

# Decolonizing Western Science, Research, and Education: Valuing Linguistic Diversity

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Indigenous scholars and educators have strongly criticized Western scientific research and the role that universities have played in colonization. To examine these criticisms, some practices and motivations within the academic discipline of linguistics are compared in this chapter to the approaches advocated by Indigenous scholars. Three anti-colonialist recommendations for improving university research are examined:

1. Undertake research projects that acknowledge and consider diversity, rather than research projects that overemphasize hypothetical universals of human behavior and/or culture.
2. Adopt research strategies that involve humble collaboration to improve understanding, rather than aggressive competition to achieve domination.
3. In addition to the pursuit of knowledge, the motivations for research must be concerned with ethical, social, and practical outcomes.

These recommendations can improve university education so that it will be more culturally appropriate and more useful for Indigenous students. In addition to the needs of Indigenous students, this critical examination of Western science reveals directions for improving conduct within universities so that research and education may be more valid and ethical. Alternative theories within a discipline such as linguistics are often evaluated in relation to criteria such as descriptive adequacy, psycholinguistic plausibility, and evolutionary plausibility. Given the limited public resources that are available for universities, the recommendations of Indigenous scholars indicate that social justice must be a fundamental criterion for evaluating alternative research approaches.

To explicitly examine problematic aspects of Western science, this chapter builds from the critical discourse analysis method that was effectively implemented in Edward Said's (2003/1978) *Orientalism*. To illustrate and critique colonialist tendencies, extensive quotations are used to compare the practices and motivations of Western researchers to those of Indigenous scholars, including Marie Battiste, James (Sa'ke'j) Youngblood Henderson and Linda Tuhiwai Smith. By considering the ideas of Indigenous scholars, my method follows the recommendation of Battiste (2013, p. 120), that "[t]he decolonization of Eurocentric science can only be achieved when all voices are allowed to emerge." The comparison of Western and Indigenous voices and ideas also allows the reframing described by Smith (2012, p. 154) who explained that, "[r]eframing

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is about taking much greater control over the ways in which indigenous issues and social problems are discussed and handled.” In particular, research issues are reframed in relation to entire communities and their colonialist histories and contexts, rather than as only psychological, cognitive or personal issues. I follow Smith (2012, p. 6) in using the term “Indigenous” to refer to the many distinct peoples who may describe themselves with terms such as Aboriginal, First Peoples, First Nations or Native American.

Kohn (2012, Introduction) defined colonialism in terms of the goal of achieving domination: “Colonialism is a practice of domination, which involves the subjugation of one people to another.” Although domination and subjugation are often pursued through military actions and resources, colonizers also achieve their goals through educational institutions and policies. For example, horrific and oppressive colonialist practices occurred extensively in the Canadian Indian residential schools for more than a century until the last school was finally closed in 1996 (e.g., Haig-Brown, 1988; Regan, 2010; Truth and Reconciliation Commission of Canada, 2012). Universities and university-based research have also been strongly criticized for their roles in colonization. Battiste, Bell and Findlay (2002, pp. 90, 83) explained this criticism:

Colonialism has never employed only physical force to achieve its ends: it has always depended on cultural and educational instruments to fortify its own troops, administrators, merchants, and settlers and to induce the colonized to accept and internalize the illusion of their own inferiority.... Universities have largely held onto their Eurocentric canons of thought and culture and sapped the creative potential of faculty, students, and communities in ways both wasteful and damaging.

If Indigenous students encounter university courses that are not useful or that teach only Eurocentric concepts, then their time spent studying may be wasted, and the students may need to unlearn concepts and assumptions. Similarly, Smith (2012, p. 1) criticized Western research:

From the vantage point of the colonized, a position from which I write and choose to privilege, the term ‘research’ is inextricably linked to European imperialism and colonialism. The word itself, ‘research,’ is probably one of the dirtiest words in the indigenous world’s vocabulary.

Researchers and teachers who are settlers or descendants of settlers in colonized lands may conclude that this criticism is too strong or that it does not apply to them and their work. Therefore, to explicitly examine problematic aspects of Western science and education, quotations from Western researchers are critiqued. The quotations in this chapter are from the discipline of linguistics and were chosen because colonialist practices have substantially reduced the vitality of Indigenous languages and because linguists have often explicitly explained their practices and motivations. The analysis of these quotations allows West-

ern researchers to reconsider their own practices and purposes. In addition, the analysis may assist Indigenous educators in examining their traditional knowledge systems and practices in relation to the educational systems of colonizing cultures. The recommendations of Indigenous scholars suggest ways in which linguistic diversity can be valued, researched, preserved and taught.

**Research projects that overemphasize hypothetical universals and de-emphasize diversity**

When cultures and languages are compared, one of the cultures may not be adequately valued and represented. This bias can occur in two ways. First, a researcher could claim that European cultures and languages are superior and other cultures and languages are inferior. A second type of bias, which is the focus of this chapter, occurs when cultures and languages are misrepresented, de-emphasized, ignored or suppressed. This second type may not be obvious to scholars who have been educated within the traditions of Western science, with its tendency to pursue universal explanations. When researchers overstate hypothetical universals of human behavior and culture, a failure to acknowledge differences in language and culture can occur. Overstated universals erroneously claim that all humans are the same in terms of specific characteristics, such as the nature of the languages that they use. A Eurocentric bias arises when researchers claim that the one universal value or characteristic is the European (or English) value or characteristic.

Indigenous scholars have criticized Western science for pursuing research that fails to acknowledge differences between cultures, including languages. Battiste (2013, p. 120) explained this tendency within Western science: “Eurocentric science seeks principles that are universal and, as such, can be applied anywhere and any time.” Battiste and Henderson (2000, pp. 37, 40-41, 75-76) explained the problematic and dominating nature of this goal of universalism:

The Eurocentric quest for universal definitions has raised suspicion among Indigenous peoples, who do not want to be assimilated into Eurocentric categories.... We are not creating a grand theory or a universal conceptualization of Indigenous knowledge or heritage. We are intimately aware that each Indigenous régime is characteristic of the creative adaptation of a people to an ecological order. Given the existing ecological diversity, a corresponding diversity of Indigenous languages, knowledge, and heritages exist.... Indigenous languages and worldviews must be strengthened and developed within their own contexts. Any interference is domination, both cognitively and culturally. Thus, every Indigenous language has a right to exist without conforming to Eurocentric languages or worldviews. Equally as important as strengthening Indigenous languages and worldviews is being honest about Eurocentric languages and worldviews. The failure to admit the differences in worldviews is also domination.

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An overemphasis on hypothetical universals of human behavior and a de-emphasis of diversity is exhibited in one of the main approaches to the study of language. This approach is often called the Universal Grammar (UG) approach. For more than half of a century, the UG approach to linguistics has been led by Dr. Noam Chomsky of the Massachusetts Institute of Technology. Many linguists in many countries have adopted the UG approach in their research and teaching. The UG approach is very controversial and has been criticized as psycholinguistically uninterpretable, evolutionarily implausible, circularly unlearnable, Eurocentric and colonialist (a review of these criticisms was provided in Mellow, 2010; see also O'Grady, Lee, & Kwak, 2009, p. 69).

Chomsky argued for hypothetical universals in a manner that is so strong that it overemphasizes them. For example, Chomsky (2001) claimed that “[a] rational Martian scientist, studying humans the way we study other animals, could reasonably conclude that there really is only one language, with only minor variations.” Chomsky has often made this claim about hypothetical Martian conclusions (e.g., Chomsky, 1991, pp. 26-27; see also Evans & Levinson, 2009, p. 429; Everett, 2012, p. 86; Pinker, 2007, p. 232). In addition, Chomsky (1995, p. 389) explained that a primary goal of the UG approach is to de-emphasize diversity: “The task is to show that the apparent richness and diversity of linguistic phenomena is illusory and epiphenomenal, the result of interaction of fixed principles under slightly varying conditions.”

In order to achieve the task of showing that diversity is illusory, Chomsky and his colleagues analyze the properties of grammatical and ungrammatical words and sentences in order to propose universal principles and concepts. The fundamental components and processes of the UG theory were developed through the study of English. Chomsky (1980, p. 48; see also Chomsky, 1981, p. 6) argued that the universal components of language can be determined through the study of a single language:

I have not hesitated to propose a general principle of linguistic structure on the basis of observation of a single language. The inference is legitimate, on the assumption that humans are not specifically adapted to learn one rather than another human language, say English rather than Japanese. Assuming that the genetically determined language faculty is a common human possession, we may conclude that a principle of language is universal if we are led to postulate it as a “precondition” for the acquisition of a single language.

Because the UG theory was developed initially and primarily through the study of English, it has been widely criticized as Eurocentric and Anglocentric (e.g., Evans & Levinson, 2009; Haspelmath, 2010; Mellow, 2010; Mühlhäusler, 1996, p. 331; Pennycook, 2001, p. 35; Tomasello, 2003, p. 8; Van Valin, 2000).

As part of the universalist approach, Chomsky (1988, pp. 134, 191-192) claimed that every infant is genetically endowed with the same knowledge of most of the concepts that have words for them in language. Chomsky claimed

that children have a long list of concepts prior to any experience with those concepts, either as linguistic input or perception of entities and actions in the world. Chomsky (2012, p. 27) elaborated upon this claim, arguing that the concepts encoded as word meanings in all languages are largely identical:

[W]e have no reason to believe that there's any difference between lexical items and concepts. It's true that other cultures will break things up a little differently, but the differences are pretty slight. The *basic* properties are just *identical*. When I give examples in class like *river* and run these odd thought experiments [concerning the identities of rivers – what a person is willing to call a river, or the same river that you find in my work], it doesn't matter much which language background anyone comes from, they all recognize it in the same way in fundamental respects. Every infant does. (Note: The words in square brackets are from the editor of the book, emphasis in original.)

Chomsky's claim about the universal and invariant nature of concepts and word meanings corresponds to a colonialist tendency that Battiste and Henderson (2000, pp. 80-83) described as the illusion of benign translatability, that languages can be translated without distortion because there is very little difference in ideas and worldviews (see also Mühlhäusler, 1996, p. 331; Valentine, 1998, p. 159). They argued that this assertion of invariance is part of a colonial myth that has motivated government educational policies that do not recognize the value of Indigenous languages. These types of universalist beliefs contributed to policies in Canadian residential schools that prohibited and punished Indigenous language use. These types of universalist beliefs also contributed to arguments made to the parents of Indigenous children that they should not speak traditional languages to their children. Thus, the bias of overstated universals is problematic when it leads contemporary researchers to ignore or contribute to the catastrophic loss of cultures and languages that has occurred as a result of colonization by Europeans.

Although the UG approach is prominent within Western approaches to the study of language, other Western linguistic approaches are compatible with the Indigenous valuation of diversity. For example, Goldberg (2003, p. 222) argued that “[w]hat is truly remarkable is the degree to which human languages differ from one another, given that all languages need to express roughly the same types of messages.” Similarly, Everett (2008, pp. 257, 201, 259) argued for the importance of diversity:

A third problem for Chomsky's theory of language – and the issue that I want to pursue here – is the simple fact that languages are less alike than Chomsky imagined, and their differences are profound... [T]he meaning of individual words [can] be the result of culture, such as the closely related words for *friend* and *enemy* [in the language Pirahã]... [W]e cannot study languages effectively apart from their cultural

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context, especially languages whose cultures differ radically from the culture of the researcher. (emphasis in original)

Thus, the criticisms from Indigenous scholars may assist in evaluating alternative theories that exist within Western science, leading to research that provides more valid descriptions and explanations of phenomena.

It is important to acknowledge that UG research is often motivated by good intentions. Linguists following the UG approach are concerned with avoiding racism (Chomsky, 1977, p. 92), promoting egalitarianism across languages (Newmeyer, 1986, pp. 39, 144), and respecting the dignity of each person (Roepert, 2007). For example, Roepert (2007, p. 296) argued that “I think efforts to subdivide human abilities lead to primitive definitions of human nature that inevitably damage our sense of mutual regard.” It appears that UG researchers have attempted to avoid the first type of bias, the claim that one language or culture is superior to another. While attempting to avoid claims of superiority, they have engaged in the second type of bias, overstating universals. Once again, the insights of Indigenous scholars are valuable because they can refine the nature of scientific investigations, leading to research that is more ethical. In particular, Battiste (2013, p. 121) has argued that Eurocentric science can be transformed when we “recognize that equality need not mean sameness.” Indigenous scholars demonstrate that diversity can be acknowledged in a respectful manner. Researchers can study differences between languages without claiming that one language is superior to another language.

### **Practices involving competition to achieve domination rather than humble collaboration**

As noted in the introduction, Indigenous scholars such as Battiste (2013, p. 120) have argued that genuine knowledge and understanding will emerge only when all voices and perspectives are heard and considered. Both Battiste (2013, pp. 69-73) and Smith (2012, p. xii) argued that inquiry and research need to be collaborative. They have also argued that ethical and valid progress will be made when research is humble, sympathetic, compassionate, respectful, inclusive, inter-disciplinary, and open to possibilities (Battiste, 2013, p. 72; Battiste & Henderson, 2000, p. 133; Smith, 2012, pp. xii, 5, 9).

In contrast, these Indigenous scholars have observed that Western science often involves competition to achieve domination rather than humble collaboration. Battiste and Henderson (2000, pp. 26-28) discussed Kuhn's (1970) observation that some scientists or researchers tend to work exclusively within one approach to research rather than examining and comparing a range of possible methods and explanations for phenomena. Kuhn (1970) described these restrictive approaches to scientific inquiry as paradigms. According to Kuhn (1970, pp. 10, 11), a paradigm is a coherent tradition of scientific research that has attracted an enduring group of adherents and that has a restricted set of research topics and methods that is unequivocal and binding. Kuhn (1970, pp. 150-159) observed that some researchers are so strongly committed to a single paradigm that no

amount of evidence or argumentation will lead them to change their assumptions and worldviews. Kuhn argued that this adherence to one paradigm is normal for science and is successful in certain respects because it leads researchers to fully and efficiently test the limits of an approach and prevents them from abandoning a paradigm when a problem only seems to be difficult, but can be solved within the approach.

However, adherence to a single-paradigm is problematic. Battiste and Henderson (2000, p. 118) explained how this strategy does not lead to neutral scientific findings: “Eurocentric science is based on observations and interpretations that take place within a context of assumptions, ideas, and beliefs. Within this context, strong personal and social motivations influence what a person does and sees.” The discussion of the overemphasis on universals illustrates how specific assumptions can lead to narrow and biased research. In addition, rather than comparing theoretical alternatives, these single-paradigm researchers may boldly seek to dominate the research landscape by aggressively attempting to obtain as many scholarly resources as possible. Because universities are institutions in which scholars compete for limited public funding, scholars who work in just one paradigm may attempt to achieve or maintain the dominance of their paradigm by hiring only faculty who follow the same paradigm; by teaching students that their paradigm is best, sometimes not even providing students with adequate knowledge about alternative theories; and by competing for grant money, presence in publications, and honorary awards. Within this competition for domination, Smith (2012, pp. 68, 161) observed that Western academic disciplines may be “antagonistic to other belief systems” and that Western science “has been hostile to indigenous ways of knowing.”

Within a Western context in which aggressive competition is perceived as normal (e.g., in politics, sports and business), some linguists have reported that an adversarial battle for domination is part of the scientific practice. Carnie (2002, pp. 5, 371-372) explained how the proponents of the UG approach behave while attempting to make it the “dominant” theory of linguistics, especially in relation to sentence patterns (or syntax):

The dominant theory of syntax is due to Noam Chomsky and his colleagues, starting in the mid 1950s and continuing to this day.... We briefly turn now to the very thorny question of which theoretical approach is right. If you ask this question at any major syntax conference you are likely to get lynched. Most linguists hold to their theories the way religious fanatics follow their beliefs or the way nationalists feel about their countries. I admit that I am personally guilty of this at times. As you can see from the number of chapters in this book devoted to P&P [Principles and Parameters, a version of UG, jdm] compared to the number of chapters devoted to other approaches, my heart lies squarely in the P&P/Minimalist camp.

Unfortunately, there is rarely rational dialog on the question of what theoretical approaches are the best.

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This aggressive and confrontational style of theoretical debate has been part of linguistics for the past 50 years, as explained by Newmeyer (1986, p. 81; UG is a type of generativist theory rather than an empiricist theory):

It must be admitted, however, that the confrontational style many early generativists adopted in their writing and in their behavior at public conferences was also very effective at winning over the young. . . . No paper or presentation that betrayed an empiricist orientation to linguistics could get by unscathed. Some of these attacks were nothing less than vicious, going well beyond the norms of scholarly criticism, and were felt to impugn their opponents' intelligence and character as well as their ideas about linguistic research.

This aggressive competition for domination has many negative effects. It discourages researchers from interacting with scholars who offer additional or different perspectives and thus encourages researchers to isolate themselves within a community that has a narrow worldview and set of values. This confrontational behavior also discourages many people from participating in learning and research. Because they are aware of the colonialist history of educational institutions, Indigenous students may be especially deterred by this hostile and unprofessional rhetoric.

Some Western philosophers and linguists have criticized the single-paradigm approach and the competition for domination associated with it. Feyerabend (1968, pp. 14, 33) argued for theoretical pluralism:

I shall also try to give a positive methodology for the empirical sciences which no longer encourages dogmatic petrification in the name of experience. . . . You can be a good empiricist only if you are prepared to work with many alternative theories rather than with a single point of view and 'experience.' This plurality of theories must not be regarded as a preliminary stage of knowledge which will at some time in the future be replaced by the One True Theory. Theoretical pluralism is assumed to be an *essential feature* of all knowledge that claims to be objective. . . . Any such method [that encourages uniformity] is in the last resort a method of deception. It enforces unenlightened conformism, and speaks of truth; it leads to a deterioration of intellectual capacities, of the power of imagination, and speaks of deep insight; it destroys the most precious gift of the young, their tremendous power of imagination, and speaks of education. (emphasis in original)

Building from Feyerabend and other work within the philosophy of science, Derwing (1973, pp. 17, 234) argued that linguists should regularly and systematically compare competing explanations following a "method of alternative hypotheses." Some linguists have followed this pluralistic approach that allows all voices to be heard. For example, Hawkins (2008) edited a special issue of a

journal that systematically compared the UG analyses to emergentist analyses. In a valuable overview article, Scholz, Pelletier, and Pullum (2011) compared and contrasted three alternative theoretical approaches: essentialism (which includes UG), externalism, and emergentism. With respect to the choice of a scientific research strategy, the insights of Indigenous scholars are valuable because they encourage humble, collaborative and pluralistic research.

**Motivations that are not concerned with ethical, social and practical outcomes**

As noted in the introduction, Indigenous scholars such as Battiste, Bell and Findlay (2002, p. 83) have argued that university teaching and research can be “both wasteful and damaging.” Similarly, Smith (2012, pp. 29, 1, 178) provided an extensive discussion of the negative outcomes of research about Indigenous people and cultures:

As Fanon and later writers such as Nandy have claimed, imperialism and colonialism have brought complete disorder to colonized peoples, disconnecting them from their histories, their landscapes, their social interactions and their own ways of thinking, feeling and interacting with the world. It was a process of systematic fragmentation which can still be seen in the disciplinary carve-up of the indigenous world: bones, mummies and skulls to the museums, art work to private collectors, languages to linguistics, ‘customs’ to anthropologists, beliefs and behaviours to psychologists.... It appalls us that the West can desire, extract and claim ownership of ways of knowing, our imagery, the things we create and produce.... Years of research have frequently failed to improve the conditions of the people who are researched. This has led many Maori people to believe that researchers are simply intent on taking or ‘stealing’ knowledge in a non-reciprocal and often underhanded way.

Because of these negative outcomes of research about Indigenous peoples and cultures, Smith (2012, pp. 10, 175-176) has specified a number of ethical questions that need to be asked about research and its outcomes:

- Whose research is it?
- Who defined the research problem?
- Who owns it?
- Whose interests does it serve?
- Who will benefit from it?
- For whom is this study worthy and relevant? Who says so?
- What knowledge will the community gain from this study?
- What knowledge will the researcher gain from this study?
- What are some likely positive outcomes from this study?
- What are some possible negative outcomes?

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- How can the negative outcomes be eliminated?
- To whom is the researcher accountable?

These Indigenous perspectives on the ethical responsibility of researchers to consider outcomes can be contrasted to some Western perspectives in relation to the issues of academic freedom and the tension between basic research and applied research.

The notion of academic freedom is central to Western science. Academic freedom is important so that researchers are not constrained by a narrow political or ideological agenda. Academic freedom is also important because creative new discoveries may be prevented by restrictive oversight or supervision by a governing body. However, Indigenous scholars such as Smith (2012, pp. 70-71) have argued that academic freedom must be accompanied by social and ethical responsibility:

Concepts of ‘academic freedom,’ the ‘search for truth’ and ‘democracy’ underpin the notion of independence [of individual academic disciplines, such as theoretical linguistics, jdm] and are vigorously defended by intellectuals. Insularity protects a discipline from the ‘outside,’ enabling communities of scholars to distance themselves from others and, in the more extreme forms, to absolve themselves of responsibility for what occurs in other branches of their discipline, in the academy and in the world.

In his analysis of research paradigms, Kuhn (1970, p. 164) made observations similar to those of Smith. Kuhn reported that researchers within a paradigm work only for an audience of colleagues who share the same values and beliefs. Those researchers believe they are insulated from the larger society and therefore they can focus on problems that they believe they can solve rather than problems of social importance.

Chomsky has explained his belief in an extreme form of academic freedom. Because Chomsky worked at the Massachusetts Institute of Technology and therefore received extensive amounts of direct and indirect funding from the U.S. military, Chomsky (quoted in Barsky, 1997, p. 140) provided the following justification of his use of military funding:

Nothing should be done to impede people from teaching and doing their research even if at that very moment it was being used to massacre and destroy.... [P]eople have a responsibility for the foreseeable consequences of their actions, and therefore have the responsibility of thinking about the research they undertake and what it might lead to under existing conditions.

Chomsky’s extreme belief in personal, individual academic freedom from institutional legislation of research corresponds to Smith’s (2012, p. 21) concern

about the Western political idea of predatory individualism. Smith (2012, pp. 176, xi) further questioned the rights of individual researchers:

[I]t is also important to question that most fundamental belief of all, that individual researchers have an inherent right to knowledge and truth. We should not assume that they have been trained well enough to pursue it rigorously, nor to recognize it when they have ‘discovered’ it... Along with my colleagues I attempted to develop approaches to research that addressed the stinging criticism being made by my own communities about the unethical, individualistic practice of research that in their view often rewarded researchers for telling half-truths or downright lies, that misrepresented our world, and that gave authority about us to academic researchers.

In order to determine whether researchers are adequately prepared to investigate issues related to Indigenous peoples and cultures, research projects must be justified by precise and concrete answers to the ethical questions that Smith (2012) proposed.

A comparison of Indigenous and Western perspectives on the outcomes of research can also be made in relation to the tension between basic and applied research. Ede and Cormack (2012, pp. ix-x) reported that Western science has, for several thousand years, exhibited a tension between the intellectual or philosophical pursuit of knowledge and the real-world application of that knowledge. The pursuit of basic, pure, fundamental or curiosity-driven science is not concerned with possible applications, although many applications may subsequently follow from the insights that it yields. Robinson and Ellis (2008a, p. 492) argued that, in addition to descriptive and explanatory adequacy, a linguistic theory can be evaluated in terms of its utility for various types of pedagogic decision-making. If two theories, such as UG and emergentism, each provide precise descriptions of complex linguistic phenomena, then the utility of a theory such as emergentism makes it a more valuable theory (e.g., Mellow, 2010, 2012).

Many Western linguists working within the UG approach are not concerned with applications such as language education. For example, Chomsky (1988, p. 180) cautioned against using UG for pedagogical purposes:

I don't think modern linguistics can tell you very much of practical utility... Psychology and linguistics have caused a good deal of harm by pretending to have answers to those questions and telling teachers and people who deal with children how they should behave.

Illustrating Smith's (2012, p. 68, 70; previously quoted) observations, the absence of concern for application has led some linguists to be antagonistic toward other disciplines such as language education (or applied linguistics). For example, Baker and Hengeveld (2012, p. 20) claimed that the approach to language within language education is neither scientific nor scholarly:

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Almost everyone who has learned or is learning a foreign language in school or at a university will one day come across a grammar of the language, often as part of a coursebook that also deals with other aspects of the language. In general, such a grammar does not have scientific or scholarly aims. This type of grammar is known as a pedagogical grammar, or learner's grammar. It explains the rules of a language for the purpose of teaching and learning.

This claim by Baker and Hengeveld is misleading and partisan rhetoric. Their claim ignores the extensive number of quasi-experimental studies that have investigated the effects of different types of language explanations and learning activities (e.g., Norris & Ortega, 2000, 2006; VanPatten, 2004), as well as well-developed linguistic theories, such as Cognitive Linguistics, that have been applied to second language instruction (e.g., Robinson & Ellis, 2008b).

The tendency of many Western linguists to work as basic rather than applied scientists has also been described in relation to providing comprehensive descriptions of Indigenous languages, especially those that have small and diminishing numbers of speakers because of colonialist actions and policies. Valentine (1998, pp. 161, 165, 166) explained how the aggressive pressure exerted by scholars seeking the dominance of the UG approach has led to a reduced amount of practical work that is desired by Indigenous communities:

The ascendancy of generative grammar in the politics and practice of the academy has resulted in a shift away from the areas of field methods and comprehensive documentary research, chiefly due to the theory's introspective methods and its promotion of the general over the specific.... Linguists working with Native American languages experience a considerable amount of ambivalence, since the politics of the academy exerts very strong pressure to take a theoretical or theory/descriptive approach, while the community of speakers is most immediately interested in the practical needs of functional pedagogy, and stands to benefit most from just such material.... [T]he need to have "theoretical" credentials exerts vast pressure on professional linguists and their departments and detracts from the time they can commit to more enduring aspects of language work.

Similarly, Evans (2010, pp. 222-223) described the focus on basic or theoretical linguistics and argued for the importance of comprehensively documenting the constructions used by speakers of a language:

[T]here have also been recent periods where powerful figures in the most academically influential countries have denigrated or ignored the role of descriptive work, compared to the supposedly nobler and more scientifically challenging task of "theoretical" work in formal

paradigms like generative grammar. Since the ascent to dominance of Chomskyan generative linguistics in the 1960s, the focus in North America and in many countries that followed its academic trends has been on theoretical modeling of fragments of well-known languages, rather than on new empirical work. . . . [T]he field of linguistics still needs a massive turn-around of professional priorities, an expansion of field training, and a proper recognition of the value and time demands of descriptive work. Only then can we marshal the number of trained linguistic scholars that is needed to document our fragile linguistic heritage over the coming decades.

The guidelines provided by Indigenous scholars such as Linda Smith indicate ways in which Western science can find a more ethical balance between basic and applied research. In particular, Western scholars need to answer the question “What will be the specific positive outcomes of research for an Indigenous community?” Those outcomes must also be assessed by the affected communities rather than only by members of a scholarly paradigm. The outcomes should support and empower local decision-making in activities such as language documentation, teaching and assessment (e.g., Mellow, 2000; Mellow & Begg, 2013). If research is achieving some of these outcomes, then university courses may be useful and culturally appropriate for Indigenous students.

### **Solving the “Settler problem”**

Historically, interactions between Western settlers and Indigenous peoples have often been framed in relation to the “Indian” problem or the “indigenous” problem (e.g., Regan, 2010, p. 4; Smith, 2012, p. 154): that Indigenous people need to be civilized and saved and that Western settlers know how to make Indigenous people better. The examination of the arguments of Indigenous scholars has illustrated that the interactions instead need to be framed as the “settler” problem. These recommendations for improving Western science provide specific directions for solving the settler problem in accord with the suggestions of Regan (2010, pp. 11, 237):

How can we, as non-Indigenous people, unsettle ourselves to name and then transform the settler – the colonizer who lurks within – not just in words but by our actions, as we confront the history of colonization, violence, racism, and injustice that remains part of the [Indian Residential School] legacy today. . . . Unsettling the settler within necessarily involves critical self-reflection and action in our lives – a difficult learning that is part of the struggle we must undertake. At the same time, we must work in respectful and humble partnership with Indigenous people to generate critical hope – vision that is neither cynical nor utopian but rooted in truth as an ethical quality in the struggle for human dignity and freedom.

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By indicating alternatives to universals and domination within Western science, the recommendations by Indigenous scholars provide specific directions for decolonizing education in the manner suggested by Battiste, Bell, and Findlay (2002, pp. 88, 84):

[T]he postcolonial is about rethinking conceptual, institutional, cultural, legal, and other boundaries that are taken for granted as “natural” or “proper,” or assumed or asserted to be universal, but that function in fact as structural barriers to justice for marginalized and dispossessed people.... [T]he task of decolonizing education requires multilateral processes of understanding and unpacking the central assumptions of domination, patriarchy, racism, and ethnocentrism that continue to glue the academy’s privileges in place.

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