

Epigenetics, or Why Indigenous Peoples Can't “Just Get Over It”: A Model of the Intergenerational Transmission of Historical Trauma

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Truth:

“To create a new story, we first need to come to terms with the current one. This begins by *naming* it.”

(Block, 2008, p. 37)

A Brief History of Cultural Genocide in North America

- For 150+ years, hundreds of thousands of Native children in the US and Canada were removed from their families, and forced to attend residential or boarding schools
- The goal, on the part of our federal governments, was to assimilate Indigenous children: “Kill the Indian, save the man....” (Captain Richard H. Pratt)
- Carlisle Indian Industrial School in Carlisle, PA, which opened in 1879, was a model for boarding schools in Canada and the US (like Sherman Indian High School, 1892)

Sir John A. Macdonald, First Prime Minister of Canada (1883)

“When the school is on the reserve, the child lives with *its* parents, who are savages; he is surrounded by savages, and though he may learn to read and write, his habits... and mode of thought are Indian. He is simply a savage who can read or write....”

(Cited in *TRC*, 2015, p. 2)

Macdonald's Solution to the "Indian Problem": Separate Children from their Parents

"Indian children should be withdrawn as much as possible from the parental influence, and the only way to do that would be to put them in enough industrial training schools where they will acquire the habits and modes of thought of white men."

(Cited in *TRC*, 2015, p. 2)

Duncan Campbell Scott, “Confederation Poet,” Deputy Minister of Indian Affairs (1920)

“Our object is to continue until there is not a single Indian in Canada *that* has not be absorbed into the body politic.”

(Cited in *TRC*, 2015, p. 3)

Tragic Results (e.g., *TRC Report*, 2015)

- Not only did these Indigenous children *not* receive a good education, the vast majority experienced child maltreatment in one form or another
- In many cases, the maltreatment amounted to *neglect* (e.g., malnourishment), in other cases, *abuse* (e.g., physical and sexual abuse)
- Regardless of maltreatment, these children were systematically stripped of their identity, clothing, family, language, and culture

Martin's Testimony (*TRC Report*, 2015)

“My mom had prepared me in Native clothing. She had made me a buckskin jacket, beaded with fringes.... I was really proud of my clothes. And when I got to residential school, that first day I remember, they stripped us of our clothes.”

(Martin Nicholas as cited in *TRC*, 2015, p. 40)

“Just Get Over It”

- We sometimes hear people say “Why can’t they just get over it?” with reference to other people’s experiences of *historical trauma* (e.g., Brave Heart, 1999)
- In the context of *genocide*, *slavery*, or *removal*, historical trauma refers to cumulative, collective trauma that is carried forward across generations
- According to Brave Heart (2000), the trauma can result in a constellation of health problems including heart disease, alcoholism, and suicidality—even in future generations

A Day in the Life...

- Imagine being a 6-year-old child, hundreds of miles away from family, not allowed to speak your language, or wear your own clothes—and given a new name—a Christian name
- Imagine cold, strict, and abusive teachers who taught perfunctory lessons for half the day, while you worked as a manual laborer for the other half of the day
- Imagine no love, no affection, and no acceptance—for ten months of the year, for years on end; what kind of role models would you have for how to be a parent? Or a partner?

Isabelle's Testimony (*TRC Report*, 2015)

“All my dad had to do was raise his voice, and we knew what he meant. So, when I first got hit by the nuns, it was really devastating 'cause how can they hit me, when my parents don't hit me, you know?”

(Isabelle Whitford as cited in *TRC*, 2015, p. 103)

What Is the Mechanism for Developmental Outcomes?

- Social learning theory suggests *modeling*: aggressive teachers, for example, model aggressive behavior for their students—i.e., behavior
- Attachment theory suggests that *internal working models* of relationships (“Can I trust people?”) affect future family relationships—i.e., cognition
- Family systems theory, of course, emphasizes the *intergenerational transmission* of behavior such as alcoholism, among others—i.e., affect

Can Epigenetics Be the Answer?

- Bronfenbrenner and Morris (2006) suggested in the revised bioecological theory that *epigenetics* might account for the intergenerational transmission of behavior
- As Bronfenbrenner himself admitted, he was vague on the details; other developmentalists have also invoked epigenetics without giving details about how it works
- As a normal part of development, genes are turned on and off at different times; it is *epigenetic markers*, or chemical tags, that turn our genes on and off

A Definition: “The Missing Link between Nature and Nurture” (Carey, 2012)

“When scientists talk about epigenetics, they are referring to all the cases where the genetic code alone isn’t enough to describe what’s happening—there must be *something else* going on as well.”

At the molecular level, epigenetics can be defined as “the set of *modifications* to our genetic material that can change the way genes are switched on and off, but which don’t alter the genes themselves.”

(Carey, 2012, pp. 6, 7)

Imagine a Spool of Thread....

- We have a lot of DNA, and to cram all of our DNA into our cells, we have to wind it up around something like a spool: so imagine a lot of thread (i.e., DNA) wrapped around a spool
- If it's too tightly wound, it can't be accessed, and it can't do what it's supposed to do (e.g., make proteins)—in other words, those genes don't turn on, and they don't function
- Epigenetic markers—informed by *experience*—are bits of chemicals that attach to DNA and don't allow it to unwind, so ultimately the DNA cannot be accessed, and it can't do its job

An Example

- A chemical compound known as a *methyl group*—is added to DNA—typically turning genes *off* when they should be on; a process known as *methylation*, it correlates with *abuse*
- In a recent Harvard/UBC collaboration, increased methylation (*DNAm*) has been found in the sperm of adult men (Roberts et al., 2018) who were abused as children
- Epigenetics can, therefore, explain how effects of adverse childhood experiences—such as child abuse—can be carried forward into adulthood via these epigenetic markers or tags

Intergenerational Transmission?

- But can epigenetic markers—resulting from life experiences, like abuse—be transmitted to *future* generations along with genetic material (i.e., DNA) from parents?
- After all, the bulk of the genome becomes *demethylated* when eggs and sperm are produced (Heard & Martienssen, 2014)—this is part of the normal process
- Some areas of the genome, however, appear to be resistant, and avoid the normal *erasure* that typically occurs, leaving the possibility that some DNAm is passed on to offspring

The Verdict Is Still Out...

- Heard & Martienssen (2014) and Horsthemke (2018) have taken a critical view of *transgenerational epigenetic inheritance* (although it is common in some animals)
- Hales & Barker (2013) and Soubry (2015), however, have taken a more optimistic view of epigenetic inheritance (in the context of prenatal malnutrition and *metabolic syndrome*)
- Meanwhile, research looking at health disparities in Native peoples has suggested that epigenetics may play a role (Bombay et al., 2011; Brockie et al., 2013)

Residential School (IRS) and Suicide (McQuaid et al., 2017)

- A recent Canadian study showed that having a relative who attended IRS increased the odds of *suicide ideation* compared to those Indigenous people who did not
- In addition, having a relative who attended IRS increased the odds of *suicide attempts* compared to those Indigenous people who did not
- Furthermore, having *two* generations of relatives who attended IRS increased the odds of suicide attempts compared to those with only one generation who attended

Diversity: Resistance and Resilience

- We must remember the *within-group* diversity that exists: there are over 1000 distinct federally recognized tribes, or First Nations, in North America
- Not all Indigenous peoples attended the boarding schools, and among those who did, there were various experiences and outcomes—not all negative
- Furthermore, among those children who attended, some children resisted (as did their parents), and some showed resilience both at the time, and later on

Lawrence's Testimony (*TRC Report*, 2015)

“I walked from Fort Chipewyan in northern Alberta to Fort Smith [NWT], 130 miles. It took me about five days. I was only about 16. And I just ate berries and drank water to survive.”

(Lawrence Waquan as cited in *TRC*, 2015, p. 121)

Reconciliation?

- The first Truth and Reconciliation Commission was held in South Africa in the wake of Apartheid beginning in 1996—the same year the last residential school closed in Canada
- Canada's TRC began its work in 2010, concluding with the publication of its final report in 2015, and including its 94 Calls to Action (e.g., policy, education, health)
- The verdict is still out: will Canada, as a nation, be able to reconcile with Indigenous peoples for the systematic cultural genocide that we inflicted on them? Will the United States?

Cherokee American-Canadian Author and Activist Thomas King

Giving the Massey Lecture in 2003 (at the University of Toronto), King concluded each narrative about Indigenous worldviews and experiences by telling the audience that it was OK if they hadn't heard the story before.... "But don't say in years to come that you would have lived your life differently if only you had heard this story. You've heard it now."

A Place to Start:

Unspoken:

America's Native American Boarding Schools

(PBS/KUED, University of Utah, 2016)

<https://www.kued.org/whatson/kued-productions/unspoken-america-native-american-boarding-schools>



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