"Don't answer that!"- Cell phone restrictions in Ontario schools

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ABSTRACT

This paper explores restrictions on cell phones in classrooms in general and specifically analyzes a recent educational policy announcement in Ontario, Canada restricting the use of cell phones and mobile devices in schools. A *critical policy analysis* framework, developed by the authors, investigates the efficacy of cellphones in education. The origins, intent and possible impact of the cell phone restriction policy are also examined. A cell phone ban, like any policy, should be examined in different contexts – the context where the policy is produced and pronounced (the Ministry of Education) differs from the context where the policy will be practiced (in school districts and schools). The authors examine the policy's implications in light of published data on the increasing mobility of Internet access in society, as well as recent reported advances in m-learning and technology-enhanced learning in schools.

Keywords: m-learning, technology, education, critical policy analysis

1. INTRODUCTION

Canada is a decentralized federation - the responsibility for education for the most part rests with the thirteen Canadian provinces and territories. Policy governance of K-12 schools as well as higher education is within the purview of the province or territories, as is curriculum design [1]. Ontario is Canada's most populous province; there are approximately 2 million students in K-12 education in Ontario in approximately 4,500 schools [2]. In August, 2019, the Ontario Ministry of Education published a news release, entitled, "Ontario takes action to focus on learning" [3]. The wording of the news release was as follows;

> Ontario's Minister of Education announced plans to move forward with restricting the use of cellphones and other personal mobile devices in classrooms beginning November 4, 2019. The restriction applies to instructional time at school, however, exceptions will be made if cellphones are required for health and medical purposes, to support special education needs, or for educational purposes as directed by an educator. [3]

In the same news release, the Education Minister stated, "When in class, students should be focused on their studies, not their social media," and "That's why we are restricting cellphones and other personal mobile devices in the classroom, while making sure technology is available to help students achieve success in the digital economy and modern workforce." [3] The Ministry announcement indicated that the Provincial Code of Conduct had been updated to include this "restriction." The Ministry provided quick links including a parents' guide to the provincial Code of Conduct, and a question and answer sheet on mobile devices in schools for parents [4].

The links provided from the announcement to the official legislation were more difficult to follow. One link led to a list of policy and program memoranda, also known as PPM's. Using information gained through other websites, the authors determined that PPM 128 had been revised the same day as the cellphone announcement to state that, "The use of personal mobile devices during instructional time *is permitted* (our italics) under the following circumstances: for educational purposes, as directed by an educator; for health and medical purposes; and to support special education needs [5]. The authors attempted to verify a similar change in the Ontario Statutes (RSO 1990) but were unable to locate any direct references by searching for "cellphone" "phone" or "mobile technology" in the present Education Act (Education Act, RSO 1990). The official pronouncement of cellphone restrictions in Ontario and its accompanying policy supports are the focus of the policy analysis research reported here.

2. POLICY ANALYSIS

A policy is defined by Pal [10] as a public response to a problem, reminding us that the act of defining the problem is, in itself, a value-laden decision. Marshall argues that policies are more accurately defined as *responses to problems that are identified by those who hold power* [11]. Educational policy research has followed a tradition, accepted by most researchers, of analyzing the implementation and outcomes of a policy in a value-neutral way. A more critical approach to policy analysis recognizes that policy problems have generally been defined by the mainstream [11]. Views on cell phone use in schools are widely disparate and, in some cases, polarized. As a result, the authors decided that the issue of mobile devices in schools required a complex policy analysis design that included critical policy analysis [12].

This study draws on policy analysis theory to create a framework to analyze the policy itself as well as the processes of the policy implementation. The authors' framework includes: Policy *influencers*, policy *pronouncements*, policy *implementation* and policy *privileges*. A policy trajectory is the path that a policy takes once it is pronounced [13]. Policy actors [14] are those who enact the policy. Policy levers are the functional mechanisms that governments can use to ensure that policies are implemented. For example, the use of technology could be a skill that is measured on the Ontario report card, but it is not. The *effects* or repercussions of the policy are considered as well as *responses* to the policy which could be acceptance, non-compliance, alternatives or resistance. Each policy undergoes its own journey as it is interpreted by those responsible for implementing it or championing it. There are also *critical* aspects of policies to consider such as who has had voice or who may be silent in the policy formation; how the policy is represented in its simplicity or complexity; and how the intended or unintended consequences of a policy impact various groups and subgroups. The table below reflects the complexity of contemporary policy analysis.

Table 1: Critical policy analysis framework [34]

Policy influencers	**Policy pronouncements**	**Policy implementation**	**Policy privileges (critical policy analysis)**
Assumptions, Belief systems, Stance: traditional vs contemporary [12]	Legislation (e.g., Education Act Memos Curriculum) Rhetoric/ Discourse News Release	Policy trajectory [13] Policy actors [14] Policy levers [15] Policy contexts [16] Policy responses: compliance, non-compliance	Policy history, complexity implications Policy vacuums/gaps Rhetoric vs reality [12] Policy alternatives and resistance
Who has (traditional) power and voice in the policy process? Who is missing?	What is the stated public problem that the policy addresses?	What are the intended and unintended repercussions?	Who has power? [11,12] Equity: Who benefits (is marginalized)?

3. CONTEXT: CELL PHONE USE

The development and emergence of today's cell or smart phone is a history of both technological and network infrastructure development. More recently, the emergence of smart phones has centered on the software that can be used by mobile devices and this has been an evolution. First, cell phones were developed to allow telephone conversations while driving. Originally described as car phones, the first cellphone was a Motorola DynaTAX 800 which sold in 1983 for $4000US, had a battery life of 30 minutes, and was more than 12 inches long. Some claim that the first smartphone was the IBM Simon that boasted a touchscreen (circa 1992) and a price tag of $899. In 2008, the first truly "smart phone" the Apple 3G was released, introducing the app economy.

With the concurrent growth of cellular technology from 1G to the current 4G infrastructure (and the impending availability of 5G networks), the smart phone has grown from a simple telephony device to a computer in your pocket. Smartphones today have usurped other devices including landline telephones, point and shoot cameras, calendars and note books. Today's smartphone has the capacity to be many devices: a personal organizer, a note taking device, a digital audio recorder, a video camera, a paper scanner, a multifaceted communication device (email, audio, videoconferencing, texting, exchange of pictorial information), a microscope, a car or personal navigation device, an alarm clock, a weather sensor, a real-time stock ticker, a personal tracker, newspaper, magazine, and radio, a music library, a video player, a podcast creator and viewer, a portable planetarium, a typewriter, a bank machine, a credit card and a gateway to many available learning programs.

Cell phones have become the most ubiquitous form of technology today [6] and, while their size allows for maximum *portability*, they can replace a home computer in *functionality*. In fact, the differences between the functionality of the laptop and handheld devices have been shown to be minimal for learning effectiveness [7]. The modern smart phone has become indispensable to full participation in the modern world. Indeed, it is envisioned that national voting may take place in the near future along the lines of Estonia's use of "i-voting" in 2005 which allowed citizens to vote using any Internet-connected device. Recently West Virginia introduced mobile phone voting in 2018 that primarily allowed for those serving in the armed forces abroad to cast a vote [8]. The use of the block chain-based Voatz app, while not fully endorsed, suggests that efforts to utilize smartphone-enabled voting will grow. Voatz was also used in Denver's municipal elections in May, 2019 and is credited with increasing voter turnout in both elections [9].

Denham and colleagues argue that the potential of the cellphone for immersive learning has not yet been tapped [7]. In education, students use cell phones to learn at any time and from anywhere; they can collaborate online and capture and share data. Cell phones are not simply a replacement for an earlier form of learning – they also allow students to have an *embodied* approach to mobile learning (m-learning) which involves embodied cognition. Phones have interfaces that use gestures (swiping), motion, and voice. When students interact with the touch screen and the virtual environment, they can use this powerful form of learning to acquire skills that range from learning how to count to learning how to study the night sky. With this portable, embodied form of m-learning, students can explore real physical environments by immersing themselves in authentic activities. This authenticity also has the potential to make education more accessible and affordable. The potential of the smartphone for augmented reality and forms of immersive learning has not yet been fully tapped but examples are emerging such as using AR to overlay an image of an engine to learn car repair [7].

Belief Stances: As indicated in the *policy analysis framework*, belief stances influence policies and are manifested in polarized positions with respect to cell phones in schools. Some jurisdictions appear to focus more on traditional schooling. These school authorities have taken positions that align with the present Ontario position. Their discourse includes words such as *restrictions*, *prohibits* and *exceptions*. Similarly, cell phones were banned in schools in France in 2018. France's education code, Article L. 511-5 now reads that, "in kindergartens, elementary schools and colleges, use during any teaching activity and in schools…a mobile phone is *prohibited*" (our italics). The new law also prohibits the use of connected objects such as watches and tablets with the possible exceptions for educational purposes and the discretion is left with each institution [17]. The reasons for the cited ban include fear of cyber-addiction. France's education Minister said that cell phones should not "monopolize our lives" [18]. Victoria, a state in Australia, has banned cell phones for 2020. The Minister for Education states that the ban is "to help reduce distraction, tackle cyber bullying and improve learning outcomes for students." The exceptions to the Australian ban are the use of phones to monitor health or when teachers instruct students to bring a phone for an activity in the classroom. Otherwise, phones must "be in lockers" [19].

Officials in Ontario education report contrasting belief stances (traditional vs contemporary). For example, the Ontario Public School Boards Association (OPSBA), which represents the jurisdictions supervising 68% of the students in the province, took a contemporary stance that advocated local, age-appropriate decision-making about phones in schools. Their position is that teachers should make classroom-based decisions and students need to learn to be "discerning digital citizens." OPSBA pointed out that multiple school districts have BYOD (Bring your own device) programs where students use the mobile devices for learning. Their position also is that cellphones provide more equitable access to technology for some students, and that some parents consider cellphones as an added safety measure in emergency situation [20].

Alberta, another Canadian province, has similarly assigned the management and use of cell phones to the discretion of school districts, stating that "Minister Eggen trusts Alberta's teachers and school boards to make their own rules regarding the use of cellphones in their classrooms" [21]. Alberta's position is aligned with student empowerment, stating in their BYOD policy that "students' levels of responsible/appropriate use of the personally-owned devices determines the degree to which the school authorities have achieved success with their BYOD model." Alberta also takes the position that most of their school authorities already have acceptable use policies to address the use of technology and to help students become "responsible digital citizens" [22, p. 19].

British Columbia (BC)'s Ministry of Education is not considering similar province-wide restrictions such as those in Ontario's ban. A BC ministry statement reads in part, that school districts are responsible for setting local policy that meets the unique needs of their student populations [23]. This stance reflects a more contemporary viewpoint.

The context surrounding cell phone use has changed significantly in the past decade. The situation was simpler when cellphones were first banned. The United States provides an illustrative example. In 2011, only 35% of Americans owned a cellphone but in eight years, this changed to 96% [24]. During that initial time period, 24% of US schools banned cellphones outright, while about 62% allowed phones on school grounds but not in the classroom [25]. Shortly afterward, at a major US education conference in 2012, there was a call to revisit the cell phone ban because cell phones were being used in classes for learning [26]. It is rare for changes in educational contexts to occur this quickly and it is helpful to examine what is happening with phones in homes.

Home life: A survey of the cell phone use of US teens and parents reveals that parents are most often the provider of the cell phones and the instigators of the first cell phone purchase [25] which different studies indicate takes place between 10.3 and 12 years of age. For many families, safety and a desire for connectedness are major motivators. Parents usually regulate the phone use. Younger female teens experience the most regulation but age is a factor in regulation for all teens [25]. A 2017 study [27] reports that one-third of Americans live in households with three or more smartphones. These reports combined indicate that, based on the number of phones per household, cellphones are used to connect within families.

In addition, smartphones are "the tech" in families now. According to Influence Central, smartphones are reshaping American society and have become "the linchpin in how today's families incorporate technology into their daily lives." The average family has more than two smartphones and they report that smartphones have become "increasingly important to their way of life" because they can multi-task using their phone for social media, navigation and internet searches [28].

Currently almost all Americans own a cellphone (96%) and most of these are smartphones (81%). In 2019, 99% of those aged 18-29 owned a cell phone and 96% owned a smart phone [24], indicating that smart phone use is high in that demographic. A 2015 Pew survey identified different patterns of mobile and social media use by gender, finding that girls used social media for sharing more than their male counterparts who are more likely to play video games. Girls are outpacing boys in their use of text messaging, and in their use of visual social media platforms like Instagram and Snapchat [29]. In sum, these findings indicate that cellphone use differs by age groups and by gender.

Wireless substitution: Cellphones replace more than cameras; they also replace landlines and home computers. During the past decade, there has been an overall trend toward *wireless substitution* that falls along traditional *have and have not* fault lines. In 2016, more homes in the US used a cellphone than a landline telephone and more than 70% of adults (ages 25-34) reported that they lived in *wireless-only* households [30]. This translates to 44 million US children living in households that use *only* wireless telephones for internet access [30]. Cellphone only ownership is more likely for Americans who are older, have less income and who live in rural areas [24].

Significantly, for one in five Americans, the smartphone has become the primary means of online access at home.

According to a US Health survey [30] the rate of *wireless phone only* households is higher for Americans in a cluster of significant ways: Wireless only persons are more likely to rent their home, to have less income, to be non-white, and to live outside cities. Another group of Americans are those who live in *mostly wireless* homes. In comparison, *mostly but not exclusively wireless* household members are more likely to have higher education, higher income and home ownership [30].

Equity: Considered together, these trends and transitions have implications for education. The reliance on smartphones for online access is most common among young adults, non-whites and Americans with lower incomes [24]. Affluent Americans are more likely to have traditional tablets and computers: those who earn $75,000 or more (41%) report that they have three or more computers compared to only 9% of those who earn $30,000 or less [27]. These data would indicate that *smartphone dependence* for online access for learning at home needs to be considered as an education and equity issue.

If the use of cellphones for learning purposes is not taught in schools, a significant number of children in households in the US who have *wireless phone only* access have overall *less* advantages. If these students can learn how to use their phone (as a computer) for a wide range of learning purposes, this could have a significant impact in decreasing the *digital divide*.

4. DISCUSSION

In pronouncing the case of the restriction or ban on cell phones in the Ontario case study, the government did not identify the nature of the problem that the policy ban is supposed to address other than to state that the ban was requested by 97% of (unknown) persons surveyed. Neither has the government leveraged the capacity of the smartphone to access technology. This suggests that the ban is driven by a conservative popularist government with a "traditional" or "back to basics" belief stance on cell phones and other areas such as sexual health education and mathematics instruction. In comparison, the position or belief stance of the school districts and professional associations who are supportive of technology inclusion in the classroom aligns more with the current context of smartphone use as a handheld computing device. This more contemporary belief stance has evolved over the last decade and it recognizes teachers' rights and abilities to manage their classrooms, as well as the rights of students to learn how to manage smart phones for learning.

Unlike the situation in Victoria (Australia) cited earlier, the restrictions on cell phone use in Ontario schools do not appear to be prompted by reports of cyberbullying. In 2019, the Council of Ministers of Education in Canada (CMEC) published findings that cyberbullying in Canadian schools is "relatively scarce" (CMEC, 2019). These data were collected from large scale assessments such as the Pan-Canadian Assessment Program (PCAP) administered to Grade 8 and Secondary students in 2016 and the Trends in International Mathematics and Science Study (TIMSS) in 2015. When asked about cyberbullying, 3% of students reported that "other students posted embarrassing things about me online" once a month or more, while 89 % of students said that this "never" happened. It is significant that cyberbullying is the lowest reported form of bullying and contrasts with high incidences of many other types of bullying [31] (CMEC, 2019).

Parents support technology in the classroom and appropriate use of cell phones by students. As noted, many parents see cell phones as a "safety device" which allows parents to communicate with students and provides a level of perceived safety if parents can be in real-time contact with their children—especially in Canada where an estimated 50% of public phones have been removed. Where school violence or perceived levels of school violence create anxiety for parents, cellphones are a safety measure. The Ontario government has stated that the ban on cell phones was based on a majority view, but they were not transparent about whose voices were included to determine this ban.

Public Policy in Contradiction: To date, the Ontario Education system has adopted policies that support the use of information and communication technology (ICT) in schools and classrooms. In response to funding issues for computers in schools, many school districts have adopted a Bring Your Own Device (BYOD) policy. Concurrently school districts have also developed acceptable use policies to address optimum practices by teachers and students. Additionally, the Ontario College of Teachers has issued a professional advisory on social media guidelines, adapted as policy in some school boards. Thus, the recent cell phone ban appears to be at variance with recent curriculum developments and regulatory practices on technology integration and stated beliefs about preparing students for an increasingly technology-oriented job market and society. Digital citizenship is now an accepted and widely adopted effort by all school districts.

Public policies are developed to benefit citizenry. In the field of education, policies are created to support enhanced learning outcomes, establish inclusive educational settings, enhance learning environments and benefit the common good. Yet the recent cellphone ban does not appear to address these objectives. By banning all phones, the recent cell phone policy appears to:

- Restrict students' access to just-in-time learning tools to enhance learning;
- Restrict or limit access to specific applications for learning which are primarily (or seamlessly) available on mobile devices;
- Expand social inequality while cell phones could substitute for more expensive computers;
- Decrease opportunities to educate students about digital literacy and decorum in future employment settings;
- Reduce opportunities to develop future employment skills which increasingly will be defined by device mobility.

Current research in China has shown that the existing school policies for phone restriction have not worked well [32]. The cell phone restriction also has the potential to affect students who are expected to complete the

announced mandatory four required online courses in secondary school because they will potentially access learning materials and courses on their phones. This will be an interesting problem given that the courses will be delivered using an LMS (Desire-to-Learn) platform which has a robust mobile application for Android and IOS devices. As the cell phone restriction policy does not appear to be based on research, there appears to be no provision for monitoring or data gathering or any investigation of potential local effects.

Reactions to a cellphone ban: Policy analysis also examines responses to policies – either through compliance or non-compliance. Stated reactions to the cell phone restriction policy have been less than expected. One reason for this could be that school districts have already considered the issue of cell phones in schools and have created Acceptable Use Policies that make the provincial cellphone ban a non-starter. Teachers are more comfortable promoting learning than policing cell phones. Additionally, the rhetoric attached to the original pronouncement has been softened by the language of policy, which, in spite of restrictions, still lands solidly on the purpose of use as connected to learning and teacher direction. Anecdotally, a teacher reported to one of the authors that the major senders of text messages for teens in her classes were their parents who were reminding students about changes in plans for after school.

The Center for Teaching Quality (CTQ) volunteers that cell phone bans take away opportunities for students to learn about appropriate smart phone use, such as digital privacy within an era of data mining for profit. Without cell phones, there are fewer opportunities to talk about online safety. The teacher also is giving a message that they do not trust the student instead of encouraging them to be responsible. Teachers can show many creative learning uses of cell phones such as research, photojournalism, and learning to show willpower [33].

5. CONCLUSIONS AND RECOMMENDATIONS

In our policy analysis we examined the policy influencers, the legislation, the implementation factors and the policy privileges [34]. Our critical policy analysis indicates that the cell phone stance by the Ontario Ministry of Education reflects a more traditional view of schooling than a contemporary one. We were unable to locate policy levers to enforce the cell phone ban. Looking beyond the rhetoric of the pronouncement, related policies were more permissive in nature and left decisions to the districts, the schools and the teachers.

Our analysis finds that the cellphone ban does not reflect a fulsome understanding of the policy contexts. We know that most students use their phones to communicate and expand their social networks. They can also use cell phones for learning when teachers integrate m-technologies. It is likely that more teachers will use cell phones for educational purposes as understandings of cell phone affordances grow. While some observe the potential for distraction, efforts around digital citizenship and Acceptable Use Policies help in forging new social mores and social expectations. We also know that smart phones enable a more equitable access to the Internet than computers or tablets and that restricting smart phone use in schools could potentially further disadvantage certain student populations.

We have identified that there is insufficient research about the effects of cell phones on newer ways of learning. One oft-cited study found a positive relationship between a cell phone ban and student test scores [35]. Cell phones are known to be distracting and their use has been banned while driving in many places. A 2013 study found that university students who were distracted by their phones tended to write down less information from a recorded video lecture than those students who abstained from using their mobile phones during the video lecture [36]. The ban on the use of cell phones in schools relates to a more traditional, outdated learning paradigm. In an era where students are building knowledge rather than receiving it, the cell phone as a learning tool (computer) needs to be researched. Phones will be more useful as more technology-enabled learning activities are used in schools. The restrictive nature of the announced policy may also indicate a lack of understanding of the social capital of cell phones. Although parents may initiate most cell phone purchases, adolescents are early adopters of smart phone apps. Their phone use contributes to social capital [37] and is a marker of their independence [33]. If cell phones impede learning, teachers and students can organize work periods with phones on silent. Students can learn to self-regulate. Enforcing cell phone bans can have unintended consequences such as confrontations, which were the characteristic of exchanges when cell phones first entered schools.

Our critical policy analysis leads us to ask whose voices are missing in the cellphone debate. We observe that the voices of the students and the teachers who use m-learning in classrooms are missing from the debate, as are the families who rely on phones for their connection to the Internet [38].

Christensen coined the term "disruptive innovation" [39] arguing that disruptive innovation allows students to move past the scenarios where they expect the teacher to tell them what to learn, and move toward investigations of learning such as problem-solving, inquiry and collaboration. Newer forms of learning rely on technology access in schools and an understanding by policy makers that this presence in classrooms, like the presence of any new appliance or medium, poses an opportunity to learn how to participate.

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