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**University
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Educational Studies for Adult, Youth & Community Context MSc

**The Use of Digital Technologies to Increase Parent
Involvement: A Narrative Review**

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Abstract

In order to depict the situation of technology applications in fostering parent involvement, this study adopts the approach of literature review by analyzing relevant publications yielded in the last ten years, with the purpose of finding answers to three research questions: (1) What digital platforms or channels are being used to facilitate parent involvement in elementary and secondary schools in a global context? (2) How using digital technologies to increase parent involvement might benefit teachers, parents, and children? (3) What challenges have been brought by the use of digital technologies in home-school collaboration? Three main findings are summarized as below.

First of all, there are long-standing digital communication channels such as phone calling, text messaging and email, as well as new channels which are now prevailing in most parts of the world, such as social media and LMS. Each digital tool has its own strengths and drawbacks. The selection of technology should be based on knowledge of current conditions and parents' needs as well as their access to technologies and digital skills. Secondly, the use of digital technologies in home-school relationship yielded many positive outcomes. It is observable that home-school communication, including parent-teacher and parent-student communication, has been improved. When digital technologies are incorporated into home-school collaboration, they also support children's learning out of school, pose positive impact on teaching pedagogy, and even boost digital access as well as digital literacy. Lastly, technology applications also introduced some challenges in home-school relationships. The challenges, including new issues such as ethic problems and existing and extended problems in home-school relationships, were either brought by the technology itself, or by the process in which people use the technology. These challenges are confronted by all parties in home-school relationships.

It is meaningful to review the literature on the use of digital technologies. It will not only help to identify topics in this field that deserve further research on the theoretical level, but also allow educators to better realize the essence of these challenges and draw up policies to build a better partnership between schools and parents with the application of digital technologies.

Key words: home-school relationships, parent Involvement, communication, digital technologies, literature review

Chapter 1: Introduction

As a place of education, school is not an independent entity, but a combination of various relationships, including parent-student relationships, parent-teacher relationships, and even parent-child relationships. In this sense, how parents are involved in the educational process in school is an unavoidable topic for educators. Compared with scenarios in the past, parents of school-age children are now playing a more significant role in their child's studies. Based on my own lived experience (from 1990 till now) and my experience working in the field of education (from 2016 till now) in China, parents' awareness of the significance of education has increased exponentially. As a result, parents are becoming more and more willing to be involved in their child's learning. Places other than China have also witnessed the same situation. According to the study by Gewirtz et al (1995), in addition to making choices for their child in educational "marketplaces", parents are also taking greater responsibility for monitoring and guaranteeing their child's engagement with schooling. In this sense, parents in fact attach greater importance to the role they play in their child's academic development. Therefore, the concept of "parent involvement" has become a key factor in efforts made to improve the pupils' educational levels. It is clear to see that parents have become part of, even central to, the education strategy, regardless of whether parents and teachers like it or not (Crozier, 2000).

1.1 Parent Involvement

The word "parent" in this research refers to anyone in the guardian position of a child, including natural parent, adoptive parent, step parent, or grandparent. Parent involvement can be defined as parents' participation in various activities to support their child's academic achievement and personal development. In academic research and educational practices, various terms, such as "parent involvement", "parental involvement", "parent engagement", "parental

engagement”, “family involvement”, “family engagement”, and “parent empowerment”, are interchangeably adopted. Though the terms are different, their meanings are similar or even identical.

In terms of typology, the most widely-adopted model in existing literature is the one from Epstein (1992), which divides parent involvement into six categories, including “parenting”, “communicating”, “volunteering”, “learning at home”, “decision-making” and “collaborating with community” (for descriptions of each type, please see Table 1). Although it has been criticized for being Euro-centric and not focusing on the school’s roles and responsibilities (Johnson, 2015), it has posed great influence on the way researchers look into this topic as well as how policymakers and educational practitioners design and implement parent involvement projects.

Table1. Epstein's Six Types of Parent involvement

	Type	Description
1.	Parenting	Providing children with basic needs such as health, nutrition, and safety
2.	Communicating	Communicating with school in various ways about children’s academic and behavioral performance
3.	Volunteering	Volunteering at the school to assist classroom activities or school events
4.	Learning at Home	Helping students at home with homework and other curriculum-related activities, decisions, and planning
5.	Decision-Making	Joining a parent-teacher association (PTA) or other parent organizations, advisory councils, or committees (e.g., curriculum, safety) for parent leadership and participation
6.	Collaborating with Community	Keeping in touch with community organizations that share responsibility for children’s education, such as afterschool programs, health services, and other resources

Despite the multiple dimensions of Epstein's model, most research only focuses on two types of parent involvement: i.e. home-based involvement and school-based involvement (Barnard, 2004). Some scholars employed other typologies. For example, Lee and Bowen (2006) concluded five types of parent involvement in their study: (1) parent involvement at school, (2) parent-child educational discussion, (3) homework help, (4) time management, and (5) parent educational expectations.

In terms of the understanding of parent involvement among different parties, a contentious topic in the literature is the different understanding between parents and school staff about what parent involvement means. In a study conducted by Lawson (2003), although both teachers and parents considered parent involvement to be important, there seemed to be a lack of consensus about the meanings of parent involvement. Parents thought involvement was ensuring their child's safety and punctual arrival at school, while teachers expected parents' presence at school when necessary. As a result, teachers blamed parents for not being involved, which made parents feel unappreciated. Even if some parents knew what teachers expected of them, such as participating in school activities, they might not understand the reasons and benefits of such involvement (DePlanty *et al*, 2007).

It is also worth noting that the role of children, though often overlooked, is essential in parental involvement, in that children play an active role in mediating the relationship between teachers and parents. Children are very clear about wanting their voices to be heard by parents and teachers in matters concerning their education, and this can lead to both positive and negative emotions along the way. For instance, they can be very resentful of not being consulted by teachers and parents (Grant, 2011). Based on the different imaginations regarding parent involvement by different parties, as McNeal

(2015) stated, parent involvement is thus a topic that concerns multi-relationships, including parent-child, parent-teacher, and parent-parent relationship.

1.2 Benefits of Parent Involvement

Relevant literature has addressed various benefits of parent involvement in education (e.g. Dearing *et al*, 2004; Duan *et al*, 2018; Fan & Chen, 2001; Wang & Sheikh-Khalil, 2014). Because students' academic and behavioral performance is the main concern of both parents and teachers, the discussion of benefits of parent involvement is mainly about students' academic achievement and behavioral development.

A meta-analysis of the qualitative literature has shown the positive impact of parent involvement on students' academic outcomes (Fan & Chen, 2001). To be more specific, research has shown the close relationship between parent involvement and various indicators for academic achievement, such as motivation (Oostdam and Hooge, 2013), homework completion (Cancio, West, & Young, 2004), reading skills (Senechal & LeFevre, 2002), lower dropout rates (Rumberger, 1995), and better state test results (Sheldon, 2003).

Apart from academic results, parent involvement also has a positive influence on students' behavior. For example, studies have shown that parenting practices could contribute to students' social competencies (Hill *et al.*, 2004), self-regulation ability (Brody *et al*, 1999), and less disruptive behavior (Kratochwill, *et al*, 2004).

Scholars have also attempted to identify what certain kinds of parent involvement, mostly parent involvement at home or parent involvement in school, make the greatest contribution to student achievement, and the results vary. Some found that involvement at home has the greatest impact (Ingram *et*

al, 2007; Van Voorhis, 2003), while others concluded that involvement in school made the key difference (Lee & Bowen, 2006).

1.3 Barriers to Parent Involvement

Despite the positive influences of parent involvement on students' achievement, there exists a variety of barriers for some parents to engage in their child's learning. For example, Williams and Sánchez (2013) identified four types of barriers for African American parents: (1) time poverty, (2) lack of access, (3) lack of financial resources, and (4) lack of awareness. Apart from these, some other obstacles to parent involvement have also been found in the literature: the parents' own negative experiences as a student could lead to their reluctance to become involved in their child's school learning when they become parents (Lightfoot, 1978). Language barrier could also restrain some immigrant parents from being involved, as teachers would normally talk to them in English, while they could not speak English (Olmstead, 2013). Single and teen parents found it hard to be involved due to other work or family obligations (Lee et al, 2007). Besides, some parents expressed their feelings of alienation, isolation, disengagement, and other negative feelings about communicating with school staff, which led to their unwillingness to be involved (Beth, 1992). In such scenarios, parents are excluded from the relationship even if they had been willing to engage in the first place.

1.4 The Practice of Technology in Parent Involvement

In different times, home-school relationship is facilitated via various media. As a result of technology development, digital technologies have been increasingly used in home-school relationship. Take my own experience for example. In China, teachers would normally share information of students and communicate with parents in Parent Groups on WeChat (a Chinese multi-purpose messaging and social media app). In addition, since the outbreak of COVID-19, the widely taken social distancing policy has led to a boom in

distance education. As a result, the significant role of digital technologies in the field of education has become all the more evident. If living with COVID-19 is to become a new normal in the forthcoming years, the role of digital technologies in home-school partnership will only be more essential in a gradual manner. Therefore, how digital technologies can be used to increase parent involvement has become a noteworthy research topic, especially in a post-pandemic era which confronts educators these days.

To examine the use of digital technologies, many empirical studies have looked into how these digital technologies can help increase parent involvement, and such research will be discussed in the following chapters. However, there is no comprehensive literature review on this topic, so it is difficult to grasp the entire discourse in this field. Thus, this study seeks to draw a picture of how digital technologies are used to enhance parental involvement by the school, and how it may support as well as raise new issues for home-school relationships. Specifically, there are three research questions as follows:

1. What digital platforms or channels are being used to facilitate parent involvement in elementary and secondary schools in a global context?
2. How using digital technologies to increase parent involvement might benefit teachers, parents, and children?
3. What challenges have been brought by the use of digital technologies in home-school collaboration?

This review is set within the context of elementary and secondary schools, because elementary and secondary education are compulsory education that everyone needs to go through in many countries, as written in Article 28 of the UNCRC,

“Children and young people have the right to education no matter who they are: regardless of race, gender or disability; whether they are in detention, or if they are a refugee.

Children and young people have the right to both primary and secondary education and should be able to choose different subjects when in secondary school. This should include the option of technical and vocational training, so they should not have to focus on academic subjects if they do not want to.”

As a result, it is meaningful to conduct a literature review regarding the use of digital technologies to increase parent involvement. On one hand, on a theoretical level, it will provide an overview of previous research outcomes in this field, so as to pave way for further research; on the other hand, on a practical level, it can inform policymakers to utilize digital technologies to help build a better partnership between schools and parents, and thus benefit educational practitioners, parents, and students alike.

In the following chapters, I will describe and justify narrative review as a methodology in this study, and then answer the three research questions according to the proposed methodology.

Chapter 2: Research Methodology

In order to answer the research questions, an appropriate research method should be adopted to apply to this research topic. Using interviews was the first method I considered, because it seemed to be a simple and straightforward way to collect answers to the research questions in this study. However, due to the crisis of covid-19, only secondary data could be utilized when conducting the research, as human research that involves surveys or interviews is currently banned. Apart from that, several reasons also illustrate that literature review could be a better option than interview for this study. First of all, if the research is conducted via interviews, it can be potentially difficult to identify a representative sample within the parameters and timeframes of the present study, as a small sample may not provide the extent and depth of data required for this study. The research does not seek to approach the research questions through the collection of detailed, case-by-case answers, instead, it focuses more on the overall phenomena. Therefore, interview may not be adequate in this sense. Secondly, as this research seeks to elucidate issues that many parents and schools are facing, conducting a literature review will provide a perspective of profound understanding for these issues and generate guidelines for further research. Moreover, a considerable number of previous studies have been carried out on the use of digital technologies, and thus by conducting a literature review, some answers to the research questions could be found and contrasted in order to help establish a more comprehensive view for the use of digital technologies.

2.1 Narrative Review as a Research Method

Literature review is a type of secondary data analysis, which is a research method that reviews and analyzes existing contents of a certain topic based on secondary data (Johnston, 2014). Researchers conceptualized literature review in different ways (Bruce, 1994). From my understanding, as a research

method, literature review can be defined as an in-depth probe into a subject or topic by identifying and analyzing existing research papers, books, and other published texts relevant to the present study. There are different types of literature review, and the two main categories are narrative review and systematic review (Bryman, 2012). In order to illustrate why narrative review, rather than systematic review, was adopted as the research method in this study, the difference between them will be first introduced in the following paragraphs.

Originally developed in the field of medical science, systematic review is a research method whose procedures are explicit, systematic, transparent, and replicable (Bryman, 2012). It is considered to be an accountable research method valuable for decision-makers, because this kind of review appears to include less bias. However, adopting a systematic review approach is not suitable for all research projects. As a result, typically, research projects that explore if a certain independent variable has some kind(s) of effect, such as “what works?” or “does X work?”, tend to adopt this approach (Bryman, 2012).

On the other hand, narrative review, also known as traditional literature review, is a research method whose procedures are not pre-specified. Bryman (2012) described it as “a more uncertain process of discovery” (p110). As Bryman (2012) said, the purpose of narrative review is to provoke understanding, not to assemble knowledge. Therefore, compared with systematic review, narrative review is generally less focused and has a broader range in scope.

The two approaches are clearly different in many aspects. Systematic review fits into the paradigm of positivism, which considers that reality is objective and singular (ontologically), and the knowledge of reality can be observed, measured, and verified (epistemologically). On the contrary, narrative review adopts the paradigm of interpretivism, which does not regard reality as a

singular being, but a multiple and socially constructed existence. Accordingly, the knowledge of reality is interpreted from the perspective of subject matters. The following table clearly notes the differences between these two types of literature reviews (see Table 2).

Table 2

	Systematic Review	Narrative Review
Typical Purpose	Accumulate knowledge Eliminate bias	Generate Understanding
Research Questions	Clearly defined and specific	Can be general or specific
Research Strategy	Systematic	Usually not systematic
Process	Vary slightly Tend to follow the same order	Vary greatly More of an uncertain journey of discovery
Paradigm	Positivism	Interpretivism
Methodology	Quantitative methods	Qualitative methods

Narrative review, rather than systematic review, is adopted in this research. Such methodology was chosen because as a former teacher who had taught both primary and secondary school students, I had four years of experience in communicating with parents, with or without using digital technologies. As a consequence, how I interpret the information found in the literature will inevitably be affected by my own lived experience. In this sense, answers to the research questions presented in this study would not be objective or singular, but interpreted subjectively instead. It is also worth mentioning that this study does not intend to emphasize the theoretical gap in the discourse regarding parent involvement, but rather seeks to focus on the technological use in promoting parent involvement. By reviewing other scholars' discussion,

the research aims to sum up what has been discussed in this field and turn it into meaningful statements, and, in this way, reply to the research questions raised in the first chapter. Based on the reasons above, narrative review is the best method for this study.

2.2 Process of Identifying and Selecting Relevant Studies

Evidently, it was impossible for me to review all existing papers, journals, books, and other published texts on a certain topic. Thus, methodologically, I need to clearly describe how I searched for data to make the research process transparent and explicit, as a clear description of the process of identifying and selecting relevant studies is a significant part of narrative review (Bryman, 2012). For example, in a study exploring the stigmatization of problem drug users conducted by Lloyd (2013), detailed description (e.g. what key words had been set, what databases were used, and what language the articles are written in) was explicitly described. By doing so, it was helpful to show the readers how knowledge was revealed by reviewing the literature, and thus would make the study more trustworthy.

During the collection of data for analysis, I was also enlightened by Shachak and Reis (2019), who clearly explained what conditions they set to search for relevant articles, not only listing the key words but also showing how to combine or classify these key words with “AND” and “OR” in the narrative review they conducted. Therefore, my operational practices are described as below.

In this study, there are four steps to identify and select relevant articles. First, key words are set to search for relevant articles. Second, other standards for selection are adopted to narrow down the scope. Third, titles and abstracts of identified articles are screened. Finally, full articles are read though to assess eligibility.

Specifically, in the first step, two sets of key words are set for searching in the database of university library:

1. (digital OR technology OR media) AND (home-school OR family-school OR parent-school OR family-teacher OR parent-teacher) AND (partnership OR collaboration OR communication OR relationship) AND (primary OR elementary OR secondary)

2. (digital OR technology OR media) AND (“parent* involvement” OR “parent* engagement” OR “parent* empowerment”) AND (primary OR elementary OR secondary)

The key words are set in this way because there are different words or phrases referring to the same meaning as “home-school relationship” or “parent involvement”, such as “home-school cooperation/collaboration”, “family-school partnership”, “family-teacher communication”, “parent-teacher communication”, “parental involvement/engagement”, “parent empowerment”, etc. Similarly, “digital”, “technology”, and “media” all mean the same, and they represent the focus of this study. In addition, “primary”, “elementary”, and “secondary” reflect that the context of the study is in primary/elementary and secondary education. Using “OR” to include all possible synonyms is essential in the searching process. “AND” is used between words or phrases to ensure the articles found are related to the designed topic and context.

In the end, more than 67,000 articles were yielded through the first-step database searching using the two sets of key words.

Next, other standards are set to narrow down the scope. Only peer-reviewed journal articles in the domain of education discipline published in the last ten years written in the English language are selected. The reason why only such articles published in the last ten years are chosen is that the ways digital

technologies facilitate home-school communication vary and are upgraded very fast as technology develops rapidly. Thus, articles published before 2010 would be less relevant as they are deemed rather out-of-date.

Combined with the conditions “peer review”, “last ten years”, “discipline of education”, and “English language”, the first set of key words brought 3564 articles, and the second yielded 850.

Although the preliminary results were filtered by the standards listed above, many of the identified articles were still not related to the research questions in this study. Thus, in order to select the most relevant ones among them, I read through all the titles and abstracts. After that, only 42 articles that could answer the three research questions were identified.

All these 42 articles were read thoroughly and assessed for eligibility. This process further excluded 12 articles, with the following reasons: literature review (2), not related to the research questions (6), and not in the context of elementary and secondary education (4).

Besides, both backward and forward references search and authors search (Levy & Ellis, 2006) are applied in order to find additional relevant articles, which yielded another 6 texts. In the end, a total of 36 studies are included in this review.

Records identified through first-step
database searching with key words
(n=59,084+18,741)



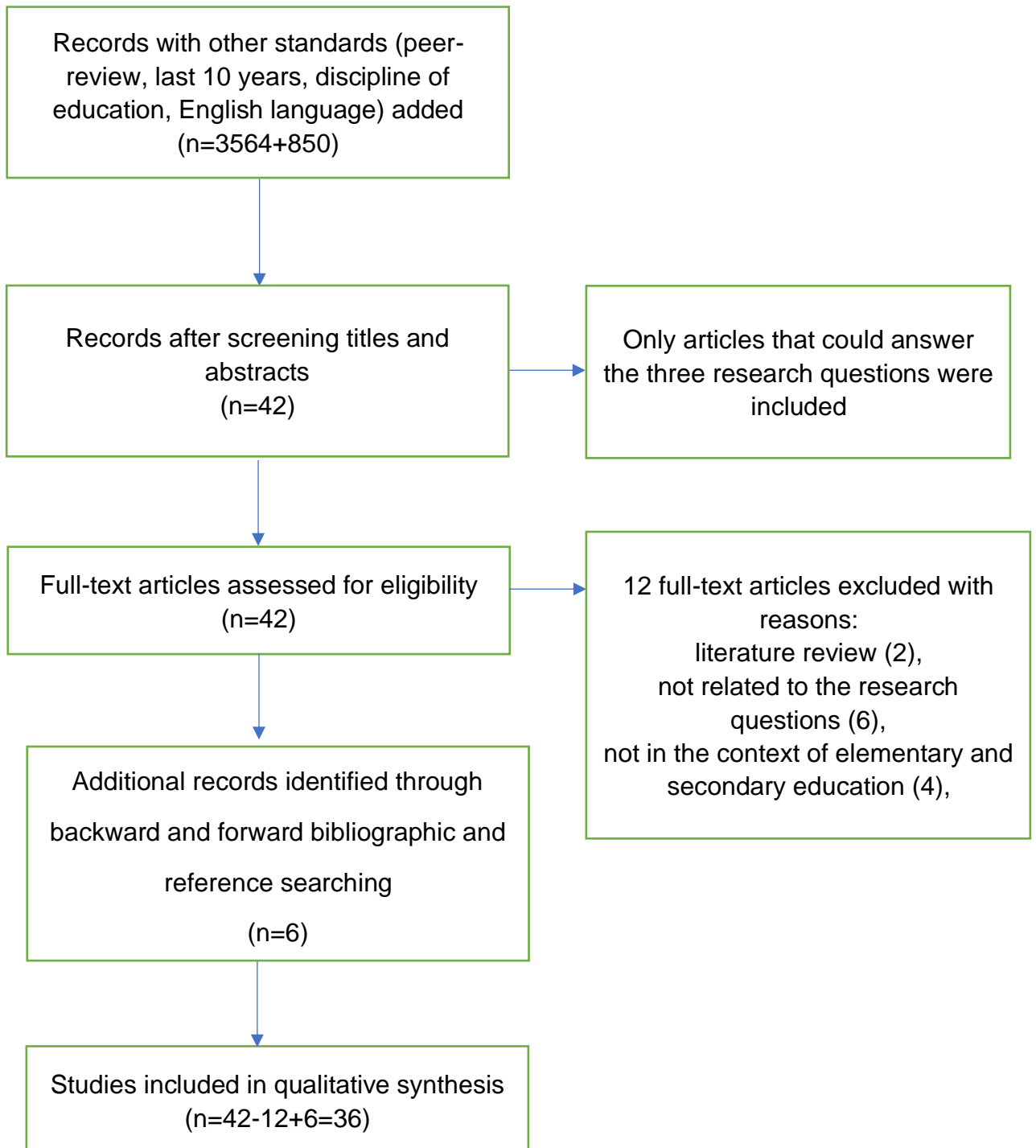


Figure 2 Process of identifying and selecting relevant studies

2.3 How to analyze the data?

In this study, three research questions were raised. As previously mentioned, literature review was adopted as the methodology to collect and analyze data.

In order to find answers to the research questions, all the identified articles were thoroughly read, with the information needed digested and then synthesized. An inductive method was applied to classifying all the statements made from different researchers. In practice, thematic analysis was employed. Thematic analysis is a common form of analysis in qualitative research to analyze the data I gathered. In the words of Braun and Clarke (2006), thematic analysis is “a method for identifying, analyzing, and reporting patterns within data (p79).” According to a step-by-step guide offered by Braun and Clarke (2006), a six-phase analysis process was conducted as follows: 1. Getting familiar with the data by reading, re-reading, and noting down initial ideas; 2. Generating initial codes by listing what was in the data and how it was relevant to my study; 3. Collating codes into potential themes and gathering all data related to each theme; 4. Reviewing the themes by considering whether data extracts within each theme appeared to form a coherent pattern, whether the themes “worked” in relation to the data set, and whether there was any additional data that had been missed in earlier coding stages; 5. Defining, further refining, and naming the themes; 6. Producing the report. As pointed out by Braun and Clarke (2006), the analysis was not a linear process, but a recursive one.

In the following chapters, research questions raised in the introduction chapter will be answered in turn. In Chapter 3, all the digital channels applied to parent involvement in existing literature as well as the evaluation of each channel are listed. The trend of technological use in home-school collaboration is also predicted. In Chapter 4, the benefits and outcomes for the school, parents, teachers, and students which result from the use of digital technologies to increase parent involvement are described. Via empirical studies, previous researchers have discussed what outcomes and benefits would be brought by digital technologies. Based on these studies, the present research further synthesizes and organizes the results. In Chapter 5, the challenges are addressed. Such challenges derive from the fact that the use of technology is

closely related to one's material condition and relevant knowledge or skills. Thus, unavoidably, digital technologies which are used to promote parent involvement not only bring benefits, but also pose challenges such as inequality. Therefore, such challenges are addressed, summarized, and then categorized in the fifth chapter. Such data analysis would not only enable readers to see the current situation of technological use in home-school collaboration theoretically, but also offer advice for future researchers and policy-makers in reality.

Chapter3: What Digital Platforms or Channels Are Being Used to Foster Parent Involvement in Elementary and Secondary Schools in a Global Context?

Due to the proliferation of smartphones and other digital technologies in recent years, digital tools have been increasingly used to promote parent involvement in education settings. From 2010 on, the discussion of digital technologies in parent involvement has reflected its growing trend. For example, the implication of social media has been increasingly mentioned in research and academic essays. In educational research, what digital channels have been discussed by scholars? Reviewing the literature on this will help comprehensively depict the situation of technological use in promoting parent involvement, including the trends and the application methods.

As a result, this chapter discusses the application of several common digital channels in turn, including longstanding home-school digital communication channels, such as school websites, phone calling, text messaging, and email; however, new platforms are also included, such as social media (Facebook, Instagram, Twitter, Wechat, etc.) and Learning Management Systems (LMS) (Goodall, 2016). From this classification, it can be seen that technology has been applied to home-school cooperation for a long time. It is worth mentioning that all these channels are not used independently or exclusively by parents, teachers, and students. Instead, they are normally used interchangeably based on different purposes and situations. However, in order to clearly describe the application of each channel, these channels will be introduced individually.

3.1 Phone Calling

Phone calling literally means communicating through phone calls. Obviously, it is a relatively traditional digital technology used to facilitate home-school communication. For teachers, it was not a preferred communication method

based on privacy concerns, as many of them expressed their unwillingness to provide cellphone numbers to parents (Olmstead, 2013). Parents seemed to bear the same opinion, as few of them listed it as the best option to communicate with teachers in a research study with the participation of 1,349 parents of elementary and secondary school students, though some might call teachers for urgent, time sensitive issues (Thompson *et al*, 2015). However, neither of the two studies distinguished participants from different areas or different types of schools. In the study of Palts and Kalmus's (2015), they classified the schools by their scale (big, medium, and small) and geographical locations (city and country), and they found that participants from different kinds of schools had different opinions towards what communication channel they preferred. The results of their study showed that phone calling was chosen as the most preferred communication method by teachers from medium city schools, small city schools, small country schools, and parents from big country schools. Even though the number of teachers and parents who participated in each type of school was less than ten, which was obviously too limited, this study did provide a different perspective on people's attitude towards phone calling as a communication channel between parents and teachers. Some parents and teachers favored phone calling for home-school communication mainly because it was a quick and direct way to share information, and they tended to assume that written content might not be responded to immediately (Palts & Kalmus, 2015).

Although phone calling as a communication channel between home and school has become less popular, it is still playing a significant role in practice. Palts and Kalmus's study reminds us of certain variables affecting people's preference for phone calling and other digital tools. What other variables might also affect such choice certainly deserves further research, as it will help professionals in the field of education as well as parents better understand how this less-favored method is still worthy of being used in the current era of social

media rise. It would also be worthwhile to describe the scenarios in which phone calling would be the preferred option, so that issues can be dealt with in time in case of emergencies.

3.2 Text Messaging

Much like phone calling, text messaging is also a traditional home-school communication method. It is a digital communication channel that is mainly based on words. This method is more often used to deliver one-on-many messages than to send one-on-one texts. For example, teachers often send parents and students text messages to inform them of school events and activities via text messaging systems such as Remind (Goodall, 2016; Laho, 2019). Parents and teachers considered it convenient (Thompson *et al*, 2015), fast and efficient (Palts & Kalmus, 2015). Although it is a common means of home-school communication, parents' and teachers' attitudes towards text messaging in fact vary greatly. In Olmstead's (2013) study, while over half of parents indicated that they would like to contact teachers via texting, 71.4% of teachers responded that they did not want to communicate with parents this way. Teachers normally text short messages that do not require immediate response (Palts & Kalmus, 2015).

3.3 Email

Among all longstanding digital communication methods, email seems to be the most popular in recent years. It was the most preferred method for parents to communicate with teachers (Thomson *et al*, 2015). There were three main reasons (Thomson *et al*, 2015): the first was its convenience. Many parents considered it quick and easy to communicate via email, and they enjoyed the asynchronous nature of it, which enabled them to read and reply to the message at their own convenience. The second reason was because they could get access to emails easily due to the proliferation of smartphones. Last

but not least, certain features of email, such as asynchrony and reprocessability, allowed them to compose a message more effectively.

According to research (Olmstead, 2013), not only did parents prefer to communicate via email, teachers did too. Olmstead (2013) indicated that 86 out of 89 parents preferred email and meeting in-person as their communication methods with teachers, whereas most teachers preferred email and social networking, though they mostly communicated with parents through email or in person in actuality.

However, email as a communication method also has its own limits. Some reckoned not getting an immediate response as a disadvantage of it, e.g. Palts & Kalmus (2015). Another pitfall of communicating via email was its impersonal feature. As faces cannot be seen and voices cannot be heard, tones and meanings might not be accurately interpreted (Olmstead, 2013) or even misinterpreted. These limits were not brought by technology itself, but they certainly existed in every home-school relationship. Therefore, how to investigate the limits of email as a communication tool in home-school communication is another important research topic.

3.4 Skype / FaceTime

Following the updates of digital technologies, Internet-based immediate communication method such as Skype has also become an option for home-school communication. Quantitative results of the survey conducted by Thompson, Mazer & Flood Grady's (2015) revealed that Skype or FaceTime had never been used for parent-teacher communication. However, some parents mentioned in open-ended questions that they had begun to use it to communicate with teachers. Those who expressed their preference for Skype as a communication method said it was because communicating via Skype or Facetime can let them see the other person's face, voice/tone, and body

language. Nevertheless, some stated that they disliked Skype, simply because they were not comfortable using it.

3.5 School Websites and Teachers' Websites

Some schools tend to use school websites to communicate with families (Hohlfeld et al, 2010). Olmstead's (2013) survey revealed that almost half (40 out of 89) of the parents checked the school's website and their teacher's website 1-2 times per month. For teachers, some considered updating their websites to be time-consuming. However, parents commonly expressed their appreciation of being able to have access to these sites (Olmstead, 2013).

3.6 Social Media

Social media has become increasingly popular for promoting parent involvement as a result of the development of social media platforms and the growth in the number of users. As various social media platforms have infiltrated into people's daily life, they can often be seen as a tool for home-school interactions too (Thomson et al, 2015). It is mainly because social media platforms have multiple functions, including one-on-one or one-on-many communication, immediate or non-immediate communication, providing records of words, photos, videos for people to see, comment or like, etc. For example, in a public high school in northern Spain, teachers created a Facebook group to promote parent involvement with their child's PE class (Fernandez-Rio & Bernabe-Martín, 2019). In the group, contents of the PE class were posted in the form of words, pictures, or videos. Besides, parents could follow up the class by clicking likes, sending emoji, publishing comments, uploaded pictures/videos, and taking part in some activities with the students at home. It turned out that the social website Facebook boosted parent involvement a lot.

Besides Facebook, Instagram is also welcomed by parents and teachers as a communication tool (Hutchison et al, 2020). Some teachers are used to integrating Instagram into their daily practices to share students' work during the school day and to communicate with parents. By doing so, all the educational practices have become more transparent, so parents can know better about their child's learning experience and progress.

Apart from Facebook and Instagram, many other social media have also been applied to home-school interaction, such as Twitter (Olmstead, 2013), Blog (Hutchison et al, 2020), and Wechat (mainly used in China, Huang & Lin, 2019).

3.7 Learning Management Systems (LMS)

LMS are online learning platforms that provide courses, lessons, or training programs. Many LMS have functions that enable parents to view their child's courses, assignments, and academic performance as well as to communicate with teachers. LMS are different from student information systems (SIS), which mainly offer parents their child's records, such as attendance, grades, achievement, and behavior. In contrast, LMS deliver more specific contents, including day-to-day courses and activities, as well as their actual work and teachers' feedback on specific tasks, not just grades. Elementary and secondary schools are applying LMS on an increasing scale, such as Google Classroom, Schoology, Moodle, and Canvas, with the purpose of increasing parent involvement.

Teachers considered LMS valuable and beneficial both as a communication tool and as a platform to share information and resources with parents, students, and other teachers (Laho, 2019). Parents had the same opinion. They appreciated that they could easily use LMS to monitor their child's progress (Laho, 2019).

However, there are also challenges of using LMS. Some teachers thought LMS were difficult to use, not only because of technical issues, but also because it was time-consuming and hard to post things for every class (Laho, 2019). Some parents also mentioned that they preferred other tools (Laho, 2019).

3.8 Discussion of the digital channels

As Olmstead (2013) concluded, most types of parent involvement can be promoted by using digital technology. For example, the use of email enables parents to communicate with teachers more conveniently and more frequently. Text Messaging Systems, schools' and teachers' websites, social media, and LMS allow parents to stay informed about school events and their child's progress. However, as discussed above, each digital tool has its own limits and disadvantages. As a consequence, there is not yet a single channel that suits all teachers, parents, or students.

In fact, there may never exist such a channel that satisfies everyone, as each type of school, teacher, and parent is unique and has different needs and requirements. Even the same group or class may demand certain different solutions at a given time. In real-life situations, the choice of which digital tool to use in order to involve parents seems quite flexible, as it relies upon the context and purpose (Palts & Kalmus, 2015). The selection of technology should be based on knowledge of current conditions and parents' needs as well as their access to technologies and digital skills. Therefore, getting to know various parents' situations by investigation or discussion is essential before making decision on the use of these technologies.

Besides, it is worth mentioning that the aim of the present study is not to suggest that using digital technologies is the only way to increase parent involvement. As some researchers pointed out, face-to-face communication is still playing an important role in involving parents (Olmstead, 2013; Palts &

Kalmus, 2015). Other offline methods, such as designing volunteering programs for parents to participate in and cooperation tasks for parents and students to finish together, could be effective ways to promote parent involvement too.

However, various digital technologies do provide parents with more opportunities to get involved in their child's learning.

Chapter 4: How Using Digital Technologies to Increase Parent Involvement Might Benefit Teachers, Parents and Children?

As discussed in the previous chapter, it is clear that using or building digital channels to foster parent involvement has become a common phenomenon and there exist various forms of digital channels. This trend of development has posed great impacts on related parties, including teachers, parents, and students. What benefits and challenges have been brought by the use of digital technologies to increase parent involvement is the topic of discussion in this chapter and the next.

By reviewing the literature, it can be found that before 2010, it was generally accepted that the use of digital technologies had been proved ineffective in ensuring the sustained parent involvement in their child's studies (Lewin and Luckin, 2010). However, as technologies keep updating and developing, when it comes to research conducted after 2010, it can be found that scholars have listed many positive outcomes yielded from the use of digital technologies to increase parent involvement. Though the aim of using digital technologies was to increase parent involvement, which was surely one of the positive results identified, the outcomes are not limited to it. These outcomes also include benefits for teachers and students alike. Of course, even if the main parties in this relationship include teachers, parents, and students, it is hard to categorize the benefits based on that since there is no clear-cut boundaries between these benefits. Therefore, I chose to summarize and list them based on literature research without categorization instead.

Besides, as stated above, increased parent involvement will result in benefits such as better academic performance of the students, personal development, and wellbeing; however, due to the constraint of research scale, such far-reaching benefits will not be discussed in this chapter. In sum, after analyzing

and synthesizing the collected data, I categorized the positive outcomes as follows: “easier access to students’ information for parents”, “supporting learning out of school”, “better communication”, “innovative pedagogy”, and “promoting digital literacy”.

4.1 Easier Access to Students’ Information for Parents

Parents used to acquire information regarding what happened in the classroom and what activities or events their child had taken part in mainly by means of talking with them (Hutchison *et al*, 2020). Now, with the development of digital technology, multiple ways are available for parents to get this information. For example, as said above, parents can check school websites, teachers’ websites, social media, or the school learning management system to get to know school-related issues. As stated in the study by Selwyn, Banaji, Hadjithoma-Garstka, and Clark (2011), LMSs could be used to share information bulletins and newsletters with parents, as well as to convey important messages regarding students’ attendance, works, behavior, and attainment in the form of words, photos, or videos, thus making school-based learning much more “visible” to parents.

Parents participating in previous studies (Laho, 2019; Selwyn *et al*, 2011) expressed their appreciation of being able to access online information and resources by using digital technologies, as these technologies made them feel ‘more connected’ to their child’s school and schoolwork (Selwyn *et al*, 2011) and kept them informed of their child’s progress (Laho, 2019). Teachers also noted the benefits of digital technologies for sharing information resources and information with other teachers, parents, and/or students (Laho, 2019).

From the discussion above, it can be seen that technology boosts the transparency of information, so that the information can be stored and can allow relevant people to access it. This enables those who are not physically in the

place where educational activities take place to see and understand interactions between teachers and students. In this case, if a problem exists, it will be solved efficiently with sufficient information.

4.2 Better Communication

Besides easier access to students' information, literature has shown that home-school communication will be enhanced when teachers apply digital technologies to provide parents with up-to-date information on activities and events that take place in the classroom and school (Olmstead, 2013; Patrikakou, 2016). To be more specific, the use of digital technologies not only prompts timely and direct parent-teacher communication to a certain extent, which will result in children's academic and behavioral progress and better solutions to the children's problems in school (Grant, 2011; Laho, 2019), but it also provides opportunities for parents and their child to have open-ended, mutually enjoyable conversations (Hutchison *et al*, 2020). For example, in a case study, there was a home task requiring parents and children to select and listen to some instrumental music together and then describe the emotional qualities the music evoked with descriptive vocabulary. Parents loved this task as it gave them a chance to talk to their children about their experience of learning or playing an instrument as well as what kind of music they liked and what kind of music their children liked (Hutchison *et al*, 2020).

Besides, platforms such as social media and LMSs also function as a forum for teacher-teacher, parent-parent communication (Hutchison *et al*, 2020; Laho, 2019; Selwyn *et al*, 2011). For instance, in a study, a teacher's introduction of Instagram as a communication tool with parents and colleagues was enthusiastically favored by other teachers, who later also adopted this approach – sharing their classroom practices with colleagues via Instagram (Hutchison *et al*, 2020).

4.3 Supporting Learning Out of School

The application of technology not only benefits home-school communication, but also extends the location of studying from school to home, supporting students' learning out of school (Selwyn *et al*, 2011). For example, some teachers tended to post homework tasks on LMS, where discussion forums, blogs, and other collaborative applications are available for students to keep up with the progress. Thus, students could work through homework as they wished throughout the week. At the same time, both teachers and parents could offer support when students were in need of help. Laho (2019) also found that students could access materials at home and access assignments and notes from classes where they were absent with the help of LMS.

4.4 Increasing Involvement of Remote Parents

“Left-behind children” is a serious societal issue in many places. For example, in China, many parents have to work in a remote city and thus are forced to leave their child in the hometown. I myself used to be a left-behind child when I was in primary school and secondary school. Thus, my parents did not have the chance to be involved in my school learning, as digital technologies were not widely used back then. Now, however, case studies have shown that with the help of digital technologies, remote parents could engage in their child's learning in spite of the geographical barrier (Selwyn *et al*, 2011).

4.5 Innovative Pedagogy

When digital technologies are applied to foster parent involvement, it not only improves home-school relationship, but also introduces innovative pedagogy. It is commonly believed that the use of digital technologies can contribute to pedagogical innovation (Law *et al*, 2008; Loogma *et al*, 2012). Furthermore, Hutchison, Paatsch and Cloonan's (2020) study showed that the practice of involving parents with digital technologies can be integrated into teaching practices, forming an interactive, innovative pedagogy. For example, in the

case study mentioned above (Hutchison *et al*, 2020), parents were invited to finish a home task with their children, which required them to select and listen to some instrumental music by using digital platforms and then describe the emotional qualities the music evoked with descriptive vocabulary. In this task, parents and their children had conversations about topics of shared interest via the use of technologies. Unlike traditional homework assignments, this was a combination of parental connection and learning that emphasized parent and child autonomy or active knowledge making (Hutchison *et al*, 2020).

4.6 Promoting Digital Access and Literacy

It is generally considered that digital access and literacy (or lack thereof) is a challenge in the application of technology, as teachers, parents, and students all have different levels of access to technology resources or digital skills (Hutchison *et al*, 2020 ; Selwyn *et al*, 2011). However, in fact, the use of digital technologies can also directly or indirectly promote people's digital access and literacy.

According to Hohlfeld, Ritzhaupt and Barron (2010), the use of digital technologies in home-school-community collaboration provides schools with the opportunity to simultaneously address the issue of digital divide so as to increase their social capital. For example, schools can either provide technology resources to students on campus or allow them to check out digital devices for use at home or in other places.

Following the increasing use of digital technologies to foster parent involvement, people's digital literacy has also been promoted in the process of utilizing these technologies. For instance, in the study mentioned above where Instagram was introduced as a communication tool with parents, teachers learned from each

other about sharing classroom practices via this digital platform (Hutchison *et al*, 2020). In addition, effective training and support has been offered to teachers and parents in terms of their digital skills and technology-related issues (Laho, 2019).

4.7 Discussion of the Benefits

As applying digital technologies to foster parent involvement has become a trend, from the literature yielded since 2010, I listed how scholars see the benefits brought by technology application in the field of education. There is a total of six primary benefits. In the review process, it can be clearly seen that technology not only improves home-school communication, but also makes the information regarding children's school learning more transparent and accessible. This change means a lot to remote parents, because it offers an opportunity for remote parents to engage in their children's learning. Besides, when digital technologies are incorporated into home-school collaboration, they also support children's learning out of school, pose positive impact on teaching pedagogy, and even boost digital literacy. What is also noteworthy is that all these benefits influence one another in a positive way, and they can bring more far-reaching outcomes, such as children's achievement and well-being. Therefore, in this sense, how to properly utilize digital technologies to increase parent involvement with the purpose of yielding beneficial outcomes to the largest extent is a topic that deserves further research.

Chapter 5: What Challenges Have Been Brought by The Use of Digital Technologies in This Context?

As a famous saying goes, “technology is a double-edged sword.” The use of digital technologies in home-school cooperation not only yielded positive outcomes, but also brought many challenges. After reviewing existent literature and synthesizing collected data, it is clear that potential challenges have to be taken into consideration when applying digital technologies to fostering parent involvement. As a result of reviewing the literature, there are a variety of challenges. I divided them into four categories: general challenges, challenges for teachers, challenges for parents and challenges for students (see Table 3). Although a certain type of challenges is not likely only faced by a certain group of people, i.e. teachers, parents or students, such typology does help to provide a clear picture of the potential issues brought by the use of digital technologies in involving parents, which were all described in detail as below.

Table 3 Issues/Challenges of using digital technologies for home-school cooperation

General challenges	Challenges for Teachers	Challenges for Parents	Challenges for Students
1.Digital divide 2.Technical issues 3.E-safety 4.Extension of existing tensions	1.Increased workload; 2.Increased expectations and demands from parents; 3.Ethics Consideration	1.More responsibility; 2.Unclear teacher expectations; 3.Children’s resistance	1.Risk of not being involved in discussion and decisions; 2.Risk of not being able to separate home and school lives

5.1 General Challenges

General challenges refer to the consequences of technology adoption to parent involvement that affect all parties – the school, teachers, parents and students -- including digital divide, technical issues, e-safety, and extension of existing tensions.

5.1.1 Digital Divide

Digital divide refers to the gap between people who have access to, who can use, and who are positively impacted by digital technologies and those who don't have or have limited access, cannot use, and rarely influenced by digital technologies. Goedhart, Broerse, Kattouw and Dedding (2019) identified three levels of digital divide. The first level is simply the uneven distribution in access to technology. As an increasing percentage of families around the world, especially in developed countries, have gained access to digital technologies, this level of divide is declining. However, what is worth noting is that families in rural settings still commonly lack access to the Internet (Gordon, 2011), and some families in urban areas are also still suffering from digital infrastructure barriers (Bakhtiar *et al*, 2020).

The second level lies in the unequal use of digital technologies (Goedhart *et al*, 2019). Access to technology does not automatically lead to the use of it, because people's digital competence varies from each other. As Laho (2019) stated, some families lack the skills to use available technology resources. Underlying social inequalities, such as education, class, income and gender, are closely (directly or indirectly) related to access to technology, digital skills and usage diversity (Van Deursen and van Dijk, 2015). Besides, the use of relatively new technologies introduces additional challenges, because people's acceptance of technology innovation takes a different amount of time (Rogers, 2003). In order to depict the different rates of the public's adoption of new technologies, Rogers (2003) classified people as innovators, early adopters, early majority, later majority and laggards. For example, innovators like new

ideas and tend to adopt quickly, while later adopters are normally doubtful about technology innovation and will not make any decision until seeing other people's experiences.

The third-level digital divide refers to the different consequences of the use of digital technologies (Goedhart et al, 2019). It addresses the concern that 'winners' and 'losers' will be produced by the introduction of digital technologies (Bruno *et al*, 2011). According to Van Deursen and Helsper (2015), the more offline resources people have, the more beneficial educational, social and economic outcomes they will get from the use of technology. It means using technology for parent involvement will reinforce existing social inequalities.

Case studies have showed that digital divide is a big barrier for using digital technologies to increase parent involvement (Hutchison *et al*, 2020; Selwyn *et al*, 2011) , not only because people in economically deprived regions lack access to the Internet, but also because parents' digital literacy varies from each other. For example, in an inner-city primary school in London, only ten percent of parents are computer literate, while ninety percent are not (Selwyn *et al*, 2011) . Besides, in attempts to involve parents in their child's school learning, challenges can also be found in setting up technology infrastructure, supporting home access of families with lower incomes and offering teachers training for some schools (Chen, 2015).

The crisis of COVID-19 in 2019-2020 has made the issue of digital divide more evident (Bakhtiar *et al*, 2020; Ramsetty & Adams, 2020). Therefore, when schools try to utilize digital technologies to foster parent involvement, the challenges of digital divide need to be take into account before making any decisions.

5.1.2 Technical Issues

Another challenge brought by technology is technical issues. Although technical issues are often associated with users' lack of sufficient digital skills, the technology itself has certain limits too, such as network delay, not user-friendly, restricted functions, etc. In Laho's (2019) study, many teachers expressed their dissatisfaction of the school's LMS because there were many technical issues that bothered them. For example, the system was difficult to log in and the iPad application was not user-friendly. Therefore, the technology material itself can pose challenges for the school and teachers trying to involve parents.

5.1.3 E-safety

E-safety means staying safe when surfing the Internet. There are many potential risks online such as cyber bullying, internet fraud, pornography, etc. There is no exception when it comes to using digital technologies to promote parent involvement. As parent involvement does not only mean parents' cooperation with teachers, but also their interaction with children (Walker, 2016), using digital technologies for parent involvement sometimes unavoidably means children have to use these technology tools too. For example, children might have to get access to LMS to check homework, feedback from teachers and comments from parents (Selwyn *et al*, 2011). Therefore, protecting children from harmful contents is essential.

In a research study that looked into the usage of social media devices and applications among children in Grade Six or higher (Badri *et al*, 2017), there were 1251 reported cyberbullying cases that happened to the children. The study also showed that the chance of being a victim of online bullying for children was significantly higher if the parents were not aware of their social networking activities.

It can be difficult to find the balance between taking measures to ensure children's safety online and constantly surveilling them. In other words, it is hard for parents to monitor their child's online behavior without infringing their reasonable expectation of privacy. Apart from parents, schools should also take the responsibility of ensuring children's e-safety. In fact, in Selwyn et al's (2011) study, some school managers already emphasized these e-safety issues.

5.1.4 Extension of Existing Tensions

One possible consequence of applying technology tools to parent involvement is extending or even expanding existing tensions between home and school (Selwyn *et al*, 2011). According to Ludicke and Kortman (2012), parents and teachers had different opinions regarding home-school cooperation, such as different understandings and beliefs about what information to share between home and school, as well as when and how to deliver the information. Therefore, tensions in home-school partnership can form easily.

Even though there was no concrete evidence showing that digital channels such as LMS had provided new sites for the extension of existing tensions between home and school, case study showed that this might be an issue, as some school leaders expressed their concerns that a negative forum might be opened up (Selwyn *et al*, 2011).

5.2 Challenges for teachers

Technically speaking, the challenges discussed in this section are not only faced by teachers, but also faced by the school. The reason why these challenges are categorized as "challenges for teachers", rather than "challenges for the school" or "challenges for teachers and the school", is because all the challenges mentioned in this chapter, including challenges for parents and students discussed in the following sections, have to be considered

by school administrators if they want to apply digital technologies to increase parent involvement. In other words, it is the school's responsibility to take all the challenges into account when developing strategies to involve parents by using digital technologies. Therefore, it is impossible and not necessary to categorize any kinds of challenge as "challenges for the school" while leave other challenges out.

In this sense, challenges for teachers in this section include increased workload, increased expectation and demands from parents and ethical concerns.

5.2.1 Increased Workload

A direct consequence of using digital technologies to foster parent involvement is that teachers' workload has been increased, because it means teachers need to deliver updated information to parents and the technology opens up more opportunities for parents to contact teachers directly. As a teacher remarked in Laho's (2019) study, it was very time consuming and difficult for them to post texts, pictures or videos for every of their classes. Increased workload makes it difficult for teachers to make a balance between adopting such technological practices and their teaching as well as personal life. Therefore, this is a big challenge for teachers.

It is also the schools' responsibility to consider how much time and energy they want teachers to devote to such technological communication and how they plan to ensure teachers' workload remain at a reasonable level.

5.2.2 Increased Expectations and Demands

Digital technologies may increase parents' expectations and demands in two aspects. The first is demands for more direct and timely communication (Grant, 2011). However, if no support is provided for parents to understand and act on

the received information, or no time is provided for teachers to initiate and reply to communication, such expectations might be left unfulfilled.

The second aspect is demands on the accuracy and quality of work (Selwyn *et al*, 2011). For instance, in Selwyn *et al*'s (2011) study, some school administrators mentioned that 'discrepancies' in online information might arouse argument or even conflicts. Some teachers also expressed their concerns about being monitored constantly by parents what they have done or haven't done. Therefore, teachers have to reconsider how to present their teaching activities as well as how to present themselves as teachers.

5.2.3 Ethical Concerns

Speaking of ethical concerns over the use of digital technologies in fostering parent involvement, people normally think of it as protecting students' privacy. However, Regan and Jesse (2018) argued that the ethical concerns raised by the use of digital technologies in educational practices were oversimplified by being characterized under the category of "privacy", which made it easy to minimize or dismiss such concerns. They identified six ethical concern: information privacy; anonymity; surveillance; autonomy; non-discrimination; and ownership of information.

As some schools have started to utilize social media and other online platforms to share students' academic works and behavioral performance (Fernandez-Rio & Bernabe-Martín, 2019; Huang & Lin, 2019; Hutchison *et al*, 2020; Thomson *et al*, 2015), it is important for teachers to consider the ethical concerns of such practices. For example, as Selwyn *et al* (2011) proposed, before posting educational practices on social media platforms or LMS, teachers need to gain consents from parents for sharing photographs and videos of the students.

5.3 Challenges for parents

Despite all the obstacles to parent involvement discussed in the first chapter, such as time poverty, lack of access, lack of financial resources, lack of awareness (Williams and Sánchez, 2013), language barrier (Olmstead, 2013), etc., the application of technology introduced new challenges for parents too. Apart from digital divide and other general challenges, challenges specifically for parents identified in the literature include more responsibility, unclear teachers' expectations and children's resistance.

5.3.1 More responsibility

Since the use of digital technologies expands the ways and channels for parents to be involved with their child's school learning, teachers seem to expect parents to take greater responsibility. For example, parents might be required to work with their child on school homework with the use of digital tools such as blogs and Instagram (Hutchison *et al*, 2020), or they might be asked to post their child's homework on social media or LMS (Hutchison *et al*, 2020; Laho, 2019). However, most parents were reluctant to do so and expressed their preference for home tasks that could be completed independently (Hutchison *et al*, 2020). This might be because they did not consider their involvement in this way necessary, or they lack time, digital access/skills, or patience to do such things.

5.3.2 Unclear Teacher Expectations

As mentioned before, parents and school staff have different understanding of what parent involvement means; teachers normally expect a higher level of involvement than parents do (Lawson, 2003). Unclear teacher expectations remain a significant issue with the use of digital technologies. For example, in a primary school in Australia, teachers tried to involve parents by introducing blogs as a forum. However, some parents expressed uncertainty about teachers' purposes and expectations, their roles in using the blogs as well as

the way of participation. For example, they did not know whether they should comment critically on children's works, offer formative feedback, or just give provide positive encouragement. Teachers thought the open-ended nature of the task might provoke creativity. However, it obviously posed challenges for parent engagement (Hutchison *et al*, 2020).

5.3.3 Children's Resistance

In Hutchison, Paatsch and Cloonan (2020) study, many children actively prevented their parents' engagement in their school learning. They normally considered peers more helpful than parents, because they noticed that their parents lack the digital competence required for school assignments and that their parents had little time to help with their homework due to tight schedules. Besides, children showed a desire for autonomy and agency in doing school tasks. They might be worried that their parents' participation would hinder their control over the tasks.

5.4 Challenges for students

Even though the ultimate goal of applying digital technologies to involving parents is to benefit students in their achievement, this practice posed some challenges for students too. Two main challenges for them are risk of not being involved in discussion and decisions and risk of not being able to separate home and school lives.

5.4.1 Risk of not being involved in discussion and decisions

With the help of digital technologies, parents and teachers tend to consider children unreliable as messengers, so they prefer to access more trustworthy information directly from each other (Grant, 2011). As a result, the voice of children is often ignored. However, children are very clear about wanting their voices to be heard by parents and teachers in matters concerning their

education. They can be very resentful of not being consulted by teachers and parents (Grant, 2011).

5.4.2 Risk of Not Being Able to Separate Home and School Lives

As mentioned before, the application of technology extends the location of studying from school to home (Selwyn *et al*, 2011). It can be seen as a benefit, for it supports students' learning out of school, while it can also be considered as a challenge for students, because it blurs the boundary between students' home and school life. This posed a challenge for students, as the majority of them clearly expressed their preference for maintaining the separation between home and school lives (Hutchison *et al*, 2020).

5.5 Discussion of The Challenges

As stated above, incorporating digital technologies into home-school collaboration not only yields positive outcomes, but also brings many challenges. Through reviewing the literature, it is clearly seen that these challenges either resulted from the technology itself, or from the process by which people use the technology. Looking into these challenges, the application of technology not only introduced new issues, such as ethical problems, but also extended old problems in the home-school relationship. These extended old problems can be considered as new challenges brought by digital application in home-school relationship, too.

All parties in home-school relationship are facing these challenges, including teachers, parents, students, and the school. It is noteworthy that although there is not a category of challenges for the school, all the challenges mentioned in this chapter have to be considered by school administrators if they want to apply digital technologies to increase parent involvement. In fact, none of the challenges should be faced alone by the school, teachers, parents or students.

Joint efforts should be made by all of them with the help of the government, community, and other organizations.

Although only the challenges identified in existing literature were listed in this study, these challenges are worth further researching at both theoretical level and practical level. On one hand, such research enables us to see the influence of quickly updated technologies on educational practices; on the other hand, it informs policies and strategies to these issues so that digital technologies can be properly used to yield good outcomes to the largest extent.

Chapter 6: Conclusion

In order to depict the situation of technology applications in fostering parent involvement, the present research adopts the approach of literature review by analyzing relevant publications yielded in the last ten years, with the purpose of finding answers to three research questions: (1) What digital platforms or channels are being used to facilitate parent involvement in elementary and secondary schools in a global context? (2) How using digital technologies to increase parent involvement might benefit teachers, parents, and children? (3) What challenges have been brought by the use of digital technologies in home-school collaboration? Based on the findings to these questions, the results listed by previous researchers in the field of digital technology applications in home-school relationship can be clearly juxtaposed and presented in an organized manner. Three main points of the findings are summarized as below:

First of all, it can be seen that digital technologies have been applied to home-school relationship for a long time. There are long-standing digital communication channels such as phone calling, text messaging and email, as well as new channels which are now prevailing in most parts of the world, such as social media and LMS. Each digital tool has its own strengths and drawbacks. There is not yet, and there may never exist, a single channel that suits all teachers, parents, or students, because people's conditions and needs vary from one another. In reality, all these channels or tools are interchangeably used based on different purposes and situations. In other words, all these channels are not used independently or exclusively by parents, teachers, and students. Although face-to-face interaction is still important, the increasing use of digital technologies does provide parents with more opportunities to engage in children's school learning process.

In addition, the use of digital technologies in home-school relationship certainly yielded many positive outcomes. To start with, it is evident that the application

of technology not only helps make education transparent at the level of home-school communication, but also solves the problem of information asymmetry among the parties in home-school relationships, which proves to be all the more meaningful for remote parents. Through the application of technology, it is also observable that home-school communication, including parent-teacher and parent-student communication, has been improved.

Moreover, the information regarding children's school learning becomes transparent and accessible for remote parents, providing more opportunities for remote parents to be involved with their children's learning process and/or progress. Besides, when digital technologies are incorporated into home-school collaboration, they also support children's learning out of school, pose positive impact on teaching pedagogy, and even boost digital access as well as digital literacy. All these benefits influence one another in a positive way, and they can bring more far-reaching outcomes, such as children's achievement and well-being in the long run.

Lastly, technology applications also introduced some challenges in home-school relationships. The challenges, including new issues such as ethic problems and existing, extended problems in home-school relationships, were either brought by the technology itself, or by the process in which people use the technology, and such challenges are confronted by all parties – i.e. teachers, parents, students, and the school – in home-school relationships. There is no doubt that discussion of the challenges brought by digital technologies used to increase parent involvement not only presents the difficulties in the current scenarios, but also evokes thinking over the relationship between human and technology as well as the social effect caused by technology applications.

The contribution of the present research, in this sense, can perhaps shed light on such challenges. It is meaningful to review the literature on the use of digital

technologies to increase parent involvement for several reasons. First of all, on the theoretical level, it will help identify topics in this field that deserve further research; secondly, on the practical level, it allows educators to better realize the essence of these challenges and, with such knowledge, draw up policies to utilize digital technologies to help build a better partnership between schools and parents, and thus benefits educational practitioners, parents, and students alike.

As mentioned above, it is also clear that in this study, technology applications have led to both positive outcomes and challenges. Teachers, parents, and students all have to accept that digital technologies will keep developing and updating, so the increasing use of digital technologies in the field of education is an irreversible trend. Hence, ignoring or rejecting them should not be considered a solution anymore. All users have to know the benefits and challenges of the application of technology in home-school relationships so that they may maximize the positive outcomes as well as, more importantly, avoid or minimize the potential problems.

Based on such conditions, schools play an essential role in designing and implementing the use of digital technologies to boost parent involvement in these times of change. As pointed out by Olmstead (2013), "Schools should be seeking ways to maximize emerging technological tools to promote better communication between teachers and parents (p30)". Schools should take the initiative to offer help for families to be actively involved with children's learning progress.

As for research limitations of this study, there are unfortunately still many articles, books, or published texts addressing the use of digital technologies that have not been reviewed due to the limited database I reached to and the preset standards of literature selection. In this sense, this study may not provide

an entirely comprehensive picture of technology applications in home-school relationships. However, based on the selected articles and academic works, the present study provides a foundation, which enables us to have a basic understanding of the topic in discussion and which may be built upon.

In the years from 2019 to 2020, due to the outbreak of COVID-19, distance education has become a new normalcy, which has made the role of digital technologies in home-school relationship all the more significant. This is mainly because distance education in elementary and secondary schools has to be facilitated by parents via technology platforms. In other words, parents and teachers have to maintain good communications by using technology tools to ensure the successful practice of distance education. Under such circumstances, in a so-called post-pandemic era, how to combine the use of digital technologies in home-school collaboration with the increasingly significance of distance education becomes a problem at the hand of all educators.

As mentioned earlier, the use of digital technologies in home-school relationships may indirectly contribute to students' academic performance by boosting parent involvement. If better home-school collaboration could be built into distance education, more direct positive influences could be made possible in students' achievement. In other words, how can educators first become aware of such benefits, not only to develop an appropriate distance teaching model, but also to establish good home-school communication so as to ensure the quality of children's learning in the post-pandemic era? This is the question which needs to be approached by more academics and teachers in the future. What's more, research on related challenges will not only help solve problems caused by the crisis of COVID-19 at the sites of education, but also provide a great opportunity for educators to come up with innovative educational practices and an insight of future possibilities.

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