Introduction: What Is Language Planning?

In a Native American community near an urban center in the southwestern United States, parents, tribal leaders, and local educators gather to design a supplemental school curriculum that will support Native youth in learning their heritage language at school. Across the continent, Wampanoag tribal citizens leverage extensive historical linguistic documentation to revive their ancestral language, which, until their efforts, had not been spoken in more than 150 years. In Finland, Saami community members use formal classes and cultural activities to support Saami-as-a-second language learning among working adults. In Nepal, a Limbu Indigenous youth organization lobbies teachers, students, and policymakers to ensure that the Limbu language is taught in school. In Aotearoa/New Zealand and Hawai‘i, Indigenous families, political leaders, educators, and non-Indigenous allies fight to make Māori and Hawaiian co-official in their respective national and state contexts. These are but a few examples of community-based language planning around the world (little doe baird 2013; May 2005; McCarty 2011; Olthuis, Kivelä and Skutnabb-Kangas 2013; Phyak forthcoming; Wilson 2014).

Since time immemorial, people have devised ways of organizing and regulating their communicative practices. As a social practice, then, language planning is as old as humankind itself (Wright 2004). While humans have been planning language for millennia, as a field of scholarly inquiry, language planning is relatively young, having grown out of late-20th-century concerns with which languages to develop in newly independent, decolonizing states. In a seminal book, Cooper (1989: 45) defines language planning as “deliberate efforts to influence the behavior of others with respect to the acquisition, structure, or functional allocation of their language codes.” Today, the field of study of which language planning is part is commonly referred to as language planning and policy (LPP), reflecting its overt and covert policymaking aims.

Drawing on research and practice in Indigenous LPP, this chapter explores community-based language planning. Indigenous peoples represent 5% of the world’s population, but they speak two-thirds of the world’s 7,000–7,500 spoken languages. Of those languages, about one-third are in some stage of language loss (Lewis and Simon 2016), and as many as 90% are
predicted to fall silent by century’s end (UNESCO Ad Hoc Expert Group 2003). The majority of endangered languages are Indigenous languages (Nettle and Romaine 2000). Hence, a close look at how diverse Indigenous communities are working to reclaim and sustain their languages has significant implications for community-based language planning worldwide.

Who “Does” Language Planning, and What Do Language Planners Do?

Language planning is often viewed as something governments or official bodies do, resulting in some type of regulation or textual decree. Government-backed language planning frequently has inequitable consequences for speakers of minoritized or lesser-used languages (Tollefson 1991). But, as we will see, language planning is a process in which families, communities, and even single individuals engage every day. “Language planning may take place in schools and other institutions, in families and workplaces, or in any social group—including virtual communities—in which verbal communication takes place,” Tollefson writes (2017: 2). “Anyone and everyone can do language planning,” Hinton stresses (2001a: 51).

LPP scholars distinguish three primary language planning activities:

1. **Status planning**—the planned use of particular languages for particular purposes in particular domains. Status planning asks, “What will the language be used for?” Deciding which language(s) will be privileged in the workplace, media, courts, and schools are examples of status planning.

2. **Corpus planning**—decisions about how a language will be represented, and the structures and norms for its use. Corpus planning asks, “What forms will best serve the language’s functions?” The development of writing systems, grammars, new vocabulary, and language teaching materials are examples of corpus planning.

3. **Acquisition planning**—decisions about who will acquire the language and how. Acquisition planning asks, “What language abilities do users need to fulfill the language’s functions?” Language-teacher preparation and education programming are examples of acquisition planning (Lewis and Simons 2016: 49).

These LPP processes are not discrete or autonomous but are interconnected and co-occurring within broader social, political, and economic systems. As Figure 3.1 suggests, corpus planning, exemplified by Sequoyah’s development of a writing system for Cherokee, provides the substance and the impetus for further status, corpus, and acquisition planning.

LPP scholars use the metaphor of a *linguistic ecology* to represent that complexity, referring to the heterogeneous environments in which language users interact (Mühlhäusler 2000). Like living organisms, modifying any part of the linguistic ecology has “correlated effects (and causes) on any other part” (Spolsky 2004: 6). As the next sections illustrate, within any given linguistic ecology, community-based language revitalization impacts and is impacted by myriad, multilayered sociolinguistic processes.

**Community-Based Language Planning: A Special Kind of LPP**

Community-based language planning (hereafter, CBLP) is bottom-up rather than top-down, organic and grass-roots rather than official or government-backed (Hornberger 1996). The distinguishing quality of CBLP is the agency of local people in language-related decision making (Lewis and Simons 2016). As the examples that introduce this chapter suggest, CBLP
is motivated by local needs and desires, and shaped by local resources and opportunity structures. In the first example, because the urban school attended by their children made no provision for teaching the Indigenous language, tribal leaders comprised a team of local personnel to create a curriculum that would accomplish that goal. This is a corpus and acquisition planning activity with implications for elevating the language’s status in the education domain.

Figure 3.1  Sequoyah (George Guess or Gist), with a likeness of his 1821 Cherokee Syllabary. This is an example of corpus planning with ramifications for status and acquisition planning; the syllabary supported one of the first Indigenous-language newspapers and widespread literacy in Cherokee.

Source: “Se-Quo-Yah” Lithograph by Thomas L. McKenney and James Hall, ca. 1836, Library of Congress Prints and Photographs Division, Washington, DC, Reproduction Number LC-DIG-pga-07569
In the Wampanoag example, a community-driven language reclamation project grew out of the vision of a single tribal citizen, jessie little doe baird. With no living first-language speakers, baird drew upon an extensive body of historical documents to learn and eventually teach the language to other community members. This is an instance of acquisition planning with implications for status and corpus planning (little doe baird 2013).

CBLP often begins with a small group, or, as in the Wampanoag case, even a single individual. “The scale of these efforts is the ‘very local,’” write Linn and Oberly—as ‘local’ as individuals and families” (2016: 149). Small-scale efforts can plant the seeds of far-reaching transformations, as in the examples of Māori and Hawaiian, which began with a few committed families and led to changes in national and state-level language policies. The latter are instances of status planning with feedback loops to corpus and acquisition planning.

CBLP is holistic and systemic. Often, the planning process serves as a context and conduit for reinforcing intergenerational ties, cultural identity, community well-being, and linguistic rights. As Miami language planner Daryl Baldwin explains, “Language reclamation is about community-building [and] healing from the past” (2003: 15–16).

Historical Perspectives

To better appreciate CBLP’s distinctive character, we need to situate it socially and historically. Indigenous CBLP has been prominent in Australia, Canada, the Americas, and the Pacific—regions of the world characterized by settlement colonization (Mufwene 2002). In contrast to trade colonization, settlement colonization is dependent upon the often-violent removal and containment of “Indigenous inhabitants in order to clear them from valuable land” (Tuck and Wang 2014: 224). In addition to military force, colonial schooling has been a prime instrument in the construction of settler-colonial societies. Particularly important, writes Tollefson (2017: 2), “are decisions about the medium of instruction.” By requiring education only in the dominant language, language-restrictionist policies seek to “erase and replace” linguistically encoded knowledges and cultural identifications with those associated with dominant-class values and practices (Lomawaima and McCarty 2006: xxii). “All of us now inherit the legacy of this . . . genocidal history,” Dauenhauer and Dauenhauer say of the situation in North America, a consequence of which has been massive language shift (1998: 60).

Only recently have states and international organizations begun to address these human rights violations. In 1919, the International Labor Organization (ILO) was created to defend the rights of ethnic minorities, including Indigenous peoples. In 1957, the ILO adopted Convention No. 107, the first international instrument setting forth the rights of Indigenous peoples. In 1984, the United Nations Working Group on Indigenous Populations began preparing the Draft Declaration on the Rights of Indigenous Peoples, calling for the “right to revitalize, use, develop and transmit to future generations their histories, languages, oral traditions, philosophies, writing systems and literatures” (United Nations General Assembly 2007, Article 14). It would take another 22 years of dinted effort by Indigenous peoples and allies worldwide before the Declaration was ratified by the United Nations General Assembly (www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf).

Thus, contemporary community-based efforts to revitalize and sustain endangered Indigenous languages operate under conditions of decolonization. These efforts are not only or even primarily about language per se but are integrally tied to community-based struggles for originary lands, the knowledge systems that arise from and steward those ecosystems, self-determination, and social justice (McCarty and Nicholas 2014). As Hermes, Bang, and Marin (2012: 383) write, the movement to reclaim Indigenous languages is “passionate, political, and
deeply personal, particularly for many Native people who are acutely aware that the [settler colonial state’s] attempted genocide was the direct cause of Indigenous language loss.”

Critical Issues and Current Contributions to Research and Praxis

Critical issues in CBLP are as diverse as the local contexts in which CBLP takes place. Concerns have revolved around issues of language documentation: the development and elaboration of orthographies, grammars, and dictionaries for endangered languages; the use of technology and media for language documentation and teaching; language planning within families; methodologies for teaching and learning endangered languages; the role of schools in language revitalization; the interaction of the local and the global in Indigenous language planning; youth responses to language loss and revitalization; and community-based efforts to secure linguistic human rights. The contents of this volume signal the range of issues that CBLP takes up. Although it is impossible to do justice to all of this work, the next sections look more closely at selected examples that illustrate CBLP in action.

CBLP When There Are No Living First-Language Speakers

What does CBLP look like when there are no living first-language speakers—and no voice recordings of the language from which to learn? Two initiatives in Native North America, Miami and Wampanoag, show that even under these most challenging of circumstances, languages dismissed as “extinct” may only be “sleeping,” with the potential to be revived.

Miami (myaamia) is an Algonquian language originally spoken by peoples indigenous to the southern Great Lakes region of what is now the United States. The seeds of Miami language shift and reclamation were jointly sown in the 17th century, when French Jesuits entered Miami-Illinois territory and began documenting the language as part of their evangelizing efforts. Over the next 150 years, others would continue to document the language, producing a large volume of textual materials that would one day become key resources for language revival.

At the same time, the Miami population experienced a sharp decline due to foreign-introduced disease, war, and several forcible removals from their lands. Miami children were sent to federal English-only boarding schools, and the Miami faced “continued social and governmental pressures to suppress all aspects of being Miami” (Baldwin and Olds 2007: 281). The last native speaker of Miami passed away in the 1960s. Today, Miami people live in 47 U.S. states, and there are approximately 4,000 enrolled citizens of the Miami Tribe of Oklahoma.

This is the sociohistorical context for the myaamiaki eemamwiciki or “Miami awakening,” a community-based language and culture reclamation process. CBLP for Miami began with the efforts of tribal citizens Julie Olds and Daryl Baldwin, the linguistic work of David Costa (1994), and strong support from the Miami Tribe of Oklahoma. A descendant of Miami leaders, Baldwin began learning the language out of personal interest. He and his wife, Karen, who also learned the language, made Miami the language of their home (Baldwin et al 2013; see Figure 3.2). In collaboration with the Miami Tribe of Oklahoma, Baldwin and Olds began a community-based Miami language learning program in 1996. Miami tribal leadership was also crucial in establishing the Myaamia Project (now the Myaamia Center) at the tribe’s namesake institution of higher education, Miami University (MU), in Oxford, Ohio. The Myaamia Center’s mission is research to assist Miami language and culture reclamation and the education of community members and MU students in “tribal efforts in language and culture revitalization”
Community-Based Language Planning

(www.myaamiacenter.org/?page_id=81). Summing up these efforts, Baldwin notes, “We’re very much a nation rebuilding and reawakening” (McCarty et al 2013: 105).

The second case of a “formerly sleeping language” (Leonard 2008) is Wampanoag (Wôpanâak), also called Massachusett, an Algonquian language spoken by peoples indigenous to what is now southeastern New England. Even before the Wampanoag encountered the Pilgrims at Plymouth Rock in 1620, their population had been heavily impacted by European-introduced diseases. By the 19th century, population decline, the confiscation of tribal lands by Whites, the movement of families from traditional multi-family homes to European-style nuclear family dwellings, and English-only schooling conspired to create the “first generation of children [who] no longer used the ancestral language among themselves as adults and did not speak it to their own children” (Reese-Miller 1998: 547).

Like Miami, Wôpanâak has a large corpus of written documentation, and historically, Native-language literacy was common among Wôpanâak speakers. In fact, during the 18th century, “Wampanoag literacy would rival that of the English” (www.wlrp.org/project-history.html). Wôpanâak language reclamation began in 1992, when jessie little doe baird, a citizen of the Mashpee Wampanoag Tribe of Cape Cod, determined “that I was responsible for, and capable of, making a place for my language to be welcomed back into my community (little doe baird 2013: 21). Working with Massachusetts Institute of Technology linguists Kenneth Hale and Norvin Richards, and drawing on historical documents, including personal diaries and correspondence and a 1663 Massachusett Bible translation, Baird developed a Wôpanâak dictionary and curriculum, enabling the first language classes to be offered in 1997. Learning linguistics as she compiled language materials, little doe baird also looked to experts and documentation in other living Eastern Algonquian languages as resources.

From these efforts came the Wôpanâak Language Reclamation Project (WLRP), which today offers classes for tribal and family members, immersion camps for all ages, and a “language nest” preschool—Mukayuhsak Weekuw, The Children’s House (www.wlrp.org/). little doe baird says of these efforts: “Reclaiming our language is one means of repairing the broken circle of cultural loss and pain. This is but one path which keeps us connected to our people, the earth, and the philosophies and truths given to us by the Creator” (www.wlrp.org/project-home.html).
CBLP When the Speaker Base Is Very Small

Many communities around the world face a situation in which the speaker base is very small—sometimes just a few elderly speakers. For these communities, the Master-Apprentice Program (MAP) has been an especially valuable CBLP approach (see also Chapter 12, this volume). Developed by the Advocates for Indigenous California Language Survival (AICLS) and University of California—Berkeley linguist Leanne Hinton, the MAP grew out of the needs of diverse California Native communities, who, by the late 20th century, faced a situation in which none of their languages was being used as a language of daily communication. Given these conditions, community-based language planners looked to elder speakers as primary language resources, and to inter-tribal networks and community-university partnerships as the means to organize language reclamation.

The MAP positions elders as language teachers in a close, long-term relationship with language learners. Often the pairs are family members. The master and apprentice work together for 10 to 20 hours per week and one to three years at a time—sometimes longer—communicating in the target language in the context of everyday situations such as gardening, cooking, and taking walks. The teams’ work is reinforced by multigenerational language immersion camps and, in a few cases, school-based programs. The AICLS and the University of California—Berkeley also sponsor the biannual Breath of Life workshop for Native California communities with few or no fluent speakers and the national Breath of Life Archival Institute for Indigenous Languages held in Washington D.C. (see also Chapter 18, this volume). Both initiatives support community-based language planners in identifying and using archival materials to revitalize their languages. Over 100 California MAP teams have been trained and the MAP has been adopted and adapted by communities around the world (Hinton 2001b).

In Finland, the Aanaar Saami Complementary Education (CASLE) Project supports working adults in recovering their ancestral language through formal classes, cultural activities taught by local fisher-people, reindeer herders, and cooking specialists, and master-apprentice training in workplaces and elders’ homes (Olthuis et al 2013). According to Olthuis and colleagues (2013), the combination of a preschool program and adult immersion through master-apprentice language learning has brought Aanaar Saami back into family homes.

In Tyendinaga Mohawk Territory, where only a few elderly speakers remain, the Tsi Tyon-nheht Onkwawenna (TTO) Mohawk Language Circle began with six community members concerned about their language. Established as a non-profit organization in 2001, TTO’s mission is to keep the Mohawk way of life alive “by promoting and revitalizing our Kanyen’kehaka [Mohawk] language and culture” (Maracle et al 2011: 84). The TTO develops the language abilities of adult community members, “who in turn could potentially become language teachers” for an immersion school (Maracle et al 2011: 85). The TTO also includes a Mohawk-language immersion preschool, Totahne, which serves the children of cohort members. While their parents attend TTO classes, the children also learn the language, creating new opportunities for language learning in family homes. This child-adult language-learning effort has produced “speakers with varying degrees of fluency,” say the program’s founders, with some adult learners becoming language instructors and the “celebrated outcome” of a “‘mother tongue’ Mohawk-speaking toddler in the community” (Maracle et al 2011: 93).

CBLP With and for Schools

CBLP has also been undertaken in collaboration with local schools. Among the most promising efforts are those for Hawaiian and Māori, closely related Polynesian languages (see also Chapters 8 and 10, this volume). In both cases, Indigenous peoples experienced “political
disenfranchisement, misappropriation of land, population and health decline, educational disadvantage and socioeconomic marginalization” associated with extreme language shift (May 2005: 366). An outgrowth of Indigenous activism, Hawaiian became co-official with English in the U.S. state of Hawai‘i in 1978, and in 1987, Māori became co-official with English. By the early 1980s, full-immersion, parent-run Māori Kōhanga Reo and Hawaiian Pūnana Leo (“language nest”) preschools set the stage for Indigenous-language tracks and whole-school immersion within local public school systems. Today there are many Māori and Hawaiian full-immersion pre-K–12 schools, as well as tertiary education programs that promote these languages in their respective contexts.

Hill and May (2011) present an ethnographic case study of the Rakaumanga (Rakau-manga) Māori-medium school on New Zealand’s North Island. Rakaumanga embraces a Kaupapa Māori (Māori principles) philosophy emphasizing Māori education control, and seeks to develop students’ bilingualism and biliteracy, preparing them to be citizens of their community and the world. Iokepa-Guerrero (2016) and Wilson and Kamana (2011) report longitudinal data from a parallel case, the Nāwahīokalani‘ōpu‘u (Nāwahī) Laboratory School in Hilo, Hawai‘i, a pre-K–12, full-immersion school. Offering a college preparatory curriculum, Nāwahī teaches all subjects through the Hawaiian language and values, with the goal that students will achieve Hawaiian dominance and cultural knowledge alongside high levels of English fluency and literacy (see Figures 3.3 and 3.4). These and similar education programs

Figure 3.3  Math in Hawaiian, Nāwahī Elementary School, 2017
Source: Photograph by Tiffany S. Lee
Figure 3.4 Na'wahí students and their teacher in the school’s outdoor classroom, tending traditional Hawaiian crops

Source: Photograph courtesy of Na'wahíokalani‘ōpu‘u [Na'wahí] School, Hilo, HI

are widely recognized as CBLP “success stories” that have spearheaded re-vernacularization in their respective languages, offered viable alternatives to English-only schooling, and provided models for the exercise of Indigenous sovereignty (see Lee 2016, and López and García 2016, for related efforts in the U.S. and Latin America).

In Nepal, where over 200 languages are spoken and half the nation’s 23 million people are non-Nepali speakers, the Multilingual Education Project for All Non-Nepali Speaking Students of Primary Schools is a grassroots CBLP effort in six Indigenous communities (Hough et al 2009). In this project, education practitioners and community members collaborate to develop and implement a critical Indigenous pedagogy centered on local languages and knowledge systems, including herbal medicines and traditional healing practices, tribal oral histories, and a highly endangered numerical system. Research to date indicates the project is having a positive impact on curricular reforms within local schools and teacher training programs, and that it has become a bellwether for larger CBLP efforts.

Also in Nepal, Phyak (forthcoming) examines the Indigenous Youth Critical Language Policy project. This youth-led project challenges angreji moha, the “English craze,” through dialogic language policy workshops and organized protests intended “to ensure space for the Limbu language in education” (Phyak forthcoming). This represents an “engaged” CBLP movement “that keeps social justice at the center” (Phyak forthcoming).

Seven Recommendations From and for Practice

In keeping with the distinctive character of CBLP, the following recommendations reflect principles distilled from the “on-the-ground” work of community-based language planners:

**Principle 1:** CBLP “cannot be done to one or for one by others” (Dauenhauer and Dauenhauer 1998: 97). CBLP is community-centric—it begins with the agency of local communities. Drawing on their language planning work in southeastern Alaska, Dauenhauer and Dauenhauer (1998) stress that language revitalization must be bottom-up and inside-out, not directed from above or outside the local community.

**Principle 2:** There are many CBLP pathways and no single vision or formula for “success.” By definition, CBLP is not a “one-size-fits-all” approach. As Miami language planner Daryl Baldwin notes, “This isn’t a matter of settling on one way to do [CBLP]; it is to
take advantage of all the different ways” available within a community’s total social and linguistic ecology (McCarty et al 2013: 100).

**Principle 3: Language planning is community planning.** CBLP is holistic and systemic. As such, it should assess where and how language-related matters fit “in addressing all matters of [community] life” (Lewis and Simons 2016: 53). In their 2016 guidebook to community-based language development, Lewis and Simons suggest starting “with the bigger picture”: gaining a comprehensive understanding of the community’s current sociolinguistic and sociocultural ecology and envisioning the desired and future ecology and the strategies through which it can best be cultivated and sustained (2016: 5).

**Principle 4: CBLP requires a long view of the revitalization process.** “For us to reach a point where our language was no longer spoken, that was an intergenerational process,” Baldwin notes (McCarty et al 2013: 104). Hence, CBLP is also a multigenerational process, guided by the “bigger picture” (Lewis and Simons 2016: 5) of how the work of the present generation can support future generations.

**Principle 5: CBLP requires ideological clarification and commitment.** This “is the essential beginning for any program dealing with language and cultural preservation,” Dauenhauer and Dauenhauer maintain. CBLP requires “an open, honest assessment of the state of the language and how people really feel about using and preserving it. . . . Personal and community attitude are as important as—if not more important than—the technical aspects” (Dauenhauer and Dauenhauer 1998: 62–63).

**Principle 6: “There is no language for which nothing at all can be done”** (Fishman 1991: 12). The eminent sociolinguist and language planner, Joshua Fishman, reminds us that language revitalization “must not be approached in absolute terms (achieving full success vs. doing nothing at all), but rather, in functional, contextual or situational terms” (1991: 12). The cases profiled in this chapter suggest some of the ways in which “something can be done” for languages at various stages of vitality and endangerment.

**Principle 7: “Language issues [are] always people issues”** (Warner 1999: 89). This advice, from Native Hawaiian linguist and language planner Sam L. No’eau Warner, points to the fact that not only are “language and culture inextricably linked,” they are “inextricably linked to the people from whom the language and culture evolved” (1999: 89). Lewis and Simons (2016: 53) emphasize that community-based language development must be centered “on people, the community, not on the language” as a disembodied entity.

**Future Directions**

CBLP by and for endangered-language communities faces the daunting challenges of (a) dwindling numbers of speakers; (b) the need to create and/or modernize writing systems, lexicons, and teaching materials; (c) the lingering legacy of colonial ideologies, policies, and practices; and (d) the modern forces of globalization and urbanization, which, among other things, can separate learners from traditional community-based language strongholds. One innovative solution to the latter situation, proposed by the Māori, is to establish Māori housing clusters near tribal cultural centers (New Zealand Māori Council 2016). Other creative strategies include language houses, “where people live together committed to using the language with each other,” and language pods—“groups of speakers and advanced learners who get together on a regular basis to converse on various topics” (Hinton 2017: 266).

CBLP operates within such spaces of possibility and constraint. These efforts illuminate the infinite generativity of community-based action. More systematic, cross-national research
is needed on CBLP, the contexts in which it functions, strategies that have proven helpful, and how challenges are being addressed. This kind of praxis-driven research promises to reveal new CBLP insights and help to foster a global sociolinguistic ecology characterized by linguistic equality.

Related Topics

Chapter 4, Reinvigorating Language Policy and Planning for Intergenerational Language Revitalization
Chapter 11, Tolowa Language in the Home
Chapter 12, The Master-Apprentice Language Learning Program
Chapter 18, The Breath of Life Workshops and Institutes
Chapter 30, Language Revitalization in Aotearoa/New Zealand
Chapter 31, Language Revival in Australia
Chapter 32, Revitalization of Kaurna
Chapter 34, Revitalization of Sámi Languages in Three Nordic Countries
Chapter 37, Carrying On What I Know

Notes

1 Parts of this section are adapted from McCarty, Baldwin, Ironstrack, and Olds (2013), and McCarty, 2013; used with permission of Multilingual Matters.
2 In 2010 and 2016, respectively, Jessie Little Doe Baird and Daryl Baldwin were recognized with MacArthur Foundation “genius” awards for their groundbreaking CBLP work.

References


**Further Viewing and Reading**

**Video**


Reading

Explores the history and current state of Indigenous-language revitalization in the United States, Canada, Latin America, and the Caribbean, including language policy, education, and CBLP.

First-hand accounts of family-based language revitalization around the world, which speak to the power of individuals to spark community-wide change.

Still the essential compendium on revitalization-oriented CBLP.

Asks—and answers—a key LPP question, showing the essential role of Indigenous community autonomy in school-based revitalization efforts.

A beautifully written, inspiring ethnographic account of one Indigenous community’s pathbreaking efforts to bring the local language and culture directly into their children’s schooling.