Indigenous languages in new media: Opportunities and challenges for language revitalization

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This paper looks at the use of Indigenous languages in new media and explores how these platforms empower Indigenous language speakers as grassroots language activists. Selected examples of Indigenous language use on social media will be analyzed, both through an examination of contemporary social media accounts and through literature review. These primary source examples coupled with examples from the literature will inform a discussion of the opportunities and challenges of Indigenous language use in these online spaces. New media will be discussed as productive sites for spontaneous literacy production and ultimately Indigenous self-determination.
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1   Introduction

"New media" refers to interactive computer-native media in which users are active content producers (Logan, 2010). New media platforms such as Twitter, Instagram, and Youtube create new domains for language use. As sites of potential Indigenous language use, they offer opportunities for language revitalization movements, however Keegan, Mato, and Ruru (2015, p. 60) caution that "new media provide new opportunities for dominant languages to be even more dominant". Keegan et al. (2015) point out that Indigenous and minority language speakers often use a majority language online in order to reach a wider audience. Therefore, the high saturation of these media in daily life may contribute to language shift by encouraging majority language use. I will explore how speakers and learners of Indigenous languages are challenging the homogeneity of the linguistic landscape of new media and using these media to increase the visibility and prestige of Indigenous languages and Indigenous language revitalization movements.

In this paper I have left aside Facebook to focus on Twitter, Instagram, and YouTube because their public nature offers a distinctive line of inquiry into Indigenous language use. Facebook stands apart from Twitter, Instagram, and YouTube in that Facebook is typically bidirectional and involves connections between people who already know each other offline (Lillehaugen, 2016). Generally online networks tend to replicate offline networks and do so to a greater extent for minority groups which are concentrated geographically in a specific location (Cocq, 2015). However, this effect is less pronounced on Twitter,

Instagram, and YouTube than on Facebook since Facebook accounts and groups are often closed, while on Twitter, Instagram, and YouTube privacy settings are more rarely used (Keegan et al., 2015).

I will focus on how individual users and user interactions can make grassroots contributions to Indigenous language revitalization movements. I will begin by highlighting selected examples of Indigenous language use in new media. Drawing from these examples and other literature, I will discuss how new media can contribute to the valorization of Indigenous languages, both within the Indigenous community and among outsiders, and empower individuals as language activists. The challenges and limitations of new media in the language revitalization context will be explored, including the practical limitations of the medium and the risks involved in bringing personal and cultural content into the public sphere. I will also discuss the challenges of maintaining a relevant new media presence and the opportunities new media platforms offer as a living archive.

2   Examples of Indigenous language use in new media

The following selected examples draw on both a review of the literature and a direct exploration of Twitter and Instagram using Indigenous language related hashtags. These examples are by no means exhaustive in terms of how Indigenous languages are currently being used on new media; rather, they are intended to illustrate the diverse landscape of Indigenous language use online. I found the examples from Twitter and Instagram directly from those platforms, while the YouTube examples (section 2.3) come from the literature. I will also describe *IndigenousTweets.com*, which is a valuable resource for exploring the role of Twitter in Indigenous language revitalization movements.

2.1   The *#SpeakMikmaq* campaign

Savannah "Savvy" Simon is a 31 year-old Mi'kmaq first language speaker and language and culture advocate (Rendell, 2015). Simon started the *#speakmikmaq* hashtag, which now has inspired other language communities to adopt sister hashtags, such as *#speakmaliseet* and *#speakcree* on Instagram and other platforms (Rendell, 2015). Under *#speakmikmaq*, she shares short videos featuring humorous demonstrations of Mi'kmaq phrases, as well as cultural activities (Carmichael, 2014).

Simon's Instagram and other social media accounts have a light touch and youthful energy, exemplified by her catchphrase which she prints on t-shirts and features in her posts and videos: *L'nuisi, it's that easy! Speak Mi'kmaq*! (*L'nuisi* means 'speak Mi'kmaq' in Mi'kmaq) (Carmichael, 2014). Minority and Indigenous languages are often viewed as "old-fashioned and unglamorous" (Dlaske, 2017). Simon's fun, youthful tone and choice of platforms — in particular Instagram — works to subvert this perception.

Simon wants to show young Indigenous people that "you can be native anywhere" (Simon as cited in Rendell, 2015, para. 14). She demonstrates by example that Instagram specifically, and the internet in general, can be a domain of use for Indigenous languages. Additionally, like other popular Instagram posters, her videos take place in a variety of settings from her daily life, including grocery stores, church, and vacations (Rendell, 2015). One video shows Simon and a friend in a parking lot enthusiastically teaching the phrase *pekwamuksin* 'it's nice to see you' (Simon, 2015). The message is clear: wherever you are, online or off, you can be proudly, visibly Indigenous and speak your language.

2.2   Indigenous Words of the Day on Twitter

Indigenous words of the day appear on Twitter for a wide variety of Indigenous languages and in many different forms. Pemaptoq (2019) is a dedicated word of the day account associated with a Mi'gmaq-Mi'kmaq online dictionary which automatically posts a selected dictionary entry daily. The Qikiqtani Inuit Association, a non-profit society representing thirteen Inuit communities in Nunavut (Qikiqtani Inuit Association, 2019), posts beautifully illustrated Inuktitut words of the day alongside other tweets regarding the organization's work (Qikiqtani Inuit, 2019). Many Indigenous individuals also include occasional Word of the Day posts as part of their personal or professional Twitter accounts. Often these words are personally relevant to users' daily lives or popular culture. Twitter user Dallas Hunt, for example, posted "Cree word of the day: / ohcapihkêsîs - 'Spider' / napew - 'Man'" captioning a Spiderman gif (Hunt, 2019).

Some languages have a dedicated hashtag for word of the day posts, for example *#AWOTD*, which stands for Algonquin Word of the Day. Tweets featuring Algonquin words and translations appear under *#AWOTD* from multiple users, but most prolifically from CKWE 103.9 FM's official Twitter account, a radio station in Kitigan Zibi (CKWE, n.d.), an Algonquin First Nations community (Kitigan Zibi Community, n.d.). The use of the hashtag makes it easy for users to find accounts which post Algonquin words of the day and identify sources of related Indigenous language learning materials, such as Algonquin word of the day wall posters.

Words of the day may serve the interconnected purposes of Indigenous language activism and Indigenous political activism. Graham Andrews, a Michif Twitter user (Andrews, 2019a), has posted Michif Words of the Day which seem directly tied to current issues affecting Indigenous peoples. For example, his January 16, 2019 post — "Today's appropriate Michif word: / Mayitotum. / Injustice" (Andrews, 2019b) — can be understood as a response to events at the Unist'ot'en natural gas pipeline resistance camp in British Columbia.

Word of the day posts are highly accessible and generate enthusiasm around language revitalization. Embarking on a language learning journey can be intimidating. Because word of the day posts offer linguistic content one word or phrase at a time, they may serve as a welcoming 'baby steps' introduction for new learners or even for those who otherwise may not have considered learning their

Indigenous language. Also, because words of the day can be tied to current events, holidays, and popular culture (see CKWE, 2018 for example), they promote the use of Indigenous languages as relevant to everyday life.

2.3   Indigenous language music videos on Youtube

YouTube offers a platform for self-determined film and multi-media representation by Indigenous peoples (Johnson, 2014). Not only is YouTube video content itself a contribution to Indigenous language presence online, but Indigenous language YouTube videos provoke such salient discussions in their comments sections that Cru (2018, p. 5) sees YouTube comments as "a site for micro-level language planning" (cf. Robert & Baldauf, 1997). Through their evaluative nature, YouTube comments also offer a window into the underlying ideologies behind Indigenous language revitalization movements (Cru, 2018).

Dlaske (2017) analyzed the comments sections of two minority language music videos, an Irish language music video cover of a popular song by the late artist Aviici, and a Sami teaser for a TV comedy show. She found that the videos provoked overwhelmingly positive reactions in their comment sections (Dlaske, 2017). The comments by members of that minority language community expressed extreme enthusiasm and pride in their language and many comments included words or phrases in the minority language, for example "Is aoibheann liom ea!!!!!!!!!!! (I love it)" (Dlaske, 2017, p. 459). There was also a pattern of commenters expressing shame and anger regarding their inability to speak their ancestral language, for example "Makes me Proud to be Irish and sickens me that I can't understand a fu#king word" (Dlaske, 2017, p. 467).

Cru (2018) analyzed the YouTube comment sections of two Indigenous language rap music videos, one in Yucatec Maya, an Indigenous Mexican language, and one in Mapudungun, an Indigenous language spoken in Chile. He noted the growing number of South American Indigenous language rap groups and suggested that rap's "sociolinguistic features make rap a particularly productive genre for language revitalization" (Cru, 2018, p. 3). These features include rap's emphasis on verbal fluency and creativity, and the "coolness" and modernity associated with the genre (Cru, 2018). Like the comments analyzed by Dlaske, these comments often included replies in the Indigenous language or a mix of the Indigenous language and the majority language, Spanish, within the same sentence (Cru, 2018). One user commented "*Hach Utsil*!!! Necesitamos mas *maaya*!" [Well done!!! We need more Maya!] (Cru, 2018, p. 8). The italicized text is in the Indigenous language, Maya. Cru (2018) also found that the videos triggered metalinguistic reflections on the commenters' Indigenous identities: "*jach man jats'uuts' le bideo' tumen ku e'esikto'on tu'ux ya'anto'on yéetel bix yaanko'on!* / muy hermoso el video por que nos muestra donde y como estamos! saludos!" [very beautiful video because it shows us where we are and how we are! greetings!] (Cru, 2018, p. 9).

2.4   IndigenousTweets.com

Kevin Scannell, a professor in the department of Computer Science at Saint Louis University (Saint Louis University, n.d.), has created *IndigenousTweets.com*, a website which scans Twitter for tweets in various Indigenous and minority languages and posts statistics about each language's presence and use (Keegan et al., 2015). *Indigenous Tweets* uses tri-grams, or sequences of three characters, to identify tweets which are similar to a database of Indigenous language corpora. A classifier based on word sequences and frequencies then identifies the most probable language for each tweet (Scannell, 2014, as cited by Keegan et al., 2015). The number of languages featured by *Indigenous Tweets* has grown steadily over the years, from 68 in 2011 (Lee, 2011), to 185 as of November 2018 (Indigenous Tweets, 2018).

For each language, *Indigenous Tweets* collects statistics per user, which means that it is immediately clear whether the total number of tweets is the result of many users occasionally using the language, or from just a small handful of very prolific accounts (Indigenous Tweets, 2018). These per user statistics are displayed along with the username (Indigenous Tweets, 2018), which allows *Indigenous Tweets* to function as a sort of index of Indigenous language material on Twitter, since Indigenous language speakers and learners can visit IndigenousTweets.com to quickly find the Twitter pages of the users who post most frequently in their language.

Since the data on *Indigenous Tweets* comes directly from Twitter account activity (users cannot sign up to be promoted on Indigenous Tweets), the website facilitates grassroots language activism: the only criterion for inclusion and ranking of users is how much a user actually posts in the language. However, these statistics can still be manipulated and may be misleading. In the case of Māori, it was found that 68% of all Māori tweets reported by *Indigenous Tweets* came from three robotic accounts posting Māori-language biblical passages on a set schedule (Mato & Keegan, 2013). However, the breakdown of the statistics per username accompanied by links to the Twitter accounts makes these robotic accounts easy to identify. Keegan et al. (2015) used *Indigenous Tweets* to analyse Māori use on Twitter and simply excluded these robotic accounts from their analysis.

In addition to helping connect speakers of the same Indigenous language, the information collected by *Indigenous Tweets* is a valuable tool for researchers investigating the use of Indigenous languages online. The statistics *Indigenous Tweets* displays can be used to measure the presence of an Indigenous language on Twitter and track the change in its presence over time. The listings of individual accounts on *Indigenous* may help learners identify potential online language champions and locate content in their language.

3   Opportunities offered through new media for Indigenous language revitalization

New media offers an opportunity for language revitalization movements to expand across geographic and socio-cultural borders. It gives speakers and learners freedom to self-determine their language usage and bring their language into contexts which are relevant to themselves and their peers. For instance, hashtags, a central component of new media platforms, empower language users to broadcast their identities and align themselves with cultural and linguistic communities. The following section describes the positive role new media platforms can play within language revitalization movements by bringing together geographically dispersed language activists, facilitating the emergence of active and self-determined writing cultures, and fostering connections between and within linguistic and cultural groups through hashtags.

3.1   The broad reach of new media

Online spaces transcend geographic differences, meaning that Indigenous language use on new media is not restricted to a particular language's traditional territory. Simon raises the issue of disconnection between urban youth and their Indigenous culture: she says that urban youth who have never lived in an Indigenous community feel that they're "losing out on experiences" (Simon as cited by Rendell, 2015, para. 13). Indigenous language use on new media helps address this issue by including and engaging Indigenous people who live far from their ancestral lands and communities. New media also connects disjunct Indigenous communities whose traditional territories are separated by national borders (Cru, 2018).

Additionally, the public nature of new media means that the Indigenous language content is not restricted to members of that community. Language revitalization activists from different Indigenous communities worldwide can easily look to each other's activities on social media for inspiration. For example, when Twitter user Cana Uluak Itchuaqiyaq tweeted an Iñupiatun word of the day, *kunik*, meaning 'faceplant' (Itchuaqiyaq, 2018a), the first reply offered the Irish translation *titim ar aghaidh* (Kathleenrmc99, 2018).

The public nature of these media also allows both individual pieces of content and language activists' broader goals to reach beyond the group of people already committed to revitalization (Lillehaugen, 2016). Both Dlaske (2017) and Cru (2018) found that Indigenous language YouTube videos are appreciated and commented on by international audiences, demonstrating that new media is an effective way for Indigenous language revitalization efforts to gain recognition by those outside the language community, which can lead to greater prestige for the language and for language revitalization in general.

3.2   Orality and non-prescriptivist language use

New media is defined by its participatory culture, where consumers are involved in the creation and distribution of content (Jenkins, 2016). This participatory environment facilitates "non-prescriptivist language usage which often reflects orality" (Cru, 2018, p. 8). The casual nature of social media interactions gives users space to experiment and adapt the language to their own contexts.

One aspect of this non-prescriptivist language usage is orthographic variation. The development of standardized orthography systems can lead to unproductive debates, or even "orthography wars" within a language community (Hinton, 2014). Lillehaugen argues that languages do not need a standardized orthography for an active writing culture and that in fact standardized orthographies often arise from active writing cultures and not the other way around (Lillehaugen, 2016). YouTube videos and other new media content in Indigenous languages trigger comments which contribute to building an active writing culture in the language (Cru, 2018).

Much of the Indigenous language content on Twitter, YouTube, and Instagram reflects the widespread practice of code-mixing, where both a majority and minority language may be used within a single utterance. For example, Twitter user Cana Uluak Itchuaqiyaq often combines one or two Iñupiatun words with English sentences: "This Iñupiaq just passed her 2nd year PhD annual review with some high praise. Thought I'd share so you can nuniaq me cuz I worked real hard" (Itchuaqiyaq, 2019a). In a follow-up tweet she explains that *nuniaq* means to show affection by praising someone in baby-talk (Itchuaqiyaq, 2019b). Another Twitter user, Graham Andrews, mixes Michif and English without necessarily providing English translations for all the Michif content. For example, before the release of a highly-anticipated episode of the TV show Game of Thrones, he tweeted "Li taan aen faan di Game of Thrones ... l'ivayr payamaakhun. / Winter is coming..." (Andrews, 2019c).

The greater visibility afforded to code-mixing in online contexts helps to normalize and legitimize the practice within Indigenous language revitalization movements (Cru, 2018). Normalizing code-mixing may reduce perceived barriers to participation in Indigenous language use online. New learners can immediately begin using their Indigenous language, one word at a time and interspersed with the majority language, in their posts and comments. Linguistic proficiency need not be a prerequisite to participation in bringing an Indigenous language online.

Discourse on new media is free from the traditional top-down editorial process (Srinivasan, 2006). This freedom makes new media a democratizing force. New media platforms facilitate the spontaneous production of Indigenous literacies, unimpeded in their production by any ongoing issues related to standardization or purism.

3.3   Hashtags as a tool for minority empowerment

Hashtags are a form of user-generated "social metadata" (McMonagle, Cunliffe, Jongbloed-Faber, & Jarvis, 2018, p. 1) which help users quickly find relevant posts and recommend their own posts to others with similar interests. Many Indigenous language communities have adopted hashtags specifically promoting their language, including *#speakmikmaq* (Rendell, 2015), and *#gollegiella* (North Sami for 'golden language') (Cocq, 2015). Other language communities simply use hashtags denoting the name of their language, such as *#algonquin* (CKWE, 2018), *#åarjel* (Cocq, 2015), and *#zapoteco* (Lillehaugen, 2016).

Cocq (2015) describes how hashtags allow users to collectively create a bottom-up classification of the content as opposed to traditional media which categorize content top-down. She proposes that this collective tagging empowers Indigenous communities by facilitating classification according to "Indigenous premises that are not possible in traditional media" (Cocq, 2015, p. 282). By developing their own classification systems, users are not confined to dominant frameworks of content organization.

Additionally, McMonagle et al. (2018) suggest that hashtags have a greater significance than just serving as a topic marker: hashtags create "ambient communities" (McMonagle et al., 2018, p. 1), where users align themselves together without necessarily directly interacting. These ambient communities facilitate bonding over shared values (Zappavigna & Martin, 2018). Indigenous language-related hashtags convoke a language's learners, speakers, and activists. Even learners who do not know any other speakers may feel a sense of kinship when they see their language's hashtag used "in the wild," and using the hashtag themselves can be a proud declaration of belonging.

Vigil-Hayes, Duarte, Parkhurst, and Belding (2017) found that hashtags relating to Indigenous identity were more likely to appear together than individually, with multiple hashtags per post. A single tweet or Instagram post often includes hashtags regarding the poster's identity, the endonym and exonyms of their language, the name of the language family, and other broader hashtags such as *#indigenous*. Hashtags allow the user to explicitly specify each of the audiences they want to reach and the communities they belong to, from a highly localized group, such as speakers of their local dialect, to international groups sharing a common interest, such as global Indigenous movements (Cocq, 2015).

4   Challenges faced by Indigenous language users on new media

Access to new media depends on access to supporting technology, such as up-to-date internet capable devices and high-speed broadband. Further, language use online requires supportive language technology, such as Indigenous language keyboards and spell check. Both hardware technology and language technology are inadequately available to users of Indigenous languages. Additionally, Indigenous language users face the challenge of online criticism, which is an issue for all internet content creators but may be especially vitriolic for members of

marginalized groups. In general, the use of public platforms also necessarily raises privacy concerns. Specifically, within the context of Indigenous language revitalization, use of new media platforms raises issues regarding the sharing of cultural intellectual property online.

I will describe how the lack of supportive language technology reduces the convenience of Indigenous language use online and how inadequate internet infrastructure in rural communities limits who may participate in the positive opportunities outlined in Section 3 above. I will also discuss how sharing cultural and linguistic content online carries a level of risk due to the threat of harassment and racism and how privacy concerns regarding the sharing of cultural material online can cause conflict within communities.

4.1   Technological barriers to Indigenous language use online

The quality of technical language support, which includes everything from support of orthography and spell check to predictive text and speech recognition, varies hugely between language communities since it is dependent on the size and accessibility of data in that language (Soria, 2016). In terms of orthography, Twitter supports every Unicode scripted language (Keegan et al., 2015), including the Cherokee syllabary and Canadian Aboriginal Syllabics (Unicode, n.d.). Many Twitter and Instagram users include Inuktitut Syllabics in their posts, for example Instagram user Lori Idlout describes her photo of two children wearing toques: "The irngutaak loved that we had similar hats." (Idlout, 2019).

However, Indigenous languages have virtually no technological support beyond basic keyboard input (Streiter, Scannell, & Stuflesser, 2006). In terms of spell check, predictive text, and other statistics-based language technologies, Indigenous languages are limited by the size of their corpora since quality statistics-based tools require huge amounts of open data on which to train. This means that many endangered languages are very poorly supported or not supported at all. However, encouragingly, this also means that users are empowered to increase the quality of their language support simply by using the language.

While discussion of language technology might typically focus on language support for personal computers, the importance of mobile-based technical language support cannot be overstated: in 2016, 88% of Canadian households owned a smartphone while 84% owned a home computer (Canadian Radio-television and Telecommunications Commission, 2018). In 2016, global internet traffic from mobile devices exceeded that from personal computers for the first time (Statcounter Global Stats, 2016) and currently in some parts of the world the market share of mobile devices is significantly greater than that of personal computers. A recent study of mobile device usage in 11 emerging economies found that a vast majority of adults in those countries have a smartphone and a median of 27% have a smartphone but not a computer or tablet (Silver et. al., 2019).

Unfortunately, mobile devices rely more heavily on more advanced language technology such as speech recognition and gesture typing (Lackaff & Moner, 2016), which have greater barriers to development than just basic keyboard

support for a language. Lackaff and Moner stress that support by these advanced language technologies massively increases the convenience of using a language (Lackaff & Moner, 2016), and so more advanced language technologies must be included in the discussion of language technology equity for Indigenous languages.

Another barrier to the quality of technical language support is that there are very few monolingual speakers for many Indigenous languages, which means that technology companies have less economic incentive to support these languages (Soria, 2016). Lackaff and Moner point to the potential of open-source software and crowdsourcing, which are not constrained by marketplace profitability (Lackaff & Moner, 2016).

A successful example of crowdsourced language technology is software localization, the process of translating a software interface into the user's preferred language. Many social media companies, such as Twitter and Facebook, allow users to contribute to localization by providing translations and voting on the accuracy of other users' translations (Hessellund, 2014). This mechanism empowers speakers of Indigenous and minority languages. When Vannina Bernard-Leoni at the Pascal Paoli University of Corsica learned about this crowdsourced translation tool, she, along with six students, began providing Corsican translations (Guynn, 2016). Her small but powerful initiative inspired hundreds of other Corsican speakers (Guynn, 2016) and now the Facebook interface is available in Corsican (Facebook, 2018).

4.2   Issues of access

Despite the democratizing effect of participatory media, it must be noted that new media are not accessible to all. New media users generally represent only select segments of the population. In the case of Twitter, the user base tends to have a higher educational background than the general population (Cocq, 2015). All major social media are used at much higher rates by young people than older people, and Instagram in particular is used overwhelmingly by people between the ages of 18 and 25 (Smith & Andersen, 2018). Those who fall outside these groups may be unlikely to engage with new media and therefore not experience the benefits these media can offer for their language community.

Another major barrier to participation in new media is the requirement for high speed internet, which can be cost prohibitive or completely unavailable in remote areas. Compounding this issue is the fact that Indigenous communities disproportionately lack broadband access. According to the American Federal Communications Commission (2015), advanced broadband is unavailable to 53% of rural Americans but that figure increases to 85% for rural Americans living on Tribal lands. A significant divide in broadband access also exists between Indigenous and non-Indigenous communities in Canada (Centre for the Study of Living Standards, 2013).

Similarly, many reserves in Canada lack broadband and therefore are completely cut off from all essential internet resources, not to mention the benefits of new media (Stollery, 2018). It is common for members of Indigenous

communities, both on and off reserve, to travel long distances to the nearest internet access point, often located in private businesses (Belding et al., 2017). This inaccessibility limits who can contribute to and benefit from the presence of Indigenous languages on new media.

4.3 Online criticism

A danger faced by anyone posting on social media and faced in particular by Indigenous people sharing their language and culture, is the level of vitriol they can experience online. According to Chief Bobby Cameron of the Federation of Sovereign Indigenous Nations, vicious attacks and racist threats "have become disturbingly regular" in comments sections and elsewhere online, leaving some Indigenous people fearing for their lives (Kassam, 2017, para. 7).

Both Dlaske (2017) and Cru (2018) found negative comments on the YouTube videos they analyzed, despite the videos' overwhelmingly positive receptions. Negative comments can be particularly scathing online. Dlaske (2017, p. 460) noted one expletive-laden comment condemning the Irish language video, which, among other things, told the music video producers "You musn't be Irish".

Criticism can also come from inside Indigenous language communities. Savvy Simon, creator of *#speakmikmaq*, has been attacked and ridiculed by speakers of different Mi'kmaq dialects for speaking in her own regional dialect (Rendell, 2015). In response, Simon posted a video on YouTube entitled Keeping Our Talk which addresses her critics, who she refers to as her oppressors (Simon, 2014). She says "shame on you" to those who have harassed her online and explains that this sort of criticism is the very reason why Indigenous people are reluctant to speak their languages (Simon, 2014, 1:40).

Online harassment is a very real threat, and Indigenous language users on social media must be recognized for the inherent bravery of using their language in those spheres.

4.4 Cultural intellectual property and privacy

Despite the benefits of the open and accessible nature of these platforms, the fact that posts involving linguistic and cultural content are public raises issues of cultural intellectual property. Cultural intellectual property includes literary and artistic works and photographic, audio, or video documentation of Indigenous peoples' heritage (Daes, 1995). Much Indigenous language content on new media is accompanied by images or video, and the Indigenous language content itself may constitute a literary or artistic work.

Belarde-Lewis (2011) describes how there can be conflict within Indigenous communities regarding whether content containing cultural intellectual property should be posted to publicly accessible platforms. She investigated the comments sections of videos of Hopi village dances on YouTube and found a range of sentiments, including some strong opposition such as "Omg who posted this?????????????? It is not supposed to be online! Nor filmded nore (sic)

photographed, what a disrespect!" (Belarde-Lewis, 2011, p. 21). However, some videos were clearly posted by community members who felt that pubic sharing on YouTube was appropriate: one video entitled "Hopi Buffalo Dance at Kyotsmovi 2009 part 1" was captioned "…My little sisters dancing…sooo proud of them!..." (Belarde-Lewis, 2011, p. 22). Because attitudes within communities can be mixed, the introduction of Indigenous linguistic and cultural content to new media platforms may cause conflict within a community.

The broach reach of new media platforms allows local language revitalization movements to reach global audiences. Speakers, learners, and those not yet involved in language revitalization can more easily connect with and inspire one another. At the same time, the public nature of these platforms may mean that they are not always the appropriate platform for certain cultural material. Privacy concerns, both at an individual and at a community level, may restrict the role new media platforms play within Indigenous language revitalization movements.

5 Maintainability and findability

Due to the chronological nature of online feeds, the impact of content on new media is often tied directly to its recency. I will discuss how this focus on new content poses challenges for content creators. However, the robust infrastructure of mainstream online platforms allows chronological feeds to be preserved over time, creating a well-organized and highly accessible archive. I will describe the potential of new media platforms to serve as valuable archival tools.

5.1 Challenges of maintaining a presence on new media

The short attention span of the online media environment and resulting need to continually produce new content poses a challenge for Indigenous language content creators. The visibility and, consequently, the impact of online content is often directly related to its newness. Therefore, online resources may come to appear obsolete much faster than traditional ones. Corbett and Kulchyski (2009) describe a Hul'q'umi'num' language blog project which elicited much initial enthusiasm but proved to be ultimately unsustainable due to the sheer work required for constant maintenance.

Some 'Word of the Day' initiatives may eventually face this issue if the necessary daily commitment becomes unsustainable. Once an account stops posting, it disappears from users' news feeds and is no longer seen unless users explicitly search for it. This unfortunately means that all the work put into such an account, and the quality archive of posts still available on that account, can be quickly forgotten by the online community.

However, many Indigenous language users, such as Cana Uluak Itchuaqiyaq, a PhD student at Utah State University (Utah State University, n.d.), maintain a single account and use it for a combination of personal, professional, and activism purposes. On Itchuaqiyaq's Twitter account, Canaltch, tweets from

November 2018 include family photos, English-language news stories about Indigenous issues, and Iñupiatun words of the day (Itchuaqiyaq, 2018b). As described earlier in Section 3.2, many of her posts involve code-mixing: often she follows an English sentence with an Iñupiatun exclamation (Itchuaqiyaq, 2018c; Itchuaqiyaq, 2018d).

It seems that Itchuaqiyaq maintains her account out of a personal desire to do so and that maintenance is not a burden; she has tweeted 776 times between March and November 2018 (Itchuaqiyaq, 2018b). By integrating Indigenous language use into their personal online presence, Indigenous language users can reduce the burden of maintainability associated with producing language content. Since Indigenous social media users are already maintaining such accounts, the increased burden of including language content is negligible.

5.2   Archival value of new media platforms

Social media pages can function as "digital, peer-produced archive[s]" (Mylano, 2017, p. 277). Content on sites like Twitter, Instagram, and YouTube is kept accessible indefinitely, requiring no maintenance by the content producer. This is a highly valuable feature; a great deal of ongoing maintenance would otherwise be required to keep content on independently produced websites accessible.

The archival quality of new media allows those interested in Indigenous language revitalization to quickly discover content, regardless of when it was posted, by searching Google or a specific social media site. Through hashtags and search functions, new media platforms offer a high degree of findability, useful for both researchers and dedicated language learners searching for more resources in their language.

6   Conclusion

Twitter, YouTube, and Instagram are productive sites for Indigenous language use and valorization. Hashtags allow emic categorization of content and create ambient communities bonded through shared linguistic pride. New media facilitate spontaneous literacy production and non-prescriptivist language use: postings and comments on these user-generated spaces can be seen as "vernacular literacies generated from below" (Cru, 2018, p. 14). New media allow the connection of geographically disjunct Indigenous groups and facilitate support and awareness between different Indigenous language revitalization movements internationally. The presence of Indigenous languages on new media sparks metalinguistic reflection among users and increases the legitimacy of Indigenous languages as relevant, modern modes of communication.

Barriers remain to participation in new media for Indigenous peoples, most notably the disproportionate lack of internet access in Indigenous communities. Additionally, technical language support of Indigenous languages must be expanded to reduce the inconvenience of using these languages online. Due to the increasing dominance of mobile devices, quality mobile support should be a

priority for those working towards language technology equity. Indigenous language speakers are empowered as data producers to contribute to the development of technical language support by choosing to use their languages online and by volunteering with crowdsourced language projects.

New media require content creators to constantly work to stay relevant in a newsfeed-based environment. However, the Indigenous language content produced online is not wasted when accounts go dormant. New media platforms serve as valuable archiving tools, allowing old content to be easily found and used by anyone willing to search for it.

The bottom-up structure of participatory media is well-suited to the goals of Indigenous language revitalization movements, which often exist in conflict with colonial institutions and power structures. New media certainly cannot single-handedly drive a language revitalization movement; however, these platforms offer an opportunity for self-determination for Indigenous language speakers, learners, and activists.

Acknowledgements

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