstone (2012) found that parental controls did not reduce online risk to a significant level. The claim for the ineffectiveness of parental controls suggests that other factors inter-play with parental controls to give them meaning. Notwithstanding, as noted by Zaman and Nouwen (2016), argument on the effectiveness of parental controls is ongoing. While some research supports the effectiveness theory; others do not. Zaman and Nouwen (2016, p.3) observe that this contradiction in research is as a result of vacuum in "a clear operationalisation of notions of technically mediated parental mediation; an up-to-date categorization of the wide diversity of existing tools; an in-depth understanding of how parents use these tools (rather than whether parents use them)."

IV.Research Method

Participants and Procedure
A total of 262 academic staff at Federal University of Technology, Minna, Nigeria who were parents took part in the study. The 262 academic staff members were selected based on proportionate stratified random sampling technique. Federal University of Technology, Minna was divided into eight strata according to the seven schools (faculties) and the University Library Services Unit, staff of which are considered as academics staff. The population of academic staff in each school is as follow: School of Agriculture and Agricultural Technology, 113; School of Engineering and Engineering Technology, 200; School of Entrepreneurship and Management Technology, 43; School of Environmental Technology, 133; School of Information and Communication Technology, 55; School of Life Sciences, 62; School of Physical Sciences, 131; School of Science and Technology Education, 82; and University Library Services, 28. Academic staff, and not non-academic staff, were studied because they were considered to be more directly in tune and accessible to technology than their non-academic counterparts. Using the nominal roll of academic staff in each school, the researchers used simple random sampling with the help of a table of random numbers to arrive at the specific participants. Replacements were done to ensure that only parents were studied. Care was taken to ensure the participants cut across gender and rank categories.

The researchers went round the offices of the participants to manually administer questionnaire. Repeated visits were made in cases were a participant was not available in the office or requested the researchers to come at another day. Prior arrangement for the meeting was made before visiting a participant. A participant responded to the questionnaire and returned it on the spot. Where not possible, the researchers came back one – five days after to collect the completed questionnaire.

The average age of the sample was 46.5 years and varied from 32 to 68 years. It had a male/female ratio of 7:3 and educational qualification ratio of 6:4 for PhD and Master Degree respectively. The sample comprised 13 percent Professors, 17 percent Associate Professors, 24 percent Senior Lecturers, 29 percent Lecturer 1, 15 percent Lecturer 11, an 2 percent Graduate Assistants.

Measures
The study used a 29-item questionnaire called *Parental Controls and Mediation of Children's Digital Lives' Questionnaire* to obtain data. While the researchers constructed some items of the questionnaire, others were adopted from previous researches. The questionnaire is divided into five sections with each section measuring a variable. Hence, Section One measured "awareness of parental controls." This measure has five statements constructed by the researchers as follows: (1) I have heard of parental controls. (2) I know how parental controls look like. (3) I know the functions of parental controls. (4) Parental controls are offered by the Computer's Operating System. (5) Parental controls are offered by internet service providers. Response choices to each of the statements include undecided, strongly disagree, disagree, agree, and strongly agree, with the values of 1, 2, 3, 4, and 5 respectively.

Section Two of the questionnaire measured attitude towards parental controls. Five attitudinal statements were constructed based on opinions about parental controls compiled by Ofcom (2012b), Ofcom (2014) and Zaman and Nouwen (2016). The statements are: (1) Parental controls are unnecessary. (2) Parental controls are too expensive. (3) Parental controls require a lot of time and effort to use. (4) Parental controls are not readily available. (5) There are better alternatives to parental controls. Each statement, just as in Section One, was evaluated on a 5-point Likert-type scale: Undecided, 1; strongly disagree, 2; disagree, 3; agree, 4; and strongly agree, 5. Attitude in the study was categorized as positive and negative attitude. Positive attitude was defined as a response that viewed parental controls as a healthy strategy. Negative attitude was seen as a response that viewed parental controls from an unhealthy perspective. A mean value of 3.00 and above indicated a positive attitude, and a mean value of less than 3.00 was a negative attitude.

"Use of parental controls" is the measure in Section Three of the questionnaire. Here, seven statements are constructed based on the different types of parental controls found in literature (Ofcom, 2016; Zaman & Nouwen, 2016). The statements are: (1) I use filters and software and offered by internet providers to monitor my children's digital media use. (2) I use filters and software offered by computer operating system to monitor my children's digital media use. (3) I use programmes installed on the computer or downloaded to monitor my children's digital media use. (4) I use browser based controls like safe search to monitor my children's digital media use. (5) I use time -limiting software to monitor my children's digital media use. (6) I use You Tube safety mode to monitor my children's digital media use. (7) I use content provider guidelines like protected content to monitor my children's digital media use. Response options are a 4-point Likert type scale adopted from Rasmussen, Ortiz, and White (2015). The scales and their corresponding values are: Never, 1; maybe one or twice, 2; once in a while, 3; and often, 4. Acceptance value is 3.00 mean.

Measures in Section Four are reasons for non-use of parental controls. Ten statements based on factors responsible for non-take up of parental controls found in literature (Hart Research Associates, 2011; Ofcom, 2012b; Ofcom 2012c; Ofcom, 2014; Zaman & Nouman, 2016) are constructed. Options are a 5-point Likert type scale: Undecided, 1; strongly disagree, 2; disagree, 3; agree, 4; and strongly agree, 5. A mean value of 3.00 or above meant acceptance while that below 3.00 was a rejection.

The fifth section measured perceptual effectiveness of parental controls. The statements: "Parental controls are useful in maximizing responsible digital media use by children" and "parental controls are useful in minimizing risks associated with digital media use by children" are constructed. Response options are based on a 5-point Likert type scale of undecided = 1, strongly disagree = 2, disagree = 3, agree = 4, and strongly agree = 5.

All items in the five sections of the questionnaire were subjected to reliability test on 30 academic staff at Benue State University, Makurdi, Nigeria using test-retest method. Results indicated 0.81, 0.79, 0.92, 0.86, and 0.82 for sections one, two, three, four and five respectively, indicating the questionnaire was reliable for use. For data analysis, percentages and means were calculated for all variables. Chi-square contingency table analysis statistical tool was applied in testing the hypotheses.

V.   Results and Discussion

Awareness of Parental Controls

Table 1: Parents' awareness of parental controls (N=256)

S/N	Statement	Response					M	Remark
		1 F (%)	2 F (%)	3 F (%)	4 F (%)	5 F (%)		
1	I have heard of parental controls	30 (17.7)	19 (7.4)	35 (13.7)	108 (42.2)	64 (25.0)	3.16	Accepted
2	I know how parental controls look like	22 (8.6)	69 (27.0)	88 (34.4)	45 (17.6)	32 (12.5)	2.98	Rejected
3	I know the functions of parental controls	16 (6.3)	73 (28.5)	96 (37.5)	52 (20.3)	19 (7.4)	2.94	Rejected
4	Parental controls are offered by the computer's operating system	66 (28.8)	48 (18.8)	84 (32.8)	40 (15.6)	18 (7.0)	2.59	Rejected
5	Parental controls are offered by internet service providers	53 (20.7)	44 (17.2)	76 (29.7)	51 (19.9)	32 (12.5)	2.86	Rejected
Grand Mean							2.99	Rejected

1=Undecided, 2=Strongly Disagree, 3=Disagree, 4=Agree, 5=Strongly Agree, M=Mean

Data in Table 1 reveal low awareness of parental controls among the parents studied. For most of the parents (67.2%), their highest level of awareness of parental controls is that they have merely heard of them. A significant number did not know: how parental controls look like (61.4%), functions of parental controls (66%), and sources of parental controls (51.6%). This result is not surprising; parental controls are an emerging approach of parental mediation, which requires a high level of technological know-how. Nigeria's level of technological know-how, especially digital technology among adults, is low. Even in technologically advanced countries in Europe and North America, parents are yet to acquire the level of awareness of parental controls expected of technologically advanced countries. Hart Research Associates (2011) found that less than half of parents in US know about parental controls offered by internet search engines and video game companies. Similarly, Ofcom (2012b) observed in a qualitative study the existence of parents in some European countries who never heard of parental controls, or heard but did not understand their nature.

Attitude towards Parental Controls

Table 2: Attitude towards parental controls (N=256)

S/N	Statement	Response					M	Remark
		1 F (%)	2 F (%)	3 F (%)	4 F (%)	5 F (%)		
1	Parental controls are unnecessary	23 (9.0)	32 (12.5)	62 (24.2)	92 (35.9)	47 (18.4)	3.42	Negative
2	Parental controls are too expensive	48 (18.7)	37 (14.5)	54 (21.1)	81 (31.6)	36 (14.1)	3.08	Negative
3	Parental controls require a lot of time and effort to use	40 (15.6)	37 (14.5)	63 (24.6)	78 (30.5)	38 (14.8)	3.14	Negative
4	Parental controls are not readily available	37 (14.5)	32 (12.5)	68 (26.6)	77 (30.1)	42 (16.4)	3.21	Negative
5	There are better alternatives to parental controls	28 (10.9)	31 (12.1)	43 (16.8)	89 (34.8)	65 (25.4)	3.52	Negative
	Grand Mean						3.27	Negative

1=Undecided, 2=Strongly Disagree, 3=Disagree, 4=Agree, 5=Strongly Agree, M=Mean

According to data in Table 2, a significant number of the parents studied had negative attitude towards parental controls. As many as 54.3 percent felt parental controls were unnecessary, 45.7 percent were of the view that parental controls were too expensive, 45.3 percent had the opinion that parental controls were complex; require a lot of time and effort to use. For 46.5 percent parents, parental controls were not easily available, and for 60.2 percent, there are better alternatives to parental controls. This finding agrees with that of Ofcom (2012b) that parents in Europe do not have positive perception of parental controls, in terms of complexity and investment of time and effort in using them. Similarly, Hart Research Associates (2011) found that parents in US believe parental controls are unnecessary. Negative attitude towards parental controls, as corroborated by this study, is a clear indication that attitude is associated with low level of awareness and non-use of parental controls.

Use of Parental Controls

Table 3: Parents' use of parental controls (N = 256)

S/N	Statement	Response				M	Remark
		1 F (%)	2 F (%)	3 F (%)	4 F (%)		
1	I use filters and software offered by internet service providers to monitor my children's digital media use	133 (51.9)	66 (25.8)	36 (14.1)	21 (8.2)	1.79	Rejected
2	I use filters and software offered by computer operating system to monitor my children's digital media use	143 (55.9)	58 (22.6)	30 (11.7)	25 (9.8)	1.75	Rejected
3	I use programmes installed on the computer or downloaded to monitor my children's digital media use	136 (53.1)	74 (28.9)	29 (11.3)	17 (6.6)	1.71	Rejected
4	I use browser-based controls like Safe Search to monitor my children's digital media use	156 (60.9)	71 (27.7)	19 (7.4)	10 (3.9)	1.54	Rejected
5	I use time-limiting software to monitor my children's digital media use	149 (58.2)	67 (26.2)	22 (8.6)	18 (7.0)	1.64	Rejected
6	I use YouTube safety mode to monitor my children's digital media use	158 (61.7)	74 (28.9)	16 (6.3)	8 (3.1)	1.51	Rejected
7	I use content provider guidelines like pin protected content to monitor my children's digital media use	153 (59.8)	71 (27.7)	18 (7.0)	14 (5.5)	1.58	Rejected
	Grand Mean					1.64	Rejected

1 = Never, 2 = Maybe once or twice, 3 = Once a while, 4 = Often

Data in Table 3 show low usage of parental controls. Over half of the respondents said they had never used any of the types of parental controls considered in the study. Just about one-quarter said they had used parental controls once or twice in their life time. About one-tenth said they had used parental controls once a while. Only about nine percent said they used parental controls often. This finding supports that of Livingstone *et al* (2011), Ofcom (2012a), Ofcom (2012b), and Ofcom (2014). Livingstone, *et al* (2011) found that 28 percent and 24 percent of parents in 25 European countries used filters and blocking software, and tracking websites respectively to mediate children's digital media use. Ofcom (2012a) noted that 50 percent of parents in UK have parental controls installed on their multichannel TV, 31 percent had mobile phone filters, 14 percent and 16 percent had parental controls on children's portable games consoles and fixed consoles respectively. The trend in use of parental controls in UK increased by 2014 with findings that over six in ten parents used parental controls (Ofcom, 2014). This increasing use of parental controls in UK and other technological advanced countries finds explanation in the increasing awareness and use of technology. The level of increasing

awareness and use of technology is comparatively low in Nigeria, which explains the low use of parental controls as found in this study.

Reasons for Non-use of Parental Controls
Table 4: Reasons for non-use of parental controls (N = 217)

S/N	Statement	Response					M	Remarks
		1 F (%)	2 F (%)	3 F (%)	4 F (%)	5 F (%)		
1	I don't like supervising my children always	25 (11.5)	52 (24.0)	74 (34.1)	44 (20.3)	22 (10.1)	2.93	Accepted
2	I trust my children to use digital media responsibly	23 (10.6)	30 (13.8)	42 (19.3)	79 (36.4)	43 (19.8)	3.41	Accepted
3	I am not aware of the availability of parental controls	44 (20.3)	27 (12.4)	33 (15.2)	67 (30.9)	46 (21.2)	3.20	Accepted
4	I don't know how to install or activate parental controls	18 (8.3)	24 (11.1)	47 (21.6)	78 (35.9)	50 (23.0)	3.54	Accepted
5	The process of using parental controls is complex	26 (12.0)	24 (11.1)	38 (17.5)	84 (38.7)	45 (20.7)	4.49	Accepted
6	I have no confidence in the effectiveness of parental controls	42 (19.4)	44 (20.3)	62 (28.6)	43 (19.8)	26 (12.0)	2.85	Accepted
7	Using parental controls is time-consuming	21 (9.7)	22 (10.1)	42 (19.4)	79 (36.4)	53 (24.4)	3.56	Accepted
8	Managing family life of children is more important than managing their digital media lives	40 (18.4)	24 (11.1)	44 (20.3)	68 (31.3)	41 (18.9)	3.21	Accepted
9	I have better alternatives which I use	22 (10.1)	31 (14.3)	48 (22.1)	71 (32.7)	45 (20.7)	3.40	Accepted
10	Parental controls are not readily available.	35 (16.1)	26 (12.0)	47 (21.6)	68 (31.3)	41 (18.9)	3.25	Accepted
	Grand Mean						3.38	Accepted

1=Undecided, 2=Strongly Disagree, 3=Disagree, 4=Agree, 5=Strongly Agree, M=Mean

From the data in Table 4, some of the reasons given for non-use of parental controls are a clear indication of lack of or little awareness of parental controls as shown in Table 1. This is the case with reasons in numbers 3 – 7 in Table 4. The other reasons have to do with allowing the child the freedom to use digital media with the hope that the use will be appropriate and responsible (numbers 1 and 2 in Table 4), family concerns (number 8 in Table 4), and availability of perceived better parental mediation strategies (number 9 in Table 4). Most of these reasons have also been identified by past studies in other parts of the world including US and Europe (Hart Research Associates, 2011; Nikken & Haan, 2015; Ofcom, 2012a; Ofcom, 2012b; Ponte, *et al*, 2014).

Perceived Effectiveness of Parental Controls
Table 5: Perceptual effectiveness of parental controls (N = 256)

S/N	Statement	Response					M	Remark
		1 F (%)	2 F (%)	3 F (%)	4 F (%)	5 F (%)		
1	Parental controls are helpful in maximizing responsible digital media use by children	17 (6.6)	27 (10.5)	45 (17.6)	103 (40.2)	64 (25.0)	3.66	Effective
2	Parental controls are helpful in minimizing risks associated with digital media use by children	10 (3.9)	18 (7.0)	26 (10.2)	127 (49.6)	75 (29.3)	3.93	Effective
	Grand Mean						3.80	Effective

1=Undecided, 2=Strongly Disagree, 3=Disagree, 4=Agree, 5=Strongly Agree, M=Mean

Findings shown in Table 5 show that the parents studied overwhelmingly perceive parental controls as effective tools in maximizing responsible digital media use (77.3%) and minimizing risks associated with digital media use (78.9%) by children. This finding suggests that even though the parents have little knowledge and largely negative attitude towards parental controls, they still have trust that the technology has something to offer in encouraging children's healthy use of digital media. This finding is in agreement with some others; Donoso (2014) found that parents view use of parental controls as an effective measure in protecting children against the ills of internet. Ofcom (2012c) found that parents feel children subjected to parental controls are less likely than those not to undertake risky online behaviour.

Perceptual effectiveness is different from actual effectiveness. In terms of actual effectiveness, Zaman and Nouman (2016) analysed findings of different studies on parental controls and came to the conclusion that while some research support the effectiveness theory, others do not. Zaman and Nouman explain that lack of

clear operationalisation of the notions of parental controls, lack of up-to-date categorization of a wide diversity of existing parental controls tools, and lack of in-depth knowledge of how parents use parental controls are reasons behind the contradiction in research findings.

Test of Hypotheses
Four null hypotheses were tested. Null hypotheses one, three and four were tested using chi-square 2×4 contingency table analysis. The test of null hypothesis one used 2×2 contingency table analysis. All hypotheses were tested at 0.01 level of significance and varying degrees of freedom. Tables 6 – 9 show results of the tests.

Hypothesis one
Table 6: Relationship between awareness and level of use parental controls

Use	Awareness			df	α	x^2	x^2	Decision	Remark
	Yes	No	Total						
Never	22	125	147					Null hypothesis rejected	Hypothesis supported
Once or Twice	41	28	69						
Once a while	18	6	24	3	0.01	68.75	11.34		
Often	11	5	16						
Total	92	164	256						

Therefore level of awareness of parental controls is significantly related to level of use of parental controls. A closer view of Table 6 shows that awareness is associated with high use and vice versa.

Hypothesis two
Table 7: Relationship between awareness and attitude towards parental controls

Use	Awareness			df	α	x^2	x^2	Decision	Remark
	Yes	No	Total						
Positive	83	44	127					Null hypothesis rejected	Hypothesis supported
Negative	9	120	129	1	0.01	95.71	6.64		
Total	92	164	256						

Therefore, level of awareness of parental controls is significantly related to attitude towards parental controls. It is clear in Table 7 that awareness of parental controls is related to negative attitude towards parental controls.

Hypothesis three
Table 8: Relationship between attitude and level of use parental controls

Use	Awareness			df	α	x^2	x^2	Decision	Remark
	Positive	Negative	Total						
Never	67	80	147					Null hypothesis not rejected	Hypothesis not supported
Once or Twice	32	37	69						
Once a while	17	7	24	3	0.01	7.89	11.34		
Often	11	5	16						
Total	127	129	256						

Therefore attitude towards parental controls is not significantly related to level of use of parental controls. From Table 8, it is clear that parents with both negative and positive attitude towards parental controls did not use parental controls or used but to a low level.

Hypothesis four
Table 9: Relationship between level use parental controls

Use	Awareness			Df	α	x^2	x^2	Decision	Remark
	Positive	Negative	Total						
Never	123	24	147					Null hypothesis rejected	Hypothesis supported
Once or Twice	48	21	69						
Once a while	8	16	24	3	0.01	40.97	11.34		
Often	5	11	16						
Total	127	129	256						

Therefore, level of use of parental controls is significantly related to perceptual effectiveness of parental controls. As shown in Table 9, parents with high use of parental controls are inclined to perceive parental controls as effective more than parents with low use of parental controls.

VI.   Conclusion and Recommendations

This study investigated awareness, attitudes, and use of parental controls in mediating children's experience with digital media. The subjects of study were parents who were academic staff at Federal University of Technology, Minna, Nigeria. The subjects were assumed to be among persons with the highest level of technological awareness and use competence in Nigeria. The study adopted survey method, with a 29-item questionnaire as instrument of data collection. Findings revealed low awareness of parental controls, negative attitude towards parental controls, and very low use of parental controls. Factors responsible for the low use centred on: (1) parents' perception of children as responsible digital media users, hence no big deal monitoring their digital media use; (2) perceived complexity and difficulty in the use of parental controls; (3) perception that management of children's digital media use is not as important as the management of their day-to-day family life; and (4) parents belief of the existence of better alternatives to parental controls. The findings also indicated that parents perceive parental controls as effective tools in maximizing responsible and minimizing irresponsible digital media use by children.

It is therefore concluded that parental controls are yet to be a veritable parental mediation strategy in Nigeria. This parental mediation strategy is still shrouded with inadequate knowledge of what it is, how it works, what it does, and how to use it. Parents in Nigeria, in the digital age, are still at home with other parental mediation approaches, and not parental controls. Chief among the other parental mediation approaches established by other researches (Kur, 2009; Kur, 2011; Kur & Essien, 2014; Kur, Orhewere, Nyam, 2015) is the restrictive strategy. Other parental mediation strategies used by parents in Nigeria but not as high as restrictive mediation are active and co-use strategies. For best results in the task of mediating children's digital media use, parental controls should be used to complement the other parental mediation approaches. Findings in this study suggest that advocates and manufacturers of parental controls have to take the views and feelings of parents in less technologically advanced countries into consideration for any meaningful improvement in adoption and use of parental controls in those countries.

On the basis of the above conclusion, it is recommended that all stakeholders in the promotion of effective parenting should ensure critical digital literacy among parents. This is vital for a clear understanding of parental controls. Similarly, manufacturers of parental controls should consider options that will ensure the design of easy-to-use and affordable parental controls, and at the same time are tailored towards addressing the needs of parents in less technologically advanced countries. The United Nations Convention on the Rights of the Child stipulates that decisions and policies of stakeholders in child development should address issues of safety, privacy, expression and well-being of the child (Livingstone, Olafsson, O'Neil, & Donoso, 2012). Hence, manufacturer of parental controls, in their design decisions, should accommodate these rights of the child without compromising the needs of parents.

In addition, considering the numerous research findings that active and co-use parental mediation strategies are among the most effective parental mediation strategies (David, Omar, Hassan, Bolong, & Teimour, 2014; Eklund, & Bergmark, 2013; Meehan, & Hickey, 2015; Panek, 2014; Schaan, & Melzer, 2015), manufacturers should consider the design of parental controls that provide for active and open interaction (communication) between parents and children. Such parental controls should be able to facilitate parent-child interaction on appropriate and inappropriate use of digital media and its implications on the child, parents and the society at large.

Limitations and Directions for Future Research

The findings of this study should be generalized with caution; only academic staff members in one university were studied. The views of the academic staff members might not necessarily have been a solid representation of the views of parents in Nigeria. Also, the idea of excluding the non-academic staff members with the assumption that academic staff members are more competent with technology than their non-academic counterparts is subject to verification. Hence, future studies should consider studying both academic and non-academic staff members in more than one university, and perhaps in other categories of institutions of higher learning like polytechnics, and colleges of education, etc. Alternatively, this study should be replicated in other institutions of higher learning and findings compared with those of this study.

The present study did not go deep into ascertaining factors responsible for low level of awareness and negative attitudes towards parental controls. Future studies could explore these areas. This will contribute in gaining deeper knowledge about parental controls as a parental mediation strategy. In a similar vein, the present study used questionnaire with only close-ended items to obtain data. As it is the case with all close-ended instruments, the questionnaire restricted respondents to freely express themselves on the variables examined. Also, the study was purely quantitative in nature. Future studies should consider adopting data gathering instruments that are non-restrictive. It is also imperative that future studies should triangulate using quantitative and qualitative approaches in both data gathering and data analysis activities.

Perceptual effectiveness of parental controls, measured in this study, is not the actual effectiveness, It is important that future studies are done on the actual use of parental controls and its effectiveness practically measured. This will move the level of parental controls research in Nigeria from perceptual level to practical level. An emerging approach to parental mediation research is to study parents and children side-by-side (Kutner, Olson, Warner, & Hertzog, 2008; Livingstone, 2007; Panek, 2014; Schaan & Melzer, 2015; Vaterlaus, Beckert, Tulane, & Bird, 2014). The design of the present study excluded children. Future research in this area should study parents and children side-by-side.

References

[1].   Barnes, A., & Laird, C. (2012). The effects of social media on children. Retrieved from: https://sites.ewu.edu/cmst496-stafford/2012/06/06/the-effects-of-social-media-on-children/
[2].   Centre for Digital Media (2016). What is digital media? Retrieved from: https://thecdm.ca/program/digital-media
[3].   Creaber, G., & Martins, R. (2009). Introduction, in G. Creaber & R. Martin (Eds.), Digital cultures: Understanding new media (pp. 1 – 10). London: McGraw-Hill.
[4].   Danesi, M. (2009). Dictionary of media and communications. New York: M.E. Sharpe.
[5].   Daud, A., Omar, S.Z., Hassan, M.S., Bolong, J., & Teimour, M. (2014). Parental mediation of children's positive use of the internet. Life Science Journal, 11 (8), 360 – 369. Retrieved from: http://www.lifesciencesite.com
[6].   Davidson, P. (2015). How effective are parental controls for your child's safety? Retrieved from: http://betanews.com/2015/12/03/how-effective-are-parental-controls-for-your-childs-safety/
[7].   Donoso, V. (2014). Parental mediation and use of control tools. London: EU Kids Online, LSE. Retrieved from: http://www.Ise.ac.uk/media@Ise/research/EukidsOnline/presentations/parental-controls-   EU-Kids-Online
[8].   Durager, A., & Livingstone, S. (2012). How can parents support children's internet safety? London: EU Kids Online, LSE. Retrieved from: http://www.vicscouts.comau/uploads/33/parental/mediation.pdf
[9].   Eklund, L., & Bergmark, K.H. (2013). Parental mediation of digital gaming and internet use. Retrieved from: https://www.academia.edu/3564064/parental_mediation_of_digital_gaming_and_internet   _use
[10].   Hart Research Associates (2011). Who needs parental controls? A survey of awareness, attitudes,   and use of online parental controls. Retrieved from: https://www.fosi.org/documents/77/Who_Needs_Parental_Controls_Survey_Findings
[11].   Knorr, C. (2016). Everything you need to know about parental controls. Retrieved from: https://www.commonsensemedia.org/blog/everthing-you-need-to-know-about-parental- controls
[12].   Kupusamy, K.S., Francis, L.M., & Aghila, G. (20130. Report: A model for remote parental control system using smartphones. International Journal of Cybernetics and Informatics, 293), 25 – 36. Doi:10.5121/ijci.2013.2303
[13].   Kur, J.T. (2009). Parental mediation and young people's perception of television violence: A   study of urban parents and young people in Benue State. PhD thesis, Department of Communication Arts, University of Uyo.
[14].   Kur, J.T. (2011). Parental mediation of young people's television viewing in Benue State: Motives, strategies and effects. In L. Oso, D. Soola, & U. Pate (Eds.), Media governance and   development: Issues and trends (pp. 315 – 319). Mushin, Lagos: Primus Prints and Communications.
[15].   Kur, J.T., & Essien, C.F. (2014). Parental mediation and children's cell phone use: Motives, strategies and effects. Asian Congress for Media and Communication 2014 Conference Proceedings. Retrieved from: www.asianmediacongrss.org/2014Confab-B.htm
[16].   Kur, J.T., & Iorpagher, M.M. (2016). New media technologies and political socialization of children: The exigency of parental mediation. Paper presented at the Faculty of Social Sciences, Benue State University 2016 National Conference, 16th – 18th June.
[17].   Kur, J.T., Orhewere, J.A., & Nyam B.J. (2015). Parental attitudes and mediation of children's video game play: A study of elite parents in Minna, Niger State. Paper presented at the 3rd Idowu Sobowale International Conference 2015, held at Covenant University, Ota, Ogun   State, Nigeria, 26th – 29th October.
[18].   Kutner, L.A., Olson, C.K., Warner, D.E., & Hertzog, S.M. (2008). Parents' and sons' perspectives on video game play: A qualitative study. Journal of Adolescent Research, 23 (1), 76 – 96. Retrieved from: http://online.sagepub.com
[19].   Livingstone, S. (2007). Strategies of parental mediation in the media-rich home. Computers in Human Behavior, 23, 920 – 941. Retrieved from: www.sciencedirect.com/science/article/pii/S0747563205000543
[20].   Livingstone, S., Haddon, L., Gorzig, A., & Olafsson, K. (2011). Risks and safety on the internet: The   perspectives of European children. Full findings. London: EU Kids Online, LSE. Retrieved   from: http://www.Ise.ac.uk/EUKidsOnlineFullFindings
[21].   Livingstone, S., Mascheroni, G., Dreier, M., Chaudron, S., & Lagae, K. (2015). How parents of young children manage digital devices at home: The role of income, education and   parental style. London: EU Kids Online, LSE.
[22].   Livingstone, S., Olafsson, K., O'Neill, B., & Donoso, V. (2012). Towards a better internet for children. London: EU Kids Online, LSE. Retrieved from: http://www.Ise.ac.uk/media@Ise/research/EUKidsOnline/EU%20kids%2011/reports/EU KidsOnlinereport
[23].   Meehan, S., & Hickey, J. (2015). A review of literature relevant to the experiences of Irish   parents in the mediation of their children's use of internet connected devices. Journal of   Psychology & Clinical Psychiatry, 3 (3), 1 – 8. Retrieved from: medcraveonline.com/JPCPY/JPCPY-03-00135.pdf
[24].   Mitchell, K.J., Finkelher, D., & Wolak, J. (2005). Protecting youth online: Family use of filtering and blocking software. Child Abuse and Neglect, 29, 753 – 765. Retrieved from: http://unh.edu/ccrc/pdf/jvq/cv49.pdf
[25].   Nikken, P., & Haan, J. (2015). Guiding young children's internet use at home: Problems that parents experience in their parental mediation and the need for parenting support. Cyberpsychology: Journal of Psychosocial Research on Cyberspace, 9 (1), 17 – 21. Doi: 10.5817/CP2015-1-3
[26].   Nikken, P., & Jansz, J. (2014). Developing scales to measure parental mediation of young   children's internet use. Learning, Media and Technology, 39(2), 250 -266. Retrieved from: http://doi.org/10.1080/17439884.2013.782038
[27].   Nyabuga, G., & Booker, N. (2013). Mapping digital media: Kenya. A report by the Open Society   Foundations.   Retrieved from: https://www.opensocietyfoundations.org/reports/mapping-   digital-media-   global-findings
[28].   Ofcom (2012a). Children and parents: Media use and attitudes report. Retrieved from: https://www.saferinternet.org.uk/content/children/saferinternetcentre/downloads/Research   _highlights/uk
[29].   Ofcom (2012b). Parents' views on parental controls: Findings of qualitative research. Retrieved from:https://www.ofcom.org.uk/binaries/research/researchpublications/childrens/oct2012/   Annex_1pdf
[30].   Ofcom (2012c). Children and parents: Media use and attitudes: Focus on parental controls.   Retrieved   from: https://www.saferinternet.org.uk/content/childnet/saferinternetcentre/downloads/Research _Highlights/UK

[31]. Ofcom (2014). Ofcom report on internet safety measures: Strategies of parental protection for children online. Retrieved from: stakeholders.ofcom.org.uk/binaries/internet/internet-safety-measures.pdf

[32]. Okoro, N.O., Nwafor, K.A., & Odoemelam, C.C. (2015). Influence of digital media, video games, toys and cartoons on the behaviour of early school-age children in South-east Nigeria. The Nigerian Journal of Communication, 12(1), 212 – 240.

[33]. Panek, E. (2014). Evidence for the effects of parental mediation and childhood media use on US college students' social media use. Journal of Children and Media, 8 (2), 127 – 145. Retrieved from: http://dx.doi.org/10.1080/17482798.2013.825213

[34]. Pew Research Center (2011) Teens, kindness and cruelty on social network sites: How American teens navigate the new world of "digital citizenship." Retrieved from: https://pewinternet.org/Reports/2011/Teens-and-social-media.aspx.

[35]. Ponte, C., Simoes, J.A., & Azevedo, C. (2014). Parental mediation of mobile internet use by children and adolescents: Portuguese and European findings from the Net Children Go Mobile Project. London: Eu Kids Online, LSE. Retrieved from: https://netchildrengomobile.files.wordpress.com/2014/11/parental-mediation-ecrea-101114.pdf

[36]. Rasmussen, E.E., Ortiz, R.R., & White, S.R. (2015). Emerging adults' response to active mediation of pornography during adolescence. Journal of Media and Children, 9(2), 160 – 176. http://dx.doi.org/10.1080/17482798.2014.997769

[37]. Santhosh, H. (2016). Positive and negative effects of social media on children. Retrieved from: https://www.momjunction-com/articles/negative-effects-of-social-media-on-children_00353633

[38]. Schaan, V.K., & Melzer, A. (2015). Parental mediation of children's television and video game use in Germany: Active and embedded in family processes. Journal of Children and Media, 9 (1),58 – 76. Retrieved from: http://dx.doi.org/10.1080/17482798.2015.997108

[39]. Smith, R. (2013). What a digital media? Retrieved from: https://thecdm.ca/news/faculty news/2013/10/15/what-is-digital-media

[40]. Strider, J., Third, A., Locke, K., & Richardson, I. (2012). Parental approaches to enhancing young people's online safety: A literature review. Australia: Young and Well Cooperative Research Centre.

[41]. Subrahmanyam, K., & Smahel, D. (2011). Digital youth: The role of media in development. New York: Springer.

[42]. Vaterlaus, J.M., Beckert, T.E., Tulane, S., & Bird, C.V. (2014). "They always ask what I'm doing and who I'm talking to": Parental mediation of adolescent technology use. Marriage & Family Review, 50, 691 – 713. Retrieved from: http://dx.doi.org/10.1080/01494929.2014.938795

[43]. Ybarra, M.L., Finkelhor, D., Mitchell, K.J., & Wolak, J. (2009). Associations between blocking, monitoring, and filtering software on the home computer and youth-reported unwanted exposure to sexual material online. Child Abuse and Neglect, 33(12), 857 – 869. Doi.org/10.1016/j.chiabu.2008.09.015

[44]. Zaman, B., & Nouwen, M. (2016). Parental controls: Advice for parents, researchers and industry. London: EU Kids Online, LSE.