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Parental Influence on Children's Home Computer Use and Digital Divide in Education

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Abstract: This case study compares the data from two secondary schools and attempts to contribute to a better understanding of the construct of parental influence on children's information and communication technology use at home. It identifies five components of parental influence: parents' information and communication technology (ICT) skills, parental monitoring, parental control, parental guidance and parental worries. The relationships among these components were often complex with intriguing similarities and differences among the participants. The findings suggest the existence of certain inequalities in education or, as the authors prefer to call it, the digital divide in education.

Keywords: Parental influence, students' home ICT use, digital divide, educational inequality

Introduction

Relying on the assumption of sizable benefits of information and communication technologies (ICT) for education, a score of measures tries to provide physical access and effective use of ICT in education. As it has been in the case of the universal access to education [1], much of the contemporary effort in the area of ICT in education addresses the issue of equal opportunity. We might call it simply the 'digital divide in education', that is, the gap between students with access to ICT and those with limited or no access at all. This definition is however rather incomplete. Unlike studies in sociology, politics and economics that have regarded digital divide as socioeconomic inequality in the physical access and usage [2], a concept of digital divide in education must include the imbalances in education, especially learning.

However, the researches about digital divide from an educational perspective is scarce[3] and often they do not adequately go into details of possible inequalities in the implementation of ICT programs for digital access [4]. Although several studies in literature deal with the factors affecting children's ICT use in family environment, their findings are often fragmentary as they seldom attempt to pile together all the factors or build systematic theoretical framework or model towards a better understanding. The present study compares the data from two individual secondary schools in Hong Kong and attempts to contribute to a better understanding of the construct of parental influence on children's ICT use at home. The research questions were as following:

What are the possible relationships between parental influence and students' home-based ICT use? What are the possible components of parental influence construct in regard to students' ICT use at home? What are the differences among participating schools and individuals?

1. Literature Review

1.1 Family Environment and Students' ICT Use

Existing literature shows that children's family environment, including parents' job status, ethnicity, income, and education level could influence their educational attainments. Students from lower socioeconomic status (SES) family tend to show less confidence in their ICT skills and less opportunities to develop ICT competency [5]. Even when the impact of computer use on students' learning outcome was positive, the effect size was much smaller for the lower SES students [6]. A further point is that providing children with physical access to ICT without attention to other socio-political aspects will not do much to close the digital divide [7].

The importance of home-based ICT use of teenagers has been noted from different research perspectives. For instances, the role of home computer can be crucial for enhancing adolescents' digital skills and self-efficacy regardless of country-basis high or low ICT penetration rates. A possible explanation for the latter may be that home-based activities such as computer game playing, downloading, and emailing could be more closely related to digital skill enhancements than school-based activities [8].

However, computer access at home does not ensure an academic use of it. Even prior to the era of Internet browsers, all the children turned their home computers into game machines or word processors[9]. There could be a digital divide arising from disparities in the home use of ICT with consequences in education[10].

1.2 Parental Influence on Students' ICT Use for Participation in Education

An important question arising from the foregoing is about family environment factors affecting students' use of ICT. Findings from selected literature suggest that the presence of computing resources and adult users at home were most important in explaining disparities of use among children. The presence of Internet using of family or friend provides support called 'social support network' [11], 'trusted peer' [12], or 'a critical foundation for successful implementation of information technology curriculum to foster information literacy' [13] since they can influence their children's relationship with ICT by providing technology resources, creating learning opportunities and communicating their own values and aspirations about their children's ICT use [5].

However, studies describing those clusters of parental factors affecting students' home use of computer are few. It is rather apparent therefore that there is an interesting research gap in the likely linkage between parental influences and children's use of ICT at home for educational purposes. The present research attempts to contribute to knowledge about it.

2. Method

Great improvements have taken place in the accessibility to computers and the Internet in schools between 1998 and 2006[14]. The mean student-computer ratio in Hong Kong decreased from 23:1 in 1998 to 6:1 in 2006, indicating a substantial improvement. Pedagogical support and technical support available to ICT-users in schools have also improved significantly in Hong Kong over the same period [14].

This study is one part of a large five-section educational research project funded by the Hong Kong Research Grants Council and reports the early findings from the qualitative

focus group interviews. The focus group interviews method is to carry out interviews with several participants, usually 5 to 8, to understand their perspectives during one hour or half an hour, using a list of prepared questions.

This study was conducted in two Hong Kong secondary schools (School A and School B, convenient samples). Participants were in their second year of secondary school (13–14 years old). Parents participants were those with a child in the same year as our student participants and all the teachers were teaching those students. For the interview section, mainly 6 focus group interviews were conducted with a total of 37 participants distributed into the following groups: 2 students groups with 10 participants and 1 parents group with 6 parents attended from School A; 2 students groups with 16 participants and 1 parents group with 5 parents attended from School B.

3. Results and Discussion

Through analysis of the transcriptions of focus group interviews with students, teachers and parents, we compared the data from the two schools. For analysis, we used the transcriptions of the interviews of parents and students while several other teachers' transcriptions were used for triangulation. We identified five categories of parental factors that could be the key components of parental influence: parents' ICT skills, parental monitoring, parental control, parental guidance and parental worries.

3.1 Parents' ICT Skills

The results of the interviews show that parents from both schools regarded themselves as non-proficient in ICT skills. Nevertheless, there were significant differences between the two. Most of the School A parents seemed to be beginners in such skills. One of them said during an interview "I am not so skilled in ICT" and it was greeted with a nod by the rest of the parents. In order to verify such a self-evaluation, we inquired their children, the second year students, about their parents' ICT skills. The following answers were obtained from different students:

"My parents' ICT ability is just so so."
"My parents are not familiar [with ICT]c."
"[My parents] know a little bit. If you help them to start the computer and open the Web pages, they will browse. But they do not know how to shut down the computer, type, or search something [via the Internet]."

School A parents' lack of computer skills could be attributed to different causes. What was clearer is that their children do not receive help from them in that regard. When the children of such parents encountered difficulties in using home computer, they would try to seek help from friends and teachers, not from their parents. The ICT skills of school B parents were slightly better. Parents considered themselves as having a fair level of ICT skills as all of them use computer in a daily basis:

"I just search for information. For example, I will look up for the bus route and roadmap information."
"I can go to the school website to find out what is happening."
"I use Facebook. Actually, I use [computer] more than my son."

Nonetheless, many others were unsatisfied with their own skills and would seek for help in their children should any problems arise:

> "[my computer skill is] fair. [I] do not know why they [my children] are so clever [in using computer]. [I will] consult with them when [I] get confused [when using computer]."
> "I think I am a primary school level [in using computer]."
> "I am not so clear [about computer use], [I] have to ask them [the child] for help [with the computer use]."

The level of ICT skills of the parents in the school B was more likely to enable them to interact with or follow up their children better than their counterparts in the school A. It also explains why children from the school A had to ask their peers and teachers for help, not their parents.

3.2 Parents' Monitoring

Parental monitoring in this paper refers to parents' intentional observing or inspecting what their children are doing with the computer. The two sample schools differed significantly from each other in this respect.

In general, parents from school A displayed less monitoring. When they were asked by the interviewer whether they knew what kind of use their children are giving to the computer at home, most of them answered by saying something like "Actually, I am not clear [about what my kid is doing with computer] ." Furthermore, their answer to our intentionally explicit query on whether they knew their children watch online pornography, the usual answer was "I do not know, [so] it is very difficult to answer [this question]".

In contrast, school B parents seemed to follow up their children's home use of computer. For example, they could either tell the interviewer very confidently that their children never went to indecent websites because they have been observing them, or they all said they would check again what websites their children opened. School B students said that all of them had copied information from the Internet for their homework and their parents were aware of this since they could even tell the interviewers for which subjects their children copied for: "My child must have copied, for example, for history subject."

3.3 Parental Worries

It was rather clear that all the parents from both schools were somewhat anxious about their children's use of computer at home. However, the reasons for those worries were different. For school A, only one parent expressed his worries about the online risks: "I am afraid of the negative information from the Internet." Other parents' worries were about negative effects on physical and moral well-being:

> "[Using computer] is harmful for the eyes"
> "If [my kid] sits in front of the computer for a long time, his bones must be fatigued. I am worrying about his health. [Using computer] affects the development of the bones."
> "The problem of health"

It could be suggested that worries of school B parents were not only about their children's activities online but also a more holistic development of their children. They were concerned more about their children's thinking ability and communication within the family apart from health hazards and moral risks. Apart from health related issues such as lack of

sleep, some parents from this school suggested that since their children intellectually depended a lot on the Internet, their thinking ability might deteriorate. But above all, they seemed really worried about decreasing family communication due to many online hours:

"Communication diminishes; when [my child is] online [our] communication become less."
"He does not hear when one is talking to him."
"When online, he will not sit there or talk to you. He seems to get bored when you talk to him."

3.4 Parental Guidance

The differences between the two groups of parents were quite evident in terms parental guidance of children's computer use at home.

As far as parents from school A were concerned, there was fewer or no discussion about the usefulness or negative aspects of using computer and the internet between parents and children. When asked about the benefits of using ICT for learning, one parent replied, "He [my kid] knows." Another parent even complained, "They [the kids] are so pleased when they talk to each other. Sometimes I could not understand their words, they would say, why are you so outdated? I will not speak to you!" It was rather apparent that these families were facing difficulties in communication at home, let alone parental guidance for computer use at home.

By contrast, communication is easier within school B families. Parents expressed their opinions about the usefulness of ICT, such as "[using ICT is] convenient"; "more reference could be found"; "no need to go to the library [to search for information]"; "[we] could get online immediately to see what is happening"; and "It is impossible for everyone [children] to go to school library to finish their stuff, but computer really could help." Furthermore, school B parents showed certain degree of knowledge about guidance of this kind by mentioning their own strategies:

"Usually, I will watch warning news with them together because some of the warnings are about the Internet affairs or lessons of ending up with evil. So far, secondary two students are so young and behaved quite well."
"I will also talk with him [about the online risks]…some of the websites …are not acceptable. You should not …I will remind him never …"

At the core of the difficulties in parental guidance seems to lay the ability to communicate, which in turn is related to some basic ICT skills of the parents.

3.5 Parental Control

All the parents participating in this research have imposed different degrees and types of restrictions on children's home computer use, typically time limits and the websites visited. However, control exerted by some parents was weaker and less effective.

Although all school A parents stated they were in control or controlling, some of their children did not agree with such assessment and even said there were no restrictions at all. When the interviewer asked: "Do your parents put any restrictions on your Internet use at home?" Most of the students replied with a negative. Only a few said there were some restrictions, like, "My internet playing time is from 9:00 to 10:30 pm", or "I can play with internet after finishing the homework." Some of students' perceptions about their parents' control over specific websites was "My parents do not care. Anyways, I myself do not browse that kind of websites," or, "I own my individual account so they should not control

me." Then we further discovered that from the perspectives of school A parents, the situation seemed habitually beyond control:

> "My Child put off the time of shutting down the computer for a long time."
> "If the kid wants to play with the computer, he will stay up till very late."
> "You ask him to stop; he will not listen to you."
> "It is very difficult to tell whether they are doing homework or playing with the computer…"

For parents from the school B, the situation was different all together. There were certain rules and practices in their families. For example, their children were not allowed to use computer during school days except for doing assignments and they are allowed to play with computer for a few hours or only in holidays. Another parent said that her child was allowed to use only one or two hours after the completion of homework. It was interesting that the children from school B reported less hours of computing at home:

> "I could use computer for one hour per day at most."
> "…anyway, only after finishing my own business [homework], I could play with computer and time is limited…about one hour a day."
> "One hour every two days".

Specifically, in regard to the effectiveness of parental control, school B parents were far better off than their school A counterparts. School B parents appeared to be proud of their children's obedience to their rules and practices at home. One of the parents said, "It all depends on self-discipline… he should try to manage his time by himself…so far, the kid has managed it well." The effectiveness of school B parents' control could also be attributed to dialogue and negotiation between parents and the child. One of the parents said, "Generally, [we both] know the amount of time needed [to do the homework]; we have already discussed, [so] the permitted time is sufficient."

3.6 Children's Home Computer Use

One of the most interesting findings was that when students described their use of computers at home, they most frequently used the word 'to play'. In a way, it unveils the main purpose of using computers at home from the point of view of the students. The group interviews further corroborated the fact that entertainment is the main appeal for children's computer use at home. An intriguing finding of the present research was that the students from the school A used computers for longer time in general than school B students. Some school A parents admitted:

> "[My kid is] chatting online every day, could not be busier."
> "[My kid is] so busy that does not have dinner."
> "Maybe [he is sitting] in front of the computer screen for three to four hours a day."

Two parents from the same school suspected that their children might use for learning only one hour out of three to four hours of sitting in from of the screen. When the interviewer asked the children whether they would like to use an iPad for study, all of them replied with a 'No' as their plans were all about entertainment, which runs far better in PCs.
Although school B students' total time in home computing is less than those of students from the school A, the parents also thought that their children might give limited use for academic purposes. Nevertheless, one student told us, "I seldom use computer to play games, I will use it to practice writing…sometimes. Some people will leave a message and

tell me how to write [better]; give me suggestions and inspire me with new thoughts and new ways of arguing a point." Comparatively, school B students seemed to use computer more for learning.

4. Conclusion

The results of the present early research findings suggest that there is a need to rethink about the roles that parents are playing in today's education. We identified five categories of parental influence on their children's home-based computer use: parents' ICT skills, parental monitoring, parental control, parental guidance and parental worries. Possible relationships between parent influence and students' home-based ICT use are presented in Figure 1. Some of the relationships among components of parental influence are illustrated in the aforementioned discussion of findings.
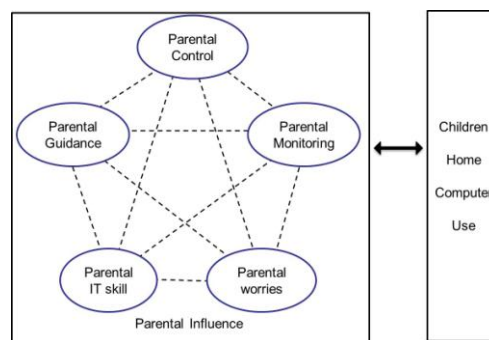

Figure 1: Possible Relationships between Parent Influence and Students' Home-based ICT Use

Some parents of the school A were so poor at ICT skills that they do not know even how to shut down a computer. However, parents' basic ICT skills are quite essential for parents to monitor quality usage of ICT by their children at home. Therefore, parents with relatively higher ICT skills are more likely to monitor and assist their children in their education, which is the core of their worries. At the same time, parents who communicate better and guide their children closely are also more effective in their control of children's home use of time and, consequently, their children tend to spend more time in learning activities as compared with their counterparts from households with poor communication skills. It is somewhat logical that children from the school B do not spend as much time as their counterparts using computers at home or 'playing with computer' according to their own understanding of 'computer use'. In spite of the fact that all the parents from both schools were relatively weak in computer skills and could not help their children for computer use at home, school B parents showed more concern about the educational dimension of ICT and cared more about the thinking ability of their children. And the parents who worried more tended to monitor more according to our interviews.

Regarding the educational attainments of the two schools, as we briefly introduced in the methodology section, the education attainment of the school A ranks lowest in Hong Kong. The educational attainment of the school B ranks the top 30% of the whole city. If we link these publicly known educational attainments, our research findings indicate that issues such as technology adoption, equal opportunity in education, educational achievement and parental influence on children's education [1] seem to be facing today the classic problems of social stratification and social reproduction [15]. The differences between our two participant schools and their families tell us what 'social reproduction' and 'education as symbolic violence' as argued by Pierre Bourdieu are all about. We think that beyond

economic, social and cultural capitals and their respective inequalities or divides, there is a digital divide in education, which lies neither in access nor in the amount of usage but in the mastery and intelligent use of ICT.

The type of results and limited scale of this study are insufficient to reach the conclusion that there is an overall limited educational use of computer at home by students. Future empirical research could shed additional lights on the quantitative correlation between parents' ICT skills and students' educational use of home computer.

Acknowledgements

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