

A Learning Opportunity by TVOntario

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ABSTRACT

Background: Sparked by a short-lived plan by the Ontario Educational Communications Authority (known as TVOntario or TVO) to reduce its slate of nine digital over-the-air transmitters to a single transmitter broadcasting from Toronto's CN Tower, this article questions why some viewers continue to rely on TVO's transmitters for access.

Analysis: This article provides analysis of findings from a 2018 study regarding the role that TVO's transmitters play in the provision of access to its programming.

Conclusion and implications: Analysis of the viewing experiences shared by the research participants identifies four access themes related to infrastructure concerns, monetary concerns, educational concerns, and geographic concerns outside of the Greater Toronto Area.

Keywords: education; broadcasting; broadcasting policy; television/cable television; digital divide

RÉSUMÉ

Contexte : Cet article prend ses origines dans un plan éphémère par l'Office de la télécommunication éducative de l'Ontario (c'est-à-dire TVOntario ou TVO) de remplacer ses neuf émetteurs numériques par un seul émetteur installé sur la tour CN à Toronto. L'article se penche sur la question de savoir pourquoi certains téléspectateurs dépendent encore d'émetteurs pour accéder à TVO.

Analyse : Cet article fournit une analyse de données provenant d'une étude de 2018 sur le rôle joué par les émetteurs de TVO dans l'accès à la programmation de la chaîne éducative.

Conclusion et implications : Une analyse des expériences partagées par les participants à la recherche permet d'identifier quatre soucis relatifs à l'accès pour les téléspectateurs vivant au-delà de la Région du Grand Toronto : infrastructurels, monétaires, éducatifs et géographiques.

Mots clés : éducation; radiodiffusion; politique sur la radiodiffusion; télévision/télévision par câble; fossé numérique

Introduction

When the Ontario Educational Communications Authority (known as TVOntario or TVO) announced in January 2017 that it would be shutting down all but one of

its over-the-air (OTA) digital television transmitters within six months, then CEO, Lisa de Wilde, justified the change by noting, “(t)his announcement reflects the reality of today’s media environment” and that the shutdown of TVO’s transmitters outside Toronto would yield the educational broadcaster \$1 million in annual savings, allowing TVO to “cover inflationary pressures” (TVO News, 2017a, para. 2). Erika Kramer, then vice president of operations for TVO, further defended the change, stating TVO was “evolving from a public educational broadcaster to a provider of many educational services on many platforms” (Globerman, 2017, para. 13) and that it could “have a greater impact on the lives of Ontarians by investing those savings into content rather than into technical infrastructure” (Neal, 2017). When asked whether TVO might consider reversing its decision in light of access concerns expressed by TVO viewers and Ontario MPPs alike, Kramer responded, “No. We have made the decision. We need to look forward and we need to serve Ontarians the best way we can on platforms that are where we can reach them” (Neal, 2017).

Based on the above-noted rationales shared by TVO management, the “media environment” of 2017 had seemingly liberated the broadcaster from the need to continue operating its OTA transmitters outside the Greater Toronto Area (GTA). While TVO would abandon its Toronto-only transmitter plan after just three weeks—following an announcement by Ontario’s then-Liberal government that it would provide TVO with an additional \$1 million in funding for the continued operation of its transmitters (TVO News, 2017b)—this article argues that TVO’s short-lived plan provides a revealing glimpse into the broadcaster’s ongoing operational philosophy regarding digital access to its programming. In addition, TVO’s abandoned plan provoked some of its hard-to-serve, television-viewing public into sharing important concerns that help to inform efforts to enhance access to TVO’s educational materials in the digital age. Collectively, to quote TVO’s former motto, the educational broadcaster’s abandoned single transmitter plan presented an unconventional “Learning Opportunity by TVOntario” (Christmas, 1977, 28:45).

The continued provision of digital access to TVO programming across Ontario is of research interest due to TVO’s status as a “Crown agent”; it is headed by a CEO appointed by Ontario’s Lieutenant Governor in Council, and it is mandated to offer an educational broadcasting service to Ontarians (Ontario, 1990). In accordance with Section 3(a) of the *Ontario Educational Communications Authority Act*, one of the objects of TVO is “to initiate, acquire, produce, distribute, exhibit or otherwise deal in programs and materials in the educational broadcasting and communications fields” (Ontario, 1990, para. 18). No other television broadcaster operating within Ontario has such a mandate. TVO’s uniqueness as a broadcaster is further highlighted by the fact that while cable, satellite, and Internet Protocol television (IPTV) providers—collectively referred to as broadcasting distribution undertakings (BDUs)—are required to carry TVO on basic television services of-

ferred within Ontario, BDUs are not similarly mandated to carry TVO as part of basic BDU services offered outside the province (Canada, 1997).

This article offers a detailed analysis of a 2018 research project that aimed to understand the apparent disconnect between TVO's vision for the digital delivery of its educational programming to Ontarians and the fact that some of its OTA viewers were concerned about the continued operation of the broadcaster's transmitters outside the GTA. A sample of 25 TVO viewers, drawn from the 86 people who submitted interventions to the Canadian Radio-television and Telecommunication Commission CRTC (2017) regarding TVO's planned transmitter shutdown in 2017, were interviewed via Skype-to-phone in the winter of 2018 by Humber College bachelor of journalism students Kailie Annetts and Madalene Arias.¹ By interviewing TVO viewers about the access concerns they first expressed to the CRTC in 2017, the 2018 research project detailed here sought to acquire additional qualitative insight into digital access to TVO programming by hard-to-serve viewers—beyond what they revealed via the CRTC intervention process—and discover if their access concerns had persisted. The following core research questions guided the interviews:

1. What pathways to TVO's educational digital learning products are research participants utilizing?
2. Are research participants experiencing barriers to accessing TVO's educational digital learning products?
3. How might TVO best transition away from OTA television broadcasting while still maintaining comparable digital access to its educational programming for Ontarians?

Literature review

This article contributes to the body of literature related to the study of Ontario's digital divides and the digital sublime. As this article details, digital divides and the digital sublime continue to affect the equitable provision of universal access to educational television programming in the digital age. A review of the existing literature on digital inclusion and its role in the dissemination of content helps to provide insight into the friction that arose in 2017 between TVO and a minority of hard-to-serve viewers.

A prime example of how TVO's understanding of Ontario's digital divides and the digital sublime have combined to inform its vision for the digital dissemination of its content across Ontario is encapsulated in de Wilde's justification for the short-lived 2017 transmitter shutdown outside Toronto: "TVO's audiences overwhelmingly receive our content through cable, direct-to-home satellite or online platforms" (TVO News, 2017a, para. 2). While de Wilde was correct in 2017 to claim that TVO's audiences overwhelmingly received the broadcaster's content by means other than OTA television, this was nothing new. The majority of Canadian households have been receiving their television via a BDU subscription since before the turn of the

21st century. As of 2017, 73.7 percent of Canadian households were receiving their television via a BDU subscription (CRTC, 2019). By 2018, this percentage had fallen to 72.5 percent (CRTC, 2019), down from a high of 90 percent of households in 2009² (CRTC, 2012a) but still well within the majority of television viewing. Despite this high percentage of television viewing occurring via BDU subscriptions, TVO had nonetheless continued to operate conventional OTA television transmitters outside of Toronto for decades. What, then, prompted TVO to move forward in 2017 with reducing its number of OTA television transmitters to just one?

Based on TVO's stated justifications for reducing its number of digital OTA transmitters, the continued dominance of BDU subscriptions in Canada, and the fact that TVO's sources of government funding had not changed significantly in 2017, TVO's decision appears to have been based in part on anticipated growth in the number of viewers watching television exclusively online.

The availability of reliable, legal, high-quality access to television programming online has improved in Canada over the last two decades. As of 2018, 85.7 percent of Canadian households had unlimited data transfer broadband internet available at speeds that matched the CRTC's most recent definition of broadband internet (CRTC, 2019): 50 megabits per second (Mbps) download speeds and 10 Mbps upload speeds, which is known as 50/10 Mbps. With regards to online television viewing, while only six percent of Canadians were "watching television exclusively online" (CRTC, 2018, p. 264) as of 2013, this percentage had more than doubled to 14 percent of Canadians by 2018 (CRTC, 2019).

However, only 40.8 percent of rural communities in Canada and 31.3 percent of First Nations reserves were benefiting from unlimited 50/10 Mbps broadband internet availability as of 2018 (CRTC, 2019). In Ontario specifically, 87.2 percent of the population benefited from unlimited 50/10 Mbps broadband availability as of 2018 (CRTC, 2019), but only 29.5 percent of rural residents and 17 percent of First Nations reserves had comparable internet availability (CRTC, 2019). While recent speed testing research by Reza Rajabiun and Fenwick McKelvey (2019) reveals that even some of the municipalities that comprise the GTA suffer from poor broadband internet availability—and speeds trumpeted by Canadian internet providers have been shown to lag behind advertised speeds (Rajabiun & Middleton, 2018; Rajabiun & McKelvey, 2019)—Ontario's rural communities and First Nations reserves remain particularly underserved in terms of broadband internet availability.

While the online live streaming of television continues to rise and BDU subscriptions slowly decline, OTA viewing in Canada has remained relatively steady. Five percent of Anglophones and Francophones in Canada interviewed by the Media Technology Monitor/L'Observateur des technologies médias (2020) in 2013 reported watching OTA television; by 2018, seven percent of Anglophones (Media Technology Monitor, 2020) and eight percent of Francophones (L'Observateur des

technologies médias, 2020) reported viewing OTA television. Importantly for TVO, as of the fall of 2019, 13 percent of Anglophone viewers in Ottawa (one of the eight Ontario communities outside the GTA served by a TVO transmitter) reported watching OTA television (Media Technology Monitor, 2020). Although the portion of Canadians accessing their television this way clearly represents a minority of viewers, it nonetheless continues to provide them with access. While the Canadian government and the Province of Ontario both announced in November 2020 additional support to improve broadband internet availability in Ontario during the COVID-19 pandemic (Innovation, Science and Economic Development Canada [ISED], 2020; Ontario, 2020), TVO's slate of OTA digital television transmitters outside Toronto are supplying no-fee, high-definition, educational television programming to Ontarians residing outside of the GTA. This article argues that notions of both digital divides and the digital sublime offer insight into TVO's ability to provide equitable digital access to educational television programming across the province.

Digital divide(s)

As noted by Leslie Regan Shade (2010), early discussion of the digital divide that arose in the mid-1990s focused primarily on “disparities between those who had access to the Internet and those who did not” (p. 127). While much of the discussion of internet access and of the “information highway” in the 1990s “bordered on technological determinism” (Shade, 2010, p. 127), Shade (2010) describes how digital divide research later broadened to include the study of the “economic and social opportunities for disadvantaged groups (children, low-income families, women) and communities (rural, remote, an inner-city)” (p. 127). Pippa Norris (2001) similarly describes such variability as the “panoply of digital resources to engage, mobilize, and participate in public life” (p. 4). The research study presented here aimed to acquire insight into digital divides *within* societies where “technological opportunities are often unevenly distributed ... [and] certain groups and areas are systematically excluded, such as poorer neighborhoods, working-class households, or peripheral rural communities” (Norris, 2001, p. 10).

As argued by Helen Hambly, Jamie Lee, Geoff Hogan, Tammy McQueen, and Matt Rapke (2018), the digital divide is best approached as a matter of “digital equality” since while “gaps exist between broadband haves and have-nots, it is not the case that one possesses information and/or the ability to communicate, and one does not. Instead, there is significant variability in access to digital assets” (p. 4). Massimo Ragnedda (2017) approaches the digital divide as multilayered: the first level starts with technological access, the second level relates to how such technologies are used (including “digital skills” and “digital capital”), and the third level pertains to the benefits realized from internet access. Andrew Clement and Leslie Regan Shade (2000) and Benedetta Brevini (2013) likewise conceptualize

the digital divide as comprised of layers of access that collectively serve to contribute (or not) to digital equality. As noted by Darin Barney (2005) and Daniel Paré (2005), the heterogeneous nature of what has been traditionally termed the digital divide is thus more accurately described as a plurality of digital divides. The importance of such an approach to the study of access to TVO programming is highlighted by the fact that while all of the participants interviewed for the research project featured in this article reported having internet access, the interviewees still expressed concerns related to accessing TVO programming online. The manner in which the research participants discussed accessing TVO programming digitally provides insight into the suite of digital resources and assets available to viewers.

TVO's abandoned single transmitter plan of early 2017 highlights a seeming lack of understanding of the types of persistent social and democratic divides discussed by Norris (2001) with regards to the unequal distribution of digital access to TVO programming in Ontario. TVO's stated rationale for abandoning the plan reflected an apparent faith that Ontario had been charting a "*normalization pattern*" of technological diffusion whereby "given saturated demand, prices will fall further to attract new users, allowing laggards to catch up, so that eventually access to digital technologies become pervasive" (Norris, 2001, p. 30, emphasis in original). In contrast, the insight shared by the OTA viewers of TVO featured in this article provide a "cyber-pessimist" appreciation of technological diffusion, reflecting a "*stratification model*" of diffusion whereby "groups already well networked via traditional forms of information and communication technologies will maintain their edge in the digital economy" (Norris, 2001, p. 31, emphasis in original). While TVO's claims about the "media landscape" suggest the broadcaster understood that Ontarians had achieved equitable digital access to its educational programming, the TVO viewers featured here spoke to a more stratified scenario of digital access to TVO programming that reflected a continued lack of full participation.

Digital sublime

Persistent challenges related to how digital divides are understood and addressed intersect with the phenomenon of the digital sublime. As David E. Nye (1994) recommends, "the test for determining what is sublime is to observe whether or not an object strikes people dumb with amazement" (p. 16). Stories of people using electricity and telephones in the nineteenth century, as detailed by Carolyn Marvin (1990a), describe a division between those endowed with electronic agency and those without it (in addition to serving as a kind of barometer of masculinity):

The frustration of the technologically unempowered, expressed as anger, fright, or other loss of personal control ... (is) ... contrasted with the cool bearing of the professional, whose perfect awareness was accompanied by an equally flawless emotional control that suggested social and moral superiority. Uncontrolled emotion was displayed by men

who were victims of their own technological ignorance, who had somehow shirked their responsibility to be technologically informed. (p. 22)

TVO's attempted 2017 transmitter shutdown outside the GTA presents a near-miss re-enactment of what Marvin (1990b) describes as "the familiar tale" where "utopias glimpsed through new technologies are lost and community is destroyed by the institutions of organized society" (p. 612). Just as Marvin (1990a) advises how the "early history of electric media is less the evolution of technical efficiencies in communication than a series of arenas for negotiating issues crucial to the conduct of social life; among them, who is inside and outside, who may speak, who may not, and who has authority and may be believed" (p. 4), TVO's abandoned plan raised the stakes for hard-to-serve non-GTA viewers striving to maintain their connection to the educational television broadcaster and their place within the social life of Ontario in the digital age.

Building on the work of Marvin (1990a, 1990b) and Nye (1994), Vincent Mosco (2004) argues that "cyberspace has become the latest icon of the technological and electronic sublime" (p. 24). Kramer's mention of TVO's digital "evolution" (Neal, 2017) articulates the "betwixt and between" (Mosco, 2004, p. 32) of the mythical space Mosco (2004) describes as the "digital sublime." Importantly, Mosco stresses that these myths are indeed "a form of reality" (p. 13) for believers. TVO's abandoned plan provides an example of how myths about communication technology and digitization may serve to create access barriers to educational television.

As of 2004, Mosco argued that "cyberspace" remained "in a strong mythic phase" (p. 20), where the awe surrounding the digitization of communications suggested that "(t)he gap between information haves and have nots, the digital divide, bows to the far more powerful reality of a digital divine, which helps to overcome, almost magically, major divisions and disruptions in the world today" (p. 62). In terms of whether the empty promises of the digital sublime have persisted well into the twenty-first century, Mosco (2017) later details how the hype surrounding smart devices, the Internet of Things, and big data embody "the supreme forms of the sublime" and present "visions of a digitally enabled super intelligence and virtual worlds that open new avenues of transcendence" (p. 125). This gloss of the digital sublime helps to explain in part how TVO's apparent bedazzlement with Ontario's "media environment" of 2017 came so close to jeopardizing digital access to its educational programming outside the GTA.

A brief history of the provision of over-the-air access to TVO

Following attempts at educational television broadcasting in the mid-1950s by CBC/Radio-Canada and provincial school boards, Canada's 1965 *Report of the Committee on Broadcasting* recommended "new life should be breathed into educational TV" (Lazarus, 1978, p. 23). The following year, the Educational Television (ETV) branch of the Ontario Department of Education's Curriculum Division was

created with the expectation that the medium of television would create new educational opportunities for Ontarians (Ide, 1994). However, as T. Ran Ide (1994), TVO's first CEO, recalls, initial responses to the idea of provincial educational television broadcasting were far from enthusiastic:

The public and the educational community were not exactly clamouring for ETV; the press was critical of what was considered a foolhardy scheme; the federal government was uneasy about what seemed to be an incursion into its area of jurisdiction by the province; the people in charge of ETV installations in the municipalities lobbied against us and a solution to the airtime question seemed nowhere in sight. (p. 9)

Nonetheless, Ontario's ETV branch "aired some 400 units during morning hours over CHCH Hamilton and the CBC's Ontario affiliates" between 1966 and 1967 (Ide, 1994, p. 11). Importantly for the province, the *Broadcasting Act* of 1968 "gave full recognition to educational television (ETV) as an essential element of broadcasting, stating that facilities should be provided within the Canadian broadcasting system for educational broadcasting" (Lazarus, 1978, p. 24). Since the *Constitution Act* states education is a provincial matter, Robert Armstrong (2010) details how educational broadcasters such as TVO operate within a unique regulatory pocket where the CRTC "adopts a somewhat more hands-off attitude toward provincial educational broadcasters than it does toward other broadcasters as long as they are broadcasting primarily 'educational' programs" (p. 118).

On January 30, 1970, the newly formed Canadian Radio-television Commission (CRTC) granted TVO a licence to operate "Canada's first all-educational TV station" (Ide, 1994, p. 29) and at 2:00 p.m. on September 27 of that year, TVO commenced OTA broadcasting via an interim transmitter located at CBC/Radio-Canada's facility on Jarvis Street in Toronto (Ide, 1994). According to Ide (1994), TVO's "most immediate objective" following the launch of this first transmitter was the "equality of access to the programming" (pp. 75-76). To this end, TVO had added OTA transmitters in Ottawa, Kitchener, and London by 1975 and in Chatham and Windsor the following year (Ontario Educational Communications Authority [OECA], 1976).

With regards to the provision of access to TVO programming in Northern Ontario, videotaped recordings of programming were initially shipped to school boards as part of TVO's Videotape Program Service (VIPS) in light of the poor availability of cable television (OECA, 1977). In order to enhance access to TVO programming in Northern Ontario, the province announced funding to build TVO transmitters in Sudbury and Thunder Bay with an aim to have them operational by 1978 (OECA, 1977). Additional TVO transmitters were also added in Sault Ste. Marie, Timmins, North Bay, and Owen Sound between 1983 and 1984, followed by transmitters in Huntsville and Penetanguishene (OECA, 1984). In ad-

dition, TVO had constructed 173 low-power rebroadcast transmitters across Northern Ontario by 1987 to further enhance access to the educational broadcasting (OECA, 1987).

Additional TVO transmitters were launched in Kingston, Belleville, Peterborough, Tobermory, Bancroft, and Cloyne between 1986 and 1988 (OECA, 1989), with Hawkesbury acquiring both a TVO transmitter and the Ontario French language educational broadcaster TFO's first OTA transmitter (previously, TFO had been operating solely as a cable channel) (OECA, 1989). TFO's second transmitter was launched in Sudbury in 1989 (OECA, 1989), with Kenora and Parry Sound gaining TVO transmitters the following year (OECA, 1990) and Pembroke acquiring a TVO and a TFO transmitter by 1992 (OECA, 1993).³ As of 1993, TVO had reached its high watermark for the OTA provision of its service via a total of 27 analogue full-power transmitters and 257 analogue low-power rebroadcast transmitters across the province (OECA, 1994).

Following the extensive provincially funded build-out of TVO's analogue OTA transmitters, Canada's 700 MHz digital television transition of 2011–2012 presented TVO with its next challenge in terms of providing Ontarians with OTA access to its programming. With the assistance of \$4.5 million in grants from the province, TVO transitioned to digital OTA broadcasting in Windsor, London, Chatham, Kitchener (Paris), Toronto, Belleville, Cloyne, Thunder Bay, and Ottawa (via Camp Fortune in Chelsea, Québec) (OECA, 2012) as required by the CRTC (2010). However, no additional TVO transmitters were transitioned to digital OTA and by July 2012, TVO ceased the operation of its remaining network of 119 analogue OTA television transmitters across the province, five of which were listed as located on "Indian" (CRTC, 2012, para. 13) reserves. This change not only reduced OTA access for Ontarians residing beyond TVO's slate of nine digital OTA transmitters, it also reduced access to TFO, as TVO vacated towers TFO had been using to broadcast to Ontario's official language minority community (OLMC) (Faguy, 2012).

Method

For the research project featured in this article, qualitative, semi-structured, Skype-to-phone research interviews were sought from a non-random purposive total population of 86 people who submitted interventions to the CRTC in 2017 in response to TVO's plan to shut down eight of its nine OTA digital television transmitters (CRTC, 2017). Two research assistants (RAs) invited the 86 interveners to participate in the research study via publicly available contact information shared on the CRTC website. Attempts to contact them were made via email, Skype-to-phone, mobile phone, and landline phone. In addition, 24 of the interveners were also mailed printed letters via Canada Post.

Twenty-five of the 86 interveners (29%) agreed to be interviewed for the research project. Interested research participants were sent a Research Ethics Board-approved consent form and a research interview date was arranged on receipt of

the signed form. Each research participant was asked 10 research questions with potential follow-up questions unique to their individual responses. The interviews were recorded and saved as .mp3 files using a slow but dedicated research laptop with Audacity open source software installed. Each interview recording was transcribed, anonymizing each participant in the process.

Once completed, the 25 interview transcripts were coded by the principal investigator. The elemental method used for first-cycle coding was descriptive coding (Miles, Huberman, & Saldana, 2014). It resulted in 11 summarized access concerns:

1. Concern about children/grandchildren (born or anticipated) being able to access TVO (kids).
2. Concern about other people (known or unknown) being able to access TVO (others).
3. Concern about access to programs distinct to TVO (distinct).
4. Concern regarding the Toronto-centric nature of TVO's original 2017 transmitter shutdown plan (Toronto-centric).
5. Concern related to TVO use of the Ontario public's tax dollars (public funding).
6. Concern related to a lack of a BDU subscription (no BDU).
7. Concern related to data usage fees (data fees).
8. Concern related to ease of access to TVO (ease of use).
9. Concern related to access to a quality and or high-definition TVO feed (picture quality).
10. Concern related to fixed internet access via an internet service provider (fixed internet).
11. Concern related to internet access via a mobile wireless cellphone provider (mobile internet).

The second-cycle coding entailed pattern coding (Miles et al., 2014), a process that further summarized these 11 codes into four access theme patterns. The codes "kids," "others," and "distinct" reflected access concerns related to opportunities for educational experiences (education). The "public funding," "no BDU," and "data fees" codes reflected access concerns related to household monetary costs (monetary). The "ease of use," "picture quality," "fixed internet," and "mobile internet" codes related to infrastructure access concerns (infrastructure). Lastly, the "Toronto-centric" code related to the unfair treatment of Ontarians residing outside of the GTA (geographic). Coded data was displayed in a matrix formation (Miles et al., 2014) prior to analysis.

Demographic information collected from the participants included age, gender, vocation, and the first three characters of their postal code. The average age was 45.5 years and the median age was 44 years. Four women and 21 men were interviewed.

The three most common vocations were retired (20%), engineer (16%), and information technology (12%). Twenty-one of the 25 (84%) research participants resided in a postal code starting with a K, indicating eastern Ontario. Two research participants lived in southwestern Ontario (postal code starting with N) and single research participants were interviewed from central Ontario (L) and western Québec (J).

Findings

TVO access concerns: Descriptions and themes

Analysis of the research findings identified a total of 11 TVO access concerns. The top five access concerns pertained to TVO access by other people (92%), mobile internet (80%), the lack of a paid BDU subscription (cable, satellite, or IPTV) (72%), data fees (68%), and the Toronto-centric nature of the service (64%). These concerns are emblematic of the four access themes. The four overarching access themes identified include infrastructure concerns (33%), monetary concerns (32%), educational concerns (25%), and non-GTA geographic concerns (10%). This section details the 11 TVO access concerns as categorized by the four TVO access concern themes.

Educational access concerns

While infrastructure and monetary TVO access concern themes dominated, the theme of concern about access to TVO's educational programming (representing 25% of the second-cycle coding themes) is particularly noteworthy. TVO is a provincial educational television broadcaster, and, with respect to the first-cycle research coding, 92 percent of the research participants (23 of 25) voiced concern that the shutdown of TVO's television transmitters outside of Toronto would affect TVO access by other people (as opposed to their own personal access and/or access by members of their household), making it the most common access concern. While two of the research participants mentioned being concerned about TVO access on behalf of specific relatives (the sister of Interviewee 04 [INT04] and the brother of INT03, respectively), the remaining research participants did not identify specific people. While the CRTC (2019) reports that 72.5 percent of Canadians were accessing their TV by way of a BDU subscription as of 2018, this concern can likely be attributed to Canada's tradition of providing universal access to public and educational radio and television programming. As the following sample responses illustrate, research respondents expressed a mistaken assumption that OTA television was the primary pathway viewers used to access TVO, in contrast to findings reported by the CRTC (2019):

(T)here's still a lot of people who are still using conventional over-the-air antennas. (INT01)

(T)here's more to Ontario than Toronto, especially in Northern Ontario where they need these sort of services most. (INT12)

For many rural communities it's the only way they get news, right? (INT18)

(T)hey [TVO] take for granted that everyone has access to cabled TV connections, and they don't realize that a lot of people don't. (INT19)

Access concerns related to the theme of education also included concern for TVO access by the research participants' children or grandchildren. Eight of the 25 research participants (32%) described concerns related to the ability of their children or grandchildren (born or planned) to watch TVO programming without OTA access:

(W)e have a son, so I was looking forward to beginning watching some educational programming and things like that. We're cord-cutters. We haven't had cable for a long time. (INT07)

(M)y kids watch TVO over the air every day in Ottawa. Every morning we make use of the over the air service. (INT12)

I plan on having kids soon and it would, you know, it would be a large part of what the kids would be watching. (INT15)

I use an antenna for my TV, and I have a four-year-old ... and he watches TVO. Like, that's one of his main channels because of the kids programming all day and it's educational. (INT21)

The third and final TVO access concern expressed within the educational theme pertained to access to distinct programming deemed unique to TVO. Thirty-six percent of research participants indicated that the type of programming they received OTA from TVO was distinctive and highly valued when compared to programming broadcast by other stations:

(N)on-dumb shows. Like, I would say I don't see reality TV shows popping up on TVO. So, I don't have that to worry about. (INT02)

To me, TVO is a TV station, and I like to watch the TV shows for the learning. (INT14)

(W)e like a lot of the programming on TVO ... We like local, or Ontario, news and whatnot. (INT24)

(I)t's just a really good station for educational content. (INT25)

Infrastructure access concerns

TVO access concerns related to communication infrastructure was the most common second-cycle pattern coding theme. Thirty-three percent of the access concerns expressed related to the research participant worrying that they lacked the digital infrastructure to continue to access TVO at a comparable level without the OTA transmitters, whether it was due to their fixed home internet connection, their mobile wireless internet connection, the picture quality of the television signal, or the ease of use. In terms of first-level descriptive coding, the infrastruc-

ture-related concern of household access to TVO via a wireless internet-enabled mobile device (with Bell, Rogers, and Telus being named as wireless providers) was the second most common access concern (80%). Research participants indicated that their mobile device did not provide a main pathway to access TVO programming:

I mean, it's possible [accessing TVO via a mobile device] through the webpage but, no app sort of means no use ... a mobile device is kind of inadequate. (INT12)

My wife and daughter have a smartphone. I guess I have a BlackBerry, so I don't really watch TV on my phone ... They are trying to get me to use a smartphone. (INT14)

I never use it [a mobile device] for streaming. I only use it for texting or communication with someone, like when I'm out. Even when I am home I don't use it for TV services like visual streaming. (NT16)

(M)y wife and I just share one gig of data. We ... don't use our phones' internet all that often unless we're away from home and we want to check out email and things like that. (INT19)

Fixed internet TVO access via a household internet service provider (with Bell, Start, Rogers, and TekSavvy named by research participants) tied for the second most common infrastructure concern (52%). Such concerns related to a household's ability to access TVO programming via a fixed internet connection in a manner that was comparable to TVO's OTA broadcasting signal:

We have DSL on our internet, but I don't stream. I stream very little, just maybe YouTube. Not the best ... what we've got up here, it's Bell system, it's a hard line, but it's not as good as their fibre optic line. (INT05)

It's average to mediocre. They [internet service provider] can't guarantee speeds. (INT13)

I guess the long way around it is that if TVO streamed everything. If I could get TVO streaming, um, that live streaming, I'll phrase it that way, that could kind of replace TV. That would be awesome. We have fixed DSL. (INT20)

It's marginal. It works pretty good [fixed internet] most of the time, but there are times it fizzles out. (INT24)

Fifty-two percent of the research participants also mentioned the audio-visual quality of the digital TVO transmitter serving their household, highlighting the ability to make OTA programming at a higher resolution than television programming delivered via cable, satellite, or internet connections:

I have a choice and I choose to watch [TVO] over-the-air because it has a better signal. (INT05)

It's perfect [TVO OTA]. It's a high-definition signal. The image quality is excellent. (INT08)

It's very good. I get it [TVO] in high-definition locally [OTA]. (INT13)

I mostly watch it [TVO] OTA because it's so close. The signal doesn't pixel out, not even in storms ... I find that over-the-air provides a very good-quality signal since it doesn't have to be compressed or converted into a different format. (INT23)

In terms of ease of use, 28 percent of the research participants expressed infrastructure access concerns related to how easily they could access TVO digitally OTA when compared to alternative access pathways, in particular the internet:

I prefer over-the-air access because it doesn't require setting up any kind of device to do. (INT01)

It [OTA] works pretty flawlessly. I've got a pair of pretty cheapo rabbit ears and they work ... I'd prefer if YouTube sorted things in terms of, everything sort of shows up as like date added instead of my kids want to watch *Odd Squad* or something like that and we'll have to filter through to find the latest seasons of *Odd Squad* or something like that 'cause it's not necessarily organized into programs in a straightway, but I don't think that has very much to do with TVO. (INT02)

(G)etting it on the big screen [via the internet] can be a little bit of a hassle. If they [TVO] had a better system like apps or whatever, then that would be okay with me as well. They don't currently, according to my knowledge. (INT07)

(I)t's much more convenient to use, to be able to access through a TV connected to a digital, to rabbit ears. (INT09)

Monetary access concerns

The second most common second-cycle coding access concern was monetary (32%). In terms of first-level coding, 72 percent of the research participants expressed concern related to their household's lack of a paid BDU television subscription. This was the most common monetary concern:

I don't have cable or satellite or anything. I just use over-the-air. (INT04)

I don't have cable in the house for over 25 years, and I just pick up the TV signals using the rabbit ears on the TV. I was very upset that the government was going to take away TVO. (INT14)

I have only over-the-air. I've cut cable. (INT15)

I receive all my television programming over the air. (INT19)

While TVO access by way of fixed internet or mobile internet provides an opportunity for TVO to reach Ontarians, particularly non-BDU Ontarians, 68 percent of the research participants (17 out of 25) expressed concern pertaining to fixed internet or mobile internet data fees associated with the accessing TVO programming online:

(W)hen we need [mobile internet] data we do it on a monthly basis. We just buy, if we're travelling. (INT01)

I think anything over three or five GB we pay more [for fixed internet]. Over five, I think it is. (INT03)

I got hit with [mobile internet] overuse charges and I couldn't believe it. I almost cancelled my phone because of it. (INT06)

I'll save my [fixed] broadband content for reading news and things of that nature and not so much for watching television shows, although we do from time to time. To summarize, we have access to 50 gigs of data per month. Once you go between 50 and 100 you pay a surcharge. After 100 gigs you pay a fairly heavy surcharge. (INT19)

Sixty percent of the research participants mentioned monetary access concerns related to TVO's use of Ontario tax dollars:

(T)hey [TVO] have to provide it [access] ... if they want to take taxpayer money to operate their service. ... Everyone is paying into it, and everyone is entitled to receive what they paid for. (INT08)

If your tax dollars are going to this type of broadcast, then it should be available for free. Well, you pay for it with your taxes, but it should be available for everyone, I guess. (INT11)

I am paying taxes, huge taxes here in Ontario ... it's financing that TV station, and I found it offensive that I am paying for something that I would have to be paying a third-party company to be able to watch. ... As a taxpayer, if I am paying for this TV station I have the right to get it off-air and watch it. (INT14)

I don't quite understand TVO's funding model, but as I do understand it, they are supported by the province. If it was CTV pulling it [OTA access], I'd kind of be like, well, they're a private company, whatever. That kind of sucks. The fact that it's funded by taxpayers added to the distastefulness of the decision. (INT18)

Non-GTA geographic access concerns

Sixty-four percent of the research participants (16 of 25) indicated that they were concerned about TVO access for viewers residing beyond the signal footprint of TVO's Toronto transmitter. For these TVO viewers, the broadcaster's planned 2017 transmitter shutdown struck them as Toronto-centric and appeared to indicate that TVO was prioritizing the provision of digital access to the GTA:

I felt like TVO was being too Toronto-centric. The plan appeared to hit the areas outside of Toronto the hardest and really, I don't think that was fair for those who were still trying to access it not online. (INT09)

The acronym TVO. I mean, does it stand for Television Ontario? (INT12)

Why should it be only the people of Toronto who get the benefit of the TV station paid by me? ... As long as they are a TV station and an Ontario TV station they should be broadcasted all over for anybody in Ontario, without having to go through any third party. (INT14)

I think it [TVO's 2017 transmitter shutdown plan] might have been more favoured if they wanted to shut down them all down, but they wanted to shut down all them but Toronto? Like, huh? It doesn't really seem fair to other people living elsewhere in the province and it just seemed really biased toward Toronto. (INT18)

Discussion

This section features recommendations on how TVO might both maintain and enhance the provision of digital access to its television programming based on an analysis of the research findings. The following recommendations also imagine how TVO might best temper the persistent lure of the digital sublime and achieve a successful and inclusive transition away from digital OTA television broadcasting once confirming that access to its programming across Ontario via alternative digital pathways was feasible.

Recommendations for enhancing digital access to TVO programming

MAINTAIN AND ENHANCE TVO'S NINE DIGITAL OVER-THE-AIR TRANSMITTERS
 TVO's (OECA, 2019a) *Audited Financial Statements 2018–19* reports that it received in 2019 the \$1 million in special "OTA Funding" (p. 44) announced by the Ontario Liberals in 2017 that played a key role in saving TVO's transmitters outside Toronto. TVO's (OECA, 2020) financial statements for 2019–2020 also report that TVO received another \$1 million in OTA funding for 2019–2020, in addition to \$600,000 in one-time "capital funding" (p. 18) to transition five of TVO's nine OTA transmitters (Windsor, Belleville, Chatham, Cloyne, and Paris/Kitchener) out of the 600 megahertz (MHz) band, in accordance with Canada's ongoing 600 MHz spectrum repack (ISED, 2017). While it is unclear how long TVO will continue to receive

\$1 million in annual OTA funding from the Ministry of Education, TVO (n.d.-a) has included the line item in its financial projections up to 2022–2023. The fact that TVO has received \$2 million in provincial funding earmarked specifically for OTA transmission over the past two years is certainly a positive sign for the maintenance of OTA TVO access by Ontarians.

TVO has not added any additional digital OTA transmitters in the province since 2011, however, or leveraged the use of multiplexing to broadcast multiple program feeds via its nine remaining transmitters (CRTC, 2010). While TVO successfully completed transitioning all five of its transmitters that had been operating in the 600 MHz band as of October 30, 2020 (G. Craven, personal communication, 2020), its decision in 2018 to reduce rather than increase the effective radiated power (ERP) of these transmitters as part of the transition (CRTC, 2018) without consulting with TVO viewers may have served to degrade OTA access by viewers in Windsor, Belleville, Chatham, Cloyne, and Kitchener/Paris. TVO also declined to use the 600 MHz transition to install even a single ATSC 3.0-ready transmitter, which would allow for the possibility of broadcasting 4K/Ultra-HD quality programming (roughly four times the resolution of HD) over-the-air to both fixed household television sets and in-transit mobile devices via the ATSC 3.0 IP-based standard. TVO's approach to meeting Canada's 600 MHz transition, combined with the initial reluctance of TVO executives in 2017 to maintain OTA access to its programming outside the GTA in favour of directing additional funding to "content rather than into technical infrastructure" (Neal, 2017), suggests that when TVO (n.d.-a) is once again faced with pressure to reduce its budget projections (in accordance with its requirement each fiscal year to "find new savings" (p. 10), the future provision of OTA access to TVO programming remains precarious.

In light of the additional educational duties placed on TVO by the province to "provide courses of study online"⁴ (Ontario, 1990, para. 5) in response to the COVID-19 pandemic, there is added reason for Ontario to continue to provide funding earmarked specifically for the OTA transmission of TVO programming beyond 2022–2023. Until a time when TVO and the province have prepared a comprehensive post-broadcast strategy for the inclusive distribution of educational television programming via the internet, TVO must not only maintain but enhance digital OTA television access and resist the temptation of using transmitter shutdowns as a quick fix to meeting cost-cutting quotas.

HOLDING ONTARIO-WIDE ACCESS CONSULTATIONS WITH COMMUNITIES THAT MAY BE AFFECTED BY FUTURE OVER-THE-AIR TRANSMITTER SHUTDOWNS

As part of preparation for post-broadcast operations, TVO must conduct meaningful outreach to people in Ontario communities who risk having their TVO access affected by an OTA shutdown, such as those interviewed for this research study. With the launch of TVO's (n.d.-b) Ontario Hubs initiative in September 2017, the broadcaster has the ability to hold consultations in additional communities and to take

action to bring a “voice to underrepresented regions of Ontario” (TVO, 2018, p. 4). Such consultations, held in person or from a mediated distance, would allow TVO to take steps toward verifying access to TVO within and beyond the GTA and to learn how it might enhance access to Ontarians in a post-broadcast media environment. Again, in light of TVO’s expanded distance education duties, assigned by the Ontario government in July 2020 amid the COVID-19 pandemic, it is an appropriate moment for the broadcaster to consult with Ontarians about the quality of their digital access to TVO and consider how it might best make its materials available.

ENHANCED TVO PARTICIPATION IN CRTC CONSULTATIONS BEYOND BROADCASTING HEARINGS

In order to ensure Ontarians have equal access to TVO’s online offerings in the decades to come, the broadcaster would benefit from increased participation in CRTC hearings and policy consultations, moving beyond TVO licence renewals and other broadcasting consultations such as the 2013–2105 *Let’s Talk TV* (CRTC, n.d.). If TVO is aiming to position itself as a multiplatform online educational entity, it must enhance its engagement with the CRTC on matters that traditionally concern telecommunications. If TVO is expecting Ontarians to access its educational programming by means other than broadcasting, which a shutdown of its OTA transmitters outside of the GTA in 2017 would have demanded, it must first ensure Ontarians have equal and fair access to services such as broadband internet. Since TVO is not currently a provider of telecommunications or internet services, participating in CRTC consultations beyond broadcasting will allow TVO to advocate for a level of internet connectivity across the province that is needed for Ontarians to meaningfully engage with TVO online. If TVO aims again to remove pathways of OTA access to its programming, it is incumbent on TVO to first advocate for enhanced broadband internet access across the province in accordance with its mandate under the *Ontario Educational Communications Act* (Ontario, 1990). While TVO’s participation in Canada’s 2018–2019 Broadcasting and Telecommunications Legislative Review was encouraging (OECA, 2019b), additional meaningful participation in CRTC and ISED regulatory consultations outside of broadcasting matters is required.

NO-FEE ONLINE LIVE STREAMING OF TVO’S ENTIRE BROADCAST DAY

If TVO expects Ontarians to access its educational materials in a post-broadcast fashion, it must first provide comparable online live-stream access to its full broadcast schedule in order for viewers to migrate their access pathways (provided Ontarians also have an internet connection that meets the CRTC’s definition of broadband).

In June 2019, TVO made a positive step in addressing access concerns regarding its educational children’s programming online, as expressed by some research participants featured in this article, with the no-fee online live streaming of its regularly scheduled daytime TVOkids broadcast feed (in addition to offering the live streaming of additional children’s programming in the evening) (TVO, 2019).

Previously, TVO's online live streaming of its regularly scheduled broadcasts had been limited to its evening program *The Agenda with Steve Paikin* and other special events. It is unclear why the no-fee online live streaming of daytime TVO programming did not happen prior to the broadcaster's short-lived plan to shut down its OTA transmitters outside the GTA in 2017.

While TVO's daytime online live streaming is a welcome development, it must be enhanced to include its entire broadcast schedule, particularly prior to any future attempts to degrade OTA access to TVO via transmitter shutdowns. In light of TVO's note in its Broadcasting and Telecommunications Legislative Review submission that it "generally acquires regional (Ontario) rights for programming" (OECA, 2019b, p. 4), the broadcaster could establish an online registration and IP address identification system for Ontarians that would allow it to also live stream its full evening broadcast schedule to residents online, similar to the system reportedly used by British Columbia's educational television broadcaster, Knowledge Network.

OFFERING A TVO APP FOR MOBILE DEVICES AND INTERNET-ENABLED TVS

Hand-in-hand with the live online streaming of TVO's entire broadcast day, the creation and launch of a TVO app for mobile devices and internet-enabled television sets would serve to improve access. The lack of a TVO app was specifically cited by more than one of the research participants featured in this article. While dozens of individual program-specific Apple and Android mobile device apps featuring programs broadcast on TVO are currently available—and TVO once offered an Android app for Google TV (Cision, 2012)—as of mid-February 2021, TVO was not offering a stand-alone flagship Apple or Android mobile device app or an app for internet-enabled televisions/adapters, such as those offered by Roku, Amazon Fire TV, and Apple TV. TVO might benefit from examining Knowledge Network's success in this area, as Knowledge Network (n.d.) launched a Roku app in 2020.

Conclusion

September 27, 2020, marked the 50th anniversary of TVO's broadcasting operations (TVO News, 2020). As of this auspicious anniversary, TVO was continuing to provide Ontarians with access to its live broadcast signal via its mandatory inclusion in basic BDU subscriptions within the province, through its nine OTA digital television transmitters, and by offering a significant portion of its regular broadcast schedule online for live streaming. The research project detailed in this article sought to acquire insight into why a minority of TVO viewers were concerned enough about the continued provision of OTA access to TVO that they took the time and energy to submit interventions to the CRTC in 2017. The research findings of the 2018 study featured here help to reveal what barriers to accessing TVO educational programming some viewers were experiencing and possible barriers to accessing TVO programming by means other than OTA broadcasting.

The access concerns and realities shared by the research participants featured here helped to inform this article's analysis of their collective insight and the identification of TVO access themes related to infrastructure concerns, monetary concerns, educational concerns, and geographic concerns outside the GTA. Beyond advocating for maintaining the level of OTA TVO access to educational programming, the four access concern themes highlighted by this article also provide a valuable metric by which to gauge how TVO might best plan and execute an eventual exit from OTA broadcasting altogether. This exit must strive to avoid exacerbating Ontario's digital divides and instead maximize access to live digital educational television programming for Ontarians.

Notes

1. This project was conducted as part of a SSHRC Institutional Grant (SIG) research project conducted at Humber College, Toronto, Ontario.
2. The CRTC (2012a) changed its methodology starting with the 2012 *Communications Monitoring Report*.
3. On April 1, 2007, TFO as an Ontario educational broadcaster became an "autonomous entity" (OECA, 2007, p. 12) that operates separately from TVO.
4. Approval by Ontario's lieutenant governor is pending.

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Personal communication

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