

Title: The Impact of Technology on Education: Do We Need Educational Policy and Curriculum Reforms?

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[Speaking notes – Check against Delivery]

Let me set the scene. It is the latter part of the 20th century.

Faced with depleting natural resources and increasingly uncompetitive industries, Canada - like other post-industrial nations - looks to an economy in which knowledge is the chief commodity.

Some advocates see radical societal changes with the introduction of computers to the classroom.

The stock market soars on the strength of economic growth in the technology sector.

Advocates of increased use of computers spout formulas about the exponential growth in information.

They talk about the continually changing education requirements for technical occupations.

They promise that with computers teaching would be transformed.

Teachers will become "the guide on the side" instead of "the sage on the stage."

Parents and educators in the late 1980s and early 1990s are subjected to a variety of claims about the educational benefits of information and communication technologies.

Schools, school districts, parent organizations, corporate Canada, and governments are swept up in frenzied attempts to ensure that students will be prepared for a future in which technologies - especially communication and information technologies - and will figure prominently.

So, what has been the actual impact of technology on education? Has the promise of information and communication technologies been realized? Are further policy and curriculum reforms necessary to educate for a technological present and future?

Some years ago, Tracey Burns and I reviewed the research devoted to information and communication technologies in relation to attitudes, achievement, motivation, learning strategies, and problem solving and the impact of information and communication technologies on instruction in content areas.

Based on our review, only five unambiguous claims can be supported:

1. Student attitudes toward computers and computer related technologies improve as a consequence of exposure to them;
2. The use of ICTs for group work can be beneficial. But only if teachers are able to take into account the complex interplay among the age of the students, the kind of task, and the amount of independence students are allowed;

3. The use of ICTs for mathematics instruction has a significantly positive effect on teaching high level concepts to students in grade eight or above;
4. In most subject areas, over 60 per cent of software voluntarily submitted for testing was judged of insufficient quality to merit an evaluation, a distressing level of inadequacy; and
5. The majority of the research reviewed is contradictory and/or seriously flawed.

The lack of empirically sound work and the absence of unequivocal results thwarted our intention to identify more fully practices that might profitably guide policy or practice.

Simply put, we still don't know enough about the impact of the use of technology in elementary or secondary schooling.

And what we do know is sufficiently complex that there should be serious effort to support systematic, programmatic research capable of providing policy alternatives to which costs can be attached.

Otherwise, how can we know that the promises have been realized?

Have the time, money, energy devoted to incorporating technology into the curriculum been well spent?

Since we can only guess at the answers, let me pose a more serious concern about the curriculum of Canada's schools in general.

Schooling is increasingly seen as a step to something else – work or further schooling – rather than something of value for its own sake.

Schools are asked to provide knowledge and training for an unknowable future.

As a result, the curriculum of Canada's schools has become bloated, fragmented, mired in trivia, and short on ideas.

It does not demand that students connect what they learn with anything else or challenge them to reach beyond their limits.

The curriculum stifles curiosity. Although it demands effort, it does not reward deep thought

Thus, while I do not think that policy and curriculum reform is necessary to educate for a technological present and future, I do not think we will accomplish anything of value if we do not reassess our priorities for schooling.

We need to step back and ask: What is it we truly want from our schools? What knowledge is most worth knowing? What is the role of public schools in ensuring that it is known?

What shall we emphasize and what shall we leave for other institutions to address or for students to explore on their own?

What principles should guide our decisions about what to include and what to exclude?

The curriculum of the Canadian school should meet four criteria:

- The curriculum should enable students to connect what they learn in class with their lives outside of school.

- Students should be challenged by the curriculum to reach beyond previous boundaries in knowledge and experience.
- The curriculum should stimulate students' curiosity, prompting them to want to know more.
- The curriculum must require students to think deeply, to invest mental effort in their learning.

More specifically, our schools should serve society by ensuring that students possess a strong foundation in reading, writing and numeracy; that they are disposed to treat others with respect; that they have the ability to work co-operatively with others; that they appreciate and act upon the values and principles that make us human; that they understand Canada and can appraise its strengths and limitations.

We do not need policy and curriculum reforms to educate for a technological present and future. We do need policy and curricular reforms to ensure that the next generation can exercise a critical intelligence that is adaptable to circumstances unforeseen.

Thank you for your attention.