Intertechnological appropriation of ICTs by Quebec teenagers: challenging perceptions to better define trends

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Abstract:

Under a research initiative begun in January 2004, we analyzed the behaviours of 13-17-year-old Quebec users of information and communication technologies (ITCs). The project was carried out in two phases. In the first, quantitative phase we conducted an overview of the range of uses by administering a questionnaire to a representative sample of 1,167 Quebec youth. The second phase involved a qualitative analysis of interviews with young people and their families aimed at understanding the social uses of ITCs. Manners of use, appropriation and reappropriation of the Internet, the cell phone, the landline telephone, video games, the computer and the television were examined, not from a single-technology silo perspective, but from an intertechnological standpoint. Using this transversal approach, we observed a real propensity in adolescents for hybridized uses of ICTs.

This article presents the results and trends. Through an in-depth analysis of the context in which adolescents appropriate ICTs within and outside the family unit, we uncovered new avenues that could better guide government interventions, notably to better educate parents and their children in ITCs and their uses. While computers were undeniably present in the schools, adolescents tended—and preferred—to use them outside the school framework. We also show how parents exercised control by examining family rules, the monitoring of adolescents by cell phone, and attitudes about meeting strangers on the Internet. Finally, we aimed to better identify the youths' perceptions of technologies. Although the media discourse argues that adolescents play an innovative role, we posit that they use ICTs in relatively conventional and unoriginal ways. We therefore challenge perceptions that tend to overestimate the technical skills of young people compared to adults. This reframing should enable providers of value-added services and content, as well as government decision-makers, to better define institutional policies for technological research and innovation.

Keywords: Teenagers, Adolescents, Uses of ICTs, Hybridization, Discourse

1. A portrait of Quebec adolescents: a better understanding of their uses of ICTs to comprehend new trends

Since the 1990s, new developments in information and communication technologies (ICTs) have followed a market logic of technological overconsumption whereby technological supply exceeds demand.[1] This technological availability can be considered a real advantage for users, provided it does give rise to technological confrontation. This "intertechnological" confrontation leaves users dependent on the service providers. Be it the cell phone, the television, video games, or applications such as MSN, chat rooms and blogs, Quebec adolescents have initially appeared content to follow supplier-prescribed trends. That said, it also appears that the user's role in defining ICT services has been generally overlooked. In Vedel's technicist approach (1994), ICT uses are specified by the ICT developers. However, it is recognized that consumer uses cannot be analyzed solely in terms of technical or economic aspects. In other words, uses are not defined exclusively by engineers and economists. Social factors are equally important (Chambat, 1994). Generally, there is too much technology and not enough analysis of its uses to allow an identification of the intertechnological appropriation of technological devices.

Over the past four years, our research aimed to answer three main questions: How do Quebec teenagers use various technologies at home? In what ways do these teenagers appropriate all or part of the functionalities of diverse technologies (the Internet, television, telephony, etc.), and how do they define the new functionalities? Finally, why do young Quebecers appropriate some technologies and not others?

In the study period from 2003 to 2007, we laid the foundations to build sociotechnical profiles of ICT use. We must first note that we decided to focus on specific technologies: the telephone (landline and mobile), the television, the computer, the Internet and video games.[2] We analyzed the uses of information and communication technologies in a representative sample of Quebec youth aged 13 to 17. The study was conducted in three phases. In the first, quantitative phase, we administered a questionnaire to 1,167 respondents to gain an overview of the range of uses. In the second phase, we performed a qualitative analysis of interviews with adolescents and their families in order to chart the social uses of ICTs and the transfer process within the family unit. Using methodological approach, we studied the uses, appropriation and reappropriation of the Internet, cell phones, landline phones, video games, computers and television, not as separate technological categories, but from an intertechnological perspective. By means of this transversal approach, we observed a real propensity among teenagers for a hybridized use of technologies. For instance, technology-specific uses were transposed to other technologies, such as computer chatting and cellular text messaging. In the third and final phase, we organized focus groups of young adults, made up of our original teenage subjects, to validate the findings of the first two phases on specific issues such as teenage and parental roles in ICT knowledge acquisition and transfer, invasion of adolescent privacy and types of parental control.

[1] Among others things, see the work of Tremblay and Lacroix (1994, 1995) and Rifkin (2000) on the commoditization of the cultural industries.

[2] While the telephone, the computer and the television can be qualified as technologies, this is not the case for the Internet and video games, which are considered more as technology-based protocol or applications.

Beyond the quantitative and qualitative aspects, however, a further dimension arose from the research: teenager status in terms of ICT skills. While several studies[3] have attempted to confer teenagers with "natural" or innate ICT skills, our research shows that, on the contrary, teenagers used the technologies in practically the same ways as their parents. However, in the discourse of youth, parents and the media, these teenagers are crowned with a halo of technological know-how that guarantees them access to and ease in using ICTs, regardless of the technology. How can we explain this gap between what some claim and what others do?

By establishing a portrait of young users and analyzing their uses, we also aimed to comprehend emerging trends in ICT usage among a community that is heavily targeted by service providers. We begin by presenting the summary results of Phase I and Phase II, highlighting the sociodemographic and sociocultural variables. We show that young Quebecers use ICTs in ways that are similar to their parents'. No innovative uses were identified the sense of Proulx's (2002) fourth level of appropriation, or the stage when the user redefines the ways in which the technical device can be applied.

We also focused on the role of the parents, including the exercise of parental control, by examining family rules, the monitoring of teenagers via cell phones, and attitudes about meeting strangers in chat rooms. Because the parents monitored their children's activities in several ways, new issues emerged concerning teenagers' right to privacy and the sense of vulnerability stemming from ICT use. We conclude by identifying relationships between youth and technology, highlighting the reasons that the adolescents used and refused to use ICTs. In many cases—and herein lies the innovativeness of the results—these adolescents, who are now young adults, admitted using the computer, the Internet and the cell phone to kill time and counteract boredom. However, technologies were also a way to organize and control their activities, and ultimately, stay in constant contact with their friends. In short, who are these adolescents? Innovators? Conformists? Players? Or left out? Finally, we wonder whether and to what extent the few so-called innovative uses were related to recurrent and intensive practices and the accumulation of computer skills that inspired some to exceed the boundaries set by the service providers.

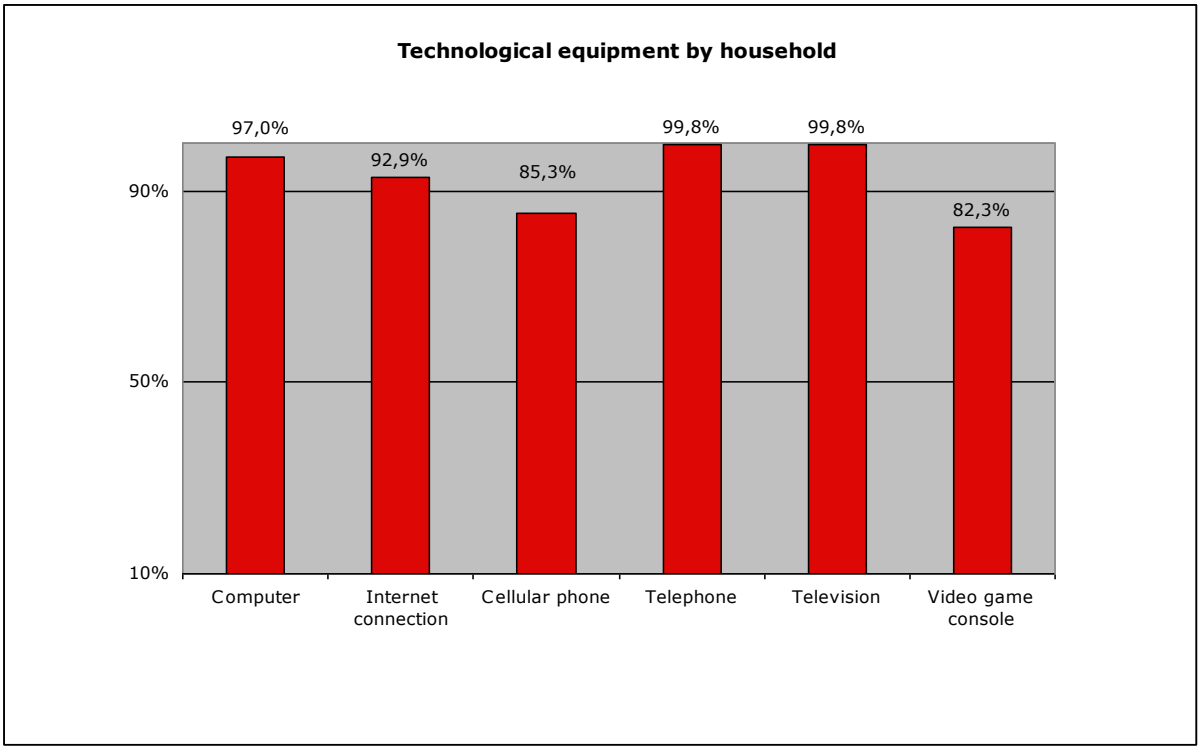
1.1 Methodological reference points: from quantitative to qualitative

Phase I of the study was conducted from January 2003 to June 2005. The main objective was to identify the impact of the sociodemographic variables (age, gender and parental income) and sociocultural variables (ethnic affiliation and geographic, urban, suburban or rural area) on adolescent use of ICTs. We administered 1,167 questionnaires to a representative sample of youth from 60 public and private schools. To identify the variety of appropriations in adolescents from different backgrounds (socioeconomic, ethnic, rural-suburban-urban), we selected schools in Montreal, Laval and the Montérégie that exhibited distinct social characteristics so we could measure the impact of these contingencies on the observed behaviours. The questionnaire was therefore designed to identify the accessible technological tools and the individual and collective communication practices they enabled. We opted for a univariate and bivariate analysis using SPSS software. This enabled us to establish a technological overview of young Quebecers as well as typical ICT user profiles,[4] or user sociotypes. Generally, we found that the behaviours of young users of technological

[3] CEFRIO (2004, 2006), Statistics Canada (2001, 2003).

[4] The research was funded by the *Fonds québécois de recherche sur la société et la culture*. Detailed Phase I results are available in a research report posted at: unesco.bell.uqam.ca.

tools were related to availability at home and the access they offered to various services and information. The variances observed between the technologies can therefore be explained by the access from which each teenager benefits. The Phase II results also confirm this conclusion, particularly given the family rules for ICT use, as set by the parents. It was therefore important to put the appropriation processes into perspective to account for disparities of access. The following table presents the types and rates of equipment found in the respondents' homes.



Without presenting in detail all the results obtained in 2004, we can nonetheless note some significant points:

- 17.7% of households did not have a video game console.
- 14.7% did not have a cellular telephone.
- The most common family computer was a multimedia system (speakers, CD reader/writer and printer).

Although the households were generally well equipped and connected to communication networks, the degree of appropriation by adolescents depended on personal access to the devices, on the one hand, and frequency of technology usage on the other. Relating frequency of use to availability of the device for personal use, we found that usage frequency was higher when the device was meant for the teenager's personal use. For example, since only 25.7% of teenagers had their own cell phone, daily use was relatively low.

With respect to the role of adolescents in knowledge transfer within the family unit, the respondents felt they had the most sophisticated Internet and computer skills in the family. However, when the impact of sociodemographic variables was analyzed, the key role played by the adolescents in knowledge transfer was less obvious. We are thinking here of the impact of parental proficiency and use, a supposition that was for the most part validated in Phase II.

Finally, we found that the impact of sociodemographic and sociocultural variables varied according to the technological device in question. For example, the "gender" variable induced major differences in frequency and intensity of use. Boys used all types of technologies more, except for landline and cellular telephones. Moreover, girls used technological tools more to communicate, while boys used them more to play games. The "family income" variable had a substantial influence on the indicators. In fact, this variable had a major impact on household equipment rate, intensity of use and level of proficiency. Here again, the relationships between income level and the indicators varied across technological devices, and did not support a trend. The "cultural origin" variable refers to the fact that Quebec households were relatively well equipped, except for computers and the Internet, for which few differences were noted. Moreover, it appears that parents of Quebec heritage were more frequent and proficient users of ICTs than their counterparts from other cultures. At the end of this first phase, it is important to note that the observed trends confirmed the government's statistics on comparative technology equipment rates and usages. However, these quantitative data do not explain the kinds of behaviours observed, nor the reasons for the different degrees of ICT appropriation.

The second, qualitative, phase of the study consisted of conducting 28 interviews with adolescents and their families. The objectives were to better understand the relationships between the adolescents and their parents concerning the use of ICTs and the knowledge transfer process within the family unit.[5] A detailed analysis of the circumstances in which adolescent use took place, both inside and outside the family unit, revealed that the degree of technological appropriation generally depended on the parents' educational level and how the parents and their teenage children perceived their relationship to technology. For example, although computers were very present in the school environment, the teenagers preferred to use them for extracurricular purposes. In this sense, integration of ICTs into school programs should take into account the new, delocalized reality of adolescent usage, in short, the extent of mobility and wireless access to the various technologies.

Again, we must underscore that all the families interviewed had all the studied technologies, including a landline telephone, cell phone, computer, the Internet and a video game console. The telephone and television were the most common, at 4.2 telephones and 3.4 televisions per household on average. Game consoles and cell phones followed closely, with an average of 1.6 each per household. We differentiated between Internet-connected and non-Internet-connected computers, with the finding that 88% of computers were Internet-connected. Incidentally, we should mention that this high equipment rate is independent of family income. We should also specify that the Phase II results cannot be generalized. Whereas Phase I addressed a representative sample, the Phase II data cannot be extrapolated to the entire Quebec population, as the sample size is too small to claim statistical validity. In any case, this was not the objective here, since Phase II involved two- to three-hour interviews with both adolescents and their parents. The methodology used was to conduct semi-guided interviews followed by a discursive analysis using text analysis software. In this second part, we performed a more in-depth analysis of the perceptions of the adolescents and their parents on their use of technologies. Here again, whereas the media discourse confers an innovative role on adolescents, we show that their usage was in fact conformist, and hardly innovative. We observed that the teenagers claimed to have greater technical proficiency than their

[5] Phase II research report: *L'appropriation transversale des technologies de l'information et de la communication par les adolescents québécois – Analyse qualitative*, By Magda Fusaro, Claudine Bonneau and Bronja Hildgen, Montreal, March 2007

parents. But, going beyond the equipment rate and the teenagers' skills, their statements reveal a certain contradictory logic regarding the use of ICTs.

1.2 Technology: mediators of technological space or facilitators of liberty?

Sfez (1996), in an article on dominant ideologies, discusses the concept of interactivity, pointing out that it replaces liberty, one of the three fundamental values of the French Republic. This interactivity stems from the progressive development of communication technologies, and allows mankind the individual freedom to deal with the determinism of machines.[6] We could almost apply this sentiment unchanged to the conversations of the parents and their teenage children, who placed liberty and technology on the same level, with technology acting as a catalyst for liberty. And yet, when we analyzed the relationships between the ICTs and the parents and between the ICTs and the adolescents, their comments also revealed themes of danger, privacy and insecurity. Parental insecurity towards the ICTs used by their teenaged children gave rise to organizations of "technological space" to determine the ways the adolescents could access them. These parents, aware of the need to open their homes to technology and equip their children for their educations and careers, sometimes exercised an insidious parental control that went against their libertarian statements on ICT access and usage by their teenage children. This control was especially applicable to the girls, who were more supervised and monitored, while the boys were apparently under less parental control.

Moreover, this infringement of adolescent privacy and freedom was corroborated on two levels. In the parent's words, it translated into the need to protect the adolescent from bad experiences and bad company, while in the young users' words, it was expressed as a lack of privacy that was alluded to, or criticized, by the adolescents. For example, the parents sometimes spoke of extreme behaviours such as breaking webcams on the grounds that they were dangerous, or installing software so they could track the teenagers' chat room conversations. To allay their fears, many other parents had discovered that learning about ICTs and privacy was one of the surest means of safeguarding against the potential dangers of cyberspace. Similarly, Jouet (1993) demonstrated a link between technological architecture and the construction of social practices. But Jouet goes further by explaining that technical mediation is not neutral; it leaves its mark on a society's communication practices. In this case, the adolescents and their parents did not escape this effect. We will show how technological tools generate practices that are elevated to the rank of urban myths and legends.

2. Debunking urban myths and legends

In this section, we focus on the adolescent and parental discourse to better understand how they perceived their relationships with technology and their respective roles in the knowledge transfer process within the family unit. Going beyond the statistics on equipment rates and the range of practices, we addressed individual perspectives and experiences as well as the contexts in which the behaviours took place. Adopting a principle held by Callon (1986), we attempted to identify how the actors defined and connected the various elements that made up their world, rather than imposing a predetermined analytical grid. We show how the discourse

[6] www.penelopes.org/archives/pages/ntic/newmed/tvintera.htm

analysis led us to reconsider certain, primarily media-conveyed notions that have shaped our image of teenagers and their uses of technology.

Indeed, the media and the goods and service providers tend to depict teenagers in a way that we consider simplistic. For example, journalists show technology-dependent adolescents who escape from the reality of the physical world and parents who are out of their depth. They like to portray adolescents as geniuses with inborn talents, using technology to gain more freedom. Although we found such images in the words of the Quebec adolescents and their parents, when they recounted their experiences, we uncovered a reality gap; their habits were not always in line with the guidelines of the media or the goods and service suppliers.

We note in the following points that, despite all the opportunities offered by technology, particularly mobility, the adolescents still valued privacy the most. The time variable also exerted a major influence on usage, the teenagers being bound by an inescapable schedule. We then show that, despite the efforts of the schools to promote technological education, the adolescents did not perceive the practices that took place in school as relevant to their home use. We also show that the adolescents' technical proficiency, assumed to be greater than their parents', may have been overrated. In fact, the parents played an important role in introducing their children to technology, and were not the "outmoded dinosaurs" that the media like to depict. Finally, although the parents claimed that they trusted their children and had not set strict rules for using the technologies, we will see that they in fact exercised several kinds of formal and informal control.

2.1 Adolescents freed from the restrictions of space and time

The possibility of being contacted at all times and places was an important feature of the technologies used by the adolescents. We might think that adolescents are freed from restrictions of time and place because they can use the technology anywhere, anytime. However, we found instead that place and schedule were the key variables that consistently influenced their usage. It is therefore important to distinguish between the places where adolescents used the technologies and the places where they preferred to use them. Thus, although the locations were multiple and varied (at home, at school, at work, in public), the adolescents expressed specific preferences for their favourite places. When the participants were questioned about the places where they preferred to use the technologies, no locations outside the home were mentioned. While mobile technologies allowed them to go beyond the boundaries of the home, they still preferred to use them at home. For the computer in particular, the adolescents preferred to access data with their own tools (music, photos, preferences, personalized interface, etc.) rather than use a public computer. The adolescents often used technology to kill time when they were alone, and they most often felt bored when they were at home.

We will also see that the adolescents' schedules shaped their use of technologies, and that when they had time to spend on them, it was generally because they were at home.[7] The participants' responses revealed that, outside the home, the technologies were used to meet functional needs such as time management and activity organizing. For example, the cell phone let them keep track of their friends, arrange meetings and be constantly reachable. The

[7] The financial aspects should not be overlooked, since the use of certain technologies, such as the cell phone or the Internet outside the home, may involve additional costs.

adolescents' comments revealed that privacy and discretion were very important in their personal conversations, as one girl pointed out:

> *When I'm on the street, I don't want to spend all my time on the phone. I don't know, I don't like it, I don't feel right. (...) I don't particularly want people in the street or even my family — when I'm in the living room — to hear about my friends' or my own problems.* [translation]

The home was more likely than a public place to combine the comfort, relaxation, entertainment and privacy they sought. However, the favourite room depended on the type of use. Private communication took place in isolated places, while more utilitarian functions and games took place in shared rooms. To better describe the circumstances of technology use, we surveyed the locations and equipment in the different rooms of the adolescent's homes.[8] A results analysis showed that only 13% of Internet-connected computers in the surveyed homes were located in the teenager's bedrooms, with a higher proportion for boys, who generally had better equipped bedrooms than girls. Moreover, 87% of televisions and 79% of game consoles and landline telephones located in a bedroom were in a boy's bedroom. Both boys and girls preferred their bedroom, regardless of the technology. The bedroom is a pleasant environment that carries practically no risk of being disturbed, where teenagers can have more freedom and control. The bedroom is no longer a space reserved for sleeping. It represents the ideal place to build a private sphere, a bubble in which adolescents can construct a personal universe, a place to develop a specific and private culture, the "bedroom culture" (Bovill & Livingstone, 2001).

Paradoxically, access to equipment was concentrated in the rooms that were accessible to all. Although the adolescents preferred to use technology in the bedroom, they were subject to family rules of access and use that allowed the parents to exercise control over usage. In this sense, the location of the technology played a role in the setting of the rules of conduct since it allowed the parents to keep an eye on their children's activities, especially on the Internet. Below, we discuss informal parental control over teenagers' technological practices.

In addition, adolescent schedules contributed to the structuring of technological practices. We noted above that family, school and social structures imposed time restrictions that predetermined how the adolescents could organize their activities. Contrary to the findings of Caron and Caronia (2005), it was not so much the technology that structured family life, but rather that students had to fit their use of technology into their schedules. Since the teenagers spent about six hours a day in school during the week, and some also held part-time jobs, the only times left to use the technologies were weekday evenings, nighttime and weekends, as one adolescent girl confirmed:

> *I was going to school, I was working evenings, I was spending almost all the rest of the night on the computer, I'd go to bed around 2 or 3 a.m., get up at 6 a.m., go to school – it was like that the whole time.* [translation]

The adolescents' accounts of their use of time revealed the time constraints they had due to schoolwork, which increased with academic grade. On the other hand, as they got older and were allowed to go out more in the evenings and on weekends, their use of technology decreased in favour of personal contact and face-to-face conversations.

[8] It was interesting to obtain this level of detail, because studies conducted in Canada (Statistics Canada, 2001, 2003) and Québec (CEFRIO, 2004) have not addressed this issue.

In other words, the adolescents' actions were not determined by the technologies, but instead arose from the circumstances in which they found themselves. Of course, the adolescents freed themselves from these constraints as soon as they could, not by challenging them but by adapting to them and constructing their own routines.

2.2 The school as the principal place of technological education

In Quebec, computer and Internet learning have been integrated into the programs established by the *Ministère de l'Éducation, du Loisir et du Sport* (MELS) for several years. Competency in ICTs has been a core component in the MELS elementary school program since 2000 (MELS, 2006). Since 1982, schools have had the option of introducing students to information technology, provided they had the equipment and training to do so, even though it was not a compulsory curriculum competency. Moreover, studies of Quebec secondary school students in 1997 and 1998 found that over 50% had their first Internet experience at school (Piette *et al.*, 1999).

And yet, the adolescents interviewed in our study did not seem to acknowledge the transfer of learning from the school to the home. Indeed, despite the efforts the schools had made to provide the students with technological training, the adolescents claimed that they had learned how to use the computer, and particularly the Internet, at home. The adolescents made a very clear distinction between the two types of uses: what they did in school, for example, information searches, had nothing to do with what they did at home, where they tried out new things, communicated with friends and played games. Thus, although the school was often where they had gotten their first experience, it was at home that the young people engaged in genuine experimentation. Such experimentation is required for a true appropriation of technology, that is, a meaningful integration of its uses into everyday life (Proulx, 2002). This kind of situation could explain the adolescents' refusal to recognize the school as the place where the technology was appropriated, although this situation is liable to change, given the growing interest of teachers in the pedagogical use of ICTs, especially for communication and creative purposes such as writing blogs.

2.3 Young geniuses and their incompetent parents

The dominant discourse granted the adolescents the status of natural technology experts, compared to their parents, who were considered dinosaurs that could barely keep up. However, we also noted that the parents played a key role in introducing their children to the technologies and knowledge transfer, especially when it came to using the different functions that the parents had acquired at work. Once initiated, the young people continued learning on their own, drawing inspiration from their peers. At this point, feeling that their children were more skilled on the Internet than they were themselves, parents would generally get them to do research for them. However, the main difference between the parents and their teenage children was that the adolescents were more willing to embrace the unknown. They did not hesitate to experiment, try new things, explore and take risks. They did not worry about breaking the computer, and their trial-and-error strategies were very well suited to technological learning.

Playing games at a very early age contributes to develop young people's confidence in dealing with technology. Berry (2006) showed that video games, even those not designed for

educational purposes, generate real learning in children, which the author categorizes as "informal education." He observed the rise of "collateral learning": mastery of computer tools, website use, and the creation of text, images and videos.

Discourse analysis of the interviews with the adolescents reveals their propensity to define themselves as technologically savvy, seeing that they belong to a generation that finds it necessary to be connected (online). In our view, the introduction to computer games at a very young age, combined with a tendency for self-validation, would facilitate adolescent appropriation of technology. Here, we define self-validation as the adolescent's ability to establish an identity as "technologically savvy". In this sense, the concept of self-validation is consistent with the "presentation of the self," as described by Goffman (1973). The individual establishes a social identity, or front, with which to confront the world. According to Goffman, individuals use their activities, behaviours and possessions to obtain positive judgements from others. In this way, they play a role so as not to lose face.

In our study, the adolescents, especially the boys, presented themselves as technologically savvy, and hoped that others would view them in the same way. Among the boys, the fact that they played computer games more than the girls contributed to a comparatively greater sense of control over technology. Indeed, boys generally attach more importance to mastering these technologies, or "power symbols," which allow them to show off their knowledge and skills (Jouët, 2003). Of the teenage girls that participated in our study, only one specifically mentioned her "natural talent" for technology. The girls we interviewed associated technological proficiency more with boys, remarking that the boys had a "more sophisticated vocabulary" than they did when it came to technology talk. We noted that the teenagers, boys as well as girls, tended to underestimate their parent's technical skills, especially their mothers. While aware that technology has become part of the everyday lives of most of their contemporaries, young and old, they also felt that this fact made them better equipped than their parents. Therefore, even though the parents had actually played a triggering role, their children played down or denied this role, as pointed out by one mother who participated in the study:

> *Because I liked the complete Mario Bros series, I was the one who introduced them to it. They don't remember this, or they deny it, but it's true, I got them started on computer games.*

Thus, the adolescents claimed to be self-taught, even when it was not true. According to them, a formal initiation process was not necessary because of their "generational mind-set." It is clearly in the interests of the goods and service providers to exploit this adolescent self-validation. The youth market is huge and their buying power and influence is growing exponentially. Upholding the myth of that "natural superiority" is a very profitable strategy.

2.4 ICTs: instruments of freedom?

We have seen how the organization of "technological space" within the family home contributes to the supervision of adolescent access to ICTs. Apart from the location of the technologies, however, is a control that takes the form of established family rules that are constructed around a discourse of adolescent self-regulation of ICT uses. In the interviews, the parents indicated that they allowed their children to familiarize themselves with the technologies, to discover and explore them, by valuing self-discipline in terms of the technologies used and durations of use. While the parents used the technologies essentially

for work purposes, Quebec adolescents built their ICT learning skills from recreational uses. The recreational use of technology therefore fostered learning and made technology a feature of everyday life.

The parents stated that they trusted their children, but remained vigilant to prevent abuse. According to them, they "used common sense" and managed any abusive or dangerous behaviours that came up on a "case-by-case" basis. The abuses to which they referred mainly concerned the number of hours their children spent using the technologies. The parents expressed their disapproval when their children's use of ICTs caused specific inconveniences, for example, if the phone line was always busy and they missed an important call.

However, when we take a closer look, we find signs of an insidious parental control that goes against the discourse of openness espoused by the parents regarding access to and use of ICTs by their teenage children. Beyond discussion and prevention, the parents exercised real control over their teenage children by establishing rules of conduct and monitoring their activities. This setting of rules to supervise ICT use appears to have begun at adolescence, or preadolescence in some cases, a time when children are highly vulnerable and private technological practices begin. To restrict or monitor their children's activities, parents prohibited them from having a computer in their bedroom, limited the length of use, changed the password or used software to monitor online messages, among other strategies.

All the parents had made their children aware of the dangers of meeting strangers with questionable motives. Some parents even said that they accompanied their children to meetings that had been set up on the Web. Few of the adolescents interviewed ignored these parental warnings about the restrictions on chatting and the potential dangers. For the adolescents, however, online communication was generally a meaningful space where they could appropriate the technology. Yet, in the parents' view, it was a dangerous place that usually justified the low rate of Internet-connected computers in the teenagers' bedrooms.

It is interesting to note the differing roles of the mother and father as far as control and punishment. Whereas the mothers worried more about protecting their children, the fathers spoke out more on the need to take action against potential technological dangers. The father was very often responsible for setting punishments for abuses, especially when the punishment required some technical know-how to apply. For example, one mother recalled how her husband took strong action by uninstalling their son's computer game because they felt he was not capable of limiting his use by himself. One father put an abrupt end to the use of webcams by tampering with the equipment to make it unworkable. The father was apparently the authority figure in the families, and had the means to apply the punishments. The adolescents had no choice but to respect the limits imposed by the family if they were to maintain access to the technologies.

The application of parental rules raises issues of adolescent privacy and the potential dangers of a public space. What happened to the promise of freedom held out by these ICTs, and to which these young people aspired? The answer lies in part in the opportunities that technology provides to construct and develop a completely private identity, an identity that renders one freer, more individualized and autonomous, in order to break away from the family unit. In this way, the technological tools gave the adolescents a sense of autonomy, effectiveness and independence, not to mention superiority over their parents. Some of the adolescents had tested the limits of the imposed rules. A few told stories of hacking into email accounts, illustrating the complicated relationship adolescents have with technology. Having

invade other people's privacy and maintained almost permanent contact with their friends, the adolescents readily recognized that the technologies used in both private and public spaces can jeopardize their privacy (Fusaro & Hildgen, 2007).

Parents and adolescents alike recognized the potential of the Internet to open up the world, for instance, the possibility of communicating with anyone, anywhere with no restrictions. They valued online access to information and stressed the importance of mastering technological tools to cope with the future. Paradoxically, their everyday uses of technology were based on control, which raises another paradoxical problem: infringing on adolescent privacy and freedoms while preserving the private space that both parents and adolescents require.

3. Conclusion

Information and communication technologies are characterized by a major developmental leap driven by the digitization of data. Emerging in the 1970s primarily for purposes of transmitting information on telecommunications networks, data digitization has expanded and today permeates every field of ICT. Whether this phenomenon, successively known as "the global village," "the computerized society" and, more recently, "the information highway" or "convergence," the different players agree that digital generalization has revolutionized usage behaviours. Moreover, it is clear that ICT uses in analog mode differ from those in digital mode. Analogical technological innovations have limited uses that are defined by the developers. In other words, the use is inherent in and inseparable from the apparatus. In a digital apparatus, this interlacing of tools and their functionalities appears to have been left behind, in part due to the ability of the tools to non-specifically process all manner of text, image and sound contents. The new communication systems offer infinite capabilities for non-specific uses (computer, television, cell phone, etc.).

Nevertheless, despite the potential offered by technical gadgetry, we must note in our study that the so-called innovative uses by the young adolescents were apparently marginal or even nonexistent. Although several variables and factors contributed directly to the appropriation of the technological tools, few adolescents went beyond the frameworks prescribed by the service providers. Although, some undoubtedly committed piracy or hacked into other people's email accounts, these practices were marginal. In fact, it almost seemed that the users were not really interested in the technologies or their specificities as such, but were more aiming to meet their needs. The data validation phase (Phase III) clearly supports this conclusion. All the interview respondents said that the technologies had been imposed by society, meaning a lifestyle similar to that of their parents. Only one notable exception was found: the Apple iPod. The teenagers who used it felt it was the only tool exclusively designed for recreational purposes. By listening to music anywhere, or in a favourite spot, they could regain a form of intimacy that some believed they had lost. This is a surprising discourse on the part of these "techies," who in the same breath defined themselves as "naturally plugged in," and then immediately added that they increasingly rejected the use of certain technologies. Could this be the beginning of a new trend?

The "confidentiality – privacy – intimacy" polarity could be another emerging trend. Several respondents questioned the "manipulations" of service provides who sought to trace every last detail of their ICT use patterns. Aware of their role in society, these young adults were trying to block what they considered invasions of their privacy, for example, the pop-up ads on MSN that are linked to previously visited websites. There is also the limitless access

provided by the cellular phone. Most of the adolescents make a distinction between privacy and intimacy, referring to the boundaries between public and private space. However, the interest here is in the use of the terms: public space becomes synonymous with privacy, or "I have nothing to hide," while private space is considered intimacy. Is this a confusion of genre? A shift in meaning? Could we be witnessing a new reality, one that still places the user in a technological confrontation, but where the issue is not to acquire the technical expertise (Jouet, 1993), but rather to gain a much sought after freedom?

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