Institutional logics and Indigenous research sovereignty in Canada, the United States, Australia, and New Zealand

Claudia Díaz Ríos, Banting Postdoctoral Fellow, Ontario Institute for Studies in Education (OISE) at the University of Toronto, 252 Bloor Street West, Toronto, ON M5S 1V6 CANADA, (416) 978-0005, claudia.diazrios@utoronto.ca Twitter: cmdiazr; ORCiD: https://orcid.org/0000-0003-0149-7971 (*corresponding author*)

Michelle L. Dion, Associate Professor, Political Science, McMaster University, 1280 Main Street West, Hamilton, ON L8S 4L8 CANADA, (905) 525-9140, dionm@mcmaster.ca. Twitter: michelledion; ORCiD: https://orcid.org/0000-0002-0899-4009

Kelsey Leonard, Doctoral Candidate, Political Science, McMaster University, 1280 Main Street West, Hamilton, ON L8S 4L8 CANADA, (905) 525-9140, leonardk@mcmaster.ca. Twitter: KelseyTLeonard

Biographies:
 Claudia Díaz Ríos holds a PhD in political science from McMaster University. She is currently a Banting Postdoctoral Fellow at the Ontario Institute for Studies on Education, University of Toronto. Dr. Díaz Ríos studies the globalization of education policy and its effects on social inequality.
 Michelle L. Dion is Associate Professor in the Department of Political Science at McMaster University where she specializes in comparative politics, policy, and research methodology. She has published on the political economy of social policy and the politics of sexuality in Latin America as well as methodology and gender issues in the political science community and discipline.
 Kelsey Leonard is a PhD candidate in Comparative Public Policy in the Department of Political Science at McMaster University where she focuses on Indigenous water security and its climatic, territorial, and governance underpinnings. She is McMaster University's Philomathia Trillium Scholar in Water Policy. She holds an A.B. in Sociology and Anthropology with honors from Harvard University, a MSc in Water Science, Policy and Management from the University of Oxford, and a J.D. from Duquesne University. Kelsey is an enrolled citizen of the Shinnecock Indian Nation.

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The institutional logics of Western academic research often conflict with the epistemologies and goals of Indigenous peoples. Research sovereignty is a right but still an aspiration for many Indigenous peoples. National funding agencies and Western universities have sought to resolve these conflicts through various institutional and organizational settlements. We combined a systematic literature search with critical content analysis and synthesis to compare the prospect for Indigenous research sovereignty in Australia, Canada, the United States, and New Zealand. Our comparison of the strategies used to resolve conflicts between competing institutional logics highlights the limitations of segmentation and segregation as well as other barriers to truly blended, or reconciled, institutional logics in colonial government and Western university research institutions and organizations.

Keywords: Indigenous research; ethics; institutions; Australia; Canada, New Zealand; United States; Indigenous sovereignty; research funding

Introduction

Although diverse across disciplines and countries, Western science relies upon institutional logics that privilege investigation of an objective reality through procedures accepted by the scientific community, such as empirical demonstration, replicability, falsification of results, validity, neutrality, and generalizability (Steinmetz 2005). These logics shape researcher roles and how universities assess scientific authority and legitimacy. Freedom to pursue research and scientific progress, individual discovery, and disclosure of findings in publications validated by peers based on scientific criteria are values and practices central to academic prestige and to access material resources necessary for research (Bourdieu 1975). Yet, as Smith (2012, 1) points out, 'research' is one of the dirtiest words used by the West in conversation with Indigenous Peoples. Western social science research has been a tool of colonialism, neglecting Indigenous perspectives in research goals and research designs, ignoring diversity and contributions of Indigenous

Peoples to knowledge production, and decontextualizing Indigenous knowledge (Battiste, Bell, and Findlay 2002; Battiste 2008; Kovach 2016; L. T. Smith, Tuck, and Yang 2018). However, the right to self-determination of Indigenous Peoples (United Nations 2011) implies research sovereignty whereby Indigenous groups set terms of conduct for research affecting them and participate as equal partners (Harding et al. 2012).

In pursuit of research sovereignty, Indigenous communities and scholars promote decolonization of research practices (Denzin, Lincoln, and Smith 2008; Smith 2012; Battiste 2008). Decolonizing research involves the use of Indigenous epistemologies and methodologies and inclusion of Indigenous researchers so that Indigenous worldviews are valued alongside Western dominant paradigms (Wilson 2001; Chilisa 2012). While varied across communities, Indigenous worldviews are typically based on a relational ontology in which knowledge is not individually produced or possessed but co-created and shared within the relational dynamic between self, others, and creation (Kovach 2010). This ontology diverges from Western perspectives of knowledge as a product of individuals based on objective observations. In this way, Indigenous epistemologies challenge Western academic institutional logics of reliability, validity, and generalizability and replace them with a "relational accountability" that ensures that research participants take care of each other, use specific "ways of knowing, being and doing" that acknowledge Indigenous knowledge, and privilege Indigenous voices (Wilson 2001; K. Martin and Mirraboopa 2003).

Tensions between Western academic values and practices and Indigenous demands for research sovereignty reflect conflicting institutional logics, or socially constructed assumptions, values, beliefs, formal rules or regulations, and cognitive structures that shape individual and organizational behavior (see Thorton and Ocasio 2008). Individuals and

organizations, like funding agencies, governments, non-governmental organizations (NGOs), and universities, conform to institutional logics given the legitimacy conveyed upon complying actors (DiMaggio and Powell 1983). Individuals and organizations create formal (e.g., regulations, policies) and informal (e.g., norms, values, practices) institutions, which then influence or shape decisions and actions of individuals and organizations (e.g., allocation of resources, research activities). Normally, this dynamic, or institutional logic, creates self-reinforcing institutional stability.

Yet, if new logics conflict with existing ones, actors re-interpret and combine old and new logics in ways that are not always consistent, reproducing conflict (Thorton and Ocasio 2008). Organizations often change their institutions or organizational structures to address and resolve conflicts among competing institutional logics, resulting in new organizational settlements (Schildt and Perkmann 2017, 140). These ideas resonate with Nakata's explanations of how actors filter and produce new understandings to preserve their identity when conflicting Western and Indigenous institutions, organizations, knowledge, and social practices converge (Nakata 2007; G. Martin et al. 2017).

Organizational settlements may include several new configurations of institutions and organizations. First, *segmented* organizations and institutions occur when new logics are restricted to a specialized subunit or set of rules, and organizations are differentiated or compartmentalized (Skelcher and Smith 2015, 441; Schildt and Perkmann 2017, 141; Kraatz and Block 2008, 250). Second, organizational *segregation* occurs when competing logics exist within separate, but linked, organizations (Skelcher and Smith 2015, 441). Segregated organizations may promote different, potentially competing institutions, or rules and norms (Wallace 2007, 110). Third, organizations may incorporate aspects of the new institutional logic into the original, or "mainstream", activities of the organization in a form

of organizational *assimilation* (Skelcher and Smith 2015, 441–42), which is similar to structural blending (Schildt and Perkmann 2017, 141). In those cases, institutions may incorporate principles from the new logic throughout the organization, but compliance with the new logics may be symbolic while the organization still largely operates under the original logic (Skelcher and Smith 2015, 442). Finally, blended organizations integrate competing logics, creating a hybrid equally reflecting multiple logics (Skelcher and Smith 2015).

Based on a systematic literature search and critical synthesis, this article examines how conflicting institutional logics complicate fulfillment of the ethical commitment to decolonizing research involving Indigenous Peoples in Canada, Australia, New Zealand and the United States (US). All four countries use ethical guidelines to regulate and oversee research with Indigenous individuals and communities but have difficulties accommodating Indigenous ways of knowing in research organizations. Our findings suggest that organizational responses to conflicts between Western academic institutional logics and Indigenous epistemologies and methodologies include segmentation, segregation and assimilation. While there is some progress towards the acknowledgement of Indigenous research sovereignty and Indigenous scholars have suggested innovative decolonizing research approaches (Chilisa 2012; Nakata 2007; Smith 2012), organizations have not yet balanced or blended conflicting pressures in a cooperative and equal way (Skelcher and Smith 2015, 442; Kraatz and Block 2008, 251).

Materials and methods

We compare Canada, Australia, New Zealand and the US because all have similar, well-

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developed national research funding agencies and post-secondary educational systems that are the locus of nearly all social science research and share similar organizational and institutional principles, including policies regulating the research enterprise and protections for academic freedom (e.g., systems of tenure). However, they also have histories of colonialism, including mistreatment of Indigenous Peoples as research subjects (Mosby 2013; Hodge 2012; Iacovino 2010; Smith 2012). Indigenous Peoples in these countries also assert their rights to research sovereignty.

Data collection began with a systematic literature search. Systematic literature reviews allow researchers to integrate the findings of different studies and develop new ways to understand and answer a research question (Gough, Oliver, and Thomas 2012). We conducted this review with the purpose of identifying patterns in ways research institutions and organizations across countries reconcile conflicts between Indigenous and Western social scientific logics. We include documents that describe, study, discuss, or assess the following domains in each country: 1) formal and informal institutions that regulate the ethics of research involving Indigenous Peoples and 2) how higher education organizations incorporate Indigenous perspectives in knowledge production. Documents were identified by Boolean searches in three databases: Web of Science, Ebsco, and ProQuest. Hand searching was employed to locate grey literature from government, university, research, and Indigenous organizations. Two reviewers screened documents for relevance, resulting in 141 documents for analysis. The documents were critically analyzed and synthetized using a narrative approach (Petticrew and Roberts 2006). First, we classified the studies by country. Second, we qualitatively analyzed the principal findings within each domain and country. Finally, we compared findings across countries and domains to identify cross-national patterns, including similarities and differences across domains by country.

Results

Conflicting Logics at Research Councils: Ethics Statements

In the last four decades, all four countries developed institutions, including funding agencies, government, and university policies, to promote ethical practices for research involving Indigenous Peoples (Grant 2016). Nevertheless, policy ambiguities or unresolved conflicts between Western and Indigenous worldviews often fail to protect the rights and capacity of Indigenous Peoples to be researchers or equal partners in projects in their communities (Castleden et al. 2015; Grant 2016; M. Greenwood, de Leeuw, and Fraser 2008; Tolich and Smith 2014). In Australia and Canada, research ethics regulations are the product of *segmentation* and *segregation*, while in New Zealand *blending* and *segregation* dominate. Unlike these cases, the US lacks a national, uniform ethics policy, reflecting organizational *segregation* across national and subnational organizations.

Colonial government research funding agencies in Canada and Australia have centralized, unified ethics policies that include dedicated chapters that focus specifically on ethical requirements related to research involving Indigenous Peoples (Chapter 9, CIHR, NSERC, and SSHRC 2014; Chapter 4.7, NHMRC and AVCC 2015). This strategy coincides with the definition of *segmentation* because colonial governments created a specialized chapter within broader ethics regulations that specifically addresses the requirements for research in communities with large Indigenous populations or in which Indigenous research participants are a focus (NHMRC and AVCC 2015, 63; CIHR, NSERC, and SSHRC 2014, 111, 114–18) . These chapters were developed in consultation with Indigenous Peoples, and arguably these centralized but *segmented* ethics statements produce more rigorous requirements for research involving Indigenous Peoples. However,

the extent of consultation failed to represent the diversity of Indigenous communities, impugning the capacity of segmentation to protect all Indigenous interests equally (Castellano and Reading 2010; Onyemelukwe and Downie 2011; Grant 2016; Evans et al. 2012a).

In addition, both countries have also *segregated* responses to conflict because colonial government policies coexist with independent ethics standards developed by Indigenous communities. In Canada, Inuit and First Nations organizations produced the most prominent research ethics guidelines by Indigenous communities (ITK and NRI 2007; FNIGC 2014b), though Indigenous governments often have national research ethics policies (e.g. Six Nations Council 2014; Noojmowin Teg Health Centre 2003). The Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) has guidelines for ethical research (AIATSIS 2012) that apply to Institute-funded research. Both colonial and Indigenous ethics policies or recommendations advocate respect for Indigenous self-determination, recognition of Indigenous knowledge, and express a concern for welfare, equality, or justice (CIHR, NSERC, and SSHRC 2014; FNIGC 2014b; AIATSIS 2012; NHMRC and AVCC 2015).

At the same time, Indigenous organizations' guidelines differ from those of colonial funding agencies in important ways. For example, the Canadian policy protects individuals and suggests that community privacy principles may pay insufficient attention to individual privacy (CIHR, NSERC, and SSHRC 2014). In contrast, the First Nations Information Governance Committee's Ownership, Control, Access, and Possession guidelines (OCAP) argue that a focus on individual privacy fails to prevent the publication and misuse of collective information that may harm First Nations communities' privacy and intellectual rights (FNIGC 2014a). Overall, OCAP principles align more closely with practices to

protect Indigenous research sovereignty than Canada's Tri-Council policy recommendations. Similarly, in Australia, AIATSIS guidelines emphasize the right to fair and full participation of Aboriginal and Torres Strait Islander people in research, including its benefits and intellectual property management (AIATSIS 2012). These are stronger Indigenous research sovereignty practices than those of the Australian colonial government policy and funding agencies, which overshadow AIATSIS (AIATSIS 2009). Colonial funding agencies describe AIATSIS's guidelines as "useful guidance" (NHMRC and AVCC 2015, 62), even though AIATSIS engages with colonial organizations on research ethics (AIATSIS 2017). While some suggest AIATSIS guidelines are becoming a new national standard (Davis 2010), others suggest existing rules discourage non-Indigenous researchers from Indigenour-related research (Kowal 2014). Shortly put, *segregation* may recognize the diversity of Indigenous aspirations but also encourage competition between logics that favors Western perspectives.

In contrast to Canada and Australia, New Zealand lacks a national, centralized ethics statement for research involving Indigenous Peoples beyond that for health sciences. Based on New Zealand treaty obligations, social research projects warrant Indigenous consultation for ethics clearance, and this principle is included in national health sciences policy and the patchwork of local rules and guidelines (Tolich and Smith 2014, 3, 7). Incorporation of treaty principles in this way is suggestive of *blending* with Māori values, but in the social sciences, policies are highly *segregated* and differentiated across organizations. In fact, Māori representation in the National Ethics Advisory Committee (NEAC), which advises the Health Ministry on ethics and accredits university ethics committees, has declined and ceased being mandatory in 2013 (Grant 2016). In addition, the Pūtaiora Writing Group, a Māori organization, with the support of the NEAC,

developed separate guidelines ("Te Ara Tika ") for Māori research in 2010 (Hudson et al. 2010), suggesting *segregation* may coexist with *blending*. These guidelines recommend Indigenous oversight based on research ethics principles that emphasize relationships, validity, respect, and justice, and create three requirement levels for research including minimum standards, good practices, and best practices (Hudson et al. 2010). Best practices are associated with the Kaupapa Māori research approach (KMR), which advocates for Māori self-determination and research decolonization with a focus on empowerment, relational accountability, collective production, and research conducted by Māori for Māori (Bishop 2011).

However, some suggest that ambiguities in the recommendations do not clearly establish when a research project needs to fulfill minimum standards, good practices, or best practices, leaving these decisions to the discretion of researchers and their institutions (Tolich and Smith 2014). Consequently, in New Zealand, with the exception of Indigenous researchers who often adopt KMR, non- Māori researchers do not necessarily follow best practices, and many ethics processes require minimal Māori consultation or address only issues of information access and management (Tolich and Smith 2014). Although KMR has successfully permeated research funding agencies (Cram 2015; Marie and Haig 2006), it is often assessed from a Western perspective as insufficiently scientific (Marie and Haig 2006). Moreover, some Indigenous scholars argue that KMR is becoming mainstream discourse, compromising its decolonizing purpose (G. Smith, Hoskins, and Jones 2012).

Like New Zealand, the US does not have centralized ethics regulations for research involving Indigenous Peoples. Research regulations are established by the Institutional Review Boards (IRB) of universities, research organizations, and American Indian and Alaska Native nations (AI/AN), which authorize research in their territories and citizenry.

This response is *segregation* because separate Western and Indigenous organizations regulate ethics for research involving Indigenous Peoples within overlapping jurisdictions. AI/AN IRBs can register with the Federal Office for Human Research Protections (OHRP) (Sahota 2009). Indigenous Nations also regulate research ethics via multiple mechanisms and emphasize the alignment of Indigenous needs, priorities and goals (Champagne 2015; NCAI and MSU Center for Native Health Partnerships 2012; Sahota 2009). These IRBs also have culturally sensitive research partnerships based on respect for Indigenous sovereignty and knowledge (NCAI and MSU Center for Native Health Partnerships 2012). S*egregation* is also fueled by the creation of IRBs of non-recognized Indigenous communities, such as the Hawaiian organization, Papa Ola Lokahi (Isaacs et al. 2014). The result is a decentralized system of highly *segregated* organizations and institutions, in which ethics clearance for research in Indigenous territories requires approval of at least two entities (university and Indigenous IRBs), which may have conflicting policy statements.

Many of the unresolved tensions and conflicts in the US are similar to those observed in other cases of segregated institutions. Conflicts observed between national guidance in Australia, Canada, or New Zealand also exist in the US, but at the local or regional level. For example, Indigenous national interests in data and information ownership to protect community privacy and intellectual rights collide with individual privacy protections by non-Indigenous IRBs (Champagne 2015), similar to tensions between Canadian and First Nations' policies. Second, submission of research ethics applications to several IRBs can create conflicting demands and diminish authority and control of Indigenous Nations (Sahota 2009; NCAI and MSU Center for Native Health Partnerships 2012), similar to conditions in Australia and Canada. Finally, while

Indigenous nations within the US regulate research in their territories, urban and off-reserve Indigenous Peoples are often not protected, making them vulnerable and the target of researchers seeking to bypass Indigenous IRB research approval processes (Sahota 2009), echoing critiques of the Canadian national policy (Evans et al. 2012b).

Conflicting logics at universities as research organizations

In addition to research ethics regulations, Western research organizations, primarily universities, embrace norms and practices that often conflict with Indigenous knowledge production. Western ideas about separation between researcher and subject, academic freedom in research, and focus on individual knowledge production collide with Indigenous ideas about knowledge co-production, participatory methods that equally distribute power in decision-making, and goals of community engagement and empowerment (Castleden, Morgan, and Lamb 2012; Tobias, Richmond, and Luginaah 2013). In Canada, Australia and New Zealand, national or federal governments have developed initiatives for Western universities to nurture a critical mass of Indigenous scholars, increase Indigenous research capacity, and promote recognition of Indigenous ways of knowing (e.g. the Federal Employment Equity Program and the Aboriginal Research pilot programs of the Social Science and Humanities Research Council in Canada, the National Indigenous Higher Education Work Force Strategy in Australia, the Māori Tertiary education framework in New Zealand) (Roland 2009; IHEAC 2011; Ministry of Education 2003). Yet, organizational responses to reach these goals vary across countries ranging from *segmentation* and *segregation* in Canada, New Zealand and the US, to *segmentation* and *blending* efforts in Australia.

Add-on retention programs for Indigenous Studies at Western universities are the most typical *segmentation* response in all four countries inasmuch as they are discrete specialized subunits within Western universities (Holmes 2006; K. Martin and Mirraboopa 2003; Durie 2009, 7; Warrior 2012). Add-on programs, including recruitment, transition and support initiatives, are typically designed to remediate supposed skills deficits of Indigenous students to meet Western standards (G. Martin et al. 2017, 1161), and such programs are often one of multiple serving underrepresented groups, sometimes competing for resources (Holmes 2006, 11). In addition, another type of *segmentation* response corresponds to Indigenous Studies units that offer educational programs grounded in Indigenous epistemologies. While these programs are formally open to non-Indigenous students, they often attract primarily Indigenous students and faculty (Holmes 2006). Indigenous units at some New Zealand universities develop elective Indigenous-focused courses in Western disciplines (Durie 2009), while in Canada, some universities' disciplinary programs include specialized training for professionals who will work in Indigenous communities (Holmes 2006).

Nevertheless, segmented organizations have not achieved their goals. In Canada, by 2011, 8.7% of First Nations, 11.7% of Métis, and 5.1% of Inuit peoples had a university degree, compared to 25.9% of the non-Indigenous population (Statistics Canada 2011). Indigenous students in rural regions and on reserves fare worse. Only 0.6% of First Nations adults surveyed in 2002-2003 completed master or doctorate programs (Bruce, Marlin, and Doucette 2010). This achievement gap affects Indigenous faculty recruitment (Holmes 2006), and only 0.7% of university professors self-identify as Indigenous (Roland 2009). Overall, *segmentation* responses fail to transform the colonial university structure (Holmes 2006) and reinforce hierarchy between Western and Indigenous knowledge, limiting

decolonization of the curriculum and discouraging Indigenous students from pursuing graduate programs (Roland 2009).

The Australian experience is similar. Indigenous Peoples are less than one percent of higher education students even though they are 2.5% of the population (Behrendt et al. 2012). Likewise in 2009, the completion rate for Indigenous students in higher education was 40.8%, while 68.6% of non-Indigenous students complete their studies (Pechenkina and Anderson 2011). The educational gap intensifies in graduate school. Only 1.5% of Master students identify as Aboriginal and Torres Strait Islander, and their completion rate is less than half that of non-Indigenous students. Indigenous PhD students only represent 0.6% of all enrolled students, and their completion rate is almost ten times lower than the rate of non-Indigenous PhD students (Andersen, Bunda, and Walter 2008). The *segmented* deficit-based add-on programs and Indigenous studies units have not changed the predominance of Western academic values (G. Martin et al. 2017). Consequently, Indigenous academic staff represent less than one percent of all academic staff in Australian universities (DET and ATSIHEAC 2015a; Behrendt et al. 2012), and Indigenous scholars are concentrated in Indigenous programs and in junior positions (DET and ATSIHEAC 2015b). Elders are not eligible to teach at most universities since they do not usually hold PhD degrees (Wilson 2003). Few universities have Indigenous people in their university administrations (Gunstone 2008; IHEAC 2006).

New Zealand's *segmented* organizations seem to produce better results perhaps because of the promotion of KMR by funding agencies and the importance of Indigenous-led universities but there are still significant gaps. Western universities have *segmented* their organizations, establishing research centers to promote Māori and Indigenous scholarship using a KMR approach (Pipi et al. 2004). These centers have generated a

critical mass and networks of Māori researchers (Durie 2005a, 2009). Similarly, Māori enrollment rates in tertiary education reached 20.2% in 2003, seven points higher than the overall student average and 13 points higher than the Māori rate in 1998 (Tertiary Sector Performance Analysis and Reporting 2005). Though Māori tertiary students continue to be clustered in short (2-18 month) tertiary certificate programs, their share of all students enrolled in three year bachelor programs increased from 19% in 2005 to 27% in 2014 (Wensvoort 2011, 2015). Similarly, the graduation rate for Māori students at the bachelor level increased from 59% in 2007 to 67% in 2014, but this rate still lags ten points behind that of other students (Wensvoort 2015). By 2006, while 9% of New Zealand's population self-identified as Māori, Māori students accounted for 12% of all master students and 6% of all doctoral students (Durie 2009). Though the Māori enrolment rate in doctoral studies is increasing more slowly than that of other students (Tertiary Sector Performance Analysis and Reporting 2005), the number of Māori doctoral graduates doubled between 2004 and 2014 (Wensvoort 2015). The areas of study are also diversifying, with less concentration in Māori studies and more in areas such as health, education, social sciences, fine arts and business (Durie 2009). Although more Indigenous scholars now have PhDs, self-identified Māori researchers are concentrated in junior positions and face challenges being promoted because their research is not yet valued by predominant Western academic standards (Tertiary Sector Performance Analysis and Reporting 2005), reflecting unresolved conflicts between Western and Indigenous logics, despite the increasing legitimacy of KMR.

Segmented organizations in the US have also failed to establish a critical mass of Indigenous scholars. Since the 1960s, Western universities have developed *segmented* responses in the form of add-on and Native American Studies programs (Tippeconnic Fox, Lowe, and McClellan 2005, 13). AI/AN make up only 0.8% of all higher education

enrolment in 2014, the lowest enrolment rate of all ethnic and racial groups (National Center for Education Statistics 2016). As in New Zealand, AI/AN students are concentrated in two-year colleges. While graduation rates have increased from 18.8% in 1996 to 23% in 2008 for AI/AN students at 4-year institutions, they still have the lowest graduation rates of all ethnic and racial groups, comparable to those of African Americans (National Center for Education Statistics 2016). Progress among AI/AN graduate students is disputed. The NCAI Policy Research Center (2012) notes that master's and doctoral degrees awarded to AI/AN students increased by 75% and 34.7% respectively between 2000 and 2010, which is greater than overall growth in graduate degrees. Yet, the National Science Foundation's Survey of Earned Doctorates indicates that 136 AI/AN individuals earned a PhD degree in 2016, only 13 more than in 2006. These numbers resonate with ChiXapkaid's observation that increase in students getting doctoral degrees is just nominal (ChiXapkaid 2013). Indigenous students also take longer to complete their graduate programs, probably due to family and community responsibilities (Brayboy et al. 2012; ChiXapkaid 2013). Further, undergraduate and graduate students often experience cultural alienation because they are forced to conform to non-Indigenous academic norms, lack Indigenous academic role models, and have difficulties reconciling their community's service and academic expectations (Brayboy et al. 2012; IHEP, IHEC, and AICF 2007). Similarly, AI/AN students feel required to work harder to prove they belong in university, and they are often discouraged from pursuing graduate studies (Brayboy et al. 2012). Moreover, only five percent of all American faculty members are AI/AN, the smallest ethnic minority. This percentage drops to one percent in four-year colleges, though this is three times the percentage in 1981 (National Center for Education Statistics 2016; Pewewardy 2013). In addition, AI/AN faculty are required to produce and disseminate Indigenous knowledge in

the same way as Western research, their research and service is often undervalued and not considered sufficient for tenure and promotion, and, like students, they usually have to work harder to be acknowledged and demonstrate that their recruitment or promotion is not due to affirmative action (Pewewardy 2013; Brayboy et al. 2012).

In Canada, New Zealand and the US, separate, or *segregated*, Indigenous research and higher education organizations complement the *segmented* responses by universities. Indigenous groups in Canada have established separate Indigenous organizations to promote participatory research, provide guidance for partnerships, and protect Indigenous community privacy and intellectual rights, such as the First Nations Information Governance Centre and the Nunavut Research Institute (FNIGC 2014b; ITK and NRI 2007). Nevertheless, Western academic metrics and standards for knowledge production discourage or disadvantage scholars committed to participatory research because they often experience stress due to tensions between deadlines and obligations of funding bodies and the time required to build trust and be responsive to Indigenous communities (Nicholls 2009).

Alongside Indigenous research organizations, the most frequent *segregation* responses are Indigenous-led universities. These separate organizations often lack colonial government funding and face financial difficulties compared to Western universities. For example, the Canadian government argues that higher education is a provincial issue, and provinces respond that Indigenous education is a federal matter. Indigenous postsecondary institutions need additional resources but want to preserve their sovereignty (Stonechild 2006). These unresolved funding conflicts and reductions in public funding for postsecondary studies translates into greater financial stress for Indigenous students

(Roland 2009b; Mayes 2007; Bruce, Marlin, and Doucette 2010), particularly Métis, non-status, and off-reserve students (Holmes 2006). Similarly, the US also has a *segregated* settlement in its Indigenous colleges, which have expanded culturally relevant higher education for Indigenous peoples (Tippeconnic Fox, Lowe, and McClellan 2005; Warrior 2012) and have strong commitments to self-determination, protection of culture, and service to community (Warrior 2012; Tippeconnic Fox, Lowe, and McClellan 2005; Cunningham and Redmond 2001). They are chartered by tribes, have fully Native American governance boards, and Elders serving as instructors and advisers in educational programs (Tippeconnic Fox, Lowe, and McClellan 2005). Tribal colleges and universities conduct research focused on issues of community interest (R. G. Martin 2005; Cunningham and Redmond 2001), and they are funded by the tribes and communities they serve and the federal government through the Tribally Controlled College or University Assistance Act (1978) (R. G. Martin 2005). However, these *segregated* organizations sometimes are not accredited by Western metrics, including for student performance, instructor credentials, publication standards, etc., and this limits access to colonial government public funding and student access to federal student loans (Abelman 2011; Cunningham and Redmond 2001). Moreover, cuts to federal higher education expenditures further erode fragile resources of tribally controlled organizations, threatening the availability of culturally relevant education (Tippeconnic Fox, Lowe, and McClellan 2005).

Unlike their counterparts in Canada and the US, Indigenous-led higher education organizations in New Zealand (Wānanga) have the same status as Western universities and are eligible for state funding (Durie 2009, 5). In these *segregated* organizations, the majority of managerial and academic positions are filled with Māori. Durie (2005b, 2009) argues that Wānanga developments have driven Western universities to recruit Māori to

establish Māori training and research strategies and agreements with Māori communities to participate in university governance. Durie also notes that Wānanga organizations fuel the adoption of *segmented* responses, such as add-on and Indigenous Studies programs at Western universities, improving the participation of Indigenous students in higher education.

Recently, Australia has undertaken *blending* strategies through the "Indigenization" of post-secondary colonial organizations, or the incorporation of Indigenous history and worldviews throughout the curriculum as well as representation among senior leadership. In Australia in 2015, the Aboriginal and Torres Strait Islander Higher Education Council proposed a "whole-of-university" approach in order to achieve shared responsibility and accountability of senior administration and all departments in supporting Indigenous research and education (DET and ATSIHEAC 2015c). This approach promotes the recruitment and appointment of Indigenous individuals in all governance levels, departments, and faculties, with an emphasis on academic positions, and the incorporation of Indigenous perspectives in the curricula of all higher education programs in order to provide culturally safe environments for Indigenous students in different disciplines and increase Indigenous research capacity (DET and ATSIHEAC 2015c, 2015a). Some observers argue that its recent adoption is improving the participation and confidence of Indigenous scholars at Western universities (Asmar and Page 2017). Yet, existing barriers to higher education noted above still persist (Rochecouste et al. 2017), which raises questions about the risk that a "whole-of-university" strategy will fall short and become organizational *assimilation*.

Even more recently, several Canadian universities have also tried *blending* through the incorporation of Indigenous history and content into disciplinary programs in response

to Canada's Truth and Reconciliation Commission reports and Calls to Action (Macdonald 2016; Warick 2017; Hamilton 2017). These efforts are on-going and highly decentralized, and thus their overall impact remains unclear. The integration of Indigenous worldviews, perspectives, and content envisioned by Canadian and Australia Indigenization efforts have a goal of equitable and full integration of the competing logics into a new *blended* organization, but in practice, the result is likely to be *assimilation*, in which Indigenous values and perspectives remain secondary to Western institutions. At the same time, some Indigenous communities and leaders question the incorporation of Indigenous ways of knowing into colonial post-secondary education and research because simply permitting the coexistence of multiple knowledge systems without challenging the hegemony of Western science paves the way for distortion of Indigenous knowledge, improper knowledge appropriation, and chances for violations of intellectual rights of Indigenous Peoples and communities (Howlett et al. 2008, 25; Hauser, Howlett, and Matthews 2009).

Conclusion

Our systematic comparison of institutional and organizational characteristics related to research involving Indigenous Peoples in these countries highlights tensions between logics of Indigenous epistemologies and methodologies and colonial research institutions and demonstrates that all four countries have responded to these tensions with strategies that *segment*, *segregate*, *assimilate* or try to *blend* research organizations (see Table 1).

[Insert Table 1 here]

While the acknowledgment of Indigenous knowledge and participatory research in ethics regulations, the establishment by Indigenous communities of their own regulations, the development of a critical mass of Indigenous scholars, and the establishment of add-on

programs and Indigenous academic units may signal some progress, these strategies have

not achieved the decolonization of research in ways that equally value Indigenous

knowledge, languages, worldviews, philosophies and aspirations.

   Arguably, the most important implication of this analysis is that progress towards

Indigenous research sovereignty demands significant changes in Western academic values

that sustain practices that marginalize Indigenous epistemologies and researchers.

Strategies like organizational *segmentation*, *segregation*, and *assimilation* may integrate

Indigenous knowledge into the dominant Western research paradigms, but they are unlikely

to redistribute power and resources sufficiently to really ensure meaningful equality or

sovereignty (Chilisa 2012). While each country and its current organizational settlement

will dictate different paths toward *blending* or balance, one important action is to engage

gatekeepers in the academy (e.g. search and tenure committees, peer reviewers and editors)

to interrogate Western paradigms and the social relations that shape who can research, how

researchers or "knowers" can know, what can be known (Nakata 2007) and what are the

contributions of Indigenous ways of knowing to enrich the academy's diversity (see

Dobbin, Schrage, and Kalev 2015). With such interrogation, these gatekeepers may learn to

recognize the value of participatory methods, welcome diverse claims to expertise into the

academy, and become more effective allies for the goals of decolonization.

   In addition, Indigenous organizations and universities should continue to monitor and

report on progress toward these goals in non-Indigenous universities or other gatekeeper

organizations, which requires such organizations to be transparent about their processes of

knowledge assessment (e.g. publication rejection rates, turnaround times, etc.). In this way,

acknowledgement of the limitations and failures of existing institutional and organizational

strategies along with actions to engage gatekeepers in recognizing the value of Indigenous

knowledge can promote a decolonial praxis throughout the social sciences and create

spaces where Indigenous Peoples feel welcome and their knowledge valued.

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