Demanding a Radical Constitution

Environmentalism, Resilience, and Participation in Chile's 2022 Reform Efforts

Edited by
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CHAPTER 9

Rural Education, Agroecology, and Environmental Know-How

Lucas Bricca

Abstract This chapter details the environmental education articles of the 2022 constitutional text in relation to a community garden initiative in the Province of Los Andes in central Chile. I explore how the text's educational framework aimed to institutionalize local knowledge networks by supporting diverse learning environments, participatory education, and tying education to holistic social outcomes. I examine the kinds of education and knowledge that the constitutional text articulates, and the relevance of these notions for agroecology.

Keywords Participatory education · Agroecology · Innovation · Knowledge transfer · Rural change

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Article 35

1. Every person has the right to education. Education is a primary and unavoidable duty of the State.
2. Education is a process of training and lifelong learning, indispensable for the exercise of other rights and for the country's scientific, technological, economic and cultural activity.
3. Its goals are the construction of the common good, social justice, respect for human rights and nature, ecological awareness, democratic coexistence among peoples, prevention of violence and discrimination, as well as the acquisition of knowledge, critical thinking, creative capacity and the integral development of people, considering their cognitive, physical, social and emotional dimensions.
4. Education is governed by the principles of cooperation, non-discrimination, inclusion, justice, participation, solidarity, interculturality, gender focus, pluralism and other principles enshrined in this Constitution. It has a non-sexist character and is developed in a contextualized manner, considering territorial, cultural and linguistic relevance.
5. Education is oriented towards quality, understood as the fulfillment of its purposes and principles.
6. The law shall establish the way these purposes and principles shall be materialized, under conditions of equity, in the educational institutions and in the teaching processes.
7. Education is universally accessible at all levels and compulsory from elementary through high school.

Article 38

It is the duty of the State to promote the right to lifelong education through multiple training opportunities, within and outside the National Education System, fostering diverse spaces for development and comprehensive learning for all people.

Article 42

The members of the educational communities have the right to participate in the definitions of the educational project and in the decisions of each establishment, as well as in the design, implementation and evaluation of local and national educational policy. The law shall specify the conditions, bodies and procedures that ensure their binding participation.

Introduction

In the last 50 years, industrial agricultural technologies have largely failed to meet the needs of resource-poor farmers. Transgenic seeds and artificial fertilizers, for instance, have greatly decreased biodiversity and resilience to climate hazards while making smallholders' livelihoods dependent on a handful of expensive, mass-produced inputs (Holt-Giménez and Patel 2009; Desmarais 2002). This relationship is partially the result of a system in which scientific knowledge, monopolized by multinational R&D sectors, is applied to agricultural products and sold to small farmers (Fig. 9.1).

For decades, farmer movements like *Vía Campesina* and *Movimiento Campesino a Campesino* (MCAC) have called attention to the fact that a transition to low-input planting, fertilizing, and irrigation techniques implies not just new applications of science, but different social prac-tices through which knowledge is created and validated (Holt-Giménez et al. 2010; Pimbert 2006) (Fig. 9.2). Agroecology positions farmers as producers of scientific knowledge, especially since "given the chance to generate and share agroecological knowledge freely amongst themselves, smallholders are perfectly capable of developing sustainable agriculture, even under highly adverse conditions" (Holt-Giménez 2006, 2). These experiences support Michel Pimbert's (2006) claim that governments, researchers, and NGOs should develop institutional mechanisms that

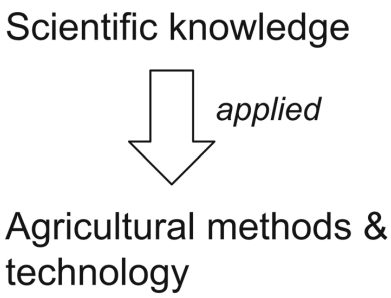

Fig. 9.1 Positivist conception of innovation

allow farmers to take responsibility for their learning process, have unrestricted access to learning tools, and participate in direct forms of democracy. Crucially, institutions are not responsible for giving farmers new tools or technology, but creating conditions in which agroecological food systems "evolve from the social structures and cultures in which the system itself is embedded" (Holt-Giménez 2006, 2).

This chapter examines three educational articles of Chile's 2022 constitutional text in light of this 'missing link' between agroecological practices and institutional environments. One way to meet the needs of smallholder farmers for agroecological knowledge is to create a political framework that can sustain autonomous, horizontal networks of knowledge. This is not easy to do, however. Though grassroots organizers and policy advocates may have convergent interests, several authors highlight how gains achieved by local farmer-to-farmer networks are often undermined by a lack of institutional support and attention to the political conditions for developing sustainable agriculture (Holt-Giménez 2006; Holt-Giménez et al. 2010; Desmarais 2002; Pimbert 2006). Perhaps these kinds of institutional support and political conditions could exist under constitutional principles that, like those in the 2022 proposal analyzed here, clarify the role of the state in education, adopt a broad definition of education, and advance three core axes—that is, diversity of learning environments, the participatory character of education, and the relative subordination of education to holistic social outcomes. In this chapter I argue that these core axes matter for agroecology, and illustrate my argument with reflections from a visit to a rural community in central Chile.

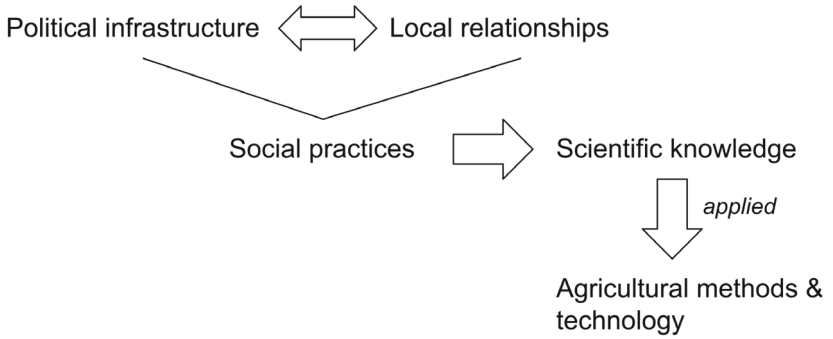

Fig. 9.2 Modeling the social formations that allow scientific knowledge to arise

I focus on three articles which together foreground social values in science and position state-led education as a driving force in the realization of those values. Specifically, Section 3 of Article 35 defines the main aim of education as "construction of the common good, social justice, respect for human rights and nature, ecological awareness, democratic coexistence between peoples, prevention of violence and discrimination, as well as the acquisition of knowledge, critical thinking, creative capacity and the comprehensive development of people, considering their cognitive, physical, social and emotional dimensions." This article, in short, redefines education beyond the acquisition of knowledge to be also a means to protect and realize principles of care, coexistence, and participation. Next, Article 38 clarifies the role of the state in supporting "lifelong education… both within and outside the national education system, fostering diverse spaces…." In other words, this article charged the state with the duty to promote education within traditional and novel spaces, thus in my view creating conditions to support decentralized and autonomous forms of learning and teaching.

Crucially, autonomous education would not be outside the legal framework of the State, a situation which leaves the question of political legitimacy unresolved. Rather, the article obligates the State to both recognize and support these spaces, without imposing formal requirements on them. The need for decentralization and autonomy is further developed in Section 4 of Article 35, which states that education is "developed in a context-specific manner, considering territorial, cultural and linguistic relevance." All this serves agroecology particularly well, since it is a highly local form of knowledge, and provides a framework based on principles which could be used to open much-needed political space for autonomous learning environments.

Importantly, these kinds of spaces and experiences have existed in Chile for some years already. For example, and as described by Rene Montalba and co-authors (2017), community gardens in Chile have had wide-ranging and documented impacts. In the Province of Bío Bío, one organization hosts approximately 7,000 people each year at its agroecological demonstration farm. Montalba explains that, in combination with courses, workshops, and teaching programs, this organization's activities have "led to a large critical mass of professionals and extension workers linked to governmental agricultural and rural development institutions" (Montalba 2017, 425). These are highly ideal outcomes for horizontal

educational spaces and exemplify the potential role of non-governmental organizations (NGOs) in bridging the institutional gap.

Yet global experiences have not always been so positive. In the *Campesino a Campesino* movement, one of the most successful peasant movements in Latin America, NGOs helped the movement grow in terms of membership, but the same organizations "have generally not lobbied, pressured, or otherwise organized around policy issues in a significant way" (Holt-Gimenez 2006, 3). Other scholars have also described NGOs acting as gatekeepers against direct farmer participation in institutional spaces (Desmarais 2002). Together these accounts demonstrate that the participatory spaces opened by NGOs (and other institutional actors) must take a secondary role to farmers' knowledge to be successful. They point also to the need to create organizations and legal conditions that help foster farmer-led educational spaces, and connect them to public policy. The remainder of this chapter explores some practices and possibilities in central Chile.

Novel Educational Principles in Action

During our June 2023 visit to Calle Larga, just south of the Aconcagua valley in the Valparaiso region of central Chile, I found that farmers who practiced agroecology were a small minority. Understanding farmers' hesitancy toward adopting agroecological methods—and how autonomous educational spaces engage with that social terrain—became a personal point of inquiry. Given the 2022 constitutional proposal's novel ideas about lifelong education beyond conventional school walls, I wanted to understand how these spaces were being linked to different political initiatives. During our visit to Calle Larga we had chance to meet farmers who provided insights into some of these connections.

Don Victor, one of Calle Larga's most dedicated agroecologists, runs a farm of approximately 1.5 hectares, selling produce directly to local customers through a service he designed himself in the style of Community Supported Agriculture initiatives elsewhere. Don Victor runs his plot's operations almost entirely on his own, including irrigation, seed selection, planting, fertilizing, and soil maintenance. But what made him particularly distinct was his willingness to revise, tweak, or even overhaul these operations in order to reduce water use and cut the use of chemicals, which he hadn't used on his crops in four years. His search for inexpensive ecological solutions meant that he was constantly problem-solving:

"I study practically every week; searching for information, reading, downloading books, watching YouTube…" He contrasted this to other farmers in the area, who he said typically resort to using expensive chemicals and pesticides as a first line of defense.

While one might assume that the most resource-efficient practices would be replicated across the region in farmers' own interests, Don Victor stood out for exploring these cost effective and drought-resistant practices. Admittedly, these were time-consuming practices. Don Victor spends every day making careful observations of his plants and soil, which can be hard to do for farmers without time or training, or for whom taking such risks is high stakes. For another farmer to adopt Don Victor's home-grown fertilizer setup, for instance, would require not only more time but also investment into unfamiliar equipment and faith in a novel form of cultivation. Since losing a harvest as a small farmer can jeopardize household food supplies and the possibility of investing in seeds and equipment for the next season, pesticides and artificial fertilizers seem to provide more certainty.

By contrast, two other farmers indicated that agroecology felt unfamiliar and viewed it as being untested and unconventional. Either because of old age—and many farmers in Calle Larga are indeed older—or tradition, for many agroecology seems to go against a lifetime of knowledge. For these conventional farmers, their specific irrigation, planting, and harvesting practices feel established, proven, and familiar. Calle Larga farmers often use the same cultivation methods as their parents or grandparents, many of whom became landowners during Chile's land reform movement in the 1960s. The pull to do things 'as they have always been done' is strong.

PRODESAL, Knowledge Sharing, and Participatory Education

The State, through agencies that provided subsidies and led outreach programs, played a key role in defining what these historical practices were and continue to be. When families became landholders as beneficiaries of land reform in the 1960s, many new smallholders possessed little to no knowledge about growing crops or managing a farm. Although many of the new smallholders had worked as peasants in the former agricultural estates, there they held many jobs beyond farming (e.g., in animal husbandry, machinery) and grew cash crops rather than food crops

for local markets. The state agency PRODESAL—which today is one of the most important information and support networks for Calle Larga farmers—was founded in 1996 to provide farmers with day-to-day technical assistance and support to grow their businesses. Being a primary source of information for farmers, the organization has had a significant influence on the methods that farmers adopted and which many still practice today. The use of certain fertilizers and irrigation systems that farmers are now being told to cease or modify in the name of agroecology, for instance, were promoted by PRODESAL in the organization's early years.

Today, the government's grant system applies an industrial logic to small-scale farmers that shapes the structure and manner of their cultivation practices. The grant application forces farmers to declare a single crop, and subsidizes only that product for each farmer. This monocultural approach and cash-crop-reliant system is incongruent with most small farmers' actual practices, since many farmers rotate a variety crops, including those they use for subsistence. Patrick, a PRODESAL worker, explained that a large portion of the organization's time is spent helping farmers navigate this complicated grant system that is overseen by PRODESAL's parent organization, INDAP (Instituto de Desarrollo Agropecuario/Institute for Agricultural Development).

This institutional bind for Calle Larga farmers exemplifies Holt-Giménez's argument that a transition to sustainable agriculture is "not simply farmers teaching other farmers to farm sustainably, but a political project that engages the power of [market, non/governmental, and research] institutions to permit, facilitate, and support sustainable farming" (Holt-Giménez 2006, 2). This was confirmed by our observations in Calle Larga, where small farmers' attitudes toward incorporating diverse crops and natural inputs were partially informed by credit systems and incentives set up by the government. Certainly, as Don Victor's autodidactism demonstrates, the small number of agroecological farmers is not due purely to a lack of information. Rather, scaling up agroecology requires creating institutional conditions to "experiment, take initiatives, and acknowledge errors as a way of learning-by-doing and engaging with the diverse local realities of citizen's livelihoods" (Pimbert 2006, 22).

In the 2022 constitutional text, Article 38 provided state support for these experimental spaces, while Article 42 ensured their participatory character. Article 42 states, "Members of educational communities have the right to participate in defining the educational project… The law shall specify the conditions, bodies and procedures to ensure their

participation is made binding." The principle of co-creating knowledge is centered on the conviction that students should be involved in defining their own educational outcomes. This requires democratic practices which allow students to collectively determine their goals for the space and the kinds of activities that will get them there. Given some Calle Larga farmers' resistance to agroecology on the grounds that it was a risk for their own livelihoods, Article 42 projected participatory practices in education that could produce ways of knowing through engagement with farmers' doubts, concerns, and material obstacles in their lives. Insofar as sustainable ecosystems must evolve from local social structures to be successful (Holt-Giménez 2006), Article 42 could have aligned education with the kinds of socially informed science that agroecology aims to create.

Pimbert (2006) also highlights the importance of participatory practices in their own right, irrespective of the 'truth' of their outcomes. He explains that diverse ways of knowing "cannot be assessed from the narrow standpoint of positivist science alone," and argues for broader criteria of educational practices, such as "whether or not this social learning opens up new communicative spaces for democratic inquiry to take place, [and] whether it has contributed to the emergence of a wide community of inquiry among divergent actors" (Pimbert 2006, xi). Article 42 is not only relevant for the way it proposed to orientate educational spaces, but for redrawing the boundaries and social-evaluative mechanisms of science itself.

One space that exemplified the principle of participatory education was PRODESAL's community garden, a space dedicated to growing plants from local seed varieties and minimizing non-renewable inputs. Among its offerings, the garden included raised beds, a small fenced plot, humus supplies, and compositing projects. The garden was open to local farmers who could take advantage of different seed varieties, soil, and on-hand PRODESAL experts to experiment with planting, irrigation, and even creative bird-defense techniques. One main purpose of the garden is to allow farmers to try new methods of growing crops without jeopardizing their own harvest. Trial and error is an inevitable part of agroecology, and PRODESAL's community garden extended the opportunity to engage with risk to even the most conservative farmers. In the community garden, farmers are able to engage with new methods on their own terms, tinkering with agroecology as fits their needs. Additionally, in a community garden, the outcomes a farmer pursues are directly informed by both their social environment and resource politics in their area. As

a space built on mutual reciprocity, when farmers share with each other new ways of knowing emerge from the relationships that arise in the space itself. And whereas imported knowledge in the form of drought-resistant seeds might blunt or displace local knowledge, the community garden integrates local ecosystems into the way farmers cultivate. It is important to note that local knowledge here extends to knowledge of water systems, soils, and local plant and insect life which affects crops.

Although the PRODESAL garden was designed *for* farmers, it wasn't clear to what extent local farmers actually managed the space. While Article 38 affirms that the state should continue to support 'alternative' learning environments like a community garden, the participatory construction of knowledge highlighted by Article 42 has potential for encouraging more directly farmer-managed educational spaces.

Finally, Section 3 of Article 35 articulates the intimate connection between knowledge as both conceptual and enacted; that is, education is not an instance of intellectual transfer, but an embodied, lifelong practice. Though these principles are present throughout the 2022 constitutional text, their expression in education has special implications for agroecology.

Binding education to principles of respect, ecological awareness, and comprehensive development disrupts the liberal-positivist notion of science, which tends to focus on knowledge as an individual good or source of competitive advantage (v. Torralbo and Salazar 2025, in this volume). While the PRODESAL grant system demonstrates the benefits of aligning market systems with conservation goals, there is also a fundamental antagonism between market-based notions of environmental protection and agroecological practices. Since the market framework always defines innovation in terms of profitability, agroecology is not seen as 'legitimate' innovation, despite being more resource-efficient, more sustainable over time, and increasing yields (Holt-Giménez and Patel 2009). In fact, agroecological and Indigenous practices are often characterized as outdated, backwards, and incongruent with the needs of global food production. Holt-Giménez and Patel (2009) demonstrate that the opposite is true—agroecology outpaces monoculture in terms of calories produced, and with far fewer inputs. Answers to the question of 'if that's true, why isn't everyone doing it?' are precisely linked to the structural conditions that reward and validate large-scale, homogeneous knowledge and outputs (Holt-Giménez 2006). The educational principles of the 2022 constitutional text provide an important basis for shifting

these political challenges based on the local necessities and horizontal structure of agroecological projects.

These debates are also important for education because they foreground the presence of social relations in the knowledge we produce, and even what we consider science. Scholars working in the area of Science and Technology Studies explore efforts to differentiate science and truth from their alternatives through a process called "boundary work," defined as "the laborious and ongoing processes of demarcation, negotiation, and disruption of the boundaries between science and non-science" (Pereira 2019, 22). It can be useful to think about Article 35 in terms of boundary work, since it set out new criteria for evaluating knowledge—whose knowledge counts, and why. The benefits of formalizing Article 35's principles—common good, social justice, respect for nature—in a national political framework are increasingly clear to those who, like me, see that farmers' livelihoods are threatened by ecological crises that can only be addressed through collective social resistance and reconstruction. The aim of institutionalizing agroecology through environmental education is not to tell these farmers how to change, but to design education in a way that students see themselves as co-creators of knowledge and part of a global ecological community.

Conclusion

In this chapter, I have explored why the educational articles of the 2022 constitutional text had a special bearing on agroecology. I have argued that by placing education within three key principles, the constitution proposed a critical bridge between local sustainable farming practices and the structural conditions for supporting them. Those principles were: recognition of diverse learning environments, participatory construction of education, and a holistic, embodied, and ecological understanding of knowledge. While agroecological practices and networks are notoriously difficult to institutionalize (Holt-Giménez 2006), the 2022 constitutional text is worth studying for those interested in the political challenges of agroecology because of the horizons it envisioned between the local-technical and the global-political through a new social terrain of knowledge, education, and science.

Our group's field visit in Chile left me with burning questions and ideas for future research. In retrospect, I would have liked to investigate the curriculum at the local agricultural school in Calle Larga. I

didn't have a chance to ask about possible relationships between the high school and local farmers, but it seemed like an intuitive place for initiatives and networking with the local farming community. Also, as opposed to 'alternative' education spaces, like community gardens at the present time, public schools have the advantage of institutional recognition and often greater access to resources. Scholars working in various Latin American contexts show encouraging results of incorporating environmental curriculum directly into schools (Velazquez Cigarroa et al. 2018). Future research could investigate how school organization and intended outcomes extend (or fail to extend) these learning processes into the local community.

In a more explicitly political context, research might follow Moore's (2017) proposition that organized agroecology movements provide "an opportunity to examine how movement pedagogy challenges existing structures of rural governance" (Moore 2017, 2). Investigating how practices within schools affect local political structures can complement research on how well a given political framework can support local democratic learning spaces. Finally, researchers interested in leveraging local educational spaces for institutional ends might consider investigating the organizational structure of demonstrative farms and other community teaching events explored by Montalba et al. (2017) in Chile. For instance, how many of these farms and events are organized by farmers? What are the decision-making processes involved in creating the space, and whose knowledge is validated? These boundary-work questions are central to understanding how social practices privilege certain forms of knowledge over others, and to exploring the potential for new pedagogies to create and institutionalize diverse ways of knowing.

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