

**The impact of online teaching videos on the development of  
self-efficacy beliefs of Canadian preservice teachers**

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## **ABSTRACT**

One of the major challenges in teacher training programs is the gap between the theory that is presented to pre-service teachers and actual classroom practice. Many researchers, educators, and preservice teachers have emphasized the difficulty of linking theory and practice in teacher education programs. The purpose of this study is to better understand the impact of online teaching videos on the development of self-efficacy beliefs of preservice teachers. Over 400 student teachers participated in this study. Focus groups, individual interviews, and statistical analyses were conducted to assess the impact of online teaching videos. Our results reveal that online videos indeed impact the self-efficacy beliefs of preservice teachers. Moreover, detailed qualitative analyses reveal which elements in the videos are most appreciated. These results have important implications for teacher trainers, school principals, and policy makers.

## **INTRODUCTION: ICT, VIDEOS, AND EDUCATION: A CENTURY OF PROMISES**

*One day, people will learn through electronic circuits.  
Marshall McLuhan, 1965*

Marshall McLuhan, a Canadian philosopher, showed great foresight when, in the 1960s, he claimed that technologies would one day play a crucial role in education (Garlock & Soles, 1965). But more than 50 years before McLuhan, another visionary, Thomas Edison, had already predicted a great future for technologies in schools. In fact, a few years after making an educational film in 1911, Thomas Edison proclaimed: “*Books will soon be obsolete in schools [...] It is possible to teach every branch of human knowledge with the motion picture*” (1913). Since Edison’s prediction that teaching would be revolutionized by films (or videos), the integration of technologies in education has gone through many transformations and developments, including the use of television, videos, computers, and information and communication technologies (ICTs).

Thus, for about a century, technologies have been promised a major role in education. However, since the early 1980s when, for the only time in its history, *Time Magazine* departed from its annual practice of naming a “Person of the Year” and named a “Machine of the Year,” the computer and the Internet have become increasingly popular in schools. In his introduction, *Time Magazine* publisher John A. Meyers wrote, “*Several human candidates might have represented 1982, but none symbolized the past year more richly, or will be viewed by history as more significant, than a machine: the computer*” (1983).

### **OBJECTIVE**

The goal of this study is to better understand the impact of online teaching videos on the development of self-efficacy beliefs of preservice teachers.

### **PROBLEM**

This section presents two major challenges in teacher education programs in Canada: the dichotomy between theory and practice in teacher education programs and the shortage of French-speaking teachers in Canada. We strongly believe that the use of online teaching videos could help overcome both these challenges.

#### ***The dichotomy between theory and practice in teacher education programs***

One of the major challenges in teacher education programs is the so-called dichotomy between theory and practice, that is, the gap between the theory that is presented to preservice teachers at university and the classroom they face during their practicum. In fact, researchers, educators, and pre-service teachers have

frequently pointed out the difficulty of linking theory and practice in teacher education programs. This difficulty largely stems from the way that theory is presented, usually in an abstract, decontextualized manner that is out of touch with reality and hence irrelevant to everyday teaching practice. This clear-cut, simplified, denaturalized, and often prescriptive approach appears to be no match for the “messy, indeterminate situations” of the real classroom (Schön, 1987, p. 4) that teachers deal with every day, and that require a combination of knowledge, open-mindedness, insight, and creativity.

It is usually during the practicum that preservice teachers feel this discrepancy between what they were taught at university and what the associate teacher working in the high school or elementary-school classroom does or claims to do, typically relying solely on hard-earned experience. Consequently, student teachers might feel that they were misled at university and that they have to choose between theory and practice.

Many researchers in North America, Europe, and Asia have come to the conclusion that preservice teacher education programs continue to prepare teachers in ways that reinforce a transmission model of “teaching as telling” (e.g., Richardson, 2001). The perception of teaching as knowledge transmission is grounded in an epistemology of technical rationality that views teachers and teacher educators as technicians delivering a prescribed curriculum. In this sense, novice teachers are expected to apply what they have learned. This kind of teaching gives little credence to learning through experience or from experienced teachers (Schön, 1983, 1995), and serves instead to reinforce, rather than help bridge, the dichotomy between theory and practice in teacher education programs. The frequent result is that teacher education programs and the underlying body of knowledge are discredited. Furthermore, with the growing interest in distance teacher training programs, the dichotomy between theory and practice appears to be taking on a new meaning. Often reducing if not eliminating the interactive component of live classrooms, some distance programs are based solely on the transmission model.

### ***Overcoming the shortage of French-speaking teachers in Canada***

Canada is the world’s second largest country by total area, occupying most of northern North America, from the Atlantic Ocean in the east to the Pacific Ocean in the west and northward into the Arctic Circle. Across Canada’s ten provinces and three territories, education must be offered in either English or French, the country’s two official languages. This poses many challenges, particularly in areas or provinces where one language, usually French, is a minority language. For example, in Ontario, Canada’s second largest province, there is a substantial shortage of qualified French-speaking teachers. Moreover, although many schools employ some teachers who are not fully qualified, it would unthinkable to remove

them from the classroom for further training, given the lack of teachers. In order to cope with this considerable challenge, we decided to implement a distance education program for minority-language teachers (French-speaking teachers). However, the candidates quickly raised some issues, pointing out that the theoretical material they received needed to be complemented by classroom observations, both to make the course more accessible and to ground the course in reality. Basically, they felt that distance education alone would not fully prepare them to be qualified teachers. They believed that distance education would not give them a proper, professional teacher education. This request raised another substantial challenge in turn, because the program they were following did not provide the classroom observation hours or internship opportunities included in the regular teacher-training programs held at the university. The candidates wanted the classroom brought to them, and at times outside regular school hours.

The solution was to develop an online teaching resource (Cyberprofs.org). Cyberprofs contains over 75 video clips of authentic, in-class pedagogical activities and interactions, with comments by experts, teachers, and pupils. When creating this resource, care was taken to preserve the spontaneity and naturalness of the people and activities filmed, an essential element in vicarious learning through modeling and imitation (Bandura, 1997; Poppers & Lipshitz, 1993). The videos can be used to train teachers in Canada and abroad. Each year the site receives over 500,000 visits ([www.cyberprofs.org](http://www.cyberprofs.org)), which clearly underscores the need for this type of online teacher resource.

## **THEORETICAL FRAMEWORK**

### ***Can ICT, and more precisely online videos, help bridge the gap between theory and practice?***

Schools and universities that provide teacher education programs must cope with a constantly changing environment in terms of the relationship to knowledge. They are heading into a maelstrom of digital information, computers, and the Internet. Many feel that this technological surge brings countless advantages that schools and universities can and must value while accomplishing their fundamental mission of providing education. Today, ICTs can deliver universal access to knowledge. This offers schools a power and reach that not even Edison could have imagined. ICTs can simultaneously combine text, images, sound, interactivity, and programming. They can also record events and transmit them around the world. Through the integration and judicious use of ICTs, the field of education as a whole could expand enormously, while enjoying significantly improved conditions for collaboration, research, and knowledge production.

### ***Impact of videos on initial and ongoing teacher training***

While Edison's predictions have taken a long time to materialize, we would like to believe that in 2010 we are almost there. Thus, a review of the literature on the use of videos in initial and ongoing teacher training reveals eight potential impacts: the ability to link theory to practice; the ability to anticipate and prepare for teaching practice; the ability to analyze real-life teaching and learning situations; the ability to analyze educational events; the ability to develop useful competencies *in situ*; the ability to foster reflection through either self-observation or observing others; the ability to overcome distance; and the ability to use a diversity of learning models. This section addresses three impacts that are relevant to our research objective.

### ***The ability to anticipate and prepare for teaching practice***

The primary potential impact of videos on teacher training is that they allow teachers-in-training to anticipate actual classroom situations so they can better prepare for them. Thus, according to Sherin, "*Video allows one to enter the world of the classroom without having to be in the position of teaching in-the-moment*" (2004, p. 13). Similarly, incorporating videotapes into training programs gives teachers an opportunity to appreciate the realities of classroom teaching and learning. To develop this potential, authentic situations should be used. This use of videos as authentic depictions of real-life situations can be contrasted with a second use: selecting clips of "good practices" as models of recommended practices for teachers in initial or ongoing training programs (see Oonk, Goffree & Verloop, 2004, p. 137). The new self-directed training module was developed based on this perspective.

### ***The ability to analyze the teaching-learning situation***

For some authors, videotaping replaces and even improves on direct observation. Sherin (2004) identified two advantages of videos over direct observation: videos provide a permanent record that can be reviewed at any time (2004, p. 11-12); and they can be collected and edited (2004, p. 12-13) using, for example, hypermedia programs. Elaborating on these advantages, Sherin notes that video recordings enable teachers to develop new competencies as they pursue their training programs (2004, p. 13). For instance, they can analyze teaching sessions and relate theoretical notions to practical situations. Due to their new and easy digitizability, videos can be used to capture concrete, specific pedagogical points (Le Fevre, 2004, p. 236, 139). Videos do this through two capabilities: (1) they can convey the complexity of the teaching-learning situation (Le Fevre, 2004, p. 239; Seago, 2004, p. 274); and (2) data and meaning can be extracted from a complex corpus of events so that the viewer can focus on particular educational events (Seago, 2004, p. 274). According to Abell and Cennamo (2004), videos can also be used to compare practices laterally (between classes) or longitudinally (over time in the same class). Similarly, videos can be used comparatively to identify different teaching strategies (2004, p. 114). Moreover, when

experts and novices are placed in contact through communication technologies, including videos, teaching strategies are no longer compared, but shared. Finally, some see videos as a way for future teachers to explore the teaching process (Harvard, 1990) and its various approaches (Fisherman, 2004, p. 202). This applies equally to experienced teachers, for whom videos serve as a vehicle to discover new approaches (2004, p. 202). Furthermore, because videos present educational points in real-life situations, they are also perceived as a way to link theory and practice, the abstract and the concrete (Campbell Stephens, 2004, p. 99; Goldman et al., 1990; Oonk et al., 2004, p. 161-162; Rosaen, Degnan, VanStratt & Zietlow, 2004, p. 171). For Seago, the video is more than a practical extension of theoretical training; it responds to the need for a primarily practice-based training (2004).

### ***The ability to stimulate reflection***

Video recordings foster reflection on teaching practices in two forms: (1) self-observation, where teachers-in-training view playbacks of their teaching lessons (usually simulated); and (2) observing others, where teachers-in-training view videos of other teachers. Whether observing oneself or others, teachers-in-training are prompted to engage in a first-level reflection as they review the teaching performance. Abell and Cennamo argue that a video recording can become “*a perturbation for some students, catalyzing them to question their ideas, beliefs, and values*” (2004, p. 117). Le Fevre explains that videos help future teachers discover their own beliefs about teaching (2004, p. 248). This reflection process is comparable for in-service teachers. By observing themselves and others, teachers can step back from their actions and contemplate them from a different standpoint (Le Fevre, 2004, p. 237-238), which is the beginning of an awareness of their teaching practice. Most authors acknowledge the key role of videos in encouraging future teachers to reflect. However, self-observation is not the only way to motivate teachers to reflect on their practices. In fact, observing others exposes teachers to expert practices, which can further stimulate reflection through the variety and quality of the recordings presented. For this reason, we have opted for this form of reflection in our new program.

### ***The importance of self-efficacy beliefs for preservice teachers***

Self-efficacy, or the belief that one is capable of performing in a certain manner to attain certain goals (Bandura, 1989), influences an individual’s choices, efforts, and persistence when confronted with obstacles or failures. In other words, if self-efficacy beliefs toward teaching strategies, teaching methods, and teaching innovations could be nurtured in preservice teachers, they would be more inclined to put these teaching strategies, methods, and innovations into practice. Moreover, they would be more successful at using these than preservice teachers with lower self-efficacy beliefs. For Bandura (1997), self-efficacy is both context-bound and action-specific. It also comprises two components: *efficacy*

*expectations* and *outcome expectations*. Efficacy expectations refer to the belief in one's capacity to achieve a given action in a specific context. Many researchers refer to this concept as *perceived competence*. Outcome expectations refer to the belief that the action performed will result in a particular, desired outcome. Many (e.g., Pajares & Schunk, 2001) refer to this second concept as *perceived value*.

## **METHOD**

### ***Participants***

Slightly more than 400 student teachers participated in this study on the impact of online teaching videos on the development of self-efficacy beliefs in preservice teachers. Subjects lived in the two largest provinces of Canada (Ontario and Quebec).

### ***Procedure and Measures***

A questionnaire was administered to slightly more than 400 prospective teachers (who had previously watched online teaching videos at Cyberprofs.org), and focus groups and individual interviews were conducted. The self-efficacy scale was based on Bandura's self-efficacy theory (1977, 1989). In this study, we used an adaptation of the Dussault, Villeneuve, and Deaudelin scale (2001). Data obtained in previous investigations reveal strong Cronbach's alphas for all subscales, ranging from .72 to .96.

## **RESULTS (TO BE PRESENTED AT THE CONFERENCE)**

Overall, the data shed some light on the impact of online teaching videos on the development of self-efficacy beliefs of preservice teachers. One finding of this development research project is that educational technologies, and particularly online videos, significantly complement the training of teachers who are studying at a distance from the university. Moreover, the interviews conducted with the candidates clearly underscore that freely and continuously accessible online video clips that present real-life classroom interactions and pedagogical activities significantly increase teachers' self-efficacy beliefs. Furthermore, many other advantages are associated with the use of authentic videos accompanied by comments from experts, teachers, and pupils.

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