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# SPACE IS THE PLACE: PRE-SERVICE TEACHERS RE/MAP CARTOGRAPHIC LANDSCAPES

Kurt Thumlert, Bryan Smith, Cristyne Hébert, Brittany Tomin

**ABSTRACT** *This article reports on a research project, Re/Map, that looked at how pre-service teachers might question the taken-for-granted nature of digital maps as constructed sociotechnical artefacts, and then creatively speak back to the dominant historical narratives embedded within them through the production of their own media artefacts. Though analysis of pre-service teacher projects and interviews, we discuss the diverse ways pre-service teachers mobilized place-based inquiry and critical re-mapping practices to interrogate the hidden curriculum of everyday ‘city-texts,’ challenge dominant geographic imaginaries embedded in digital mapping tools, and consider the impacts of the project on their own future teaching. We signal the opportunities of this kind of inquiry-driven investigation to not only enable students to critique digital maps and visualization media, but also to support pre-service teachers in critically engaging with the places they find themselves teaching and living within.*

**Keywords:** *critical cartography, critical remix, digital maps, critical media literacies, remapping, teacher education, visualization technologies*

## Introduction

While critiques of ‘visualization technologies’ (Haraway, 1988), ‘scopic regimes’ (Jay, 1988), and ‘vision machines’ (Virilio, 1995) have a long history in and outside of educational theory (Kellner and Share, 2005), the proliferation of new cartographic media and digital mapping tools have gone largely uninterrogated in educational theory and practice. At the same time, educators are often pushed to adopt these tools, and other visualization media, without first examining either the politics behind them or their complex and often problematic interrelationships with curriculum and knowledge production (Sujon, 2019; Smith, 2016; de Castell, Bryson and Jenson, 2002). More broadly, emerging cartographic media and mapping tools increasingly mediate—representationally, narratively, and algorithmically—everyday lived experience, alongside understandings of space, place, time, culture, and history. These mapping media include everything from network-enabled navigation tools to popular social media apps and corporate/educational applications (e.g., Google Maps and their suite of educational tools) that visualize geographic data and, increasingly, include map-based consumer interaction and/or user-input features like ‘reviews’ and ‘ratings.’ Though critical work on digital mapping tools in education remains underdeveloped, critical cartographers have done much to trouble dominant epistemological assumptions that underwrite the production, reception and

instrumentalization of maps and, in doing so, draw attention to opportunities to critically engage and even repurpose cartographic media today.

During the last century, cartographic sciences have been shaped by ‘ocularcentric’ epistemologies aligned with a Cartesian perspectival logic and attendant claims to representational fidelity and objectivity (Jay, 1993; Wood and Krygier, 2009). While it is important to note that, today, we not only ‘see’ but also touch, tap, and interact with the mapping media, digital maps are still screen-based tools that selectively flatten and abstract, visualize and virtualize, our understanding of space, place, and history. As Rogoff (2002) asserts, this wider logic of seeing, as the dominant epistemological lens of the modern era, continues to vacate “any political dynamic” by presuming “a neutral field in which some innocent objective ‘eye’ is deployed by an unsituated viewer” (p. 3). Visualization technologies, as Haraway (1988) similarly argues, operationalize the “myth of a disembodied eye capable of seeing everything from nowhere” (p. 581) while promoting particular constructions of space and knowledge linked with power, ideology, and authorial control. Informed by objective and universalist readings of the world, the rhetorical and political power of mapmaking has been, and remains, intertwined with a long history of settlement, colonization, and empire (Wood and Krygier, 2009).

As ‘ocularcentric’ representations of space and place, maps make arguments (Wood, 2010): they are constitutive of knowledge and co-produce specific kinds of realities through their visualization of spaces/places impossibly captured in a single representative act. At best, maps offer incomplete, partial and cartographically-biased representations of space. Considering the language of spatial representation in particular, street names, place-names, and official acts of identifiable commemoration predetermine and constrain the kind of ‘language’ that comes to regulate mapped space, all the while providing residents and visitors with a selective historical record of place and community. If maps representationally co-construct specific realities and historical narratives, as critical cartographers contend (Harley, 2001; Harley, 1990), then educators need attend to how these realities are constituted, and how *specific* historical narratives are interwoven within the geographical fabric of our everyday ‘city-texts’ (Smith, 2017; 2018).

In this article, we report on a research project, *Re/Map*, that looked at how pre-service teachers might first question the taken-for-granted nature of maps as constructed sociotechnical artifacts and, second, creatively speak back to dominant settler cartographies and historical narratives embedded in maps through digital media production. Working with a group of pre-service teachers enrolled in a new media literacies course at a university in Toronto, Canada, we asked:

- What can pre-service teachers learn by way of inquiry-driven investigations of place and through a cartographic re-imagining of the historical and cultural contexts of their communities?
- How might a ‘re-drawing’ of maps help pre-service teachers question and probe the assumptions that inform their understandings of digital maps?
- And how might counter-narratives emerge as pre-service teachers mobilize digital media to re-map the streets and sites, places and spaces, in their own communities?

We begin with a review of the literature around mapped spaces as texts, and critical re-mix as a method for cartographic intervention, before detailing the specifics of our work with pre-service teachers and their digital re-mapping projects.

## Literature Review

### *Mapped Spaces as Texts*

While there is a paucity of educational research focusing on critical cartography and interdisciplinary uses of digital mapping tools in schools, researchers have begun to examine the role of digital maps in developing complex spatial literacies (Bednarz and Kemp, 2017), as well as their use for critical educational purposes in subject-areas like geography, history and social studies (Smith 2018; Harris and Hazen, 2006). In history education, for example, Mullally and Hanratty (2016) offer digital mapping pedagogies as a vehicle for developing ‘historical consciousness,’ and do Canto (2017) more broadly situates digital mapping tools within a ‘new literacies’ framework, arguing that “digital technologies have introduced significant changes in the way we map, in the cartographic representations we create, and in the modes and contexts that we use them” (p. 5). Sujon (2019) highlights the risks, however, of allowing corporations (i.e., Google) to ‘colonize educational spaces’ with visualization media and map-based learning platforms. At the same time, other researchers have positioned digital mapping tools as means to support the aims of critical pedagogy, activism, civic engagement, and disability justice (Hamraie, 2018; Pavlovskaya, 2018; Gordon, Elwood, and Mitchell 2016; Pacheco and Velez, 2009).

For our study, we turn to the language of maps and the ways that it gives form to broader discourses of space, the everyday language of place, and the stories that we tell about ‘our’ community. Specifically, we focus on the role of place names (toponyms) and street names (odonyms) as vehicles for communicating historical knowledge about both local and national contexts. Layered over geographic space to co-produce and regulate the historical knowledge of a mapped location, street names encode and memorialize a dominant history into the symbolic and material contours of mapped spaces/places. Critical toponymers call this layering of history over and into the language of street names the ‘city-text’ (Azaryahu, 2011), a term we use more broadly to also encompass place-names.

Though the city-text often lacks a structure or order that is explicitly narrative in form (Ryan, Foote and Azaryahu, 2016), it can be interpreted rhetorically and narratively as a constellation of semiotic elements that come together “to establish a world view through the inclusion of certain elements for (an illusion of) internal coherence” (Palonen, 2008, p. 220). This world view is grounded in historical and commemorative efforts to cement national narratives into the everyday organisation and language of place, and to reinforce the dominant semiotic reference points through which a community perceives itself: here, there is a limited number of what Stuart Hall (1997) might call ‘preferred

meanings' made available through a map. Obscuring this construction, however, is the fact that street names and toponyms are generally perceived as prosaic and functional, and thus the dominant narratives memorialized in the city-text may become reified by virtue of their self-evidence or mere given-ness. Rose-Redwood, Alderman, and Azaryahu (2018) refer to this as the 'semantic displacement' that occurs as a function of history being narrated through parts of the local geography rendered apolitical or purely functional. Here, there is an abstraction or "disconnect [of] the meaning of the name from its original historical referent" (p. 463). In two respects, this is not surprising. First, place and street names are commonly perceived as empty signifiers vacated of historical signification (or most meaning). Second, these names and narrative figures remembered through them are frequently protected from critique by virtue of the aforementioned emptying of signification and the power of nationalising and colonial narratives in Canada that circulate as banal features of everyday historical, political, and curricular imaginaries (Billig, 1995; Stanley, 2009). Further, as Rose-Redwood and Alderman (2011) argue, even "critical place-name scholars have typically focused on the most dramatic political conflicts over place naming while ignoring those namescapes that present themselves as apparently beyond contestation due to their utter banality" (p. 3).

This is not to suggest that street and place names are immune to critique or simply accepted; as some scholars note, there are sometimes vigorous debates over naming practices in community contexts including the scalar dimensions of that very naming and whether they are acknowledged in practice to begin with (Alderman, 2003; Yeoh, 1992). As recent events demonstrate, critical discussions about street names are now surging into visibility following the killing of George Floyd and the galvanization of the Black Lives Matter movement. In Toronto, where this study took place, political calls for understanding how systemic racism, settler hegemony, and white supremacy are embedded in city naming practices and commemorative policies have recently precipitated rapid, if still unresolved, responses from the City of Toronto (see [City of Toronto Website Press Release](#), July 12, 2020). At the same time, the proliferation of digital maps, particularly in their common instrumental uses, has helped to ensure that street-naming continues to work as a taken-for-granted organising text of space.

### ***Critical Remix as Cartographic Intervention***

If maps pervade our digital everyday, and maps make arguments, how might students critically engage the histories and narratives told with and through those digital media? And how might students investigate their own communities and even come to re-map – or develop counternarratives to – dominant city-texts?

As one means of exploring the gaps between perceptions of maps as authoritative, objective representations and an awareness of maps as authored texts open to negotiation and redesign, we looked to a tradition of critical remix practices as models for re-mapping. These practices go back to 20<sup>th</sup> century artistic movements that leveraged critical juxtaposition, photomontage and 'detournement' techniques as a means of disrupting rationalized systems of visual representation and urban organization, as well as the ideologies and narratives those systems implicitly reified (Foster,

1996; Bürger, 1974). As other educational researchers assert, critical remix practices help ‘uncover’ dominant ideologies and, under conditions where students are the makers, remix literacies can position students to critically challenge dominant and normalizing systems of media communication (Jocson, 2013; Darts, 2004).

Helpfully, Rancière (2009) clarifies the critical mechanic of these aesthetic techniques as one that “involves organizing a clash, presenting the strangeness of the familiar, in order to reveal a different order of measurement that is only uncovered by the violence of a [juxtapositional] conflict” (p. 57). For Rancière, new meanings and counternarratives are constructed through the aesthetic yoking of one image to another incongruous or contradictory image, a coupling of heterogenous elements generative of a critical illumination. As Rancière (2009) states, the aesthetic and rhetorical power of these ‘dialectical images’ inaugurates a “collision which reveals the secret of a world – that is, the other world whose writ runs behind its anodyne or glorious appearances...[W]hat is involved is revealing one world behind another” (p. 56).

The dialectical image, as such, functions ideally in cartographic contexts to reveal, through critical montage and layering techniques, the gaps, tensions and elisions standing between official maps and what is seeable materially, culturally, and historically ‘from below’ (Haraway 1988). By showing what has been subjugated or excluded through geographic abstraction, as well as through the idealized forms of monumental history that populate our ‘city-texts,’ the dialectical image can work as a kind of critical palimpsest, bringing into view that which has been excluded or ‘forgotten’. In the work of Indigenous artist Edgar Heap of Birds, for example, he employed juxtaposition techniques by mobilizing toponyms and signage as artistic interventions to display Indigenous names and histories upon colonized territories (Foster, 1996). Through sign-work that reminds us of ‘who is hosting who,’ the critical technique signals that the land that ‘hosts us’ is Indigenous land: the conflict generated by the collision of Indigenous names and settler toponyms forced into visibility a mode of critical ‘land acknowledgement’ decades before the currency of such formal acknowledgment practices today.

Similarly, media artists like Kszystof Wodiczko project images of injustice over colonial monuments to signal gaps between democratic ideals and social actualities, and organizations like the Aboriginal Mapping Network (AMN) have mobilized mapping tools to organize a ‘clash’ between official state maps and competing Indigenous land claims. Elsewhere, the work of Peluso (2005) describes how, in Indonesia, local and Indigenous actors “used cartographic media in attempts to re-map...traditional forest areas subsumed by international organisations and external claimants” (Alonso et al., 2015, p. 143). In each of these artistic or political examples, the dialectical image, as it were, is leveraged to *co-map* contradictory elements to reveal ‘one world behind another.’ This technique – and these uses of visualization and mapping technologies – bring into view those names, rights, claims and subjugated knowledges that have been obscured by the settler histories embroidered into our everyday city-texts. Indeed, digital mapping tools have been recently repurposed to challenge settler epistemologies, and digital mapping is an ongoing site for Indigenous struggles and the enactment of Indigenous epistemologies (McGurk and Caquard, 2020; Hunt and Stevenson, 2017; Uluocha, 2015).

While maps have historically operated in concert with colonization and empire, we too see critical opportunities for working with digital maps to pose questions such as: whose stories and perspectives are being cartographically represented, and whose stories are being excluded? And who or what is rendered (in)visible in relation to both the histories of the past and in relation to a city's diverse cultural present and future? Our work to engage pre-service teachers in exploring these questions, and re-working and re-imagining maps, is discussed in the next section.

## **The Study**

### ***Participants and Project***

Participants were recruited from a new media literacies course for pre-service teachers in a faculty of education in Canada; the course is mandatory for all students seeking certification at intermediate/senior levels (grades 7 through 12). One of the article's authors taught the course, and the re/map project was integrated into the syllabus. To scaffold the project, pre-service teachers were introduced to multiliteracies (Cope and Kalantzis, 2009), digital remix (Jocson, 2013) and multimodal digital storytelling practices (Lotherington and Jenson, 2011). Pre-service teachers were also assigned an article about 'the city-text' (Smith, 2018), as well as a reading on inquiry-driven learning (Thumlert, 2018). These latter readings introduced pre-service teachers to the concept of the 'city-text,' and provided a point of departure for pre-service teachers to consider and enact place-based inquiry-driven pedagogies utilizing mobile devices.

To build a practical foundation, pre-service teachers were also given opportunities to create with new media tools (video works, digital games, graphic narratives, interactive *iBooks*, and websites) as part of the course. Pre-service teachers had the choice to work either alone or in small groups, although with the exception of one group project, all who participated in this study elected to work independently. Altogether, 16 pre-service teachers (11 female, 5 male) agreed to have their 13 re-mapping projects included as part of this study. Of those sixteen participants, seven pre-service teachers agreed to be interviewed after the course was complete by a research assistant (who remained arms-length from course delivery and marking). Though we did not solicit demographic data, the study participants were racially diverse and reflected the diversity of the broader university community, where many students and pre-service teachers are the children of immigrants or immigrants themselves.

The re-mapping assignment consisted of three phases. First, pre-service teachers selected a site/community of significance or interest to them and were asked to use digital mapping media to identify place-names (toponymic/odonymic) and other features of the community (e.g., memorials, names of institutions, or other commemorative elements encoded in maps) and to research those salient toponyms or map features. Pre-service teachers were provided with a digital mapping tool (custom-developed by one of the authors, Bryan Smith) that allowed them to mark-up digital maps with drawing and text tools. Second, to add an additional layer, and to begin to story place themselves,

pre-service teachers engaged in place-based inquiry, looking for material, symbolic, and cultural features encountered ‘on the ground’: street art, graffiti, or any local material and cultural expressions of community, as well as any markers of Indigenous culture/history, if present. After documenting these encounters using mobile devices and/or the mapping tool, they were asked to identify tensions or differences between the toponymic features of the ‘city-text’ identified in phase one, and what they experienced as they moved through the material, semiotic, and symbolic features of place/community. Third, pre-service teachers were invited to present their findings and/or stories using a media form/tool of their choice. Final products (bringing together curated images, video clips, original photographs, interview data, fields notes, audio recordings, etcetera) took the form mostly of multimedia iBooks (*iBook Author*), websites and short documentary films. Students were also challenged to mobilize critical remix and/or juxtaposition techniques that might reflect contrasting experiences of place during their inquiry, including highlighting the relationships, conflicts and gaps between official digital maps and their on-the-ground research.

Peluso (2005) reminds us, however, of the risks associated with using mapping tools, particularly if, when and where they reproduce (Western) epistemological assumptions about space, place, boundaries/borders, land(use), and property. To address this concern, the instructor signaled that student re/map projects could deviate from traditional ‘scientific’ mapping practices and employ artistic means that, as Wood and Krygier (2009) put it, “point toward worlds other than those mapped by professional mapmakers” (p. 344). Students were thus briefly introduced to multimodal forms of mapmaking like sound mapping (Droumeva, 2017) and aroma mapping (Henshaw, 2013; Henshaw et al., 2016), and the use of mapping media for arts-based and narrative inquiry.

### ***Data Sources and Analysis***

Data consisted of pre-service teachers' final project artefacts and interviews. Again, students were only informed about the study and invited to participate after the course was complete, with interviews conducted during the succeeding semester break. We elected to thematically code artefacts and interview data based on how study participants engaged challenges and enacted their projects, with special attention given to modes of inquiry utilized; understandings of maps as rhetorical systems; and if or how participants used media in ways that complicated, ‘remixed’ and/or ‘remapped’ representations of place or community. Interviews and artefacts were independently coded by two of the authors to ensure inter-coder reliability. Participants were individually interviewed about their projects, with interview questions developed out of course themes and research questions. During semi-structured interviews, participants were asked by the research assistant to ‘walk us through’ their re/map projects, including their rationale for selecting particular sites, and what and how they learned about their communities, and if/how critical re-mix techniques emerged. We also asked participants to reflect on the process of their learning, inquiry and making with any possible pedagogical insights for their own teaching futures.

### **Findings and Analysis**



Below, we first outline our findings thematically, cross-referencing artefact analysis with participant interview data. We focus on a diverse set of projects that characterize how participants uniquely enacted re-mapping processes, how they re-imagined city spaces/places through place-based research and critical remix techniques, combining descriptions and analysis of project artefacts with interview data (when part of the data set).

### ***Historical Re/Figuring and Critical Remix***

In a digital iBook project that most explicitly enacted re-map themes examined during the course, three participants ‘reimagined the city-text’<sup>1</sup> within and around Ryerson University’s downtown Toronto campus. To provide context, the participants first explained that the university is named after Egerton Ryerson, an advocate for public education in Ontario, as well as the Canadian residential schooling system, a system of schools designed to enculturate Indigenous children, systematically and violently, as part of settler work to erase Indigenous people and cultures from stolen lands. The multimodal book was framed with an inquiry question: whether namescapes surrounding the university were representative of Toronto’s past, present and future. This question was addressed through the book using a juxtaposition technique, where dominant and non-dominant histories (marginalized histories and/or counter-narratives to dominant settler toponyms), were placed on facing sides of the two-page iBook spread. For instance, the participants researched the backstory of Jarvis street (William and Samuel Jarvis were apologists for slavery), and ‘re/mapped Jarvis street’ to commemorate an escaped slave, Henry Lewis, to recognize the “the atrocities of slave-owners like Jarvis.” Similarly, Gerrard street is juxtaposed against [Nuzhath] Leedham street, which was added by participants to “acknowledge both women and South Asian [immigrant populations] who are severely underrepresented in Toronto street names.” In relation to the Black Lives Matter movement, this historical work by pre-service teachers anticipated now emerging discussions in Toronto about commemoration and naming policies energized by recent political calls and public petitions to reassess or rename city assets.

Interestingly, the participants also mobilized aroma-mapping techniques as one means of multimodal inquiry. Alongside conventional modes of visual analysis (using maps, digital photos, curated historical images), they contrasted the aromatic experiences on Ryerson University’s campus with the more culturally and economically complex aromas encountered in areas abutting the University grounds. In contrast with the “cafeteria and coffee shop smells...that embody student life,” they wrote of a “noticeable feeling of leaving the security of the campus through changes of smell” – aromas that were on the one hand ‘unwelcoming,’ signaling ‘economic dichotomies,’ as well as the more ‘inviting, irresistible’ aromas from off-campus restaurants representing diverse communities.

Campus memorials bearing settler names were also contrasted with more recent symbols of self-representation signalled through the inclusion of graffiti art and street murals expressive of local cultures. For the participants, this work of juxtaposition was a means of disrupting the institutional

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<sup>1</sup> Unless otherwise indicated, quoted text in this section are from pre-service teacher (participant) projects.

space. As they wrote in their iBook, “[we wanted to] fully re-imagine the city-text around the campus...[and] re-mix a map...that considers communities and cultures who have not had equal opportunity in naming their own city-texts,” and also, “to re-imagine what [the streets] might be named if they were new streets, at the moment.”

In another project, the participant created a video that juxtaposed current efforts to re-name monuments or public spaces in Toronto with similar postcolonial efforts to do the same in the participant’s home country of South Africa. This work used a different kind of remix/montage technique, juxtaposing decolonizing efforts in Canada with similar decolonizing efforts in South Africa. Some examples included struggles over naming streets and public institutions. Using the Mohawk (and Iroquois Confederacy) toponym for Toronto (*Tkaranto*) as a starting point, the video critiques the erasure of Indigenous histories through naming practices that honour settler-colonial narratives in Toronto and those that celebrate individuals who were most directly involved in the residential school system and related efforts to eradicate Indigenous language and cultures. The participant then presents contemporary controversies surrounding efforts to dismantle or rename such monuments: the Sir John A. MacDonald memorial at Queens Park Crescent in Toronto is situated in relation to monuments in South Africa dedicated to Cecil Rhodes. In the video, the viewer is presented with layers of visual meaning (e.g., images of maps pinpointing sites of struggle, headlines from newspapers and curated video clips signalling recent protests over commemoration, with one protest poster in the video reading: *all Rhodes lead to the colonization of the mind*) alongside the use of map mark-up techniques that signaled the settler claims for space, or, in the case of Cape Town, names associated with anti-colonialist movements. Through dramatic critical montage work, and without voice-over, the participant creatively highlighted sites of struggle and contested normative colonial geographies along with the layering of colonial histories over the landscape and the work being done, in distinct ways, across former settler-colonies to disrupt dominant narratives.

### ***Disrupting Deficit Portrayals of Community***

Challenging the reification of dominant narratives was echoed in third project, which examined an urban community, Jane and Finch. This neighbourhood has historically been represented in the Toronto media as a place of poverty, crime, and violence. Here, the participant took the opportunity to explore the community and provide glimpses of everyday life documented during his walks to a community practicum placement: “what is fascinating is that the cultural significance of Jane and Finch is completely invisible on a map, and the Elia region [the name of the neighbourhood in which Jane and Finch community is situated] contains history and knowledge that isn’t found on any official documents.” This includes signage that states this space “was originally grounds of the Hurons and the Wendats,” (an acknowledgement of Indigenous lands but a temporal displacement, via past tense language, that denies this possibility in the present). In this project, the participant documents multiple forms of community self-representation (murals, street art, graffiti and clothing) which often contest deficit-driven media narratives that ‘brand’ the area, as well as challenge state and commercial efforts to ‘re-brand’ the area (as University Heights). In reference to toponyms, the participant writes that

there is “a random amalgamation of [street] names and yet no representation of the new immigrant population that dominates the area...including 80 ethnic/cultural groups...speaking 112 different languages.” At the same time, he notes that what is most clearly present on digital maps is the iconography of business (e.g., Starbucks), a reminder of how corporate mapping tools (e.g. Google) authorize themselves to redefine the visual-textual features of community under the sign of commerce, while the state conserves the historical dimensions of the city-text.

### ***Immigrant Histories and in/outside of Re/Mapped Spaces***

Exploring immigrant histories, one participant (using *iBook Author*) created interactive maps of Toronto’s ‘Little India,’ integrating her video interviews with local merchants, photographic documentation, and audio commentary files embedded into map images. The participant examined the history of the district, the changing cultural and demographic features, as well as the erosion of community identity and the displacement of immigrant families caused by urban gentrification. The participant punctuates her findings by citing the work of Toronto-based researchers (Bauder and Suorineni, 2010), arguing that “gentrification has led to rising real estate values, declining immigrant populations, displaced ethnic businesses, and decreasing levels of social diversity and interaction.” The participant takes issue with current states of affairs by way of historical research, displaying archival street-posters that evidence efforts by the South Asian community to combat ‘racial tensions’ in the 1970s and 1980s and establish community identity. However, under recent conditions of gentrification, the participant chronicles her own experience of feeling like a racialized ‘outsider’ within the increasingly white/middle-class landscape of this rapidly changing neighborhood. The participant writes that “money is moving the map of Little India” and, in this context, she concludes by calling for “inclusion rather than the displacement [of minority cultures].” Salient in this artefact was the participant’s effort to connect academic research with site-based inquiry using field notes, interviews, and photos to document street-level experience.

For this participant, re-mixing the map allowed for her to draw attention to sites of historical significance; during her interview, she explains why she put the center-pin of her map on a local community center as a ‘remix’ strategy:

this is actually a place that is invested in bridging cultures, peoples, bodies...instead of leaving people behind or pushing people out. So yeah, since they’re going to be a part of the change, the revolution, whatever, I made them the center. So that’s kind of how it made sense in my mind. That’s how I worked through the remapping.

As a result of this work, the participant came to appreciate the banality of mapped knowledge and power relations through the representational work of the map. In her interview, she reflected, “I really learned that what we think is very objective in how maps are drawn...that’s often an illusion. There are power dynamics and valuing assumptions that go into drawing any map.”

Moving outside of the city proper, a participant-produced documentary video used a mode of inquiry patterned after *Anthony Bourdain: Parts Unknown*. The participant visited what he identified as five ‘immigrant bakeries’ established within the respective five wards of the city Vaughan (a city on the northern edge of Toronto) and showed how present cultural diversity, as well as Indigenous histories, are obscured through ‘official’ cartographic ‘abstraction.’ The participant begins by describing the toponymy and history of the city, suggesting that it was “populated at one time by Huron peoples but now named after a British settler,” a similar practice of temporal displacement via past-tense language seen earlier that positions Indigenous peoples as contained to the past, a displacement followed by a recognition that the current space becomes a default commemoration of colonial settlement. In so doing, the pre-service teacher denies Indigenous peoples a *present* place in this space, but he also acknowledges that the name embedded in the city-text is a larger act of symbolic denial.

In the video, the bakeries visited are framed as ‘cultural hubs’ within each particular ward, and indicative of various immigration waves that have influenced the cultural development of Vaughan, and continue to characterize the area. The participant notes that approximately half of the population of Vaughan identify as immigrants in some way (either directly or through recent familial history). In the video, the participant samples food items emblematic of the cultural heritage/ethnicity of the areas represented in different districts’ bakeries. The participant describes the shops’ items while simultaneously exploring tensions between official toponyms on maps and the cultural diversity of respective immigrant communities. He uses archival images, maps and voice-over work to juxtapose the cultural significance of the bakeries as unique cultural/linguistic artifacts against largely British street/place names, which characterizes the official ‘city-text’ of each ward. For this pre-service teacher, through making contrasting cultural and historical strata visible, his remix technique:

add[ed] an emotional layer, to some extent, in the sense that you get to see the people who frequent these spaces and what that means for them...With official maps, they don’t necessarily show you the affect of the city. You aren’t able to see what these spaces mean for individuals.

At one point in the video, he recognizes the limitations of digital maps with respect to representing diversity:

the efforts of the families [bakery owners] are not appreciated within the official history of the community...Being situated on a street named after a British regent, and locatable by a number [on a map], an actualization of a Cartesian plane, neglects to showcase the diversity of the community. [This] raises questions about how we as a society effectively commemorate the past and appreciate the present...

At the conclusion of this video work – a video collage using dissolve techniques – he overlays three discrete map layers to create a visual palimpsest, with one map made out of images of sampled bakery items layered over by a traditional/official map of the region, with a dissolve to a third map layer: a

collage of flags representing the immigrant communities in each ward. During the interview, this participant stated that even this kind of counter-narrative work felt ‘frustrating’ in terms of what might be represented:

When I did this project there was a bit of a conflict because, yes, it’s nice to show that diversity, but you have to remember that there’s diversity behind that diversity. I’m giving these examples, but at the same time, there’s so much more happening.

Significantly, the participant acknowledges his own textual abstractions, a moment of self-aware reflection that illuminates how multicultural discourses in education often fail to apprehend the systemic complexities and power-relations involved in meaningful diversity work. Paradoxically, however, the use of food as markers of cultural identity also risks a ‘contributions approach’ to multicultural inclusion (Banks, 2004), just as it may reify the presumed (near) absence of Indigenous peoples. Nonetheless, the participant’s interrogation of multiculturalism’s representational limits should be lauded, particularly in a Canadian context where multicultural education often works to paint an unproblematized picture of harmonious inclusion.

### ***Defamiliarizing the City-Text and Remembrance***

Another participant engaged in a rather thorough place-based investigation of Richmond Hill, moving further away from the City of Toronto. She populated the pages of her iBook with her own video documents, photographs and place-based audio commentary. She notes how space, culture, race and identity are interwoven with economics/zoning and urban planning, identifying where “spaces and structures of current marginalization” are in play. The participant concludes that the dominant thoroughfare, Yonge Street, is emblematic of the ‘new face’ of the neighbourhood, ‘hid[ing] marginalized’ spaces and social struggles which are displaced to more remote side-streets, a pattern common to many North American cities where there is an over-representation of settler commemorations in the city-text that, further, results in a marginalisation and displacement of Indigenous and non-Indigenous, non-white toponyms (Casagrande, 2013). Other participants addressed other problems of naming and representation, including matters of toponymic/odonymic scale and hierarchy, as well the how an urban municipal mural project nostalgically revivifies an idyllic settler past in contrast with present community diversity.

For other participants, re-mapping work emerged as a process of disrupting maps and city-texts through multimodal work and use of sound recordings. One participant used website software to create a dynamic map that explored eight historic ‘landmark’ sites of Toronto. Here, the participant created an interactive website map with the street names removed and coloured pins placed in the spots where each landmark is located. By removing street names on this interactive map, other modes of experience become apprehendable: when a pin is selected by the reader, a video consisting of historical images is at times juxtaposed with street sounds (audio clips recorded by the participant), and the participant provides historical background for each site, including the historical significance

of spaces, the process the site went through to be designated a historical landmark, and contemporary uses of each space. Stories of immigration within the project are noted (most prominently in the participant's treatment of Kensington Market as a space continually reshaped by immigrant populations). Reflecting on her rationale for using recorded audio-clips of street sounds in her interactive map, she reported: "Kensington Market...I wanted to capture the multilingualism of that place...I think being there, you really get a feel for the different cultures. You have Portuguese [language] on one side, Chinese on the other, and so I kind of wanted to capture that [using audio files]."

While not common to every project or interview, one emergent theme was that many participants were coming to simultaneously perceive conflicting/contrasting past(s) and present(s), and even possible futures, playing out in their project work.

### ***Pedagogical Reflections***

Interviews offered an opportunity for pre-service teachers to reflect on the projects and make connections between the process of re-mapping and their own (future) teaching practice. Most of the participants highlighted the opportunities of inquiry-driven learning in their interviews, and reflected on how the open-endedness of the project allowed for a wider range of creative approaches to place-based exploration and technology use.

Some pre-service teachers were able to make further connections between the assumptions made about maps and those made about teaching and learning. Resisting the idea of maps as objective entities, several pre-service teachers noted aspects of curriculum that are frequently embraced as neutral or objective and reflected on how to push back against this curriculum - and its related silences and exclusions - in their teaching practice. In some cases, participants commented on the exclusion of immigrant and racialized populations from both city-texts and curricula while some also read their work through their understandings of the *Truth and Reconciliation Commission* and Indigenous exclusion from place. Here, the participants identified the exclusion of Indigenous histories and commemorative artefacts within institutional spaces:

[Beyond the official plaques and monuments on the University campus] we saw that there was very little [Indigenous] representation, or maybe [none] at all, so we definitely need to shift our mindset...

Two other participants acknowledged the ways place-based inquiry projects help learners take notice of the communities in which they live, and begin to question the self-evidence of our mundane city-texts:

it opens up more of an inquiry learning [process], based on observation and exploration. We may walk past the same areas and monuments all the time, but never really know why they

were initially created...Learning more about the culture and the history of a certain area...encourages [students] to research further and raise awareness of the social issues that they might discover.

[You ask yourself,] you know these monuments, why are they there? What is their significance? Even how we are situating ourselves in our community...There's so much to learn...it can cross so many subjects... it's a lot more interesting for students because they love to learn about themselves and the situations they find themselves in.

While pre-service teachers situated/positioned themselves to varying degrees within the context of their inquiry, those who took extra steps to understand how their unique identities and location shaped their approach to the project could more easily identify the tensions and contradictions that exist between official representations of place and the communities who actually inhabit the spaces they explored. One participant noted that positionality is integral to critical work in education:

I liked the whole idea of [a] decolonizing focus. If that's the lens, students should be encouraged, and try at some point, to position themselves in their work. I think the majority of us ended up doing that anyway, but I don't know. And if the lens is a decolonizing one then there has to be positionality. That moment [of] reflection where we are thinking back on...to what extent was my decision, however big or small, impacted by the position that I hold? And the space that I hold?

### ***Reflections on open-ended inquiry and 'cool frustration'***

A number of pre-service teachers highlighted 'frustration' as a significant element of their learning. Frustration occurred for participants on two levels: frustration working with the digital tools and with the inquiry-process, as well as how to best (re)tell stories about place, or adequately represent the complexity of community (as examined above). Significantly, participants often stated that there are not enough opportunities to be creative in mainstream schooling due to time pressures and increased limitations associated with meeting content-driven curricular outcomes. Both a cause of frustration and a valued opportunity, the open-endedness of the re-mapping project was seen as a valued part of participants' learning:

some of us were at first intimidated by that openness because it's like, it's too open. Give me specific instructions. But we needed the openness; I couldn't even have done what I did without that openness, and I would have felt restricted otherwise, right?

Others participants addressed more complex experiences of frustration: the participant who spoke to themes of positionality, above, chose to conduct her re-mapping work in the neighbourhood (Little India) where her community teaching placement was located. She reflected, positively, on 'the frustrations' that came with attempting to narrate her experiences as an 'outsider' to the community.

Further, she connected this experience of frustration to teaching as a whole, and specifically teaching in urban contexts where diversity is the rule.

It was good to have dealt with and toyed with the frustrations that I [had] myself, because I think that is largely indicative of the teaching process in general. That we do have to position ourselves in our work...oftentimes there's a great deal of objectivity to mapping, and it seems like there's a great deal with objectivity to teaching, [but] that's absolutely not the case. And it's a trap really to think otherwise.

These latter comments show how some participants were not only able to use the project to critique digital maps, but also consider the pedagogical places they might find themselves within. Despite (or perhaps because of) the many 'frustrations' encountered, many pre-service teachers came to see the pedagogies enacted – and the idiosyncratic use of technology tools – to stand as challenges to standardized forms of teaching and learning.

### ***Tensions between critique and description***

In some of the projects we analyzed (not included above), 'description' and more 'touristic' narratives of place dominated. Two projects (websites) and one technically polished video work provided more survey-like overviews of communities in Toronto, with archival images, historical information and descriptive statements presented in a more traditional report-like format. Given the fact the re/map project was purposively open-ended, it was not surprising that some participants did not enact meaningful critical orientations. Yet, given the scaffolding that was offered, it should be noted that some of the pre-service teachers continued to struggle with critique, which is further suggestive of the continual work that is required to engage visualization media critically. At the same time, many pre-service teachers came to see the pedagogies enacted – and the idiosyncratic, purpose-driven use of technology tools – to stand as challenges to standardized forms of education: the exclusionary curricular forms, pre-mapped content, and narrow assessment systems that regulate what counts as knowledge in schools.

### **Conclusion**

In this article, we examined just one way pre-service teachers might question the taken-for-granted nature of digital maps and to develop critical and creative agency in re-imagining place. As evidenced in our analysis of project artefacts and interviews, it was clear that, through re-mapping, many pre-service teachers were able to identify gaps and tensions between digital maps and lived worlds, between the dominant 'city-text' and concrete experience on the ground. Most pre-service teachers engaged in extensive place-based inquiry, evidenced by their modes of inquiry: use of field notes, original photos/video documents, interviews with local actors, and/or footage of themselves situationally engaged in place-based inquiry. This enabled teacher candidates to position themselves in their respective sites and to, as Haraway (1988) puts it, begin to see and experience 'from below.'



While these projects explored very different urban and suburban communities in Toronto, what emerged in our analysis was a unifying thread about how the city-text not only affirms and reifies dominant/settler toponyms and commemorative artefacts, but also overwrites other histories, voices and artefacts, both constituting an abstract/normative ‘us’ which, in turn, enables ‘us’ to ‘forget.’ In a number of the project works, and in some interviews, participants made explicit reference to how this kind of inquiry work defamiliarized the official city-text, enabling them to critically ‘re-see,’ for the first time, the communities they (had) lived in or regularly frequented. Speaking to current worldwide Black Lives Matter movements and renewed calls to combat racism and systemic inequalities in educational institutions, as well as fresh demands to meaningfully address Indigenous histories and futures, this pedagogical research may model a timely intervention in relation to rethinking technology-based pedagogies in actively critical, inclusive, and creative keys. As we learned, providing alternative models and epistemologies for thinking about, looking at, and critically working with maps may help teachers and students avoid reiterating Western/colonial cartographic epistemologies or reverting to ‘touristic’ or otherwise problematic curricular practices.

What emerged as among the most significant pedagogical finding was not simply the enactment of critical literacies, or the production of ‘counter-hegemonic’ media (Kellner, 2007), but the fact that significant critical work required much more than engaging with classroom-based texts, online resources, or screen-based representations. Overall, the pre-service teachers who most deeply engaged in place-based, ‘embodied inquiry’ (Doerr-Stevens, 2017) were also most likely to bring into relief tensions between dominant narratives freighted into map-based media and the cultural particularities of the communities they explored. They were also most likely to position themselves, as authors, within their own research and counter-maps, and to perceive the ‘frustrations’ of inquiry and creative making as generative of unexpected insights.

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