

Web 2.0 Divide among Naughty Insiders, Worried Outsiders, and Invisible Monitors: A Case Study

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Abstract. Through focus group interview, this paper carried out a case study in a secondary school in Hong Kong on the use of Web 2.0 technologies among students, parents, and teachers. Findings suggest that there was no divide in terms of access and usage but a divide of web 2.0 technologies use among them. In conclusion, our research team speculated the roles that all these stakeholders were playing and attempted to describe them as: naughty insiders, worried outsiders, and invisible monitors.

Keywords: digital divide, Web 2.0, technology integration.

1 Introduction

Web is playing an indispensable role in modern education as more and more schools are connected to the Internet [1]. Accompanied by the popularity of blogs, the Facebook, Wikis and other tools or social networks, a new era in the progress of the Web has arguably dawned—Web 2.0. Its sharing and participatory essence purportedly exerts ever increasing influence on teaching and learning, a claim that opened up debates over young people's engagement in these tools and websites under the educational context. It has also been argued that related studies are both imperative and meaningful because of the fact that young people are increasingly active Web 2.0 users, and their interactions through these technologies are altering their social identities, styles of learning, and exchanges with others around the world [2].

However, available researches seem to be soles than satisfying in two respects. Firstly, related debates tend to centre merely on what young people are doing with these technologies; where, how and for what purpose they are using them and how such activities might usefully be harnessed in formal educational settings [3]. Few studies attempted to scrutinize or decipher those findings in a wider scope where both teachers' and parents' engagement with these technologies should be taken into consideration as part of children's development environment. To understand the surroundings of students' participation with new technologies could probably provide us more possibilities of better utilizing them for the purpose of student development. In fact, adults' influence has always been a hot issue when explaining children's information and communication technology (ICT) use [4] [5] [6].

Secondly, researches on Web 2.0 applications in education appear to converge on higher education [7] [8] while secondary school education is seldom put into research agenda. Partly this phenomenon could be attributed to the fact that one of the big ideas behind Web 2.0 technologies is collaboration and open access to information resources, which may be more visible in senior grade students. Instead of such a simplified view, the ever increasing time devoted by secondary school students to being online deserves researchers' attention without easy labeling them as digital natives[9] and trying to figure out its connection to the process of education as a whole.

This study attempts to probe the link between secondary school students' Web 2.0 use and the possible influence from parents and teachers. The research not only concentrates on the self-reported information from students, teachers and parents but also tries to synthesize the findings from these three groups to get an overall and all-sided picture. Researches questions are: What Web 2.0 technologies do secondary school students, parents or teachers use? Is there any relationship between students' use of Web 2.0 and parents' or teachers' use of it?

1.1 Web 2.0 Applications in Education

As ICT develops, digital technology does not only mean computer or internet, especially, when the term of Web 2.0 is emerging to describe new read-write websites. "The term Web 2.0 is associated with web applications that facilitate participatory information sharing, interoperability, user-centred design, and collaboration on the World Wide Web. A Web 2.0 site allows users to interact and collaborate with each other in a social media dialogue as creators (prosumers) of user-generated content in a virtual community, in contrast to websites where users (consumers) are limited to the passive viewing of content that was created for them. Examples of Web 2.0 include social networking sites, blogs, wikis, video sharing sites, hosted services, web applications, mashups and folksonomies" [10].

Although the first Web 2.0 tools did hit the market over a decade ago, e.g. blogging software in 1998, RSS feeds in 1999, and Wikipedia in 2001, the term Web 2.0 did not emerge until 2004 when it was coined by Dale Dougherty. However, "no matter how often educators run across the term (Web 2.0), many remain confused" [11]. Besides the popular binary of describing teachers as digital immigrants while students as digital natives takes into account only their distinct growing-up time without giving much importance to individual capabilities and distinctiveness. Individual teachers' knowledge and perceptions about and attitude towards Web 2.0 technologies' educational application might determine their intention to use them or not. Lovejoy [12] seems to describe a conflict between digital native students and Luddite teachers:

The digital divide between students and adults (including teachers and parents) continues to widen. Students are powering down to go to school and powering up after school to re-enter the digital world...Teachers are so busy with their daily drudgery of preparing their lessons, quizzes, tests and then marking them, that they have little time or initiative to become as tech-savvy as their students...Some teachers lack the confidence to learn from their most tech-savvy students. One such teacher was heard saying 'If I hear the word INTERNET one more time I am going to hit somebody' ...Some senior teachers don't give a damn about ever using the internet and just want to continue in their old teaching mode.

However, the same account does not seem incompatible with many other senior teachers who could well be tech-savvies but opted out in terms of ICT use in classrooms. It invites us to rethink critically about our own assumptions and focus our attention on how Web 2.0 tools are affecting social relations and how these technology-mediated social relations (parents and teachers) exert influence on the education of their students: “With all of the attention paid to Web 2.0 tools these days, it is important to both explore their uses and evaluate their effectiveness in supporting student learning”[13]. Web1.0 websites’ impact on students’ achievement was found to be mostly in digital literacy with mixed results in academic achievements. Due to the characteristics of Web 2.0 tools that allow better interactions between students and teachers, it is worthwhile to discuss Web 2.0 technology and its impact on learning outcomes. Unfortunately, research on educational use of Web 2.0 technology is not too much in literature and the few focus on the benefits of a specific Web 2.0 technology and its impact on learning and teaching. However, the differences between those who are advantaged and disadvantaged in terms of Web 2.0 access were not clearly addressed.

Obviously, to benefit from Web 2.0, one needs to have the traditional digital divide bridged by getting computer equipment and internet access first. If basic inequalities could not be addressed, it is just unlikely that digital divide in Web 2.0 could be solved. From a unique and subtle perspective, [14] suggested that Web 2.0 technology including video conferencing through a virtual private network in three education systems in six remote western Australia schools, not only improved learning opportunities for students and administrative services for staff but it also alleviated the digital divide between rural, regional and remote schools.

Although it is true that the arrival of new technologies could create opportunities for learning, it is uncertain whether this would result in remission or deepening of early stages of digital divide. No simple explanation could provide with all-round answer to this question because distinct outcomes would turn up due to diverse patterns of working of the affecting factors. Rudd and Walker [15] found that Web 2.0 technologies were used extensively by some young people who feel confident and safe while some others did not use, raising the question of Web 2.0 divide among students. Their findings showed that much of the use of these tools takes place in informal or peer-supported context, that is, the development of digital skills takes place mostly outside schools. Clearly, there is a need to look into this far less known and reported home use of Web 2.0 tools.

1.2 Parents’ and Teachers’ Influence

In literature, students from lower social-economic status (SES) family are usually identified as disadvantaged in terms of computer skills and knowledge [16]. They have lower confidence in their digital skills and opportunities to develop digital competence [6] and smaller number of such students testifies positive effect of computer use in their learning outcomes [17]; even when they have had exposure to technology later [18].

All these studies seem to indicate that lower SES family with poorer access and social empowerment might have less chance to use ICT and get benefits at home.

Some other researchers do not agree with these findings. For instance, Zhao[19] revealed that teenager children of less educated parents are as either as likely as or even more likely than their counterparts with high education parents to seek online health information, which may indicate that these teens are seeking online health information on behalf of their less educated parents. Furthermore, students from lower socioeconomic and cultural background families benefited more from individual use of computers than their counterparts and this could imply that individual use of ICT could reduce, at least relatively, the academic achievement gap caused by social and education inequalities [20].

Although these findings are far from being even, they all raise the issue of family factors in the use of the Web 2.0. Indeed, while providing children with physical access to ICT only without attention to other socio-political aspects will not do as much to close the digital divide [18]. If we were to use an ecological discourse, the ICT adoption in education as a whole have to take the border social and cultural contexts into consideration, among which the family or home factor appear as even more apparent. Some other researchers call on all schools to consider the dynamic relationship between school and families when performing technology planning process because this relationship could increase the social capital and empowerment of citizens and families, which will affect the outcomes of the students in their schools [21]. Based on two years' data analysis, Zhong[22] found the role of home computer access as crucial. Its influence on enhancing adolescents' digital skills and self-efficacy does not change in different countries with either high or low ICT penetration rates. A possible reason for this may depend on the way how children use computer at home, including game playing, downloading, emailing and so on, that are more closely related to digital skills enhancement than school-based learning. Furthermore, schools ICT integration efforts were reminded the need to take into account student differences in prior experience and to be coordinated with students' home computer use [6].

Literature also discusses school teachers' influence on students' ICT use. Teachers' professional development has been firmly related with their ability to integrate technology into teaching and learning, with the ultimate goal of students' development [23]. Teachers' pedagogical decisions, including the adoption of ICT, depend on their assessment of the appropriateness for subject matter content and student characteristics [24]. Oliver [25] further suggested that different Web 2.0 tools could be leveraged to assist teaching and learning in respectively different subjects, for example, Gliffy, Flickr, Mind Meister, Prezi, Prezo and so on could be used for teaching 'Science 2.0' while Quizlet, Shelfari, Diigo, LetterPop and so on might be adopted for learning English. Johnson [11] wrote a book verifying and instructing that Web 2.0 tools could assist teaching with primary historical sources. It has also been proven that there is relationship between school SES level and the connection between school, community and family [21].

To sum up, existing researches suggest our present study that there could be a relationship between parental uses of ICT, be it at home or work, and their children's use of ICT. In the same vein, teachers' uses of ICT at school and in daily could have comparable impact on their students' use of ICT, especially in the use of Web 2.0 technologies.

2 Method

Case study is a research strategy which focuses on understanding the dynamics present within single settings. Case studies typically combine data collection methods such as archives, interviews, questionnaires, and observations and one of the aims is to provide description [26]. To understand the research issues better, it is necessary to describe the background of this study because it is conducted in the specific context of Hong Kong Education. According to a systematic report on Hong Kong education changes of ICT in education for the past one decade, *The changing face of Education in Hong Kong* [24], there have been great improvements in the accessibility to computers and the Internet for teaching and learning in schools worldwide between 1998 and 2006, Hong Kong inclusive. The mean student-computer ratio in Hong Kong decreased from 23:1 in 1998 to 6:1 in 2006, indicating a substantial improvement. And pedagogical support and technical support available for ICT-use in schools have also improved significantly in Hong Kong over the same period.

This study reports a part of a large five-section educational project supported by Hong Kong Education Bureau, which commenced in September 2010 and is supposed to end in September 2012. This project was designed to obtain people's attitudes, beliefs, values, behaviors towards ICT use under the context of education, aiming to address the issue of digital divide in education. Students, teachers and parents' access, use, attitude, and vision of ICT are to be analyzed. This project adopts a mixed methodology, including a range of quantitative and qualitative methods that have obtained ethical clearance from the university. This paper specifically reports the findings from the qualitative research sections, which contain desk-based literature study and focus group interviews section.

This case study was conducted in a middle school located in a suburban district of Hong Kong. It was selected as a convenient sample since one of our research team member works as an IT teacher in this school. This school was built in 1983 and was ranked as one of the band one middle school in Hong Kong. As far as ICT facilities are concerned, this school is digitally well equipped with 30 standard classroom with a full range of IT support, 2 multimedia learning centres, 4 laboratories, 6 special rooms, library resources centre, English learning centre, multimedia production centre, campus TV studio and so on.

The students participating in this study were in their second year in secondary school, all the parents were those with a child in their secondary year and all the teachers were teaching students at secondary level. For the interview section, five focus group interviews were organized with a total of 28 participants separated into the following groups: 2 students groups with 16 participants in all, 2 teachers groups with 7 teachers in all and 1 parent group with 5 parents attended

Two features of the focus group interview are: it could offer variety and versatility to both qualitative and quantitative research method and it could offer opportunities for direct contact with subjects [27]. This method was originally developed for use in marketing, later applied in the social sciences, and in recent years, it has been used to obtain information from consumers, caregivers and healthcare service providers [28]. Focus group interview is to carry out interviews with several participants to discuss some specific issues, usually 5 to 8 participants. The method provides researchers with the possibility of generating large amounts of narrative data from the

participants' perspectives during a small amount of time [29]. From the desk-based literature review, our research team prepared a list questions for those three groups interviews and got consent letter signed by them before interviews.

3 Results

Since the focus of this study is on the home Web 2.0 technology access and use and its impact on children's academic achievement, the followings data analysis are going to present results by drawing the images of self-reported views from the participants: first, to look into students' access and use of computer at home; second, Web 2.0 technologies used by students at home and for what reason? Then we will find out how Web 2.0 technologies were used to assist learning and teaching at school and at home; finally, we will work out what are teachers and parents' perception and concerns on technologies.

The findings of this study is coherent with the hypothesis that the first and the second digital divide in education has been bridged, thus every student has access to computer and internet and they use them every day. But the third digital divide has not been resolved; parents, students and teachers do not seem to be not fully making use of the benefits of technologies to assist learning and teaching and did not achieved the quality of use. When it comes to the Web 2.0 technologies, all of them appeared to be out of their expected position, hence, we speculated over the roles that all of these stakeholders were playing and attempted to describe them metaphorically as: naughty insiders, worried outsiders, and invisible monitors.

3.1 The Naughty Insiders

Naughty insiders refer to the students who used Web 2.0 technologies almost every day but seldom for academic reasons. They were wild about new technologies and showed high passion to these Web 2.0 technologies. They are the group that supposed to be digital natives. However, their knowledge was so limited that they did know close to nothing about the possible gains in their studies if adopting technologies properly. They surely know the convenience or functions of these interactions brought by the Web 2.0 tools. However only few of them realize that blogs could be used to assist writing ability practice through which others' valuable comments could also be obtained—the very essence of instructiveness of the Web 2.0. Since many of the students spent most of their online time entertaining and playing at home, strategies could be thought of by identifying the underlying reasons and then designing effective changes based on the findings. When asked about their opinions about the causes that attracted students to play online games, one of the teachers mentioned the interest aroused by the games, and which indicated more space for our research on how to take complete advantages of the existing motivation of children to get online and chat on Facebook.

Rather clearly, the early digital divide of access could be regarded as bridged, at least when referring to the sample of our interview participants. Every student in our interviews has access to computer and internet at home and some even have more than one computer. Most of them could use computer freely except three students.

One of the students could not because the computer was put in the living room for public use. Another student owns an individual computer at home but her younger brother always plays online games so her parents switched off the electricity for all the computers, which indeed caused a lot of inconvenience and delay of her online assignments. For the other student who does not own a private computer is because his computer at home was always seized by others and would break down constantly. Meanwhile, others students expressed their preference for using computer at home than at school. Reasons were as following: using computer at home is more comfortable. And there are more software installed in home computer than that in school computers. Others complained that much software was blocked in school computer.

However, all the children admitted they used home computer for entertainment reasons other than for learning purpose. Several students even stated that they sometimes cheated their parents by saying that they need to use the computer to do assignment and actually these excuses were falsehoods. Although sometimes they use home computer to search for learning materials or do assignments, their attempts mainly focused on no-study intention. For example, most of them use internet for Facebook, MSN, online games, news, watching pop stars, and so on.

Because they spent much time for non-study purpose, no wonder all the student participants complained their use of technology at home is not enough because their parents imposed restrictions both on the time and content. According to parents' further acknowledgement, the commonly allowed frequency of their children being online at home is from one hour to three hours per day. When asked about their children's reaction to these regulations, one of the parents stated proudly: "It all depends on your (the kid's) self-control; you (the kid) are such a big boy now. Two and a half hours every day is just as it is said so just schedule it well. Do not try to talk to me (to get longer time). Sometimes several minutes or ten minutes more would be ok but it does not mean to let you be addicted (to internet). After all, my son could manage this."

Both the time and content of being online was restricted by parents. Apart from parents' daily education and warnings on the proper content that the kids should be limited to, all the parents reported their monitoring on their children's internet use in private and indeed their children have not noticed this. When we asked the parents whether they usually check the websites that their child browsed, they all answered with "Yes". However, it turned out that their children did not notice this or believe that "They may not to do that (check the websites) deliberately."

Questions related to which Web 2.0 technologies are used and the reasons for using them by students were answered by two focus groups of students with sixteen students in all. As stated before, home use of Web 2.0 technologies might be an unknown whereas important area to look into the real situation that technologies are influencing students' lives and why they choose to use them. According to the interviews, we found the most frequently referred Web 2.0 technologies used by students at home were: Facebook, Blog, You tube, Twitter, and Yahoo knowledge. They always use these technologies for social communication: chatting with familiar or unknown friends, expressing ideas about current events or news, joining discussion forum to find the newly hot affairs, and so on. Those kids all perceived the usefulness of these technologies for social communication but not for learning. One student even

indicated there cheating on examination, sharing answers with others on Facebook. The children all considered the Web 2.0 websites to be “useful for communication” because they could “know more friends.”

Although they also agreed that Web 2.0 tools could be beneficial for their study, the way they referred to it is quite surprising. When we asked “Do you think them (the Web 2.0 websites) are useful for your study?” One of the students replied “Yes (Pointing at another student)...sometimes, I ask him to tell us examination answers, he will put answers on Facebook”. And the one who announce the exam answers did not mind to spread it to other because he insisted that “helping others does not matter.” Students’ communication online is also limited since their interaction scope were mainly between peers and seldom with family member or their teachers. Only few students confessed that they talked with other siblings in their family via Facebook while others did not because they were used to traditional ways of communication: e-mail or face-to-face talk. It must be true that both the students and the teachers admitted they added each other on Facebook, but the only function used by the teacher is to check students’ opinions spread on internet in order to avoid negative comments on the school.

And among all these Web 2.0 technologies used by student at home, only the Yahoo knowledge, English Builder, and Blog were used for academic reasons. It must be so weird to use English Builder to assist learning at home that all of the students blasted into laughter when one of the students told the interviewer that he use internet for English Builder. While another boy declared that he usually used blog to write articles online and wait for other peers to give him advice. Yahoo knowledge was so popular that many students stated they used it for searching for materials but no contribution for it was found among these students.

3.2 The Worried Outsiders

The worried outsiders refer to parents from our interviews that knew little about Web 2.0 technologies but really care about their children’s development. They seldom use Web 2.0 technology even though some of them added their sons or daughters’ Facebook account. Some of them were housewives and knew little knowledge or skills about digital technology. Others were working parents, who face computers in their working places and would never turn on the power button again when arriving at their home, let alone to teach their children to use computer for academic practice or digital skills. As we dig into the literature, we found the important impact of students’ family members’ use of computer on their use [6]. What they all emphasize is their worries about the negative impact or risks of being online. What is worse, they all seem to agree that the more their kids are exposed to internet, the less communication between them. It was apparent that parents were also lagging behind their children in term of ICT skills. A suggestion might be to invite parents to use Web 2.0 technologies with their children together, for examples, the first step could be talking with them on Facebook and then they could explore the possible academic benefits that these Web 2.0 technologies could offer.

In general, parents considered their IT skills as beginner level. Some of them knew and used the function of information searching on the internet; one parent mentioned that she only knew Google after her child told her about that. Other from information

searching, most parents did not use Web 2.0 applications to interact with their children. When asking whether they use Face book to communicate with their children, they said they do not or seldom do so as they prefer face-to-face as the communication channel. It seems that parents are still at the Web 1.0 stage and not familiar with the Web 2.0 applications. When they had inquiries on using computer, they sought help from their children and they thought that their children are quite talent in IT aspect.

Every parent in our interviews acknowledged the conveniences, rich resource, and other benefits of technologies on their children's learning. At the same time, parents were also concerned: they were afraid of their children relying on online resources, which could go against their thinking ability development; they were also worried about the hidden health danger if their children spent a lot of time playing online games, which might cause lack of sleep and the abnormal shape of the growing bodies; they raised another question about the less and less communication between parents and children because these young kids felt annoyed and refused to talk to parents if interrupted by their parents when they were using computers; parents also cared a lot about the possible risks that their children might come across online, for example, knowing some bad persons; they also felt anxious about their children's future since they were so fond of computer entertainment, like games, movie star news. One of the parents complained: "I am so scared if he could not find a job when he grow up because he faces the computer screen all the time and do not study".

3.3 The Invisible Monitors

The invisible monitors were the teachers who used Web 2.0 technologies solely for monitoring their students and seldom interacted with them. They all found that the Web 2.0 was a very good channel to observe students because their students were passionate about them and would occasionally write and upload something about them. As a teacher, the role as a monitor never equals to facilitator and the later one is the role that could be needed to create a sound environment for students' learning. Integrating technologies into curriculum has always been the popular slogan floating in front of the building of modern teaching. We asserted that teachers in our interviews actually could not follow the pace of students in terms of Web 2.0 technologies use because they seldom used it for learning or teaching, even for social network.

For ICT in teaching, teachers did use some Web 2.0 applications to supplement face-to-face teaching, such as YouTube, wise news, question writer, Google earth. Yet, there was mainly input from teachers and not much interaction between teachers and students was involved. Some teachers have added students on Facebook, interestingly, their purpose was not for communication or academic use, but to supervise students' online behavior. One teacher stated that "it (Facebook) is a good channel for understanding our students more, not for communication...you can see what they write and comment, nowadays students are more willing to express on the internet than at school." Another teacher further extended that Facebook helped teachers to give guidance to students; she noted that "If I find a student post some negative comments, I will tell our school counselor and she will talk to the student". Teachers generally seldom use Web 2.0 applications for communication with

students. Facebook is mainly used to supervise students and email is seldom used as well; their interaction is mainly face-to-face.

For teachers, they agreed that the upgraded technologies helped their teaching job a lot. But they cared about something else rather than the benefits of negative impact of technologies on their teaching or students' learning. They cared about students' misbehaviors or negative comments on their school. When referring to students' home access of computers, they reported: "As far as I know, I think nobody has no (computers at home)". Both parents and students themselves proved that students would use more than one hour a day at home. So the teachers added students' Facebook account but seldom talked to them because the only reason is that they want to monitor what the students were stating online and what wrong behaviors they were carrying out.

4 Discussion

Through focus group interviews, the findings of this study suggest there is a Web 2.0 divide among students, teachers, and parents who were also described as naughty insiders, worried outsiders, and invisible monitors. The findings from this study might be useful for other researchers, policy makers to know the real situation and to be addressed the needed improvement about quality of Web 2.0 technology use both at home and in school. All of the stakeholders should fasten their moving steps for the sake of student developments. Joint efforts must be made by school and home together to ensure the positive impact of Web 2.0 technologies on students.

Some suggestions emerged here for both parents and teachers. At home, children play the role as a 'teachers' in regard to IT skills. They transfer the IT knowledge learnt from school to their parents. As internet has become so common and children do often communicate with each other online, it would be useful for parents to know more about some Web 2.0 applications such as social networking sites and instant messagers. On the one hand, it gives another channel for parents to interact with and know more about their children. It equips parents with more advanced IT skills which could be useful in their daily life. Realizing that students talk and express more on the internet, teachers could make use of the online channel not only to understand them more or supervise them, but also can attempt to raise students' incentives in learning by initiating some online discussion. In this way, besides one-sided input from the teachers in the lesson, the online platform provides opportunities for students and teachers to share information and ideas. Student-student and student-teacher interactions are likely to increase. In addition, improving teachers' professional development of ICT integration into curriculum has been discussed for years as a long-run vehicle to benefit students' information literacy enhancement.

Although the hardware in our sample school is quite well equipped, the teachers showed little enthusiasm about adopting new technologies to assist their teaching. Our finding are coherent with Law and Chow's conclusion that despite the apparent increase in the presence of lifelong learning pedagogy in Hong Kong schools based on principals' reports, teachers' survey results indicate that Hong Kong teachers' general teaching practice were largely traditional [30]. Part of the reason might be the reality in Hong Kong that the teachers were not confident in pedagogical use of ICT

because the number of professional development courses for training in the general use of ICT is much higher than the pedagogical use of ICT [24].

Finally, it is also very significant to report the limitation of this study. Due to limited sample participants and the weakness of the focus group interview research method itself, we could not suggest that these findings should reflect the whole scene because these were just a reflection of a case under a specific context. More empirical studies with a larger sample and both quantitative and qualitative research methods must be needed in the future to understand the problem well.

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