A Systematic Literature Review Searching for a Comprehensive Dynamic Model of Parental Digital Mediation Strategies

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Abstract
Knowing that children and teenagers are between the highest consumers of new digital media that gradually transformed our lives and changed our habits of communication and interconnection, the scholar attention is moving from searching their online consumption patterns, to the mediation strategies used by parents, referring to all the efforts they made to increase the benefits and limit the risks of the Internet for their children. Meanwhile, the parents are concerned regarding internet risks and eager to receive valuable information for applying the most effective digital mediation strategies, but the researches seem not helping enough, because their conclusions are incongruent, using different concepts to define similar behaviors, or offering contradictory results.
Taking into consideration that the scoping or systematic review is a research method very useful to synthesize results on a particular topic of a research area, offering the opportunity to identify key concepts and gaps in the researches, it will be used to: define a dynamic model of parental digital mediation strategies; identify the key variables that influence this model; point the gaps that still need to be fulfilled by searching this domain. This paper will address the issues of parental digital mediation strategies, developing a dynamic model as it emerges from the systematic review of 28 articles on this theme published from 2017 until now, retrieved from Google Scholar and PubMed databases, indicating the positive and negative effects of parental behavior on children internet usage habits.

Keywords: *parental digital mediation strategy; neglecting mediation; inverse mediation.*

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Introduction

Given the importance of knowing and understanding how children and young people are affected by technology and the primary socialization is transformed into "digitally connected families" (Lim S.S., 2018) many researchers have investigated recently this process offering fruitful data, but divers and not centralized to offer an overview on the phenomenon. Taking into account the particularities of the target group - children and teenagers - various research methods have been used, quantitative and qualitative, specifically sociological or borrowed from other sciences, innovation, creativity and flexibility being their essential attributes. The results show that the main risks of digital technology for children are: exposure to cyberbullying, extreme violence, hate messages, sexting, and sexual content, dating with strangers, data security issues and excessive internet use, addiction and related issues, as low school performance, communication and relationship problems, anxiety, depression, delinquency and decreased life quality (Livingstone, Davidsone, Bryce, et al., 2017; Velicu, Balea & Barbovski 2018; UNICEF, 2017). On the other hand, there are undeniable benefits and opportunities: increase academic performance, access to education and information, high connection and interconnection, self-image and identity in the online environment, improvement of cognitive and coordination skills when using age-appropriate games and applications, cultivation and manifestation of creativity, "power", "agency" and civic participation, economic and social opportunities for the disadvantaged, allowing them intergenerational status leaps (Livingstone et al., 2017, UNICEF, 2017).

Due to the ubiquitous of mobile technology, the family as the institution of primary socialization is the main responsible for providing access to technology and digital literacy for children, followed by school and peer groups. But adults, as "digital immigrants" opposed to "digital natives" (Nelissen S., Van den Bulk, 2017) are often in a state of "digital confusion", having to train first their digital skills and often receiving inconsistent and contradictory advice (UNICEF, 2017).

In these new social conditions, numerous studies have been focused on researching the digital mediation process that takes place in the family, respectively how these institutions facilitate the formation of the digital skills of the children and educate them to protect themselves against the internet risks. There have been identified several types of mediation strategies that adults use, varying from active to restrictive mediation, on the main variables influencing these processes intersection: children age, parents' education, and digital skills level, family socioeconomic status and local culture. This paper aims to synthesize and integrate the already cumulated results in order to build a comprehensive-explanatory dynamic model of parental digital mediation and its effects, using the systematic review method for providing more relevant information in this direction.

Thus, according to the methodological principles of the systematic review, we will analyze the results of different researches carried out in the last three-four years in this field, in an attempt to provide a relevant, aggregate point of view, to find common points and differences and to fill the gaps in the knowledge of the parental digital mediation strategies and their effects. This is a process of extracting data from individual, particular studies and interpreting them in a collective form (Campbell et al., 2003, in Best, Manktelow & Taylor, 2014) using narrative-qualitative analysis (Rodgers et al, 2009 in Best, Manktelow & Taylor, 2014).

The starting question driving this systematic literature review is: what are the strategies of parental digital mediation identified in the last four years and what are their effects for positive and safe use of the internet by children and adolescents?

The objectives of this systematic review in the field of digital mediation of children and adolescents are: 1. Building a comprehensive dynamic model of parental digital mediation strategies, outlined by their effects on children and adolescents and the main conditions that limit and influence their digital habits; 2. Identifying and defining new types of emerging digital parental mediation strategies; 3. Pointing the minuses in the knowledge that could be analyzed in future research.

Methodology

To ensure the scientific rigor of the systematic review method, the reference system offered by PRISMA (www.prisma-statement.org) was adapted to the sociological research and the criteria for inclusion and exclusion of the researches in the analysis were established: year of publication - 2017 - present; year of conducting the research - 2016 and later; type of publication - scientific articles published in specialized academic journals, based on representative methodological studies at local/national level; the geographical context was not considered an exclusion criterion, because the technology is used similarly by children and adolescents from all over the world; the presence of at least one of the dependent variables related to parental digital mediation and its effects on children aged 0-18; usage of at least one of the following technologies, applications and/or devices: internet applications or websites, social networks or online games using different devices, like mobile phone, laptop, desktop or tablet, play station, Xbox, etc. Studies exclusively focused on children with special educational needs, or those presenting systematic reviews were excluded.

The articles search was conducted on the Google Scholar and PubMed online databases, from January 15 to 25, 2020, using the Boolean operating system and English keywords: "parental mediation strategy", or "parental mediation of Internet use", or "parental mediation of the use of the smart mobile phone" and "children", or "adolescents", or "children and adolescents" and open access research has been selected, published from 2017 until now. Subsequently, for the narrative-synthetic data analyze, a specific grid was built, including the research identification data - who, where, when was published, concept definitions, the purpose of the study, type of research - qualitative/quantitative, sample size and characteristics, obtained results and digital mediation effects, the recommendations and limits stated by the authors (Figure 1).

Figure 1. The systematic review analyzing grid
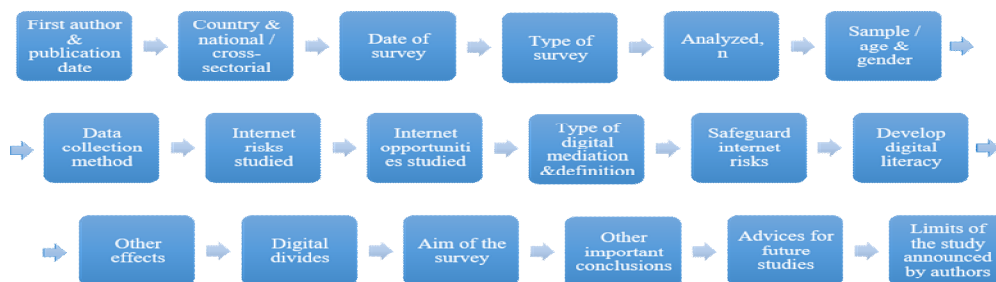
Source: Author's own compilation

Synthesizing the obtained results was developed a general model of the parental digital mediation strategies used globally, highlighting its efficiency in increasing children's and adolescents' digital skills and enhancing opportunities and minimizing Internet risks for them. The narrative synthesis will not take into account the differentiation between the data generality level – qualitative data on the individual level of the child, family and immediate social context, or quantitative national or cross-sectorial data. Finally, they should be viewed synthetically, because they are often correlated, explaining each other (Hasebrink & Uwe, 2016). The process of analysis and comparison of the different types of parental digital mediation strategies has resulted in a complex model, presenting, integrating, harmonizing and synthesizing all the variables that interact in this broad process of digital mediation.

Results

Searching the Google Scholar and PubMed databases were identified 248 articles containing the keywords. After applying the selection criteria were excluded: 53 duplicate articles, 64 articles with un-relevant title, 73 articles after abstract analysis, and another 30 articles after verifying in the full text the condition related to the research period. A total of 28 articles were retained for systematic analysis, using the established analysis grid (details in Annex 1).

Table 1. Articles selection process
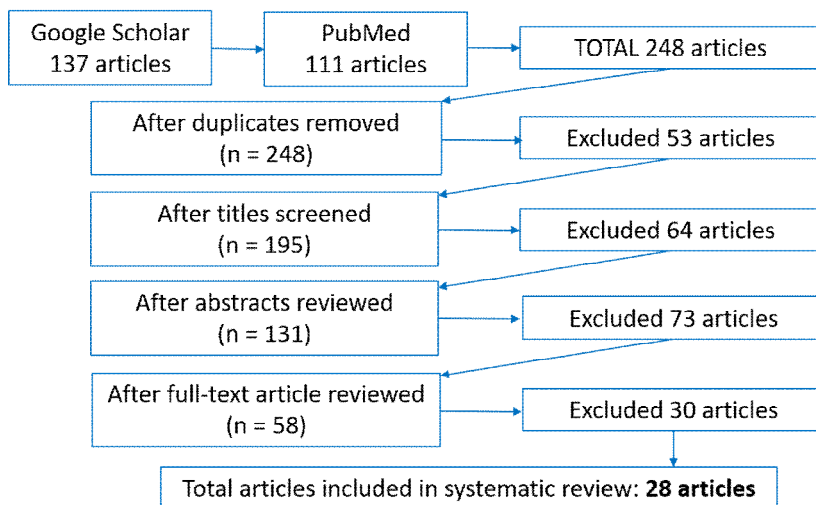
Source: Author's own compilation

It is important to note that quantitative research based on face-to-face or online questionnaires prevails, and the most researched countries were in Europe, but also in America and Asia, offering a global - universal picture of how children are using the internet. A quarter of the studies have national representativeness and most of the researches were published in 2018 and 2019, totaling the opinions of 16,036 children - among whom over 75% are adolescents and 6025 parents, and 4162 cases were dyads researches: parenting - child. (Table 2). Generally, the studies cover the issues of using the internet for all the ages of childhood, from 1 to 19 years old.

Table 2. Characteristics of selected articles

Publication data	2017	2018	2019	2020
number of studies	5	11	11	1
Type of study /sample	national	local		
number of studies	7	21		
Year of study	2016	2017	2018	2019
number of studies	12	7	4	5
Countries	UE = 15	UK = 3	SUA = 6	other - Asia = 4
number of studies	Spain = 4; Germany = 1 ; Belgian = 5; Holland = 3; Czech Republic = 1; Denmark = 1	3	6	China = 3; Taiwan = 1
Sample	children	parents	dyads	
number of studies	11	10	7	
n	16.036	6025	4162	
Study type	quantitative	qualitative	mix quantitative - qualitative	longitudinal
number of studies	21	3	2	2
Collecting date methods	auto-applied, offline and online questionnaire	in-depth interviews, media journals, focus-groups	interviews and questionnaires, or special measurement devices, or media-journals	auto-applied questionnaires, offline and online

Source: Author's own compilation

Regarding the parental digital mediation strategies, within the 28 studies were used similar or different concepts, operationalization and definitions. Generally, the main classification was based on traditional media studies regarding the effects of television on children: active, restrictive and co-use mediation (Clark, 2011), to which different terms and descriptions were added, or other new types of mediation. Cumulating the extracted data from all 28 pieces of research, were identified 18th types of active mediation, 15th types of restrictive mediation and another 10th distinct mediation strategies, the main variation criteria being the children age.

Under the broad name of parental active mediation: a whole series of behaviors and actions of parents concerning fostering, explaining and educating children about

how to use the internet and its various applications are covered, important variables being: the way communication is adapted to the children age, and its various content as technical explanations, risk warnings, usage of social networks, games, or different applications. Some authors consider co-use a method that cannot be separated from active mediation strategies, due to the versatility of current technology - mobile phones, or small tablets, but also of social networks or online games that favor sharing info in the same virtual space. For others, there is intercalation between active and restrictive mediation, by joining terms such as "control", "guidance", in the idea that restrictive mediation if is communicated assertively, explaining and even negotiating the limits, becomes an active mediation. The effects of active mediation strategies are also controversial, they range from positive to negative, from developing digital skills, self-control, critical thinking, reactance, coping with online risks, to maintaining anti-social behaviors and more risks encounter, because exposure to such content does not decrease. Some authors sustain that more important than the mediation strategy is the general parental style, how the information is communicated and the level of attachment relationship established within families.

Restrictive mediation is a widely used and studied strategy, especially since in 2016 the American Academy of Pediatrics recommended parents to limit the screen time of children: up to 18 months no exposure at all, maximum chats with family members; up to 2 years very rarely and content strictly controlled by parents; between 2 and 5 years maximum one hour per day of exposure only to quality educational content, controlled by parents and using together; over 6 years to establish a family program of technology use and clear boundaries, accompanied by constant active mediation (www.aap.org). Within the selected studies were identified 15 more or less different conceptualizations of restrictive mediation, based on the same idea of time, content and place limitation for children of all ages access to the internet. In some articles, next to the restriction is added the term control, or supervision, showing that it is necessary to control if the imposed rules are respected. In other articles the focus is on how the restrictions are communicated, emphasizing the positive effects of this strategy if it is used the "autonomy-support" style, by explaining the reasons and taking into account the child's perspective. Other mediation types, as neutral and inconsistent restrictions have negative effects, provoking children's reactivity and searching for innovative hidden solutions. As the active digital mediation types, the restrictive ones decrease as the children age increase, parents preferring not to use them with older children, being aware of the failure. It should be mentioned that one study shows that restrictive mediation has positive effects in preventing and treating dependence on social networks for girls, but not for boys and online games.

Other identified types of parental digital mediation strategies can be considered as extensions, or deepening of the main previous digital mediation strategies: from active types - co-use, participatory learning, or positive reactive mediation; from restrictive mediation as a control - technology monitoring, or as reactive-negative mediation, parents punishing and restricting access when risks occur. Other new types of parental mediation strategies emerge from the empirical data:

- permissive mediation, or laissez-faire – parents who just provide access to technology for their children, but do not intervene in their online activities, considering children know better what to do;

- reverse mediation – children being the digital socialization agents for their parents, showing them how to solve the digital problems;

- modeling - parenting behavior is copied by children, is a powerful mediation strategy that affects all the others;

- inconsequent mediation – parents uncertain on their digital capabilities reacting unpredictably on children digital behavior;

- mixed digital mediation – concurrent use of different digital mediation strategies, developing, transforming and overlapping in the daily life interaction of the family.

Other recurrent themes and notable results of the systematic analysis from the 28 articles are:

1. Regarding the correlation between the applied digital mediation strategies and demographic data:

- the age of the parents does not influence the mediation strategies

- the age of the children is a predictive factor for the mediation strategies applied - curve-linear trend, they grow and intensify around the age of 8-9 years, after which they begin to decrease (Beyens I. et al., 2018)

- the gender of children does not cause noticeable differences in the mediation applied (Zhang D., 2019, Symons K., et al. 2017), some studies show that more restrictions and co-use with boys are effective (Aierbe A., et al. 2019), and for girls, the restrictions on the use of social networks are effective for reducing dependency (Koning I.M. et al. 2018);

- parents' gender influences mediation: mothers are more inclined towards an autonomy-support type of mediation (Weinstein N., et al 2018), and fathers generally apply less mediation than mothers (Symons K., et al. 2017) and use more instructional mediation with girls and co-use with boys, whereas mothers often mediate restrictive especially boys (Aierbe A. et al, 2019);

- the socio-economic status of the family does not influence the children access to technology - most have at least one computer and a games console (Nikken P., et al, 2018); those in single-parent families have access to many devices (Nikken P., et al, 2018); children from low-income and single-parent families have an increased risk of addiction (Chang F-C et al, 2018); families with more children often apply restrictive digital mediation (Beyens I., 2018).

- the parents level of education: those with higher education have more digital skills, but this does not directly correlate with children digital skills level (Zang D., 2019); usually apply several mediation strategies (Nikken P., 2019), both active and interpretive (Daneels R., et al, 2017) and restrictive mediation through technology, or monitoring (Nikken P., et al, 2018, Chang F-K., et al 2018).

2. The correlation between the mediation strategies and the parenting styles is sustained in the idea that the family atmosphere influences the way they are applied and perceived by the child (Meeus A. et al, 2018, Warren R. et al, 2019, Beyens I., 2018, Wright M.F., 2017), having direct influence also on the attachment relationship (Chang F-C, et al., 2018, Hefner D., et al 2018) and the communication content of the mediation (Meeus A. et al, 2018a, Warren R. et al, 2019, Lou C. et al., 2019).

3. The parents' attitude towards the technology plays an important role: if positive perception - the children digital skills increase, but the negative perception, diminishes them (Bartau-Rojas I, et al., 2018, Rodriguez de Dios, 2018); those who are aware of the internet risks use more active mediation (Daneels R., 2017) and are aware of the effects of "modeling" (Hoffman J., 2019, Liu R.D., et al, 2019); parents level of social networks activity influence the mediation strategies used (Lin M.H., et al., 2019)-

this behavior is not depending by their digital competences, the parents being generally passive on the internet;

4. Parental stress is a factor that negatively influences all mediation strategies (Warren R., et al., 2019) and determines the predominant use of restrictive and inconsistent strategies (Symons K, et al, 2017)

5. The mediation made by third parties must be taken into consideration: brothers/sisters, grandparents, other people in the child's life and school, teachers (Bartau Rojas I, et al, 2017, Hefner D., et al, 2018, 3, Dedkova L., et al, 2019, Domoff S.E. et al, 2018) are influencing the family digital dynamic model development;

6. The direct relation between the exposure to certain content (especially negative) and its copying by children is a fact not influenced by any type of mediation (Meeus et al., 2018b)

7. A limitation of all studies is the existence of a difference between the amount of mediation reported by parents and children, children declare less parental mediation strategies and do not perceive that they decrease with age (Symons K., et al, 2017)

Discussions and answers to the initial questions

The systematic analysis of the 28 specialized articles from 2017 to 2020 with direct reference to the mediation strategies used by parents to foster children's online behavior offers fruitful results both for deepening the understanding of the children's dynamic usage of the internet in the family and for guiding future research. The summary of the results follows the red line of achieving our objectives: the construction of the dynamic model of digital parental mediation strategies, the identification of emerging parental mediation strategies and the identification of the knowledge gaps.

A comprehensive model of digital mediation strategies can be built by combining all the factors that contribute decisively to the formation of the consumption habits of interactive digital media usage in the family and the aim is to highlight also their effects. As the studies and empirical reality show, technology change the power structures (Nelissen S., et al, 2017) and the functioning of traditional institutions, and the family institution is among the first affected and technologized. Children have been using technology since their first year of life, and as they get older, their exposure to internet benefits and risks increases. The cross-sectional vector of the digital mediation model is the children's age, the parents adapting and modifying their digital mediation strategies according to this. That is why the model of the mediation strategies is a "dynamic" one, being transformed and integrated into the daily family life. Even the majority of the studies were focused on the separate research of each mediation strategy, for an in-depth understanding of the child-technology-parent relationship it would be more useful to dynamically look at the alternation of the mediation strategies used and how they are transforming over time. Combining all the results, the dynamic digital mediation model used by parents shows that:

Families with young children, 0-3 years old, use a specific mix of mediation strategies that will be called active - restrictive - because the restrictions are applied actively, without transmitting the idea of a limitation to the child, but the one of making available and co-use, the child being completely dependent on the parent in terms of time, content and place of access to the internet. As a result, parents are responsible for the emergence of the risks and benefits of technology for the child, even when transferring to technology the role of guardian – using restrictive - passive digital mediation. Although further studies are needed, the findings that parents are aware of

risks and are censoring their digital behavior in the presence of young children may be congruent with the evidence that today's parents, exposed to numerous information about "being a parent in the digital era" and having a certain level of digital skills are much more aware and attentive to protect their children from the Internet risks from the beginning, so that the modeling strategy is highlighted.

Families with preschool children, 3-7 years old, adopt several mediation strategies: restrictive mediation of content, time and place, followed by monitoring and active mediation and co-use in an instructional sense, to facilitate children's understanding of technology functioning and characteristics, according to the children age capabilities. All are important, from limiting the time spent and access to content, not age-appropriate, to the active guidance of consumption towards educational content following the age development level. Emerging mediation strategies can be considered: derived from active mediation - incipient inverse mediation, a reactive mediation in response to the child's questions - with positive or negative effects depending on how the communication takes place and the attachment relationship between them is built; derived from restrictive mediation - the strategy of control and punishment mediation, due to the specificity of the age and the lack of self-control, children often push the limits set, parents responding by intensifying restrictions in a punitive way. On the other extreme are the passive mediation strategy used, with technology in the role of nanny/guardian, the children still being magically captivated by the screens around them. Modeling, the example offered by parents plays an important role, being the gatekeepers of technology.

Families with school children, ages 7 to 11 years old, use a broader mix of digital mediation strategies, with children being exposed to the online environment to a greater extent being the period when they will receive their mobile phone. This brings new challenges and weakens the effects of extended use of restrictive digital mediation of time, content and place, by explaining and negotiating the rules and respecting children's perspective "weakened" by widening the field of online interaction for children, so monitoring with or without technology became a solution. They are moving into a new phase of their relationship with technology, which requires parents more active instructional-educational mediation regarding online risks and digital skills development, active co-use and modeling - the example offered by parents being very important. Emerging strategies are: reverse mediation, which appears in close connection with co-use; passive mediation - non-involvement and non-use by parents of mediation strategies.

Families with pre-adolescent children, 11-15 years old use a mix of digital mediation strategies similar to that of the previous period, the difference being that restrictive strategies are harder to apply if they are not presented in a supportive way, with a permanent reinforcement of their reasons and doubled by the continuation of the active instructive-explanatory mediation regarding technology' risks and opportunities. During this period, children become users of social networks, online games, appear resistance to rules and age-specific opposition behavior, limiting the applicability of restrictive strategies. A positive effect may have the restrictive control and monitoring strategy with and without the help of technology, accompanied by the active co-use with the parent as "friend" user on the same social platforms, or online games, expanding the interaction from offline to the online world. Emerging strategies such as modeling and inverse mediation are significant, with positive effects depending on the parental style used by the parent and the extent to which the family climate is affectionate, secure and

supportive of the child's autonomy. Neutral-passive mediation emerges on the background of increasing age and the need for autonomy of the pre-adolescent, doubled by the parents' lack of confidence in their digital skills and which can lead to online risks with negative effects on the family quality of life. Reactive mediation generated by parents' impulsive reactions to children's behavior and usually to the occurrence of risks has predominantly negative effects, as the inconsequent mediation.

Families with adolescent children, 15-18 years old decrease the application frequency for all the mediation strategies, already the adolescent is considered digital autonomous, aware of the virtual environment risks and opportunities. Active and restrictive strategies, as used during previous stages lose their effect, being often used reactively, especially in case of the occurrence of online risks. Co-use – children and parents friends on social networks, or in online games - is usually used, both in an active form, to extend the communication on all levels, and restrictive, to monitor the adolescent online activity, but with minimal effects on the adolescents' behavior modification. Becoming more online independents, adolescents may be mediated in an "autonomy - support" way. The neutral - passive mediation, as the minimal-interventionist forms of parenting, is doubled by reverse mediation and modeling.

As a conclusion, the digital mediation strategies should be view as arranged linearly, from active mediation strategies to the passive types. It cannot talk about single, positive or negative strategies, but about a mix of digital mediation strategies used simultaneously by parents. We will thus consider two main categories of digital mediation strategies: active ones, respectively all the actions that parents take to ensure a balanced integration of technology in the adolescents' life, and on the opposite side, passive - neutral digital mediation, respectively non-involvement, or minimal involvement of parents in guiding the digital behavior of children, being only those who open children access to technology.

Figure 2: The parental digital mediation model
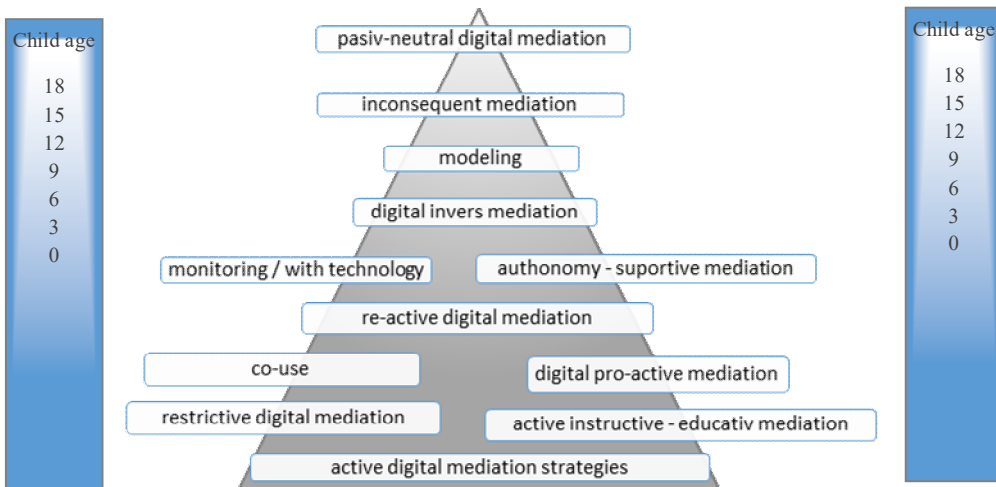
Source: Author's own compilation

Following the development of the proposed model, where strategies are mixing, transforming, evolving and finally dissipating when children maturity approach, we can conceptualize the dynamic model of parental digital mediation strategies including behaviors ranging from all active to passive –neutral types and few emerging strategies that influences all the other effects:

- active-restrictive-instructive-educational mediation - includes all the methods parents are using to guide children's online behaviors, from explaining to restricting time and content, monitoring, co-use, modeling for educating children regarding the internet risks and opportunities;

- passive neutral digital mediation - covers all those situations when parents choose not to get involved to mediate the child's relationship with technology, either using technology as a guardian, or considering children capable of dealing with risks and investing them with confidence and autonomy, or because they are not considering themselves able to do it;

- reactive digital mediation - the mediation performed by parents of children on all ages, as a response to their questions or behavior. It must be differentiated from the other types of active and restrictive mediation due to the unpredictable way of manifestations, overlapping with inconsequent mediation, depending on the context and taking multiple forms, from active as instructive and co-use to restrictive as monitoring, control or punishment.

- inverse digital mediation - when children digitally "educate" their parents are considered "experts" and help them when they are facing difficulties with technology. This strategy that emerges against the backdrop of the digital skills of adults goes beyond the boundaries of "mutual socialization" because it reverses the roles in the family and generates additional conflicts.

- inconsequent digital mediation – due to the diversity of internet-related technology applications and usages, families are using them alternatively depending on a lot of other external and internal factors and this often leads to inconsistency in rules application, monitoring or instructing, given to children the opportunity to exceed the limits and exposing themselves to more to the risks.

Regarding the knowledge gaps identified through this systematic review, there are a few: the incongruent approach and conceptualization of the digital mediation strategies identified raise confusedness and hardness in finding general valuable conclusions, so it needed a more consistent conceptualization in future research; there are needed more longitudinal research using technology to register the real digital consumption habits within families and the emergent strategies that occur in parallel with technological development and overcome the differences between children and parents perceptions regarding mediation technics; the research focus should be moved from safeguarding children from internet risks to enhancing the positive sides of the internet for them.

Limitations and conclusions
Although this systematic review of the literature in the field of digital parental mediation has several methodological limitations inherent to this method, such as those related to the identification of studies - a search in more databases may have been offered other interesting articles to be included – the founded results and achieved research objectives prove once again the usefulness of this research method.

The main conclusion of this analysis is that parental digital mediation must be viewed as a process, a system of alternative strategies used by parents, ranging from active methods - including the restrictive ones - to passive-neutral mediation depending on children age, but also by external-environmental and internal-psychological factors of both parents and children alike. The research must further deepen the knowledge of new types of digital mediation strategies that emerge along with the technological and social evolution, to find a common language to conceptualize mediation related concepts to provide relevant and useful results for the academic knowledge, parents and all those close to the children, to use effective mediation strategies in fostering children's relationship with technology and integrating it harmoniously into the family's life.

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A Systematic Literature Review Searching for a Comprehensive Dynamic Model...

Annex 1: The 28 articles included in systematic review (Author's own compilation)

No	Author/Year publication/title	Research year / type	Country / Sample	N / Sample characteristics	Digital mediation types	Conclusion
1	Bartau-Rojas I., Barandiaran A.A, Oregui-Gonzalez E., 2018, *Parental mediation of the Internet use of Primary students: Beliefs, strategies and difficulties*	2017 / qualitative / regional	Spain: parents	44 parents, 80% mothers, children 8 - 9 & 12 - 13 years old	activities support / restriction and control /reactive mediation	The predominantly negative perception of the internet influences digital mediation strategies & the digital skills of parents must be developed, and school can help
2	Hefner D., Knop K., Schmitt S. Vorderer P., 2018, *Rules? Role Model? Relationship? The Impact of Parents on Their Children's Problematic Mobile Phone Involvement*	2016 / quantitative / national	Germany: diads: parents with children 8 - 14 years old	500 children 8 - 14 years old / 52% boys; 500 parents / 72% mothers / 18% mono parental / average age 41.1 years	active mediation / establishing rules and time restrictions / co-use / monitoring / modeling	Digital school mediation needs to be intensified, teachers are currently overwhelmed by parents problems
3	Domoff S.E., Radesky J.S., Harrison K., Riley H., Lumeng J.C., Miller A.L., 2018, *A Naturalistic Study of Child and Family Screen Media and Mobile Device Use*	2014 - 2016 / longitudinal, quantitative with measurement device LENA / regional	SUA: diads parent - child 1-13 years old	132 diads - child 1 - 13 years old	restrictive mediation /active tech-focused mediation, or demanded by children/ negotiation	Family members simultaneously use different technologies & is important who initiate the mediation & digital mediation from relatives and schools is also important
4	Meeus A., Beyens I., Geusens F., Sodermans A.K., Beullens K., (2018), *Managing positive and negative media effects among adolescents: parental mediation matters -but not always*	2017 / quantitative / regional	Belgium: children 9-13 years old	516 children 9 - 13 years old / 47.5% girls	autonomy-supportive active mediation & controlling styles = controlling restrictive mediation & controlling active mediation & inconsistent restrictive mediation	Parenting style influences mediation through the way it is communicated & self-control mediates all digital mediation strategies
5	Warren R., Aloia L., 2019, *Parenting Style, Parental Stress, and Mediation of Children's Media Use*	2018 / quantitative / regional	SUA: diads parent - child 12-17 years old	504 parents & 504 children 12-17 years old	active mediation / restrictive / co-use	Parental authoritarian/authoritative/permissive styles & stress negatively influences all mediation styles
6	Lou C., Kim H.K., 2019, *Fancying the New Rich and Famous? Explicating the Roles of Influencer Content, Credibility, and Parental Mediation in Adolescents' Parasocial Relationship, Materialism, and Purchase Intentions*	2019 / quantitative / online	SUA: children 10-19 years old	415 children 10-19 years old / 54% fete / 45% high-school	Active & restrictive mediation of social networks use	Social media promotes influencers and interactive ads & influence the content of communication through which parents mediate social media
7	Shin W., Kim H.K. 2019, *What Motivates Parents to Mediate Children's Use of Smartphones? An Application of the Theory of Planned Behavior*	2018 / quantitative / online	SUA: parents	303 parents of children 10-17 years old / 70% women	active / restrictive mediation	Active mediation is preferred, as parents fail to impose the restrictive one that generates child reactivity & the advantages of the Internet must also be studied
8	Lin M.H., Vijayalakshmi A., Laczniak R., 2019, *Toward an Understanding of Parental Views and Actions on Social Media Influencers Targeted at Adolescents: The Roles of Parents' Social Media Use and Empowerment*	2018 / quantitative / online	SUA: mothers	182 mothers with children 11-17 years old	mediation of parents active/passive users of social networks / mix active and restrictive strategies and co-use and monitoring of social-media	Depending on how parents use the internet (active or passive on social media) influence their digital mediation of children (online activity does not correlate with digital skills)

9	Weinstein N., Przybylski A.K., 2018, *The Impacts of Motivational Framing of Technology Restrictions on Adolescent Concealment: Evidence from a preregistered experimental study*	2017 / quantitativ e / online /national	UK: children 14-15 years old	1000 children 14-15 years old / 49% boys	Restrictive - mediation : control / autonomy support / neutral	The type of introjected/extrojected motivation transmitted through restrictive mediation favors or not the reactivity of adolescents
10	Zhang D., Livingstone S., 2019, *Inequalities in how parents support their children's development with digital technologies, in Parenting for a digital future*	2017 / quantitativ e / national	UK: parents	2032 parents with children 0-17 years old	pro-active mediation / restrictive /	There are no major differences between mediation of girls and boys; although high-educated parents have more digital skills, it does not correlate with children's level of digital skills
11	Nelissen S., Van den Bulck J., 2017, *When digital natives instruct digital immigrants: active guidance of parental media use by children and conflict in the family*	2016 /quantitativ e /regional	Belgium: diads parents - children 12-19 years old	187 children 12-19 years old & 187 parents	invers mediation	Technology changes power relationships in the family & the child-effect occurs in all families, undifferentiated by socio-economic status
12	Daneels, R., Vanwynsberghe, H., 2017, *Mediating social media use: Connecting parents' mediation strategies and social media literacy*	2016 / qualitative / regional	Belgium: diads families with children 12-18 years old	10 families: 13 adolescents & 14 parents	active mediation / restrictive mediation/ distance supervision & trust respect	Parents who understand the dangers of the internet use more active mediation
13	Symons, K., Ponnet K., EmmeryK., Walrave M., Heirman W., 2017, *A Factorial Validation of Parental Mediation Strategies with Regard to Internet Use*	2016 / quantitativ e/ regional	Belgium triads: both parents and children 13-18 years old	357 triads: both parents and adolescent 13-18 years old	interpretative mediation / restrictive of interactions & content / supervision and co-use / technical mediation / monitoring / mediation strategies mix	Mediation decreases with age /but adolescents do not feel; fathers mediate less; children's gender and parents' age do not correlate with mediation; there is no need to study triads - it is sufficient diads; children report less mediation than parents
14	Beyens I., Patti M. Valkenburg P.M., Piotrowski J.T., 2018, *Developmental Trajectories of Parental Mediation Across Early and Middle Childhood*	2017 / longitudina 15 years / quantitativ e	Holland: parents	101 parents of children 3-7 years old / 90% mothers	active-positive mediation / active - negative / restrictive / mediation strategies mix	Parents do not use only one type of mediation, but a mix of each; curb linear pattern of mediation strategies, with the peak at 7-8 years, then decreases; stress influence mediation strategies
15	Koning I.M., Peeters M., Finkenauer C., Van den Eijnden, J.J.M., 2018, *Bidirectional effects of Internet-specific parenting practices and compulsive social media and Internet game use*	2015 & 2016 / longitudina l / quantitativ e	Holland: children 12-15 years old	352 adolescents 12-15 years old / 49% boys	active mediation (frequency and quality of info) / restrictive (reactive and rules) / social co-use / participative learning	Only for girls restrictive mediation by rules is effective & it is necessary in-depth research on the digital behavior of parents
16	Nwankwo F., Shin H.D., Al-Habaibeh A., Massoud H., 2019, *Evaluation of Children's Screen Viewing Time and Parental Role in Household Context*	2018 / mixt quantitativ e & qualitative	UK: parents	140 parents with children 5-16 years old = online questionnaire & 10 semi-structured interviews	Supportive and encouragement mediation / monitoring / modeling	Parents are aware of the risks and are concerned about their children's time spent online; children use at least 2 screens on the same time and develop unhealthy food behaviors; depending on how parents use – children do the same

17	Hoffman J., 2019, *Out of Sight, Out of Mind: The Parental Mediation Strategies of Parents of Children Under Two in the Digital Era*	2019 / qualitative / regional	Denmark - Germany: parents expiate	5 families in DK and one family in GER with 1 child of 1-2 years old	active mediation / restrictive / co-use / distance mediation	Parents restrict their own use to not influence the child negatively and have a high level of information on the risks (educated parents and high socio-economic status)
18	Liu R.D., Wang J., Ding Yi., at al, 2019, *The Effect of Parental Phubbing on Teenager's Mobile Phone Dependency Behaviors: The Mediation Role of Subjective Norm and Dependency Intention*	2019 / quantitative / regional	China: children 13-18 years old	605 students in 7 – 11 grades	modelling = phubbing	Parents behavior with technology is imitated by children
19	Nikken P., Opree S.J., 2018, *Guiding Young Children's Digital Media Use: SES-Differences in Mediation Concerns and Competence*	2016 / quantitative / online	Holland: parents	1029 parents with children 1-9 years old	active co-use / restrictive / restrictive with aid of technology	The level of children's digital skills influences mediation strategies; children from single-parent families have access to more than one devices
20	Ding Q., Li D., Zhou Y., Dong H., Luo J., 2017, *Perceived parental monitoring and adolescent internet addiction: A moderated mediation model*	2017 / quantitative / regional	China: children 10 - 15 years old	747 children, average age 13.7 years old	monitoring	Internet addiction is mediated by monitoring strategies and peers affiliation
21	Álvarez-García D., Núñez J.C., González-Castro P., Rodríguez C., Cerezo R., 2019, *The Effect of Parental Control on Cyber-Victimization in Adolescence: The Mediating Role of Impulsivity and High-Risk Behaviors*	2017 / quantitative / regional	Spain: children 11-18 years old	3360 students 11-18 years old / average age 14.02 years old / 48.3% girls	Restrictive mediation - monitoring / less restrictions and low supervision	The atmosphere of affection and parental communication influences the acceptance of restrictions; supervision is effective, as it prevents the adolescents impulsiveness
22	Fu X., Liu J., Liu R-D., Ding Y, Hong W., Jiang S., 2020, *The Impact of Parental Active Mediation on Adolescent Mobile Phone Dependency: A Moderated Mediation Model*	2019 / quantitative / regional	China: children 12 - 19 years old	2238 adolescents 12-19 years old, 7 – 11 classes, average age 13.89	active mediation / modeling-phubbing	Parents' behavior with technology shapes children's behavior
23	Wright M.F., 2017, Parental mediation, Cyberbullying, and Cybertrolling. The Role of Gender	2016 / longitudinal / quantitative / regional	SUA: children13-15 years old	568 students, average age 13.48 years old/ 52% girls	Instructive mediation / restrictive / co-use / monitoring / mix of strategies	Mixed mediation: co-use + monitoring + surveillance = effective in reducing involvement in cyberbullying; restricted mediation is related to over-protective parenting style; it is necessary to study how the relationship between parents and adolescents and the type of parenting influences mediation strategies and involvement in cyberbullying
24	Dedkova, L., & Smahel, D. (2019). *Online Parental Mediation: Associations of Family Members' Characteristics to Individual Engagement in Active Mediation and Monitoring.*	2016 / quantitative / online	CZEH: parents with children 5 – 17 years old	238 parents with children 5 -17 years old – average age 10.8 years old/ 53.4% mothers	active mediation (include co-use) / monitoring)	Online mediation is influenced by all those who care for the child – not only 1 parent & mediation is not a stable process, but built into everyday life

25	Chang F-C., Chiu C-H., Chen P-H., at al, 2018, *Children's use of mobile devices, smartphone addiction and parental mediation in Taiwan*	2016 / quantitative / national	Taiwan: diads parents / children 7 - 11 years old	2468 parents with primary classes children & 2621 pupils in 5 class.	active/restrictive mediation/monitoring	Strong parent-child attachment relationships and restrictive mediation are protective factors for internet addiction; children with low performance, those from low-income or divorced families are at greater risk of addiction developing
26	Meeus A., Eggermont S., Beullens K., 2018, *Constantly Connected: The Role of Parental Mediation Styles and Self-Regulation in Pre- and Early Adolescents' Problematic Mobile Device Use*	2016 / quantitative / online	Belgium: children 12-18 years old	475 adolescents 12-18 years old / average age 14.6 years old / 65% girls	active mediation - control & autonomy - supportive / restrictive - control & autonomy supporting / restrictive - inconsistent	Active mediation has no effect because does not limiting exposure to anti-social content - determines anti-social behaviors; no type of mediation influences the direct relationship between exposure to content and behavior/copying; restricted autonomy-support strategy stimulates critical thinking and limits exposure to antisocial content = is beneficial; parenting style is decisive in media parenting, not the type of mediation.
27	Rodríguez-de-Dios I., Van Oosten J.M.F, Igartua J-J., 2018, *A Study of the Relationship between Parental Mediation and Adolescents' Digital Skills, Online Risks and Online Opportunities*	2016 / quantitative / national	Spain: children 12-18 years old	1446 students, 12-18 years old / average age 13.9 years old / 51% rural area	active/restrictive/learning-participatory mediation	Positive attitude towards technology increases digital skills & anxious attitude towards technology correlates negatively with digital skills development
28	Aierbe A., Oregui E., Bartau I., 2019, *Video games, parental mediation and gender socialization*	2018 / mixt quantitative & qualitative	Spain: parents with children 12-13 years old	186 parents with children 8 - 13 years old - faze 1 quantitative / 44 parents faze 2 qualitative	F1: instructive mediation (support and communication) / restrictive / playing together / mixed strategies; F2: support and guidance strategies / control strategies / reactive strategies	Fathers use more instructional mediation with girls / mothers more restrictive / instructive mediation / co-use with boys; most used = restrictive mediation (play time control); least used = co-use; more restrictions for boys than for girls and co-play more with boys.