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CURRICULUM & TEACHING STUDIES | REVIEW ARTICLE

Affirming identity: The role of language and culture in American Indian education

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Abstract: With the passage of the No Child Left Behind (NCLB) Act of 2001, the United States spent millions upon millions of dollars in a largely unsuccessful effort to close the academic achievement gap between American-Indian and some other ethnic minorities and mainstream Americans. NCLB's focus on teacher quality and evidence-based curriculum and instruction and subsequent reform efforts have largely ignored the negative effects of American popular culture and assimilationist, English-only educational efforts on Indigenous children, which can attack their identity and lead to cultural disintegration rather than assimilation into the dominant culture. This article examines recent American Indian and Hawaiian efforts at language and culture revitalization in schools and how those efforts have helped students to develop a strong sense of identity and show more academic success. These recent efforts focus on human rights and are in line with the United Nations 2007 Declaration on the Rights of Indigenous Peoples.

Subjects: Education; History of Education; Multicultural Education; Bilingualism/ESL

Keywords: identity; language immersion; history; culture

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PUBLIC INTEREST STATEMENT

The future of our country and the world depends on decisions that our children will make, and the wisdom of those choices depends on their education. Historically in the United States and elsewhere Indigenous children have been "left behind" by colonizing powers who too often provided them with a second-class education, sometimes in a language they did not understand, that described their home languages and cultures as "savage." Since World War II there has been an emphasis on human rights, and in 2007 the United Nations adopted the Declaration on the Rights of Indigenous Peoples, which states that Indigenous people have a right to a culturally appropriate education. This article describes how assimilationist English-only education that sought to erase Indigenous students' heritage languages and cultures has failed and gives examples of Indigenous language immersion teachers helping Indigenous children become bilingual in their heritage language and English and more successful in life, both academically and behaviorally.

Something is wrong in American Indian education in the United States. Despite spending millions upon millions of dollars under the No Child Left Behind (NCLB) Act of 2001 and subsequent federal legislation, American Indian students continue to have below average test scores and graduation rates (Maxwell, 2013). Conservative critics like Naomi Schaefer Riley in her 2016 book, *The New Trail of Tears: How Washington is Destroying American Indians*, point to government welfare policies as leading to family disintegration and a culture of dependency. Similar conservative criticism that led to the termination policy of the 1950s when some Indian reservations were terminated and the residents “set free” by the US Congress only for many to sink further into poverty.

Critics like Riley tend to ignore the long ethnocentric history of efforts in the United States and other colonizing countries to educate Indigenous peoples by bringing them from “savagery to civilization” (see, e.g. Adams, 1995; Reyhner & Eder, 2017; Szasz, 1999) by denigrating Indigenous languages and cultures and seeking to replace them with English and a Euro-American culture. For example, in her 1999 autobiography Dr. Lori Arviso Alvord, the first Navajo woman surgeon, wrote,

In their childhoods both my father and my grandmother had been punished for speaking Navajo in school. Navajos were told by white educators that, in order to be successful, they would have to forget their language and culture and adopt American ways.

They were warned that if they taught their children to speak Navajo, the children would have a harder time learning in school, and would therefore be at a disadvantage. A racist attitude existed. Navajo children were told that their culture and lifeways were inferior, and they were made to feel they could never be as good as white people.... My father suffered terribly from these events and conditions. (Alvord & Van Pelt, 1999, p. 86)

She concluded, “two or three generations of our tribe had been taught to feel shame about our culture, and parents had often not taught their children traditional Navajo beliefs—the very thing that would have shown them how to live, the very thing that could keep them strong” (Alvord & Van Pelt, 1999, p. 88). Alvord’s conclusion is supported by Hallett, Chandler and LaLone’s (2007) study of 152 First Nations bands in British Columbia. Their study found that “those bands in which a majority of members reported a conversational knowledge of an Aboriginal language also experienced low to absent youth suicide rates. By contrast, those bands in which less than half of the members reported conversational knowledge suicide rates were six times greater” (p. 396). Joy Harjo (Muscogee Creek) declares, “colonization teaches us to hate ourselves. We are told that we are nothing until we adopt the ways of the colonizer, till we become the colonizer” (as quoted in Mankiller, 2004, p. 62).

For both immigrants and Indigenous peoples, there is a downside to assimilation into dominant cultures. The National Research Council reported in 1998 that the longer immigrant youth are exposed to American culture the poorer their overall physical and psychological health becomes. They are more likely to engage in risky behaviors such as substance abuse, unprotected sex, and delinquency (Hernandez & Charney, 1998). A delegate from Indian Territory to Washington, D.C., in an 1886 article in *The Indian* reprinted from the *Cherokee Advocate*, protested the efforts of the US Government to allot Indian lands:

We were sent to the wilderness because the whites wanted our country in the States. Now we have developed the new country and built for ourselves homes in it, and the whites want that. We are doing well. We are happy and prosperous. We are working out the problem of civilization. We have schools and churches and governments patterned after your own. Our lands are patented to tribes, and our people hold it in common. We all have names. There are no paupers among us. We never see anybody begging for pennies in our country as we do here [in Washington, D.C.]. Let us alone. Don’t break us up. (*The Indian*, 1886, p. 25)

The Sioux author and physician Charles Eastman (1915) felt that the real civilizing influences on the Indians were whiskey and gunpowder, with the result that Indians often learned the whites’ worst habits. The anthropologist Clyde Kluckhohn (1962, p. 340) wrote of the impact of white culture and

education, especially putting children in English-only federal boarding schools, on the nation's largest tribe: "Navajo culture is becoming an ugly patchwork of meaningless and unrelated pieces, whereas it was once a finely patterned mosaic".

From assimilation to human rights and language and cultural revitalization

Since World War II with the formation of the United Nations people around the world have recognized more and more how colonization trampled on human rights. In 1990 the US Congress passed the Native American Languages Act that makes it US Government policy to protect and promote American Indian languages and in 2007 the United Nations passed the Declaration on the Rights of Indigenous Peoples that recognized that education designed to eradicate Indigenous languages and cultures is a basic violation of human rights. However, as Dr. Eastman noted a century ago, assimilative forces on American Indians go way beyond schools and have intensified with modern technology. A Navajo elder noted at the beginning of the twenty-first century:

T.V. has ruined us. A long time ago, they used to say, don't do anything negative or say anything negative in front of children. It doesn't take that long for a child to catch onto things like this. Therefore, a mother and a father shouldn't use harsh words in front of the children.... In these movies they shoot each other.... Movies are being watched every day, but there is nothing good in it. (as quoted in McCauley, 2001, p. 242)

Hollywood movies, commercial television, violent video games, and Internet pornography intensify the attack on traditional cultures today. Besides the sex and violence dominating US television, movies, and games, modern media also employ sophisticated efforts to sell soft drinks (basically flavored sugar water), alcohol, and other unhealthy things to Indigenous peoples and others who are suffering from an epidemic of alcoholism and diabetes (American Indian Health, 2013).

The cultures embedded in Indigenous languages represent time-proven child rearing educational practices that helped Indigenous people to survive over countless generations, developing extended family, clan and community ties that provide strong support groups. This knowledge of how humans should interact and support each other is very important, considering that the United States has the highest percentage of its citizens in prison than any other country, and American Indians disproportionately contribute to this high incarceration rate (Walmsley, 2011).

Interviewing Hopi elders, Hopi scholar Dr. Sheilah Nicholas (2010, 2013) found that they view the recent decline in youth speaking Hopi to be associated with their "unHopi" behavior leading to gang activity and disrespect of elders whereas the Hopi language is associated with traditional values of hard work, reciprocity, and humility. Indigenous and other youth need to develop a strong sense of identity that focuses on respect for oneself and others to make them less susceptible to peer group pressure and Madison Avenue advertising. Dr. Richard Littlebear (1999) also points out how the attraction of gangs on Indigenous youth on Indian reservations today and how youth need to develop a strong sense of tribal identity to resist joining them.

One of the most successful efforts at Indigenous language and cultural revitalization is the establishment of Indigenous language immersion schools (see e.g. Reyhner, 2010; Reyhner & Johnson, 2015). Studies show that language immersion schools can have far-reaching effects on their students. Dr. Kathryn Manulito in a study of a new Navajo immersion teacher describes how she addresses students by Navajo kinship terms and models other Navajo cultural behaviors. She quotes a student's parent:

You know I noticed a lot of differences compared to the other students who aren't in the immersion program. They [students in immersion classes] seem more disciplined and have a lot more respect for older, well anyone, like teachers. They communicate better with their grandparents, their uncles and stuff. It seems like it makes them more mature and more respectful. I see other kids and they just run around crazy. My kids aren't like that ... It really helps, because it's like a positive thing. (2004, p. 50)

In a case study of a new Hawaiian immersion teacher, a parent,

asserted that part of the success of the school was that the teachers, staff and teachers show much “aloha.” Aloha is a Hawaiian word that is profound and complex, but above all it is wholeness of mind, body and soul and connectedness to the universe. In the school, aloha was shown by hugs by teachers, staff and students, opinion is sought and valued from all, and the realization that the school’s success is dependent on family, the unit working together. The children learned to respect one another, respect the space of others, and to work quietly and diligently on class activities. Teachers and staff are role models through silent leadership and responsible actions. The power was not wielded by anyone in particular; rather it flows amongst all as it did in ancestral times. By seeing this and putting into practice, the children learn to honor and respect themselves, others, and all other things around them. Being thoughtful in school transfers to the home, making it safe and comfortable. For kindergartners, the first graders become the role models as they have gone through the experiences that the younger ones are going through. This is the beauty of a multiage, multidisciplinary classroom. The older helping the younger, this is peer teaching and learning as often the younger ones have something to give. (Kawai’ae’a, Kawagley, & Masaoka, 2017, p. 92)

In this case study, researchers observed the interaction between approaches to teaching and the values being transmitted:

At the Hawaiian immersion school, the day began and ended with traditional Hawaiian protocol—a Hawaiian chant, a positive thought, and a prayer to open and close the day. Included in the morning protocol was the formal request chant and reply in Hawaiian to enter the school. This opening protocol set the mood for the day by helping all to focus and reflect on the task of learning, teaching and leading with good thoughts, intentions and feelings, and a cooperative spirit. The school day ended with a chant to attune them to another realm, that of home, family, friends, and place with all its different idiosyncrasies. The well-being of the whole group through active participation at the piko (a spiritual gathering place) was a part of the healing, health and lifelong learning daily experiences for the total learning community—students, teachers, support staff, families and guests. (Kawagley & Kawai’ae’a, 2003, p. 9)

The researchers noted the key role that the Hawaiian language played in the school’s cultural education program:

The language best expresses the thought world of the ancestors and thrusts them into the Hawaiian worldview. This is the language of connectedness, relatedness and respect. The language provides the cultural sustenance and the lens from which the dynamics of the school community has evolved. The language is formed by the landscape with its soundscape and therefore, conducive to living in concert with Nature. ... The language shapes and nurtures the school learning community as a complete and whole entity. (Kawagley & Kawai’ae’a, 2003, p. 9)

Luning and Yamauchi (2010) in a study of Hawaiian families with children enrolled in a Hawaiian language immersion school noted how,

The Kaiapuni [Hawaiian language] curriculum was designed to incorporate the Hawaiian culture. Families reported that they valued the program’s emphasis on Hawaiian culture as much as its focus on the language. Several of the families placed a higher value on their children’s cultural education than on their academic achievement. As one mother noted, “Academics—that’s what people send their kids to school for, academics. And that’s what we started off thinking ... academics in Hawaiian. And that was great, but we’ve also seen more than that” (Kāhea, parent). The families believed that the cultural aspect of Kaiapuni would promote children becoming more well-rounded. They felt that the program created positive images of being Hawaiian and could affect the community in positive ways. (p. 53)

The Hawaiian values their children acquired were felt by the families to be a major benefit of the school. Both the parents and students appreciated how the program modeled Hawaiian values. Both

parents and students liked how the program modeled Hawaiian values. A parent noted how students learned “the values that [are] taught through the language” (Luning & Yamauchi, 2010, p. 54). Many expressed the teaching of values through the language as a unique aspect of the Kaiapuni program. One parent said:

I just think that some of the things that they learn in that school, they'll never learn in an English school. The culture, the respect I think it's gonna have some kind of impact with them as they grow up. (Luning & Yamauchi, 2010, p. 54)

Students learned and demonstrated Hawaiian cultural values, engaging in applying values, such as *mālama i ka 'āina* [taking care of the land] and *lōkahi* [unity] through activities such as building and maintaining a *lo'i* [taro field]. When asked what it meant to be Hawaiian, many students referred to Hawaiian values. One 12-year-old student responded: “It means to have respect, love for the land, the ocean, and the people” (Pakalana, student) (Luning & Yamauchi, 2010, p. 54). Another student, when asked the same question, replied:

I guess it's ... mostly family life, ... you have to respect your elders, and you have to take care of your land, your “āina, and you know, just basic facts that if any, if everybody would follow, would help this place, would help Hawaii”, would help the world to be a better place. (Luning & Yamauchi, 2010, p. 55)

Supporters of Indigenous language immersion schools tend to see the “goal of Western education is to gain knowledge and skills in preparation for the work force, not to create good human beings who live a balanced life” (White, 2015, p. 167). Guadalupe Valdés (1996) reports a similar perspective in Mexican-American immigrant families, many with Indigenous ancestry, who find their children's behavior is more important than their school grades, with respect for others central to the desired ideal. While not denying the importance of their children's academic progress, their primary concern is the behavior of their children. Considering that the United States has a greater percentage of its population in prison than any other country in the world, it is hard to fault these parents' priorities.

In regard to academics and high school graduation rates, which is also a concern to parents, dual language and immersion schools that teach, as well as teach in, Indigenous languages advantage students, including on English language tests (Johnson & Legatz, 2006; McCarty, 2013; Wilson et al., 2006). However, there is a need for more research on the effects of these schools.

What is being lost with assimilationist, English-only educational policies was brought home to me at the annual meeting of the Alaska Association for Bilingual Education in 1996. There, I picked up a card describing Iñupiaq Eskimo values. One side the card read, “Every Iñupiat is responsible to all other Iñupiat for the survival of our cultural spirit, and the values and traditions through which it survives. Through our extended family, we retain, teach, and live our Iñupiaq way.” The other side read, “With guidance and support from Elders, we must teach our children Iñupiaq values.” Then the card listed the following values: “knowledge of language, sharing, respect for others, cooperation, respect for elders, love for children, hard work, knowledge of family tree, avoidance of conflict, respect for nature, spirituality, humor, family roles, hunter success, domestic skills, humility, [and] responsibility to tribe.” It concluded with the words, “OUR UNDERSTANDING OF OUR UNIVERSE AND OUR PLACE IN IT IS A BELIEF IN GOD AND A RESPECT FOR ALL HIS CREATIONS.” I just could not see how anyone, especially teachers, would want any child to not learn these values or to consider such beliefs “savage.”

The Iñupiaq knowledge on the card I was given is similar to what Barnhardt and Kawagley (2011) collected from around Alaska in an appendix of their book, *Sharing Our Pathways: Native perspectives on Education*. Wilkins (2008) gives an account of her school district's work in Washington State where, with the help of an elder, she put together a values curriculum based on her Yakama Nation's values of honesty, compassion, caution, courage, taking care, respect, thoughtfulness, humility, and

service. It can be argued, in the words of Collier (1947, p. 17), President Franklin D. Roosevelt's Commissioner of Indian Affairs, that our modern society has lost the "passion and reverence for human personality and for the web of life and the earth which the American Indians have tended as a central sacred fire." Language and cultural revitalization efforts across Indian country are working to not just revitalize tribal languages; they are working to revitalize and heal Indian communities by restoring traditional cultural values. It is one-size-fits-all, assimilationist English-only educational efforts, not government welfare policies as Riley (2016) and other conservatives contend, that produce family disintegration today faced by many Indigenous and other people.

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References

- Adams, D. W. (1995). *Education for extinction: American Indians and the boarding school experience, 1875-1928*. Lawrence: University Press of Kansas.
- Alvord, L. A., & Van Pelt, E. C. (1999). *The scalpel and the silver bear: The first Navajo woman surgeon combines western medicine and traditional healing*. New York, NY: Bantam.
- American Indian Health. (2013, September 30). *Health topics*. Retrieved from <http://americanindianhealth.nlm.nih.gov/>
- Barnhardt, R., & Kawagley, O. (Eds.). (2011). *Sharing our pathways: Native perspectives on education in Alaska*. Fairbanks, AK: Alaska Native Knowledge Network, University of Alaska.
- Collier, J. (1947). *The Indians of the Americas: The long hope*. New York, NY: W. W. Norton.
- Eastman, C. A. (Ohiyesa). (1915). *The Indian today: The past and future of the First American*. Garden City, NY: Doubleday.
- Hallett, D., Chandler, M. J., & Lalonde, C. E. (2007). Aboriginal language knowledge and youth suicide. *Cognitive Development*, 22, 392-399.
<https://doi.org/10.1016/j.cogdev.2007.02.001>
- Hernandez, D. J., & Charney, E. (Eds.). (1998). *From generation to generation: The health and well-being of children in immigrant families* (Committee on the Health and Adjustment of Immigrant Children and Families, Board on Children, Youth, and Families, National Research Council and Institute of Medicine). Washington, DC: National Academy.
- Johnson, T. J., & Legatz, J. (2006). Tséhootsooi Diné Bi'ólta'. *Journal of American Indian Education*, 45, 26-33.
- Kawagley, A. O., & Kawai'ae'a, K. K. C. (2003, August 14). *Ke Kula Mauli Ola Hawai'i 'o Nāwahiokalani'ōpu'u Living Hawaiian Life-Force School. Unpublished draft case study report* (Site report #33). Tempe: Native Educators Research Project, Center for Indian Education, Arizona State University.
- Kawai'ae'a, K., Kawagley, A. O., & Masaoka, K. (2017). *Ke Kula Mauli Ola Hawai'i 'o Nāwahiokalani'ōpu'u Living Hawaiian life-force school*. In J. Reyhner, J. Martin, L. Lockard, & W. S. Gilbert (Eds.), *Honoring our teachers* (pp. 77-98). Flagstaff, AZ: Northern Arizona University.
- Gluckhohn, C. (1962). *Culture and behavior*. New York, NY: Free Press of Glencoe.
- Littlebear, R. (1999). Some rare and radical ideas for keeping Indigenous languages alive. In J. Reyhner, G. Cantoni, R. N. St. Clair, & E. P. Yazzie, (Eds.), *Revitalizing Indigenous languages* (pp. 1-5). Flagstaff, AZ: Northern Arizona University. Retrieved from http://jan.ucc.nau.edu/~jar/RIL_1.html
- Luning, R. J. I., & Yamauchi, L. A. (2010). The influences of Indigenous heritage language education on students and families in a Hawaiian Language immersion program. *Heritage Language Journal*, 7, 46-75.
- Mankiller, W. (2004). *Every day is a good day: Reflections by contemporary Indigenous women*. Golden, CO: Fulcrum.
- Manulito, K. (2004). *Case study: Window rock elementary school*. Tempe: Native Educators Research Project, Center for Indian Education, Arizona State University. (Unpublished manuscript).
- Maxwell, L. A. (2013, December 4). Education in Indian country: Running in place. *Education Week*, 33, 14-20. Retrieved from <http://www.edweek.org/ew/projects/2013/native-american-education/running-in-place.html#jump>
- McCarty, T. L. (2013). *Language planning and policy in Native America: History, theory, praxis*. Bristol: Multilingual Matters.
- McCauley, E. A. (2001). *Our songs are alive: Traditional diné leaders and pedagogy of possibility for diné education* (Ed.D. dissertation). Flagstaff, AZ: Northern Arizona University.
- Nicholas, S. E. (2010). "How are you Hopi if you can't speak it?" An ethnographic study of language as cultural practice among Hopi youth. In T. L. McCarty (ed.), *Ethnography and language policy* (pp. 53-75). New York, NY: Routledge.
- Nicholas, S. E. (2013). "Being" Hopi by "living" Hopi: Redefining and reasserting cultural and linguistic identity: Emergent Hopi youth ideologies. In L. T. Wyman, T. L. McCarty, & S. Nicholas (Eds.), *Indigenous youth and multilingualism: Language identity, ideology, and practice in dynamic cultural worlds* (pp. 70-89). New York, NY: Routledge.
- Reyhner, J. (2010). Indigenous language immersion schools for strong Indigenous identities. *Heritage Language Journal*, 7, 138-152.

- Reyhner, J., & Eder, J. (2017). *American Indian education: A history*. (2nd ed.). Norman, OK: University of Oklahoma.
- Reyhner, J., & Johnson, F. (2015). Immersion education. In J. Reyhner (Ed.), *Teaching Indigenous students: Honoring place, community and culture*. Norman, OK: University of Oklahoma.
- Riley, N. S. (2016). *The new trail of tears: How Washington is destroying American Indians*. New York, NY: Encounter Books.
- Szasz, M. C. (1999). *Education and the American Indian: The road to self-determination since 1928* (3rd ed.). Albuquerque, NM: University of New Mexico Press.
- The Indian*. (1886, February 17). Hagersville, ON, p. 25.
- Valdés, G. (1996). *Con Respeto: Bridging the distances between culturally diverse families and schools*. New York, NY: Teachers College Press.
- Walmsley, R. (2011). *World prison population list* (11th ed.). International Centre for Prison Studies. Retrieved February 12, 2010, from http://www.prisonstudies.org/sites/default/files/resources/downloads/wpp1_9.pdf
- White, L. (2015). *Free to be Mohawk: Indigenous education at the Akwesasne freedom school*. Norman, OK: University of Oklahoma Press.
- Wilkins, L. (2008). Nine virtues of the Yakima Nation. *Democracy & Education*, 17, 29–32.
- Wilson, H. W., Kamanāma, K., & Rawlins, N. (2006). Nawahī Hawaiian laboratory school. *Journal of American Indian Education*, 45, 42–44.



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