

LEARNSCAPES ON KAUA'I:
EDUCATION AT A HAWAIIAN-FOCUSED CHARTER SCHOOL,
A FOOD SOVEREIGNTY MOVEMENT,
AND THE AGRICULTURAL BIOTECHNOLOGY INDUSTRY

by

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Abstract

This dissertation interrogates the different forms that education takes in regards to land across three different settings on the Hawaiian island of Kaua‘i: a Hawaiian-focused charter school, a food sovereignty movement, and the agricultural biotechnology industry. As ethnographic researcher, I approached Kaua‘i about 15 years after three seemingly parallel developments had commenced: the establishment of Hawaiian-focused charter schools to educate Kānaka Maoli (Native Hawaiians) students on their culture, language and history, a “New Economy” resulting among other changes in a shift in agriculture to research and develop genetically modified organisms (GMOs), and a burgeoning social movement concerned about the impacts of GMOs. Following these developments, I argue that education as a term and transinstitutional practice has populated social, cultural and scientific discourses beyond the school. In effect, and at times in overlapping ways, I show that education was firstly a means of self-determination and sovereign right for Indigenous educators to move teaching and learning into the public sphere and onto the *‘āina*, land. Secondly, education emerged as democratic right for consumers, environmentalists, and food producers, who practiced self-education – by “educating yourself” – on contested food technologies. Thirdly, among scientists and industrialists, education was both a corrective effort of public misconceptions of biotechnology – by “educating the public” - and a process of community building as to demonstrate a legitimate presence in Hawai‘i.

I further probe what it means for high school students at a Hawaiian-focused charter school to learn to be young Kānaka Maoli while learning about *‘āina* (land), *aloha* (love, affection), and *‘ohana* (family). Through the concept of *learnscaapes*, I indicate that these knowledge ways are not assessed in school education. Rather, the students learned in often inconspicuous ways how to navigate remediation and recovery for land and people, which in times of the “New Economy” and in the colonial aftermath remain pressing issues. Situated in the anthropology of education and science & technology studies (STS), this dissertation furthers scholarship on everyday expertise by elucidating how young Kānaka Maoli as much as citizens concerned with GMOs are knowledge-*able* social experts, who gain often tacit forms of expertise on their lived-in worlds.

Preface

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Glossary

<i>a'o</i>	instruction, teaching, learning, instruction book, advice, counsel; to learn,
<i>ahupua'a</i>	land division, wedge
<i>akua</i>	god, goddess, spirit, divine
<i>aloha</i>	love, affection, compassion, sympathy, kindness, greeting
<i>'āina</i>	land, earth, "that which feeds us," kin and ancestor
<i>hale</i>	house, hall, institution
<i>Hāloa</i>	"long, trembling stalk," taro, elder brother of Kānaka Maoli, son of sky father Wākea.
<i>haole</i>	white, foreigner; can be used as descriptor ("the haole over there") but also describing a derogatory term or behaviour.
<i>'ike</i>	to see, know, feel, greet, recognize, perceive, experience, understand
<i>'ike Hawai'i</i>	Hawaiian knowledge
<i>kahea</i>	call, invocation, greeting.
<i>Kānaka Maoli</i>	Native Hawaiians, Indigenous people
<i>Kānaka 'Ōiwi</i>	Indigenous people, Native Hawaiians
<i>kalo</i>	taro plant
<i>kapu</i>	religious system of ancient Hawai'i pre-Cook times. Also, taboo
<i>keiki</i>	children, offspring
<i>konohiki</i>	headman of an <i>ahupua'a</i> , land division, under the chief
<i>kumu</i>	teacher, source
<i>kupuna</i>	elder, ancestor
<i>kūpuna</i>	plural of <i>kupuna</i>
<i>mahi'ai</i>	farmer
<i>mālama 'āina</i>	care for the land, land stewardship
<i>mo'okū'auhau</i>	genealogy
<i>'ohana</i>	family, related, kin group
<i>'ōlele no'eau</i>	Hawaiian proverb
<i>pono</i>	righteous, good, proper, moral qualities, excellence, well-being
<i>wiwo'ole</i>	fearlessness

Acronyms

ADC	Agribusiness Development Corporation
APHIS	Animal and Plant Health Inspection Service
BIO	Biotechnology Innovation Organization
BOE	Board of Education
DOE	Department of Education
CTAHR	College of Tropical Agriculture and Human Resources
DBEDT	Department of Business, Economic Development & Tourism
DHHL	Department of Hawaiian Home Lands
DLNR	Department of Land and Natural Resources

EPA	Environmental Protection Agency
FDA	Food and Drug Administration
GE	genetically engineered
GMO	genetically modified organism
HAC	Hawaii Advisory Commission
HARC	Hawaii Agriculture Research Center
HCIA	Hawaii Crop Improvement Association
HCPS	Hawaii Content and Performance Standards
HDOE	Hawaii Department of Education
HDOH	Hawaii Department of Health
HFCS	Hawaiian-focused charter schools
HSA	Hawaii State Assessment
HSPA	Hawaiian Sugar Planters' Association
Kanu	short for Kanuikapono
KCC	Kaua'i Community College
KKCR	Independent radio station on Kaua'i
KS	Kamehameha Schools
OHA	Office of Hawaiian Affairs
OSTP	Office of Science and Technology Policy
PLDC	Public Land Development Corporations
S&T	science and technology
STS	Science and Technology Studies; Science, Technology & Society Studies
UH	University of Hawai'i
USDA	United States Department of Agriculture

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Chapter 1: Introduction

‘A‘ohe pau ka ‘ike i ka hālau ho‘okahi. All knowledge is not taught in one school
(*‘Ōlelo No‘eau*, Hawaiian Proverb).

Derived from the Latin *educere* (from *ex*, “out,” plus *ducere*, “to lead”)¹, education was a matter of leading novices *out* into the world rather than, as commonly understood today, of instilling knowledge *in* to their minds. Instead of placing us in a position or affording a perspective, education in this sense is about pulling us away from *any* standpoint—from any position or perspective we might adopt. In short, as the philosopher of education Jan Masschelein (2010a: 278) has observed, it is a practice of *exposure* (Ingold 2014: 388).

One February evening in 2013, about half way into my fieldwork on the northernmost of the eight main Hawaiian Islands,² Kaua‘i, I joined a well-attended community meeting that Kamehameha Schools had set up regarding its 2015-2030 Strategic Planning. Kamehameha³ Schools (KS), a private K-12 school for Kānaka Maoli⁴ students established by virtue of Princess Pauahi Bishop's last will in 1883, today forms the wealthiest K-12 school in the United

1 educate (v.) mid-15c., "bring up (children), to train," from Latin *educatus*, past participle of *educare* "bring up, rear, educate" [...], which is a frequentative of or otherwise related to *educere* "bring out, lead forth," from *ex*- "out" (see *ex*-) + *ducere* "to lead" (see *duce* (n.)). Online etymology dictionary:

http://www.etymonline.com/index.php?term=educate&allowed_in_frame=0 [accessed October 6th 2015].

2 The eight main Hawaiian Islands include: Hawai‘i (Big Island), Maui, O‘ahu, Kaua‘i, Moloka‘i, Lana‘i, Ni‘ihau, Kaho‘olawe.

3 The name derives from King Kamehameha I, who united all Hawaiian islands in the early 19th century, and whose direct descendants inherited land, such as Princess Pauahi Bishop.

4 This dissertation primarily refers to Kānaka Maoli (“true, real people”) rather than Native Hawaiians (regardless of whether lower or upper case “n,” indicating the biological marker of blood quantum for ‘Hawaiianness,’ see Kauanui 2008). There are three main reasons for that: First, taking into consideration that many do identify as Native Hawaiians, Kānaka Maoli is a people’s self-definition in their own language. Second, it evades the problematic accentuation of people as “[N]ative” that implies a taken-for-granted colonial and post-colonial world order. Third, the usage is a response to the still widely spread unfamiliarity of the term. Poet and teacher Rajiv Moheb from the University of Hawai‘i expresses this common unease: “The construction (*sic*) of the “indigenous” person is a colonial appellation and measure. This may very well be the case—the word for a Hawaiian person is Kanaka Maoli. Say it. Kanaka Maoli” (Moheb 2015). I occasionally also use Kānaka ‘Oiwi (Indigenous People).

States. Kamehameha Schools is also the biggest private landowner and trust in Hawai‘i.

Accordingly, the accountability that Kānaka Maoli have posed towards the trust to act in a *pono* (righteous, good) way relates to both education and land stewardship. After scandalous decades of mismanagement and nepotism (see King & Roth 2006), KS shifted its policy to increased community input in its decision-making process, and implemented a strategic plan for 2000 - 2015. As 2015 neared, KS representatives toured the Hawaiian Islands to gather input from community members, including Kaua‘i.

Two large posters greeted the participants entering the dining hall of Wilcox Elementary School in Līhu‘e this February evening: one read “‘āina”, commonly translated as “that which feeds us” or land, the other “education.” People were invited to choose one of the topics and join a respective working group. In that set-up, KS managed to condense what I had struggled with for the good first part of my fieldwork: how to stake out my ethnographic field between land and education, and more specifically, between land-based education at the Hawaiian-focused charter school (HFCS) Kanuikapono and a wider public concerned with land use specifically in the light of the locally operating agricultural biotechnology industry. While education and land were so neatly and manageably distinguished in these posters, I was uncomfortably conflicted, as I now had to choose which one of the working groups I should join. As I tried to cope with this fieldwork mini-crisis, perusing nervously through the handout to find some cues that would take the burdening decision from me, with a warm smile a KS representative invited me to get food at the back of the room. I was relieved for a second, and thankfully took a Hawaiian plate.⁵ Eventually, I reasoned that I should join the education table,

⁵ Hawaiian plates usually consist of white rice, laulau (pork meat wrapped in taro leaves), lomi salmon (salmon and tomato salad), poi (pounded taro paste), and haupia (coconut pudding), which were served in a styrofoam

as I was mainly a film class instructor at Kanuikapono charter school during my fieldwork. While the general discussion revolved around how KS should offer more educational initiatives to Kānaka Maoli children on the island, a few others from the 'āina' tables shared their respective frustrations. A woman stood up saying that she and other people at her table had lived on the island for a long time, between five and 37 years, that they considered it their home, and that many were concerned with what was happening to the island. When she mentioned “GMO” (genetically modified organisms)⁶ I overheard another woman on my 'education' table whisper “Uh, oh...” The woman went on to say that GMO farming needs to stop on the island, and that KS could play a big role in this case. The KS representatives attempted to calm the discussion by directing it back to the 'safer' issue of education and āina.

This community event forms a knot of several strings that run through this dissertation, which is concerned with *education* directly and indirectly related to land or 'āina,⁷ and how it comes to be understood in settings within and beyond the school. In detail, I trace education across three different sites or social groups, namely (1) the Hawaiian-focused charter school Kanuikapono, (2) the enunciatory community (Fortun 2001) that has sprung from an emergent, socio-culturally diverse movement opposing agricultural biotechnology operations, and (3) the agricultural biotechnology industry. I approach education in these diverse settings as *trans-*

container at the event. See Okamura (2008) and Vowell (2012) for a critique of the Hawaiian plate as romantized plethora of Hawai‘i’s ethnic diversity.

- 6 Throughout this dissertation, I primarily speak of genetically engineered (GE) rather than genetically modified organisms (GMOs), as the former comes closer to humans' deliberate attempt of changing the genetic makeup of an organism than 'modification' does. During fieldwork there were also more critical voices that saw genetic engineering as more accurate, such as during the interview with Pioneer DuPont scientist Ryan Oyama (IV_100913). Still, GMO was a common vernacular that I acknowledge by referring to it in respective contexts.
- 7 “Land” and “āina” were vernacular terms often used interchangeably, both by Kānaka Maoli and other ethnic groups. When 'āina was used it usually connoted a stronger connection to Hawaiian epistemologies of what could be described as environment, including the ocean, but in some cases also the people living on it. As Hawaiian Studies scholar Kamanamaikalani Beamer notes, 'āina is distinct to the Euro-American concept of nature, which is seen as an entity separate from people (2014: 13).

institutional practice, which resonates with Ingold's etymological elaboration of education cited above as a process of moving *out* (2014: 388). By this, I allude both to moving out of the physical space, and out of taken-for-granted conceptions of “education” as inherently institutional, deliberately instructional endeavour bound to a school classroom. My dissertation thus aligns with those educational anthropologists who question the school as the default norm for education (Lave 1982; Lave & Wenger 1991; Levinson 1999). This dissertation also follows the work of scholars of science, technology & society studies (STS)⁸ on citizens' ways of reasoning over science and technology (Jasanoff 2003; Wynne 1996), and responds to the call for more research on the social relations of biotechnology as increasingly enmeshed with academia and the state (Haraway 1983; Stone 2010).

The order in which I consider these sites follows my trajectory of interest and interactions in the field. Ethnographic fieldwork started within the school while out-of-school collaborations and social networks, which I had fostered prior to starting fieldwork, expanded along the way, both in content and geography from the east (school) to the West side (biotech industry). Most centrally, I was a film class instructor and educational assistant at Kanuikapono, secondarily a participant observant and advocate of the movement, and peripherally a visitor to the biotech industry. My research then also reflects Kanuikapono's motto as “school without walls”, as I conceived of and followed education as reality in people's lived spaces. This is also reflective in the chronology of the upcoming three ethnographic chapters. Following my encounters with the high school students at Kanuikapono (chapter 4), I

8 The more conventional translation of “STS” is science and technology studies, while I follow the more recent expansion that incorporates “Society,” such as the Harvard University's Program on Science, Technology & Society. See <http://sts.hks.harvard.edu/about/whatissts.html> [accessed January 14 2016].

move – along with the students – to the food sovereignty movement (chapter 6) and an agricultural biotechnology corporation (chapter 7).

Listing the movement prior to the industry furthermore recognizes the stance in STS that 'society' does not merely respond to 'science and technology' and citizens are accepting of technoscientific feats (Irwin & Wynne 1996). Rather, I see members of the movement as active, knowledge-able citizens (Jasanoff 2003) that, as was the case on Kaua'i, brought up their concerns over GMOs and pesticide use to which the biotech industry had to react.

Returning to the meeting, people brought their own knowledge to the conversation, and expressed expectations of Kamehameha Schools to act as role model. Here, education fused with activism, more specifically concerns over land – an ongoing and evolving discourse that I will explore in this dissertation. It is likely that the woman who brought up GMOs was referring to KS' lease of land to Monsanto on the island of O'ahu where the company researches and develops genetically engineered crops, or genetically modified organisms, GMOs. Her firm insistence with those around her table to raise the issue at this event, the cautious reaction by the woman sitting next to me, and the abashed KS representatives displays not only how people attempted to keep education and *'āina* within their respective boundaries of definition, but also reveals how these two entities and related practices easily spilled over into each other's turf. In a larger sense, this thesis is thus concerned with these overlaps and interlinkages that people either conceived of as appropriate or as having to be impeded. I argue that these conceptions in turn shape competing definitions of land as a public good, a source of food production and/or continuously colonized space, just as much as they define diverse, often conflicting ways of being knowledgeable about land (see Cruikshank 2005; Jasanoff 2005b; 2006; 2012a; Visvanathan 1997).

After the event on my way home, I remained puzzled by how I had seated myself at the education table. This categorization into education and *'āina* reflected the content of my research while at the same time it deeply troubled this distinction. Somehow the two fields made sense in the chronology of my own encounter with Hawai'i. My first fieldwork conducted for my Magister in 2007 at a Hawaiian-focused charter school (HFCS) on O'ahu focused on Kānaka Maoli youth's knowledge of cultural practices and language in comparison to their often less knowledgeable adult lived-in world (Gugganig 2009).⁹ Towards the end of my stay, the University of Hawai'i's research on genetically engineering the taro plant brought about a set of complex realities, also in regards to the students' role: the HFCS had involved the students in protests and in questioning the scientific appropriation of *kalo* (taro) that in Kānaka Maoli cosmogeny is an ancestor, elder brother, and embodied god Kāne. In more general terms, the students were encouraged to scrutinize how natural 'resources' were appropriated by state and private institutions. Hence, issues that were 'too political' were not kept out of the school, which begged the question as to where to draw the line between 'political' and 'educational' realms (see Candea 2011). On a brief visit to Kaua'i, I learned about the presence of agrochemical companies growing not taro, but primarily genetically engineered (GE) corn. This posed new questions: What does this industry do to Kanaka conceptions of *'āina*? How does it feature in Hawaiian-focused charter schools' land-based curriculum? And how was it that there seemed to be much less concern over genetic engineering and biotechnology on Kaua'i than on O'ahu?

9 Magister is a Master's equivalent that I received from the Department of Social and Cultural Anthropology at the University of Vienna. In my Magister thesis I argue that the *'ohana* (family) concept in Hawaiian-focused charter schools challenges the distinction between 'formal' and 'informal' education and in consequence, the distinction between a student and a teacher. I show this primarily by analysing how students at a Hawaiian-focused charter school become distributors of culturally specific knowledge (language, chants, protocols, hula, etc.) to their parents, who become learners if they see themselves as such.

These questions brought me back to Hawai‘i to do fieldwork in 2012/13, this time as a PhD student at the University of British Columbia and as volunteer film class instructor for the high school program at Kanuikapono Public Charter School. I had gotten in touch with the school the year prior and came for preliminary fieldwork in 2011 to talk with staff and teachers about possibilities for collaboration. Yet at an earlier visit in 2010 I had encountered Kaua‘i not through Hawaiian charter school education but anti-GMO activists concerned with the local agricultural biotech industry. Coming from a country (Austria) where genetically engineered crops have been widely banned as a result of a referendum in 1997, GMOs were – and for the most part still are - considered by many an unsafe science-gone-wild. I was certainly no exception, and supported the work of GMO Free Kauai, a local non-profit organization raising concerns over genetic engineering in agriculture. Here I was, on the (almost) westernmost edge of this US Empire where GMO experimentation originated, more specifically, on the northwestern-most island of the main Hawaiian Islands.¹⁰ Passing by GMO cornfields against the backdrop of the majestic Waimea Canyon (see Fig. 12, p. 157) – that contrast struck me.

This experience posed a striking paradox to what I had learned at the Hawaiian-focused charter school (HFCS) on O‘ahu about *‘āina* and caring for *kalo* (taro), the embodied elder brother of Kānaka Maoli, Hāloa. It also did not seem to reflect what the Waipā Foundation on the other side of Kaua‘i Island was promoting. Already in 2008, I had learned about this organization, and from then on I frequently drove up to the North shore on Thursdays for Poi Day.¹¹ I started asking myself again: how do community members at organizations like Waipā

10 Guam is in fact the westernmost territory of the United States.

11 Waipā is a non-profit organization that was founded in the 1980s to prevent the development of the valley on the North shore, which provides cultural education on land stewardship to school classes and different interested adults groups (<http://waipafoundation.org/about/> [accessed August 30 2015]). Every Thursday,

think about this industry on the island? How did it relate to *mālama ʻāina*, care for the land?

There were also other nonprofit organizations I got involved with, like Regenerations Botanical Gardens that promoted organic agriculture and permaculture practices. I saw many parallels to Hawaiian land stewardship practices, and Hawaiians and Non-Hawaiians often working side by side. When I returned two years later to commence fieldwork, I indeed encountered many people at Kanuikapono – teachers and parents – that I had previously known from these organizations.

At the start of my fieldwork I only had a vague idea of what issues I would be focussing on. This is where I situated myself: I was a film class instructor and ethnographer interested in what it means for high school students to be at a HFCS and learn about Hawaiian cultural practices and *mālama ʻāina*, while I continued to be engaged with people concerned with food production and land used for genetically engineered crops, who loosely connected through these organizations. It would only be towards the end of my fieldwork, in spring 2013, that I incorporated the agricultural biotech industry as another site, albeit one that I was less engaged with. I thereby follow Haraway's (1988) seminal call to situate myself in the knowledge production I create. More specifically, I follow Kim Fortun's notion of advocacy as ethnographic practice (2001). Fortun describes advocacy as a practice of disentangling divides and asymmetries, yet without an inherently expressed, overt argument or intentional action. Rather, she wishes to uncouple advocacy from modernist ideals, such as an intentional end result of advocacy work. In Fortun's words, advocacy is “a performance of ethics in

Waipā hosts Poi Day where elders, community members and visitors to the island come together to clean taro for poi that is then sold at a cheaper than market price to community members (mostly elders) across the island. Poi Day is a unique space where oldtimers and newcomers come together and “talk story,” a common term that depicts a leisurely time spent together to chat.

anticipation of the future” (2001: 16). In other words, there is no guarantee in advocacy as there are no predictable outcomes in ethnographic research. Hence, while I advocated for Kanuikapono charter school and the anti-GMO/food sovereignty movement, there was no intentional outcome of my work, yet a strong desire to write along these divisions and asymmetries between a Hawaiian-focused charter school, the state, land and food sovereignty activists, science, and the industry.

Positioning myself in this way is also crucial for understanding my involvement and interventions, both at Kanuikapono and the movement. Throughout my fieldwork, I initiated what is akin to George Marcus' (2000) “para-sites”: deliberately created sites of interaction between researcher and informants to allow for collaboration and co-construction in the production of knowledge (see also Callison 2014: 281). These set up para-sites ranged from facilitating a meeting between Kanuikapono's high school students and a renowned international anti-GMO activist (chapter 6) to arranging a school visit to an agricultural biotech corporation (chapter 7). Not all of these created sites of interaction were fully collaborative but rather raised the important question as to where the line is between collaboration, providing service (i.e. as film class instructor) and research (as I will discuss in chapter 6).

I thus arrived on Kaua‘i in summer 2012 with a more profound interest in what was taught and learned about *‘āina* and about being Hawaiian, particularly in the light of this new industry. It would not occur to me until much later, yet what I had anticipated was this: informed by my experiences at Kanuikapono as self-defined “school without walls” (Kanuikapono 2012), education and land/ *‘āina* were closely entangled in that the former had moved out of institutional settings into both the public sphere and onto the land. In that sense, Kanuikapono,

as much as other HFCS, countered the conventional conception of learning as cast into the mould of education in a school classroom, as well as conceptions of land in the form of industrialized agriculture. In other words, educators at HFCS countered different forms of colonialism. More specifically, they challenged that education is only conceivable in the form of Euro-American-style schools and *‘āina* as ground for high-yielding, profitable crops for export.

In *States of Knowledge*, the scholar of science and technology studies (STS) Sheila Jasanoff describes the idiom of co-production, particularly in regards to science and social order, arguing that how we produce (scientific) facts and artifacts of the natural world cannot be disassociated from the devices we create to order society (e.g. laws, regulatory systems of genetically engineered organisms, expert committees, schools, political campaigns). In more simple terms, despite modernist efforts to keep these domains separate, co-production delineates how ontology – what a thing *is* – and norms – how a thing is *ought* to be – relate to each other (2004: 14ff; see also Latour 1993). Educators at HFCS thereby make explicit what Jasanoff describes:

[Co-production] calls attention to the social dimensions of cognitive commitments and understandings, while at the same time underscoring the epistemic and material correlates of social formations. Co-production can therefore be seen as a critique of the realist ideology that persistently separates the domains of nature, facts, objectivity, reason and policy from those of culture, values, subjectivity, emotion and politics (2004: 3).

In that sense, these educators make explicit that *‘āina* or learning are not considered separate from culture, and thus from the moral and political contexts of life. Numerous Kānaka Maoli and other Indigenous intellectuals have likewise pointed out how the social and the natural are

interrelated (see Kame‘eleihiwa 1992; Kauanui 2008; Meyer 2003; Schlais 2007), just as anthropologists have questioned such ontology-epistemology separations (Descola & Pálsson 1996; Franklin et al. 2000; Ortner 1974; Strathern 1980, 1992).

As I will show in the course of this dissertation, protagonists in the school and the movement highlighted these co-produced dimensions by demonstrating how *‘āina*, education, politics and/or science were treated as separate entities (see Latour 1993) while in everyday life they experienced them very much as interrelated. Indeed, as I will show in this dissertation, for Kanuikapono education emerged as an interrelated ethos and experience of *aloha* (love, affection), *‘ohana* (family) and *‘āina* (land). Kanuikapono likewise accounted for and articulated these interrelations in the political realm, particularly when education focused on *‘āina*, i.e. when their high school students gave testimony on the Public Land Development Corporation (PLDC) in fall 2012. Hence, at Kanuikapono, education implied that students learn not only outdoors from the *‘āina* but also about Native Hawaiian rights, the colonial history of Hawai‘i, and the state's appropriation of land – be it the PLDC or developing unregulated GE crops. In their idiosyncratic ways, the high school students also pointed out how education, politics and *‘āina* were co-produced, as when the high school teacher and I initiated a school visit to an agricultural biotech corporation. Similarly, activists in the food sovereignty movement continuously pointed to the questionable ties between politicians and the biotech industry, thus shedding light on how science and politics are co-produced (Jasanoff 2004).

Such entanglements as much as attempted separations are of course historically grown (see Nowotny et al. 2001; Shapin & Schaffer 2011 [1985]; Visvanathan 1997). Education in an institutional sense left its mark earlier in the 19th century in Hawai‘i, discernible not only in an education system that separated commoners from the elite but also in how land figured in these

schools – or not. Missionaries in common schools trained Kānaka Maoli in scheduled labour in school gardens, while separate schools trained the offspring of missionaries and Hawaiian royals the skills of rational thinking and leadership (Benham & Heck 1998; Dotts & Sikkema 1994). The separate schools reflected a hierarchical order between commoners and kings that concurrently prepared missionaries' offspring to eventually displace the indigenous aristocracy as sugar barons by using the labour of commoners to work the land (Kauanui 2008; MacLennan 2014). This occurred through a persistent effort to educate Kānaka Maoli in industrious, Christian ethics (Kame‘eleihiwa 1992; Schachter 2013). The increasing designation of land for high-yielding profit in sugarcane and pineapple (and later military and tourism) co-evolved with an education system training Kānaka Maoli and workers that were brought from Asia to work in the islands' fields, even after mission schools were converted into public schools (Benham & Heck 1994; Stannard 2000). In other words, the normative conception of land as extractable source for capitalist enterprise was co-produced with the social readying of the Indigenous People and other ethnic groups (Chinese, Japanese, Filipino, Portuguese, etc.) in schools to serve as a working force.

Not surprisingly, such social and natural ordering strongly correlates with political interests. As in other parts of the world, the use of Hawai‘i's land to cultivate sugarcane and pineapple was a major enticement for imperial expansion, in this case the white oligarchy's push for US statehood (MacLennan 2014; Mintz 1985). Since the 1970s, Kānaka Maoli have adamantly objected to the illegal annexation of the Hawaiian Kingdom in 1893, and with it the subsequent politico-legal and cultural normalization of Hawai‘i as part of the United States. Learning about the land became a crucial part of resisting these processes. As Kanaka Maoli political scientist Noelani Goodyear-Ka‘ōpua's points out, education and struggles over land

were intrinsic to the Hawaiian sovereignty movement in the 1970s (2013). In the early 2000s, she and other Kānaka Maoli educators emerging from the movement took advantage of the state institution of charter schools to establish Hawaiian education programs, such as Kanuikapono Public Charter School (Kahakalau 2003; Meyer 2001).

In the last decade of the 20th century the sugar industry gradually moved operations to Southeast Asia, and soon after, local politicians heralded the conversion of former sugarcane and pineapple fields into profitable grounds for agricultural biotechnology. In a larger context, the new millennium's "New Economy" was to be based on scientific and high-tech advancements in IT, biotechnology,¹² medical technology, and earth/ocean/space sciences (DBEDT 2000: 23; PMP 1999). This technoscientific-economic shift has in the recent decade provoked public resistance within both Kānaka Maoli and wider communities: from contestations over genetically engineered taro to Kamehameha Schools' lease to Monsanto, to attempts at regulating the agricultural biotech industry at the County level.

With regards to these contemporary issues, I engage the following questions that I explore in this dissertation: How does land or *‘āina* shape the notion of education across the three sites? What does land/*‘āina* mean for 21st century articulations of Hawaiianness, particularly among high school students at a Hawaiian-focused charter school? How does the school operate within a western education system while fostering a Hawaiian worldview? How does the socio-culturally heterogeneous anti-GMO movement on Kaua‘i counter technoscientific orderings of land to "feed the world"? What does this mean for articulations of Indigenous Peoples (Clifford 2001) and to related sovereignty claims over *‘āina*? How does

12 In the context of this dissertation, I focus on agricultural biotechnology. For a discussion on marine biotechnology, see Helmreich (2009: 106ff).

Hawai‘i as a crucial hub for research and development of novel genetically engineered crops speak to this pressing global issue? Finally, in what forms do people of these different settings make knowledge claims, and how do these articulations define Hawaiian civic epistemologies (see Jasanoff 2005)?

In the following section, I outline the theoretical framework and methodological approach of this dissertation within the anthropology of education and science and technology studies (STS). I conclude the introduction with an outline of the dissertation's chapters.

1.1 Enquiring into learning and education

The subfield of the anthropology of education has taken on different shapes in different countries, most centrally in regards to the notion of “education.”¹³ Particularly in Anglo-American countries, the subfield descends from the anthropology of childhood, which in turn originated in developmental approaches by psychologist Jean Piaget.¹⁴ He countered evolutionary models of child development, and argued that children are actively involved in constituting their lived-in worlds. In the United States, Piaget influenced anthropology's Culture and Personality School in the 1940s, which represented the thesis that in cultural contexts where formal education is not prevalent children take on adults' personalities. While scholars criticized the simplistic equation of personality with culture, the deterministic approach was adopted a decade later in socialization theory. Socialization theory largely sees children as passive recipients of knowledge, which to this day has shaped the prevalent thinking

13 For instance, in countries like Germany, Austria or Denmark the concept of “Bildung” and “dannelse” comprises a broader field of learning (Wright 2005). Levinson et al. (1996; 2000) and Spindler & Spindler (2000) provide a good overview, also of the United States.

14 Piaget's lack of concern for cultural context and social life later drew critics among both anthropologists and psychologists. If not otherwise stated, in this paragraph I refer to Peggy Froerer's lecture “Anthropological and Psychological Perspectives on Learning” at Brunel University, spring term 2007.

of mechanized social roles replicated over generations. Pierre Bourdieu's theory of practice with its attention to practices, body and actions (1977; Bourdieu & Passeron 1977) gave researchers interested in socio-cultural dimensions of learning more appropriate tools to position subjects as agents of their lived-in world.

There has since emerged a rich literature delineating the cultural constructiveness of the 'child,' 'youth,' or 'adult,' as anthropologists understand distinctions between these categories as matter of cultural expectations and less of intrinsic psychological characteristics (see Bucholtz 2002; James & Prout 1990; Toren 1993). Furthermore, particularly as a result of anthropologists' work in non-western societies, the concept of learning has been expanded from bounded institutions to include much messier parts of 'informal,' everyday life settings (see Akinnaso 1992; Strauss 1984). For instance, Levinson et al.'s edited volume *The Cultural Production of the Educated Person* (1996) collects ethnographic essays that interrogate social, political and cultural dynamics that shape how education comes to be. Another influential work is Jean Lave's widely adapted social theory influenced both by Bourdieu's practice theory and Cultural Studies approaches that moves beyond institutional settings (Lave 1982; 1990).

A Hawaiian-focused charter school that sees itself as a “school without walls” (Kanuikapono 2012) by moving class instruction onto the land - i.e. the taro patch – and into the public sphere - i.e., a political rally - exemplifies crossing such institutional boundaries (Indeed, as I will show in chapter 3, education at Kanuikapono was not defined by infrastructure per se but by how education and land emerged as a constantly shifting terrain in the connecting infrastructure of a built campus). Fundamentally, in Hawaiian epistemology there is no distinction between learning and teaching, and there is no word-for-word translation for “education.” The word *a‘o* comes closest as encompassing both learning (*a‘o mai*) and

teaching (*a'o aku*), which rests upon receiving and giving (Chun 2006). Candace K. Galla et al. (2014) describe the six Rs of Indigenous Ways of Knowing, Being, and Doing,¹⁵ and specify that Reciprocity in Indigenous education is paramount (2014). Following other Indigenous scholars, they counter the western educational practice of students being recipients of knowledge through the Hawaiian concept of *a'o*: “an exchange of expertise and wisdom as a shared cyclical experience [which illustrates] the principle of reciprocity or teaching and learning as an exchange between the *kumu* (teacher) and *haumāna* (student)” (2014: 200). Hence, *a'o* does not delineate a one-directional process of knowledge dissemination but continuously moving forms of expertise and wisdom.

During my fieldwork among the food sovereignty movement, boundaries in regards to where education starts and ends also got fuzzy. In this more informal setting, citizens encouraged their fellows to “educate yourself” on the unresolved consequences of genetically engineered (GE) crops and biotechnology more generally. Agricultural biotechnology proponents grappled with education again differently, having detected the industry's and scientists' longstanding failure to “educate the public” on biotechnology's feats to alleviate world hunger. Hence, education in the different settings similarly moved and was moved between institutions as trans-institutional practice. These different yet interlinked conceptions of education counter the commonly shared notion of an allegedly neutral, acultural or apolitical endeavour. People often inadvertently redefined epistemologies of education in conjunction with issues that were commonly seen as 'outside' of education. For instance, students giving

¹⁵ Galla et al. hereby extend Kirkness and Barnhardt's Indigenous conceptual ideas with the 4Rs - respect, responsibility, relevance, and reciprocity (2001; quoted in Galla et al. 2014: 198) and Carjuzza and Fenimore-Smith's added relationality (2010; quoted in *ibid.*) with resiliency by strengthening the presence and practice of Indigenous epistemologies (2014: 200).

testimonies on the land development act PLDC (Public Land Development Corporation) was seen by Kanuikapono as part of education while authorities reminded the school to stay away from public, 'political' debates (chapter 4).

In this dissertation I thus argue that education has expanded institutions, in other words that it has moved *out* – in the sense of *educere* as *ex-* (out of) and *ducere* (to lead) - of institutional settings. Put differently, education has taken on new, emergent forms of life (see Fischer 2003). By emergent forms of life anthropologist and STS scholar Michael Fischer refers to technoscientific innovations (i.e. agricultural biotechnology) and with it to legal, institutional, and socio-cultural shifts, since traditional ethical and moral guidelines are “outrunning the pedagogies in which we have been trained” (2003: 37). These shifts, he argues, bring about new, emergent forms of life that people negotiate and renegotiate on ethical plateaus, “where often incommensurable frames of references come into play, involving irrational passions and fundamental commitments, as well as rational calculations” (Fischer 2005: 56). Fischer also acknowledges that the nature of pedagogy has changed due to the changing nature of technologies. He refers here both to how social theory has outrun people's experiences as well as to how university curricula have shifted, with the increasing presence of IT and communication technologies, interdisciplinary collaboration, and overall flattened hierarchies between teacher and student (ibid: 363). I extend this point to argue that it is these pedagogies themselves that emerge in different forms of life. That is, common pedagogical conceptions have outrun conceptions of what education has come to be, as it has embraced current issues and thus populated social, cultural and scientific discourses beyond the school. Hence, education is not innocent; neither simply an act of liberation nor of indoctrination.

Rather, it is deeply shaped by – indeed, co-produced with – politico-legal, socio-cultural and technoscientific realities that are of concern for respective social groups.

In effect, across the three field sites, and at times in an overlapping fashion, education emerged firstly as means of *self-determination and sovereign right* for indigenous educators, who insisted on moving teaching and learning onto the *‘āina* and into the public sphere. Secondly, education was a means of a *democratic right* for consumers, environmentalists, and food producers that practiced self-education - by “educating yourself” - on contested food technologies. Thirdly, among scientists and industrialists, education was both a *corrective effort* of public misconceptions of biotechnology - by “educating the public” - and a process of *community building* to become a legitimate “good neighbour” in Hawai‘i.

Recognizing this multivalent character of education sets the stage for another level of analysis where I elaborate how the very practice of learning correlates with and gets defined by the social. The work of educational anthropologists like Jean Lave proves useful here. Lave argues that since emerging knowledge is always embedded in sociality the human mind does not merely reflect on the world but interacts with it, a thesis that also problematizes cognitive psychology's conceptualization of the individual as locus of ingeniousness (1982; 1990). Similarly, as Ray McDermott argues in case of the “genius” – perhaps the most pivotal expression of the knowledgeable subject in western thought – this individualistic concept is rather one of a collective social process than a property of an individual mind (2006). Christina Toren similarly states that the “mind is a function of the whole person that is constituted over time in intersubjective relations with others in the enviroing world” (2011: 24). Jean Lave and Etienne Wenger's seminal work *Situated Learning* (1991) expands the thesis that any learning is a social act and vice versa by reference to “communities of practice.” This communal notion

also underlies the emergent forms of life that Fischer speaks of when he describes technoscience's specific appearances and articulations (2003; 2005). Put differently, just as the accumulation of knowledge through learning practices, science and technology are never *not* (part of) social acts. Lave & Wenger further that “newcomers” (i.e. students in a classroom) do not merely learn taught facts but also what other actors are involved, their activities, how they behave, engage with, and learn from each other rather than directly from the master, the “oldtimer” (1991: 95). Mastery then resides not in the master but in the larger organization of a particular community of practice (ibid: 94) where “identities of mastery” form novices for a world outside (1991: 41).¹⁶

Here is another parallel to an approach in science, technology & society studies (STS), the second central theoretical framework of this dissertation. As an interdisciplinary research field, it is concerned with the nature of scientific knowledge production and technological advancements; in other words, with what it means to know 'scientific facts' and for society to 'progress' via such advancements. STS scholars study knowledge regimes, what impact science and technology (S&T) have on society, as well as how people reason that S&T should be governed. In regards to the nature of mastery described above, STS scholars similarly interrogate how expertise is embedded in a system recognized by key players. They establish a regime of knowledge production, such as the public display of experiments like the air pump (Shapin & Schaffer 1985),¹⁷ or ethics and expert committees (Jasanoff 1995; 2004). Just as

16 Applying this concept in my Master's thesis, I argued that students at a Hawaiian-focused charter school form mastery around Hawaiian cultural knowledge that many in their adult lived-in world had not been exposed to, and thus act both as “oldtimers” and “newcomers” in multiple communities of practice (Gugganig 2009).

17 Shapin & Schaffer's seminal work *Leviathan and the Air Pump* (1985) interrogates Thomas Hobbes' and Robert Boyle's debate in the 17th century over the effectiveness of the air pump. The authors demonstrate that the experimental method was contingent on a particular upper-class, male circle as witnesses that would give legitimacy to the air pump's effectiveness (rather than Hobbes' absolute certainty of mere demonstration).

mastery in the apprenticeship of smiths is defined by its social organization (Lave & Wenger 1991), so do experts assert and maintain expertise according to these established and recognized institutions.

Lave contends that everyday thought practices are also expert thoughts (1988). This resonates with educational scientists Melissa Freeman and Sandra Mathison, who write about children as co-researchers, arguing that children are “competent social actors with different competencies, perspectives, and experiences” (2008: 62; see also Christensen & Prout 2002). Likewise, educational scientist Leif Gustavson asserts that the commonly assumed importance of “[s]pecialization makes it difficult for teachers to believe that youth are creatively intelligent human beings”, who, as he argues, are “mathematicians, historians, writers, and scientists *in their lives*” (2008: 102; 103; emphasis original).

Related to opening up the notion of expertise is the interrogation of the formality/informality distinction, as it both defines and delegitimizes expertise. When recognizing that learning and formed expertise occur in any social setting, it becomes obvious how ambiguous and often inadequate the category of 'informal' places of learning is (Strauss 1984). Even in more recent elaborations in the anthropology of education, such as Bekerman et al.'s *Learning in Places: The Informal Education Reader* (2006), the 'informal' still remains an encapsulated, static entity. While educational anthropologists such as Peggy Froerer and Anne Portisch make the important step of socially contextualizing learning and education (2012), I cannot help but discern a still prevalent anthropological theorization of education with an inherent reference to the 'mother ship' that is school education. A significant number of authors in anthropology and STS studies have likewise moved beyond institutional settings when elaborating expertise by integrating wider social group's knowledge practices into their

analyses (Benjamin 2013; Cruikshank 2005; Epstein 1995; Jasanoff 2003, 2005b; Silverman 2012; Wynne 1996). This dissertation aligns with these authors' works, which offer a more radical socio-symmetrical approach to expertise. It further extends this body of work by focusing more particularly on learning as matter of any social interaction, which turns any social loci into loci of learning.

Hence, children, youth, and humans of any age or profession, are capable of building and articulating an expertise that is shaped by their lived experiences, social settings, desires, fears, and expectations (see Lave 1988). As I will show in this work, in the different settings I investigated on Kaua'i, a respective mastery and expertise did not always correlate with what was expected by key players. For instance, teachers at a Hawaiian-focused charter school often had different expectations of what students' mastery is supposed to be once they graduate. Yet, as I will show in this dissertation, students learned their ways around their culture, their island, the histories and the contemporary faces of colonialism, be it gawking tourists or the agricultural biotech industry. By doing so, I argue that the students develop *tacit forms of expertise* that may neither be registered in a standardized school curriculum nor in common conceptions of what Hawaiian education should look like. Similarly, politicians' and scientists' models of citizen's understanding of S&T often enough diverged from citizens' own sets of knowledgeability. In that sense, I argue that frictions that emerged between and within these communities of practice – a school, the Hawai'i Department of Education (HDOE), a concerned public, the County of Kaua'i, the biotech industry, etc. - bring about different forms of expertise.

In distinction from the ubiquitous term of knowledgeable subjects, I refer to these teachers, students, mothers, farmers, and others not formally recognized by institutional entities

as *knowledge-able social experts* (see Jasanoff 2003; Wynne 1996), who in and between these communities of practice created their own, often tacit forms of expertise. By referring to expertise I do not attempt to raise lay people's status to that of otherwise recognized policy/ethics/science/law experts, and thus to impose a distinctly institutionalized, perhaps upper-class valuation of professionalism. Knowledge-able social experts rather level out, and perhaps 'pull down' the conception of expertise to wider socio-cultural settings that are not intrinsically linked to committee meetings, laboratories or court rooms. In that sense, expanding the *meaning* of education beyond institutional thinking resonates with these diverse forms of expertise, and puts expertise where it rightly belongs, and always has been: in people's everyday lived-in worlds. Indeed, it is instructive to point to the parallel between education and expertise. Etymologically, both terms entail the prefix *ex-* (out of): education as in *ex-* and *ducere* (to lead), and expertise, which is rooted in experience: *ex-* and *peritus* (experienced, tested). In more colloquial terms, both education and expertise has always been 'out there.'

Most central for this thesis is the recognition that learning consists of a constant shifting of positions – from apprentice/newcomer to master/oldtimer (Lave & Wenger 1991) - and is thus not only a social but a *spatial* process. In consequence, I argue that learning as intrinsic to any social practice cannot be disassociated from notions of education and expertise. Here is where the work of educational anthropologists correlates with the concept of emergent forms of life (Fischer 2003). Both approaches are fundamentally about communality, as the social is essential for learning and for Fischer's emergent forms of life. Indeed, Fischer derives this notion from the term *form of life* as used by Ludwig Wittgenstein who argues that the social is essential for learning language; a “sociality of action” (Fischer 2003: 37). In other words, the social and education do not occur in a vacuum but are inherent to each other.

To accommodate these interspaces between different loci of learning, I propose the concept of *learnscares*. This concept captures the intricate forms of learning about, fighting for, connecting to, or mere thinking of a place – here, *‘āina* (or land) – and processes of identity formation that come with it. It aligns with sensory knowing in Hawaiian epistemology that Kanaka Maoli philosopher Manulani Meyer explains “is not only mediated by one's living resources, but by a whole host of historical and metaphorical images that continue to explain, educate, and inspire” (2003: 107). With its malleable, spatially and temporally overarching properties, *learnscares* further closely relates to sociologist Henry Lefebvre's notion of space: a thinking of place and practices together as *lived* space by capturing perception and conception put in practice (1991), with a closer focus on learning/social processes. Arjun Appadurai's work *Modernity at Large* (1996) on global “flows” and the five related “scapes”¹⁸ come to mind, yet *learnscares* more specifically attends to the personal and/or communal intersection of place and learning. I thus recognize that knowing is *being* and *doing* and interrelated to any place, even if considered 'out-of-place,' such as the commonly shared view that learning at school takes place outside of 'real life' (Lave & Wenger 1991); or the conception among many Hawaiian educators that learning only happens 'on' the *‘āina*. I return here again to Tim Ingold's elucidation that education is not locked in the 'inside' – whether a classroom or a (young) person's mind - as much as it is not locked in the 'outside' (see 2014: 388).

The concept of *learnscares* also relates to indigenous epistemologies of landscapes as holding memories (Feld & Basso 1996, Cruikshank 2005, Oliveira 2014), as places from which people learn. Beyond this, I also point to more immediately created spaces as reference points of learning. This relates to the *etho-ecological* perspective postulated by Isabelle Stengers, as it accounts for “the inseparability of *ethos*, the way of behaving that is peculiar to a being, and

18 These are ethnoscares, technoscares, financescares, mediascares, and ideoscares.

oikos, the habitat of that being and the way in which that habitat satisfies or opposes the demands associated with the ethos [...]” (2005: 997). In other words, a person or collective negotiates over and over again how their ethos aligns or does not align with a certain landscape/place/habitat. It is this wider scope that aims to address the range of engagements; more broadly with a created space and more particularly with land/‘*āina* as sacred, as relative, as extractable, waste dump, place of (tourist) recreation, or industrial source.

If the notion of *learnsapes* is concerned with the overall dynamics of place, learning and practice, I propose the concept of *learning as land-ing*, which emerged out of close ethnographic attention to these practices. To return to the case of the high school students, recognizing their learning processes as forming trajectories and moving away from different positions (Ingold 2014; Lave & Wenger 1991), I argue that in these processes they crafted their own ways of *learning as land-ing*. The concept of *land-ing* reflects not only the immediate association of arriving somewhere, perhaps at a new terrain of insights, but also depicts the social situatedness of learning, an objectivity that is founded in situated knowledge (Haraway 1988). Hence, while *learnsapes* describes the overarching socio-spatial dimension of acquiring knowledge, *learning as land-ing* is concerned with the more minute, socio-cognitive dimension where knowledgeability intersects with the social. In case of Hawai‘i, this encompasses what Kanaka Maoli literary scholar and author ho‘omanawanui refers to as place-based learning practices from and about the land, *‘Ike ‘Āina* (2008). Noelani Goodyear-Ka‘ōpua similarly describes land-centered literacies: “writing ourselves into the landscape by drawing water through irrigation ditches to *lo ‘i kalo* [taro patches] and then back to streams” (2013: 34). This is also akin to what geographer Katrina-Anne R. Kapā‘anaokalāokeola Nākoa Oliveira

calls performative cartographies – hula, chants, reciting *mo‘olelo*, genealogical chants, etc. (2014).

Here I wish to expand these practices to ways of knowing with and about land that defy a common (often positivist) conception of affectionately planting trees or cleaning the beach. I pose that such knowledge-making practices also need to include how people satisfy or oppose in more immediate situations “the demands associated with the ethos” (Stengers 2004: 997). In people's conscience that things ought to be a particular way, *learning as land-ing* accounts for the not always 'proper' ways of connecting to the land, i.e. the at times unfocused student chanting to the *akua* (god) when entering a forest, or littering the beach while knowing that this is not an act of *mālama ‘āina* (care for the land). It is these moments 'in-between' – the expected learning goals from the teacher and the student's learning trajectory, the classroom and the beach, etc. – that become most evident through ethnographic research. The concept of *learning as land-ing* thus attempts to account for this interplay between the youth's activities, formed identities and identifying places without essentializing any of these components. Hence, *land-ing* incorporates different situated knowledge practices, which not every actor agrees are the best forms to engage with land. This was also the case among food sovereignty activists opposing how scientists in the agricultural biotech industry related to land as a source to maximize food production in order to 'feed the world.' This does not mean that *learning as land-ing* is per se tied to land but it is often the case in Hawai‘i where due to its colonial past,¹⁹ land relations remain a highly political matter.

In reflection of this complex history, and the ethnically diverse population that emerged

19 See Kehaulani Kauanui (2008) and Goodyear-Ka‘ōpua (2013; 256f, fn. 59) on discussions on whether Hawai‘i is an illegally annexed, independent Kingdom could be described as “colonized.”

as a result of the sugar and pineapple industry in the late 19th and early 20th centuries, *learning as land-ing* and *learnsapes* in Hawai‘i also centrally encompass boundary work around cultural identity. This requires a closer look at how Hawaiian culture and Hawaiianness get articulated (Clifford 2001) in a place that has captured a plethora of new arrivals - plants, animals, missionaries, sugar barons, sugarcane field workers, shipped goods, new settlers,²⁰ etc. – and concurrently expelled many others (see Helmreich 2005). Food taboos, pollution fears and environmental risk are crucial markers, as they are grounded in a group's symbolic classificatory system (Douglas 1966; Douglas & Wildavsky 1982) and serve to align with or distance oneself from other groups. How one stands towards organic food – as a statement of 'returning back' to Hawaiian ways of eating, and/or as alternative to an industrialized food production system –, and how one stands towards fields of GE crops – as means to “feed the world,” as continuation of the United States' illegal annexation of Hawai‘i, and/or as inhibition to create small-scale farmer operations – are all conceptions that are not merely shaped by ideals of eating healthy or doing the proper thing for the *‘āina*. In the heightened awareness among concerned citizens of the biotech industry during my fieldwork, these articulations brought to sharp relief what it means to be Hawaiian in the 21st century, to *mālama ‘āina*, or to know what are GMOs. Furthermore, they revealed how education, activism, alternative and alterNATIVE (Nakanishi 2000) ways of knowing and being, industrialized agriculture and capitalism, as well as science took on shape in the early 21st century in Hawai‘i.

Related to the finding that knowing is socially mediated and shaped by articulations of

20 I refer to arrivals of roughly the last four decades as new settlers. In the 1970s, the so-called Taylor Camp on Kaua‘i (Wehrheim 2010) attracted many young hippies and other 'society dropouts' that found a refuge from the 'mainland's' police brutality, campus riots, and later also attracted draft dodgers from the Vietnam war. The legend of Kaua‘i as antidotal paradise to the industrialized mainstream (mainland) society continues to captivate newly arrivals to this day, who primarily do work-trade on farms or work in the tourism industry.

cultural identity, across the different field sites there also emerged shared and contested epistemologies. More specifically, epistemologies were defined by diverse *claims of bodily ways of knowing* whose source people located in the mind, the heart or the *na 'au*²¹ (guts, as the seat of both intelligence and emotion). Anthropologists and STS scholars have likewise turned their attention to sensual, bodily ways of knowing (see Ingold 2000; Myers 2008; Sahlins 1995; Silverman 2012). Donna Haraway's call to take sensory systems of vision seriously and to pose what other sensory powers we wish to cultivate (1988: 587) attends researchers to this multiplicity of sensorial ways of knowing. In the case of Hawaiian epistemology, Oliveira succinctly refers to *sense abilities* of sight, listening, taste, touch, and smell, as well as connecting to one's *na 'au*, to a place and ancestry (*kulāiwi*), ancestral ways of knowing (*au 'āpa 'apa 'a*), and lineages of insights and traditions (*mo 'o*) (2014). During fieldwork, these forms of knowing, but especially to listen to one's *na 'au*, formed a central aspect of knowing, such as when Kānaka Maoli claimed to speak for the *'āina* and against the controversial practices of the agricultural biotech industry. The *na 'au* was also often equated with another bodily source of knowing, the heart, such as in “speaking from the heart.” Yet such ways of knowing did not remain uncontested. Following anthropologist Sabine Deiringer's findings, non-Hawaiians were quick to frame Kānaka Maoli as “demented” or “radical” when expressing outrage over desecrated burials (2009). In a similar vein, during my fieldwork on Kaua'i, proponents of biotechnology often dismissed countering arguments as 'irrational,' 'culturally-biased' or 'un-scientific.' Yet workers of agricultural biotech firms likewise gave 'emotional' testimonies when it came to the alleged loss of jobs should the industry be more strictly

21 “Intestines, bowels, guts; mind, heart, affections; of the heart or mind; mood, temper, feelings” (Wehewehe online dictionary).

regulated. These public ways of knowledge-making, a sense of objectivity in data, the *āina*, and the kinds of expertise that different groups consulted shape what Sheila Jasanoff calls civic epistemology (2005a).²² Besides these different facets that I will analyze in this work, I propose to include bodily ways of knowing, which likewise constituted a Hawaiian civic epistemology. I therefore outline in this work that cerebral reasoning was only one among a plethora of bodily-derived ways of knowing. In sum, I argue that expertise of knowledge-able social experts is defined by specific processes of *learning as land-ing* that shape *learnsapes*, which are informed by one's socio-cultural context, as well as claims of bodily sources of knowing (see Myers 2008; Prentice 2007).

1.2 Situating the field - methodologically

In the late 1980s, the call for multi-sited ethnography in anthropology attempted to counter meta-narratives by paying closer attention to intersecting locations that constitute cultural formations (Marcus & Fischer 1986; Marcus 1995). The ethnographic research at hand could be called a 'local' multi-sited endeavour, albeit with different emphases on the three sites. My prime research site was Kanuikapono charter school, secondarily I engaged in the food sovereignty movement, and peripherally, I followed the agricultural biotechnology industry on Kaua'i.²³

22 Jasanoff outlines six dimensions of civic epistemology: styles of public knowledge-making, methods ensuring public accountability, practices of public demonstration, registers of objectivity, expertise, and visibility of expert bodies (2005: 259). I will here focus on styles of public knowledge-making, registers of objectivity and expertise, as these aspects were most relevant in the described educational forms.

23 This was also due to my geographical location, as the school is in East Kaua'i and most of the movement's initiatives took place on the East side and North shore. The biotech industry is located primarily on the West side and parts of the South side, an approximate car drive of 1 1/2 hours.

From August 2012 to May 2013, I spent 3-4 days a week with the high school program, which included a cultural camp, public speeches and events regarding land regulation, a school trip to Vancouver/Canada with the senior students in April 2013, and numerous filming trips across the island. Prior to my fieldwork, I had offered Kanuikapono charter school a collaborative film project with students, teachers and community members, which morphed into a film and research methods class for the high school. I taught basic techniques in filming, editing film, photography composition, film analysis, as well as audiovisual and interviewing practices. Besides the film class, I helped the high school teacher Katie Capadouca as educational assistant for her language arts and social science classes, which often entailed brainstorming topics and crafting student assignments. Sometimes I would do participant observation in middle school, join school trips across different grades, drive the school van or supervised lunch breaks. Besides that, I offered to visually document events at the school for a film about Kanuikapono that eventually turned into a short film about senior students' visit to Vancouver/BC²⁴ and an internal short film on senior students' reflection on their time at Kanuikapono. Out of 14 high school students, nine participated in the research project, as well as eleven teachers, staff and volunteering instructors, and the principal. I conducted semi-structured interviews with all the participants, (except for three students and a teacher), which lasted on average 1-2 hours.²⁵ I interviewed six high school students in groups of three and two, and one individual interview.

Outside of the school I conducted participant observation at different public community events and gatherings that were organized by individuals more or less closely related to the

24 *Ku'u Home ma ka 'Āina 'Ē: A Home away from Home*. See <https://www.youtube.com/watch?v=gWizfViloj4> [accessed January 5 2014]. All material is under Kanuikapono charter school's copyright (2013).

25 All students have pseudonyms or are anonymized.

food sovereignty movement. I interviewed four educators (one on Hawai‘i Island), two educational consultants, one great-grandmother of a student at Kanuikapono, as well as three activists, one journalist, one politician, and four scientists. From 32 conducted interviews I transcribed and analyzed 29. I chose to interview all my interlocutors at the end of the school year, respectively towards the end of my fieldwork. This was primarily due to past experiences where people tended to be more willing to share their points of views – and contest mine – as they learned to get to know me better as person, rather than merely as researcher. In daily practices and the interviews, I looked closer at and listened to what people meant by education and *mālama ‘āina*.

A central approach that shapes the analysis of this dissertation, and to that extent resonates with the method of multi-sited ethnography, is that of symmetry in STS. As sociologist David Bloor asserts, analysts should stay impartial to the truth and falsity of knowledge practices in order to address them symmetrically, irrelevant of whether they are considered 'true,' 'false,' 'rational' or 'irrational' (1991 [1976]: 7). My situatedness to different degrees in these 'sites' - as class instructor and advocate of citizens concerned with GMOs - is testimony to what could be called an 'asymmetrical symmetry' between the school, community events, and one biotech firm. As Marilyn Strathern details, “[t]he anthropologist's contexts and levels of analysis are themselves often at once both part and yet not part of the phenomena s/he hopes to organize with them” (1991: 75). In other words, this ethnographic research is shaped by my primary position at the school and different land-related non-profit organizations, and the eventual consideration of the agricultural biotech industry as a third field site.

My ethnographic fieldwork on Kaua‘i constituted a daily criss-crossing between different settings, which entailed a constant counter-checking of such accustomed norms. In the

words of Michael Fischer, attention to different field sites is an attempt to create a space that is never neutral or 'outside' others:

[Anthropology's] formation has increasingly been a third space between the desires of empire (of control) and the defense of the oppressed (of subaltern voices, interests, values, and perspectives), a third space of helping evolve new multicultural ethics, with translation and mediation tools for helping make visible the differences of interests, access, power, needs, desire and philosophical perspective (2003: 8).

In this sense, impartiality does not suggest that colonial, post-colonial, and other entangled power relations are set aside, least ignored. Rather, it means recognizing that there is no place of retreat despite or exactly because knowledge is situated (Haraway 1988; Lave & Wenger 1991). When scholars both of STS and anthropology inquire into the make-up of science, and culture respectively, they question the dichotomy between the social and the natural (Wynne 1996), the modern and traditional (Brandt 2007; Henze & Valett 1993; Latour 1993), yet without denouncing the significance of such norms for social actors. Following this line of thought, my methodological approach was to look at how people mobilized such norms through different modes of education.

This local multi-sited ethnography also speaks to Fischer's clarification that reflexivity is not so much about personal reflexivity than about juxtaposing “cultural, moral, or social discourses as socially situated [...] that require further scrutiny of their formation, efficacy, and place among contesting perspectives” (2003: 12). The engagement across the different sites helped to contrast and complement how people thought together and separated education from land and Hawaiian issues, and where and when science - in the form of agricultural biotechnology – entered the picture. STS scholar Candis Callison succinctly describes this as a “jeweler's eye view” with an emphasis on locating (and relocating) as verb, which recognizes

the relations between power, knowledge, history and difference (2014: 31ff). For instance, on an island with a population of 65,000 inhabitants, I was surprised that whenever I told people about Kanuikapono or the Kauai Food Forest on the North shore, many did not know of their existence. It spoke to the island's socio-culturally diverse communities that often existed parallel to each other, which for me often felt similar to urban anonymity and gated communities. The switching between different sites threw into relief the politics of movement (necessitated via a car); the choice, lack thereof, and 'luxury' to move, and related hereto that people often did not know (or did not feel they had to know) other people's histories and epistemologies, particularly those of Kānaka Maoli.

Yet locating and relocating did not end with the last day of fieldwork. Rather, it was a constant mode of revisiting my fieldnotes, not least by moving between different places (universities, conferences, and engaging conversations with research fellows in cafes or pubs), and different power relations over knowledge production (particularly in educational institutions like universities). Ethnography is thus a constant mode of (re)orientation, a mode of *educere*, moving out, forward, sideways, *any* ways.²⁶ I am reminded of an incident at Kanuikapono when the high school teacher and I proposed to Kanuikapono a school visit to the biotech company Pioneer Dupont to get a perspective on GMOs “from the other side.” When I later interviewed teachers on this visit, the Hawaiian language teacher Kamealoha D. Forrest shared the following:

26 I experienced some of these steps through the STS Program at Harvard University with Professor Sheila Jasanoff and the many fellows that have provided invaluable feedback on this research project and beyond.

I told [incomprehensible] the students that was totally against going, that they should have went!²⁷ That you don't have to accept everything they're saying but in order to have a good argument of why you don't like it, if you don't even understand their side of the argument, you can't have just one side. [...] If you're going to argue a point you need to be able to know all viewpoints. And that is, even in Hawaiian, in ancient Hawai'i they had this thing called *ho'opapa*, and the best *ho'opapa* person, or the one, they banter and battle with words and poetry. The one that knew the most things about all types of other aspects of life was the winner!

Kamealoha's account shows that the highly cherished virtue of bantering among ancient Hawaiians (and at present, as I will show) implies at the basic level the virtue of knowing different perspectives. While this outlook guided my personal morals and research ethics, as I will show in this dissertation, it was also a problematic endeavour that often belied the neutral, apolitical virtue of education.

Hence, the described findings in this dissertation suggest that ethnographic research on different forms of education in and around contested issues reveal often overlooked ways of knowing that go beyond dichotomous framings of education as either indoctrination or liberation. In other words, close ethnographic and analytical attention is essential to comprehend how education becomes a significant knowledge device that people increasingly adopt to bring to the forefront imperative issues of cultural identity, sovereignty, democratic citizenship, and science and technology. In the case of Hawai'i, these issues emerged and continue to emerge on the contested terrain of *'āina*.

Educational scientists' and anthropologists' works are not only crucial for expanding conceptions of learning and education. Connecting concepts of knowledge production in

27 People that speak Hawaiian Pidgin often mix singular and plural forms, as well as tenses. This is indicative of the fact that in Hawaiian in singular and plural form words tend to be the same. Often *kahakō* – letters with macron – indicate a plural form, such as *nā kūpuna* (the elders), rather than *ke kupuna* (the elder). I will therefore not indicate these instances as “[sic]”.

anthropology of education with those in STS, as well as a methodology of (a)symmetry in local multi-sited ethnography, promised to be fruitful engagements. The approaches I have described in anthropology of childhood, youth and education counter conceptions of young individuals as passive knowledge recipients from their adult lived-in worlds by recognizing their own forms of expertise. Similarly, several STS scholars counter deficiency-driven paradigms of citizens as allegedly passive recipients of science and technology, who are measured against predefined standards of what such knowledge constitutes (Jasanoff 2005b; Wynne 1993). This is not to say that young people's perspectives are void of adults' expectations, nor that citizens do not also consult scientific studies, quite the contrary. As actors in a social world they never can be. The tacit expertise of youth and citizens thus emerge in conjunction, parallel, and counter to adults or authorities in policy and science. Just as children and youth actively shape their lived-in worlds, so do citizens competently engage in knowledge controversies over scientific and technological advancements (Callison 2014; Stengers 2005; Whatmore 2009) as *knowledge-able* citizens (Jasanoff 2012a: 27).

1.3 Positioning myself – in anthropology in Hawai'i

The list of Indigenous Peoples whose lives have been disrupted through colonialism is a dire and long one, and anthropologists not uncommonly contributed to its exploitative endeavours. Kānaka Maoli are no exception to this (ongoing) experience of structural violence.

Anthropologists Geoffrey White and Ty Kāwika Tengan (2001) hold that the relationship between anthropologists and Kānaka Maoli has often been conflictual, since anthropological research conducted in Native Hawaiian communities was rarely of any profit for the latter. They chronicle the history of anthropological studies of Kānaka Maoli moving from early

salvage ethnography to acculturation studies of Hawaiians becoming Americans, with the exception of the Nānakuli Project (1965-68), which studied life conditions in Hawaiian homestead communities, and resulted in the Kamehameha Early Education Program. As one of its first kind, this program used anthropological and psychological research for developing an education program for Native Hawaiians, yet there still remained a gap between the observer and the observed (ibid: 393).²⁸ Conflicts between (white) anthropologists and Kānaka Maoli voyagers in the Polynesian Voyaging Society (*Hokule'a*) in the 1970s served as a caution to future researchers that cultural practices could not be separated from indigenous struggles (p. 394). These tensions came to full expression in the by now famous debate between anthropologists Roger Keesing (1989) and Jocelynn Linnekin (1985) working to deconstruct “invented” traditions, and Kānaka Maoli political scientist Haunani Kay Trask (1991). Trask accused anthropologists doing work in Hawai‘i to be “part of the colonizing horde” by misrepresenting Hawaiians, and thereby taking away their power of self-definition (1991: 163).

When I first came to Hawai‘i in 2007 for a four-month research project for Master's thesis at another Hawaiian-focused charter school, I was slow to realize what impact my skin colour and European origin would have on working in a Hawaiian community (yet, the individualized, commercial-driven US-American culture was just as strange to me). I further learned that acting as a mere sponge soaking up information by asking questions without revealing myself was not only one-sided, but also quite boring. At a rare AAA panel on

²⁸ Other ethnographic research on education in Hawai‘i includes Gallimore et al.'s *Culture, Behavior, and Education* (1974), Watson-Gegeo & Boggs' *From verbal play to talk story* (1977), and Bogg's *Speaking, Relating, and Learning* (1985). Further ethnographic work includes Karen Ito's *Lady Friends* (1999), and on embodiment Tengan's *Native Man Remade* (2008), as well as McMullin's *The Healthy Ancestor* (2010) and Marshall's *Potent Mana* (2012) on health and healing. This dissertation follows the genealogy of these educational ethnographies while it departs from their preponderant psychological analyses. It relates to the ethnographic details Ito pays towards daily acts of interaction (though with less focus on language) and to the practice of embodiment (though with a stronger focus on space and place).

ethnographic studies in Hawai‘i in 2008, Tengan reminded the audience that researchers need to display not merely their methodological and theoretical genealogy, but also the genealogy of their personal ambitions for conducting research in a foreign place.²⁹ As Hawaiian philosopher Manulani Meyer notes, in Hawaiian epistemology knowledge is defined through its roots in the personal (2003). Only upon sharing a personal story at this Honolulu-based Hawaiian-focused charter school in 2007 did my interlocutors (and me) understand why I was interested in Hawaiian students learning about their culture and language. My genealogy of personal ambitions to come to Hawai‘i goes far back to my childhood growing up in a German-speaking city (Vienna) where my siblings and me attended a semi-private Czech-immersion school. To most people, this is a very unusual education and immersion, and many do not even know about this school.³⁰ Growing up in Vienna fifty years after the Holocaust meant that as a white Austrian I got used to a sense of otherness and racism that taught me not to speak my own, second language in public. Further, my generation grew up with a strong sense to “Never Forget” the Holocaust³¹ when witnesses started to come to our schools to talk about the atrocities of xenophobia before their generation would die. Twenty years later, I remain hopeful when I sit in a bus in Vienna and see ten-year-old boys lacking the shyness I grew up with, and

²⁹ Paper presentation “Genealogies: Articulating indigenous anthropology in/of Oceania”, at the annual AAA Meeting in San Francisco, November 2008. See also Ito on proper conduct of asking questions (1999: 12f).

³⁰ During the Austro-Hungarian Monarchy, numerous ethnic groups had lived in its capitol, Vienna, making it, for a early 20th century Europe, an exceptionally multicultural city. The Czech people formed the largest ethnic 'minority,' and Czech was taught at numerous public schools. After WWI in 1918, when the monarchy collapsed and its constituent countries gained independence, many people moved back to their countries of origin, or their lives exacerbated through the pure Arian culture promoted by the Nazi regime. While we did not grow up with any Czech relatives, our father had wished for us to attend the last remaining Czech school *Komenský* in order for us to experience the city, somewhat romantically, as this past, multicultural and multilingual place.

³¹ In German the slogan is “Niemals Vergessen.”

speak in their (Polish) native tongue. Twenty years later I am also fearful when I witness that Austria has the most voted right-wing party (Freedom Party) per capita (35%) within Europe.

These two experiences expose both similarities and differences to what I offer to study in this dissertation: what it means for young Kānaka Maoli to learn about their cultural heritage and language despite devaluation, and how to negotiate adults' expectations to maintain and cultivate that knowledge, and to 'not forget' and deal with the atrocities of colonialism. I then also recognize the differences, namely that as a white person my arrival to and presence in Hawai'i has been facilitated through a long history of imperial white supremacy that led to the cultural and ecological exploitation of this place. White & Tengan note that in the present era of decolonization, categorizations of “separate outsider” researchers as “antagonistic” by native scholars is only to dissolve once the discipline creates stronger social, political, and intellectual ties to communities (2001: 400). It was the practice and experience of *aloha*, *aloha ʻāina* and *ʻohana* that I was offered that facilitated such ties. As White and Tengan further note, for Native scholars, who question the dichotomy between academia and local culture, fiction writing, theatre, and video are preferred research tools, as they resonate with indigenous storytelling and performance (ibid: 403). This motivated my research endeavour at Kanuikapono charter school, namely exploring filmmaking and storytelling (by teaching high school students interview techniques) as ways of doing research. I thus aimed to reciprocate this shared *aloha* and *ʻohana* by offering my skills as researcher and filmmaker to youth, which the principal of Kanuikapono saw to be was an asset for her school. I thus recognize the privilege that was given to me to work in a Hawaiian-focused charter school, and the difficulties that came with following a trajectory of “outsider” teachers coming to Hawai'i, often merely for a year at a time.

The difficulty, yet concurrent opportunity for (foreign) anthropological researchers working on Hawaiian issues is that notions of “fieldwork”, “anthropology”, “indigenous culture,” are not fixed but negotiable (p. 404). Kanuikapono's strong focus on multimedia techniques for storytelling allowed such collaboration in the planning stage. As I will elaborate in this dissertation, executing collaboration cannot be planned, particularly in settings of dire shortages of means and personell. As an ethnographic work conducted by a foreign anthropologist in a Hawaiian community, its contribution is then to take serious what collaboration should be for the community, and to recognize that it may take on new, unexpected forms due to unforeseen circumstances. In other words, collaboration may mean serving as a film class instructor, recognizing that projects demanding strong teamwork among teachers will fail, and that senior students may go on a school trip to Vancouver not originally planned. I follow, again, Kim Fortun, who describes advocacy as ethnographic practice that cannot, and should not, lead to the modernist ideal of an intentional end result, but to an openness for new practices and ethics (2001: 16).

At this point, it is pertinent to state the limitations of my methodological approach. While I was fortunate to have taken Hawaiian classes with Kamealoha D. Forrest in the second term of the school year, and sporadic one-on-one classes with Susan Rowland, I am not proficient in the Hawaiian language. Beyond key words that often came up in daily interactions, and others I elaborate here more, such as *a 'o*, this dissertation is not a linguistically informed analysis, and it is not informed by a rigorous archival research into Hawaiian language documents. This means that some concepts, such as education, experimental systems, and Hawaiian civic epistemology, are far from complete, and that a scholar fluent in the Hawaiian language would doubtlessly find additional and deeper

connections than is the case here. In that sense, this work is an invitation to find conceptual inspiration that is built on scholarship of Kānaka Maoli researchers, anthropologists of education and science and technology studies scholars. It is my hope that this work will show Kānaka Maoli and Pacific Islander students the value of ethnographic research, in their own or other communities, not least to deconstruct the notion of anthropology as the invading “outsider” (White & Tengan 2001: 397). Further, it may serve comparative research studies on indigenous cultural revitalization efforts in education as well as studies of agricultural biotechnology, where ethnographic insights can provide relevant insights.

1.4 Structure of thesis

This dissertation is roughly divided into two parts. Part I (Chapters 2-4) describes interlinkages between land and education with a focus on Kanuikapono charter school. Part II (Chapters 5-7) focuses on agricultural biotechnology and different modes of education in regards to land and world hunger.

In the introductory chapter for Part I, *A history of land-landscapes and educational landscapes in Hawai‘i*, I approach the historical setup of education and land as interrelated landscapes. I start with a brief overview of the Hawaiian creation story Kumulipo and go on to outline the changing natural and social order through the sugar industry, which enticed the white oligarchy to push for annexation. The project to Americanize Hawai‘i took shape in a co-evolution of the Hawaiian school system and agriculture that was defined by a Protestant work ethic. This ethic, I suggest, eventually got inscribed into both the land-landscape and educational landscape. The establishment of Hawaiian homesteads demonstrated the extent to which the white oligarchy secured prime agricultural land and cemented a politics of ethnic

identity coupled with Native Hawaiians' crumbling sovereignty. I end the chapter outlining emergent forms of Hawaiian cultural education programs since the 1980s, which includes Hawaiian-focused charter schools.

In chapter 3, *Kanuikapono: a “school without walls”*, I portray this Hawaiian-focused charter school, and describe the obstacles that came with operating within the context of a US-American educational system. These obstacles took shape (1) in creating a “school without walls” by building foundational walls; (2) by giving preference to Kānaka ‘Ōiwi (Native Hawaiian) students as a public school; and (3) in forming a Hawaiian education program while debunking the stigma of not being academically rigorous. People's deliberation over these incommensurabilities emerged in the form of an ethical plateau (Fischer 2003), which in turn formed contested terrains of *‘āina* and education.

The final chapter of Part I, *The high school, learnscapes, and education as experimental system*, is where I describe in more ethnographic detail the everyday life at the school. I start with my own position as film class instructor and ethnographer, my methodological approach, and then zoom into the school's relatively young high school program. I then delineate the program's 'odd child' status as in between child-oriented Hawaiian education and adulthood on the island, and describe how the students conciliated the double bind between adults' expectations as young Kānaka Maoli and daily experiences by *learning as land-ing*, which in turn formed their idiosyncratic *learnscapes*. I show how as a result they created tacit forms of expertise through their sensibilities towards social and spatial marginalization. The teachers likewise fostered tacit forms of expertise in their attempts to conciliate the above mentioned double binds in the form of experimental forms of teaching.

Similar to Part I, Part II begins with a background chapter - *Agricultural biotechnology: the Hawaiian forms of life of a global industry* - on agricultural biotechnology in Hawai‘i, I discuss how, after the sugar industry left the Hawaiian islands in the 1990s, the fields were opened up to global agricultural biotechnology corporations to research and develop genetically engineered crops. I further delineate how Hawai‘i is not only interesting for the agricultural industry as part of the United States regulatory system, but also how biotechnology functions as institution of governance and discourse of (national) progress (Jasanoff 2006: 283f) that reaffirms and realigns Hawai‘i as part of the United States. This conflated history of settler colonialism reverberated in the patenting and genetic engineering (GE) of the sacred plant *kalo* (taro) at the University of Hawai‘i while GE taro opponents spoke of biotechnology countering Hawaiian epistemologies. I end this chapter with discussing the questionable narrative of the biotech industry having 'filled the void' left behind by the sugar industry by comparing it to that in religion 170 years earlier. As I argue, such framing suggests a seamless transition from sugar to GMO crops, from the *kapu* system to Christianity, and, as well as from teaching to being taught.

In chapter 6, titled *You are choosing GMO by default if you don't educate yourself: Kanaka Maoli and food sovereignty activists' call to mālama ‘āina*, I follow my own and the students' trajectory of encounters: firstly the movement (in chapter 6), and later the biotech industry (in chapter 7). Chapter 6, then, describes a wider public concerned with agricultural biotechnology where several incidents brought Kānaka Maoli and non-Hawaiian activists together in rudimentary ways. As enunciatory communities that responded to the paradox of these criss-crossing incidents (Fortun 2001), there was also an underlying Hawaiian civic epistemology that was defined by contentious deliberation and bodily ways of knowing. I argue

that some high school students were “speaking from the heart” when testifying on the PLDC or welcoming anti-GMO activist Vandana Shiva, which once again formed their *learnsapes* and tacit forms of expertise. Here I will also discuss my role as deliberate facilitator of quasi parasites (Marcus 2000). Finally, I will discuss how education took on a form of life in “educating yourself” as imperative among activists to distrust the government's stance that genetically engineered crops are safe, and to instead research alternative sources. These ways of knowing formed knowledge-able social experts where those truths and facts were considered valid that came from socially close and trusted sources.

The final chapter, *The communal life of agricultural biotechnology, and how to “educate the public”*, I open with an ethnographic account of a school visit at the agricultural biotech firm Pioneer DuPont throughout which the students questioned the feasibility of 'neutral' education. I then continue to discuss more broadly the forms of life of education in and around agricultural biotechnology: how “education,” expertise and trust manifested itself in how the industry sought legitimacy as “good neighbours.” Narratives of biotech proponents often shifted between localness/rootedness and globalism/universalism, which was most prominently articulated in their work efforts to help “feed the world.” Education here functioned in two ways: as a community building effort by aiding to the operation of local organizations and institutions, and as sociotechnical corrective in the appeal to “educate the public” on the benefits of biotechnology.

Chapter 2: A history of land-landscapes and educational landscapes in

Hawai‘i

How are land relations and educational systems in Hawai‘i connected? How did land ontologies change from pre-Cook times to the present, and how were they co-produced with social institutions, such as law, policies, land management and schooling? What effects did these major shifts have on the current agricultural and educational system in Hawai‘i?

This historical background chapter tackles these questions by providing a binocular focus on education and land in Hawai‘i as separated yet concurrently intricate issues. The chapter begins with Kānaka Maoli's creation story, the Kumulipo that characterizes interactions with *‘āina* as “that which feeds us,” and as kin and ancestor. Secondly, this chapter deals with the changing socio-political system that followed James Cook's arrival in the late 18th century. The increasing presence of foreigners had long-lasting impacts on the islands, most profoundly in the severely diminished Hawaiian population and the establishment of a foreign concept of land ownership. The Great Māhele - Land Division – in 1848 set in motion an ontological shift from *‘āina* as “that which feeds us” to land as extractive property, and thus changed the natural and social orders that would eventually set up Hawai‘i for the sugar industry. This was also a major enticement for the white oligarchy to push for annexation by the United States. The establishment of Hawaiian homesteads was an additional land allocation project that secured prime agricultural land for sugar and concurrently bound Kānaka ‘Ōiwi both to arable land and a blood quantum-defined notion of Hawaiianness (Kauanui 2008).

Looking through a binocular on land and education throws into relief how Protestant ethics were co-produced both with an efficacious educational system – readying Kānaka Maoli

to become industrious workers – and efficacious land management – readying land to become most productive through sugarcane and pineapple cultivation. The third part of this chapter will focus on this parallel ordering, which was legally facilitated by Anglo-American politicians who were both in charge of the Hawaiian Kingdom's Board of Education and sugar plantation owners. This served their purpose to Americanize Hawai'i. A hundred years later, the vision of the US government to improve education by running schools like businesses still parallels the efficiency-driven land management as continuously revenue-producing source. I end this chapter by describing how land and education were thought together in a different way in the early days of the Hawaiian sovereignty movement, when Kānaka Maoli activists' educational practices were immanent to claims of the *'āina*, (Goodyear-Ka'ōpua 2013). These public education initiatives lead to more institutional ones, such as Hawaiian-focused charter schools (HFCS).

2.1 In the beginning, there was darkness

The Kumulipo, “beginning-in-deep-darkness” (Beckwith 1972 [1951]) is the cosmogonic creation chant of Hawaiian chiefs, which traces relations to the ocean, animals, plants, stars, heavens, Hawaiian gods, and their descendants, the Kānaka Maoli or Kānaka 'Ōiwi, Native Hawaiians. This *mo'okū'auhau* (genealogy) describes in sixteen time periods, or *wā*, the birth of the world from the female night, who gives birth to a male night, Kumulipo, and a female night, *Pō'ele*. The first eight *wā* are those of *Pō*, the darkness, the night from which life comes and where all plants and animals of the sea, land, and sky are born. The latter eight eras are the time of the *Ao*, the daylight, where human-like gods and hundreds of generations of their

human descendants were born, up to the great chief Kalaninui‘āmaamao.³² In the twelfth era, Wākea, the male god of light and heavens, and his sister Papahānaumoku (Papa from whom lands are born) had a daughter, Ho‘ohōkūkalani, the heavenly one that made the stars, and whose desire Wākea could not resist, and thus impregnated (Beckwith 1940: 294; Kame‘eleihiwa 1992: 24). Their first child was a stillborn who they buried and out of which grew *kalo*, taro, that they named Hāloa-nakalaukapalili, long trembling stalk. Later, Ho‘ohōkūkalani gave birth to a human child that was named Hāloa, who became the ancestor of humans, and who was taught to honour his elder brother.³³ The chiefs, the land and taro are to feed and shelter their younger siblings, the Kānaka ‘Ōiwi, who in turn are to care for their elder siblings, the chiefs, the land and taro (Kame‘eleihiwa 1992; Yuen n.a.).

In the 1880s, under King Kalākaua's tutelage, the Kumulipo was written down as an act of anti-colonial nationalism to affirm both the Hawaiian kingdom's system of governance and his leadership as descendant of Hawaiian chiefs and the land.³⁴ In recent times, it has become not only a source of Kānaka self-determination but also a window into Hawaiian history.³⁵ The *mō‘ī* (kings), *ali‘i* (chiefs), and *maka‘āinana* (commoners) all descend from the same ancestors, with the exception that the two former can recite their ancestry (Kame‘eleihiwa 1992). What distinguishes *maka‘āinana* from *ali‘i* is that the latter commonly moved from land to land (Kirch & Sahlins 1992: 17). In contrast, the former, as *kama‘āinana*, “children of the land,”

³² Keaulumoku composed and chanted this Pule Ho‘ola‘a Ali‘i, a prayer that sanctifies the chief, at the birth of Kalaninui‘āmaamao, also named Lonoikamakahiki after the god of fertility, agriculture, and peace (Lili‘uokalani 1978 [1897]; see also Kame‘eleihiwa 1999; Oliveira 2014).

³³ In everyday language Hāloa is used to describe the plant.

³⁴ Silva (2004). In 1897, a year before the US military's illegal annexation of the kingdom, King Kalākaua's sister and heir Queen Lili‘uokalani translated the Hawaiian version into English (Beckwith 1972 [1951]: f7).

³⁵ Other cosmogonic genealogies trace lineages from before Wākea and Papahānaumoku's mating (Malo 1951 [1827]). Hawaiian scholar Lilikalā Kame‘eleihiwa speculates that before the massive depopulation at the end of the 1700s and early 1800s many more genealogies were drawn, asserting that their ancestors enjoyed debating these lineages (1999; see also Oliveira 2014).

dwelled on the *āina* more permanently – yet with the right to move to different districts (Sahlins 1985). *‘Āina* as “that which feeds us” is etymologically linked to both *kama ‘āinana* and *maka ‘āinana*, people that attend the land that had the status of a person, ancestor or progenitor. Commoners' songs not only captured the love to their chiefs but to the beauty of the valleys, seas, forests, and familiar homes, which reveals that earthly sites “represented a sociality rather of kinship than celestial power” (Kirch & Sahlins 1992: 17).

Moku describes both islands and larger land districts with their own politico-ritual structure and ecological coherence (Kirch & Sahlins 1992: 18). These are further divided into *ahupua‘a* (land division), which stretch like wedges from the peak of a mountain to the ocean along streams or mountain ridges.³⁶ Thus, they encompass an ecological diversity that allowed for a vast range of resources and agricultural practices, and exchange between coastal and inland communities (Kirch 2010: 186).³⁷ Each *ahupua‘a* had a *konohiki* (headman). Among commoners were the *mahi‘ai* (farmers) who had an astute knowledge of land cultivation and water management, constructing irrigation systems, *‘auwai*, that fed taro patches and other fields.

When Captain James Cook and George Vancouver first arrived to the islands in 1778, they were most impressed by these outstanding land management skills.³⁸ Kānaka Maoli

36 The term relates to the boundaries marked by a heap, *ahu*, of stones with an image of a pig (*pua‘a*; also payment to the chief) where the God of harvest Lono would receive tributary offerings during his annual procession at the Makahiki festival (Malo 1951 [1827]).

37 These exchanges were still practiced in the 20th century (and partly today), as for instance my interviewee Hanaka‘ulane‘okamamalu Kawahi‘okalo‘opele Montgomery, who grew up on a sugar plantation on Kaua‘i, shared with me: „My dad had his vegetables, his animals, and he would share with the neighbors. They in turn would bring fish over because they did the ocean, he did the farming. And then those in the mountains would bring what they had, so we always had plenty of food, we never starved!“ (IV_100613).

38 Some fifty years later this was also noted by one of the earliest sugar barons William Ladd, who calculated that forty square feet of pondfield could keep one person in taro for a year (1838; quoted in Kirch & Sahlins 1994: 30). As a result, an irrigated tract of one square mile could feed 15,151 people while not more than one-twenty-fifth - 600 people - would be needed for cultivation. Ironically, this estimate was well suited for the plantation

maintained a relationship to natural phenomena, objects and creatures as bodily forms of gods, *kino lau* (see Handy & Handy 1978: 23). Polynesians' relations between 'natural' ancestral phenomena and social persons, such as between taro and humans, are neither metaphoric nor metonymic but synechdochic (Sahlins 1985: 81). As such, a specific part, taro refers to the whole, to Kāne, god of running water, springs and fishponds, male procreative powers, as well as brother Hāloa. *Nī'auipi'o* (chiefly incest), a formula for recreating divinity, and *kalo*, taro, was a transformation of *akua*, gods, into a wondrous food (Kame'eleihiwa 1992). In ancient times, taro was a daily food staple while tributes, customary offerings (*ho'okupu*) or levies (*'auhau*) from more remote holdings included pigs, dogs, salted fish, barkcloth, canoes, nets, mats, and feathers. Particularly wetland taro production was a highly developed skill, which was a dominant cultivation practice on the older western islands, O'ahu and Kaua'i (Handy & Handy 1972). Kaua'i's farmers have always grown the most taro of all the islands (see Kirch 2010).

In *Anahulu: the Anthropology of History in the Kingdom of Hawaii*, Kirch & Sahlins discern three main eras beginning with Cook's arrival: the conquest era (1778 – 1812), the sandalwood era (1812 – 1830), and the whaling period (1830 – 1860) (1994:3). The subsequent plantation era included sugar and pineapple production, while there were regional differences, as the latter figured more prominently on Kaua'i than for instance cattle did.³⁹ The authors' categorization correlates with the different political transformations (kingship, oligarchy of the *ali'i*, constitutional monarchy) as well as the different commercial interests of Europeans. For Kirch and Sahlins, it is not a determinist categorization from abroad but an acknowledgement

owners' task of depriving Hawaiians off their land (ibid.).

39 Cattle raising was more prevalent on Hawai'i Island where Captain Vancouver introduced cattle as a gift to Kamehameha I (Hackler & Speakman 1989).

that the “World System” and with it global trends were both mediated by the Hawaiian system while concurrently being a system of the world: “Imperialism is historicized in and as Hawaiian structures of commerce, Christianity, and state” (1994: 2). They elaborate further that “Haole [white, foreigner] interfered in Hawaiian politics as a means to their economic ends, whereas the Hawaiian chiefs were entering the Haole economy as a means to their political ends” (ibid: 3). The kinship system changed to an archaic state when domestic modes of production (Sahlins 1972) shifted to political economies, as chiefs demanded more than commoners could produce, resulting in tensions and ultimate war affairs (Kirch 2010: 183).⁴⁰ The increasing import of muskets, powder and ball, and later naval goods and ships served King Kamehameha I well, for it allowed him to unify an already existent Polynesian hegemony into one kingdom (Kirch & Sahlins 1994). The unification of the islands (conquest period 1778 – 1812) reorganized power relations through Kamehameha's land allocation to favoured chiefs. Kaua‘i stands out, not only as geographically most distant island but also politically. While Kaua‘i became a tributary part of King Kamehameha I's Hawaiian kingdom, he was not able to take the island by force, and in fact never set foot on it (Joesting 1988).

In addition to Kirch and Sahlins' focus on shifting commercial interests, Kame‘eleihiwa asserts that the dissipation of the traditional system was due to the abolishment of the *kapu* system (1992). This was enacted when the heir to King Kamehameha, Liholiho, broke the ‘*aikapu*, eating taboo, in 1819 by eating with his father's favourite wife Ka‘ahumanu, which

40 Archaeologist Patrick Kirch argues that Hawaiian society, unique within Polynesia, had become an archaic state before European contact, tracing back the transformation from a classic chiefship organized by kinship to a society with ruling elites (2010). The “development of class stratification, land alienation from commoners and a territorial system of administrative control, a monopoly of force and endemic conquest warfare, and [...] formal priesthood” all point to Hawai‘i as archaic state (ibid: 27).

signalled to commoners that the belief system of *kapu* was abolished.⁴¹ Kame‘eleihiwa further proposes that Hawaiians had observed foreigners prospering despite them breaking the *‘aikapu*. Into this 'religious void' came the Protestant missionaries, who preached their own gods (1992).⁴² The missionaries came in 1820 as part of the American Board of Commissioners for Foreign Missions, the ABCFM.

The conquest and unification of the islands contributed to the rise of a class of powerful chiefs with large estates, who were mostly “absentee landlords” parcelling out their holdings to subordinates (*konihihi*), which resulted in a bigger segmentation of land (Kirch & Sahlins 1992: 27). Traders and seamen from Europe, the United States and Canada arrived around the time as the first missionaries (Daws 1968; Kame‘eleihiwa 1992). The ruling chiefs dominated the relationships with these merchants, and supplied them with Hawaiian goods (sandalwood, sealskin, sea cucumbers, firewood) in exchange for *haole* commodities. Through sandalwood trade (1812 – 1830), the “short but brilliant career [of *ali‘i* and their] conspicuous and invidious consumption” resulted in an exhaustion of sandalwood as much as in a crumbling legitimacy among their commoners, who were forced into sandalwood cutting with poor remuneration (ibid: 3). Merchants awaited payments, which ultimately entangled Hawai‘i even more in the global political economy. In 1826, in the US Navy's presence, the King had to sign an agreement of repayment, which unleashed monetization and codified law, and ten years later prompted Kamehameha III to get immersed further in a western political economy through foreign advisors (MacLennan 2014: 58). The Protestants with their evangelical zeal and

41 Many Hawaiian scholars argue that Ka‘ahumanu's religio-political agenda, which later included her conversion to and propagation of Christianity, was instrumental in the transformation of the political system in Hawai‘i (see Kame‘eleihiwa 1992; Osorio 2002: 114; Silva 2004: 29).

42 I will return to the notion of the 'void' in chapter 5 where I will provide a comparative analysis with the agricultural sector, more specifically, of the biotech industry having 'filled the void' that was left behind by the sugarcane industry.

contempt of Hawaiian practices did not share the interests of merchants and businessmen, who rather preferred to maintain good-time drinking friendships and business partnerships with the kings (Kirch & Sahlins 1992: 7).

2.2 Readyng the islands for sugar, remedying the islands from it

After the first missionary schools aimed to instruct Kānaka Maoli “in the Bible and elevate them spiritually through teaching about individual salvation and morality”, in 1840, Protestant missionaries continued their work by establishing common schools (Benham & Heck 1998: 9). Education was now institutionalized, in classrooms and in scheduled labour in school gardens, where before it had been a matter of learning from elders, *kupuna*, ancestors, gods, and the *‘āina* (see Chun 2006). The early exceptional keenness in learning to write and read not only led to 1,100 schools in the early 1830s but also to numerous community settings where Kānaka Maoli learned reading and writing from other Kānaka Maoli instructors.⁴³ Missionaries in common schools trained commoners while in separate schools the offspring of missionaries and Hawaiian royals learned the skills of leadership and rational thinking (Benham & Heck 1998; Dotts & Sikkema 1994).⁴⁴ What followed was a persistent effort to educate Kānaka Maoli in

43 Chun (2006), Daws (1968). Political scientist Noelani Goodyear-Ka‘ōpua makes the point that histories of schooling have focused almost exclusively on missionaries' role in introducing literacy and shaping the education system (2013: 14).

44 Indigenous People being delegated to work the land at missionary schools was also common across the United States, and indeed Kānaka Maoli students were brought to schools in New England to teach such work ethics (see Okiihiro 2009). MacLennan compares the curriculum of a school for missionaries' children, Punahou (a century later attended by the 44th president of the United States, Barack Obama), and the Royal School, which was reserved for Hawaiian royals' offspring. The taught texts were the same, yet at Punahou preparation for professions in law, medicine, science, and agriculture differed from the Royal School where future Hawaiian monarchs were expected to learn the ways of genteel western culture: reading, writing, and generally academic skills. MacLennan doubts that the Hawaiian royals' children were prepared for the new political and economic society in Hawai‘i, while Punahou graduates went to Yale, Williams, Harvard, etc. in order to then return to Hawai‘i as lawyers, businessmen, agriculturalists, or engineers, some of them leading Hawai‘i's illegal

industrious, Christian ethics, and to eventually become US-American citizens (Kame'elehiwa 1992; Schachter 2013).

The impact of the newcomers was devastating: Hawaiian people's population dropped 83 percent in the 45 years after first contact (Kame'elehiwa 1992). The kings became aware of these changes and formed alliances with missionaries. When the ABCFM terminated their support for missionaries in Hawai'i, as the islands were deemed Christianized in 1845, instead of returning to Boston many pursued lives as political advisors with an interest in land ownership (Hasager & Kelly 2001; Kameeleihiwa 1992; Silva 2004). One of the missionaries' legacy is the conception of property as 'natural' right, which originated in New England politician Francis Wayland's text *Elements of Moral Science* (1835; quoted in MacLennan 2014: 54ff) that describes the Hobbesian and Lockeian notion of property as means of possession and liberal democracy. Missionary William Richards taught Wayland's text to the Hawaiian royalty, and upon the King's request translated it into Hawaiian, which eventually found its way both into missionary schools and the Hawaiian kingdom's *Declaration of Rights* of 1839 (ibid.). Teaching Kānaka 'Ōiwi how to become members of a "civilized" capitalist nation was a convenient business, as foreigners made money "while doling out enlightenment" (Kame'elehiwa 1992: 305). The doctrine of free trade capitalism was also worked into the Constitution of 1840 that made Hawai'i a constitutional monarchy, albeit with the stipulation that land belonged to the chiefs and commoners while the King would function as their trustee (Hasager & Kelly 2001; Osorio 2002).⁴⁵ Yet many foreigners in the kingdom's office

overthrow in 1893 (2014: 59).

⁴⁵ There was also the motive of forming a nation similar to European ones and the United States with the hope that nineteenth-century Great Powers would recognize Hawai'i's national sovereignty (Silva 2004: 9).

configured the kingship as “subtropical caricature of European royalty” (Kirch & Sahlins 1994: 3) while wrapping themselves in foreign flags to claim immunity from the Hawaiian Kingdom (Daws 1968).

With the introduction of land ownership through the Great Māhele (land division) the 1850s brought the most severe changes to Hawai‘i. The Board of Commissioners to Quiet Land Titles that was established in December 1845 under the Organic Act started an “experimental sale of lands” to commoners right after, in January 1846. Eighteen months later, the legislature allowed foreigners to claim possession of land they had held - albeit with a prohibition to sell their properties to anyone but Hawaiians (Osorio 2002: 45f). Gradually, foreigners would sell such leased land to other foreigners; a circumstance that contributed to missionaries' hint to King Kamehameha III that privatized land cannot be seized by foreign powers (Hasager & Kelly 2001: 193). In 1848, the King, the 251 chiefs and *konohiki* (lesser chiefs) separated their lands, and informed commoners that they were now entitled to land they lived on and cultivated. King Kamehameha III willingly gave up over nearly one million acres to the government, about half of the land he had claimed. Hence, he eventually possessed more than one million acres – the crown lands - of Hawai‘i's 4.2 million acres. Chiefs and *konohiki* received about a million and a half acres, and the rest was to go to the population. The Kuleana Act of 1850 gave the government authority to award claims that the Land Commission had approved; however, it received merely 14,195 claims from commoners, leading to 8,421 fee simple awards on 28,658 acres (Osorio 2002: 46). Yet in July 1850, about a month before the Kuleana Act was passed that guaranteed Maka‘āinana (commoners) rights to land, foreigners were allowed to own and sell lands in fee via the Act to Abolish the Disabilities of Aliens to Acquire and Convey Lands

in Fee Simple Title (ibid: 50).⁴⁶ The majority of commoners' land was subsequently sold or leased to foreigners while *konoiki* and commoners were left with less than one percent of the land (see Hasager & Kelly 2010: 193).

Kame'eiehiwa argues that the reason for the low number of land claims was due to the foreign concept of ownership to Kānaka Maoli, who did not conceive of the need to make a claim, as many were not familiar with the new economic and political system (1992). Kanaka historian Jonathan Kamakawiwo'ole Osorio states that as the King and the legislature aimed for commoners to accommodate this new system, it was only when the (exclusive) Native Hawaiian tenant right was removed that the Great Māhele became disastrous for the Native population (2002: 44f). What emerged was an increasing ontological shift from *'āina* as "that which feeds us" to land as property that is bound to labour as means of possession and liberal democracy.

The Great Māhele also led to an immense loss of swidden lands and natural resources (Kirch & Sahlins 1992), and the increasing demand by the United States for sugar steered Hawai'i's economy towards this crop production. The King founded the Royal Hawaiian Agricultural Society in 1850, which consisted primarily of foreigners who were interested in developing agricultural resources on the islands for trading exports to California.⁴⁷ As environmental anthropologist Carol MacLennan argues in *Sovereign Sugar*, these shifts ignited a rhetoric that would forever link agricultural wealth through export with the financial health of

46 Kame'eiehiwa (1992; quoted in Osorio 2002: 50) further elaborates that prior to the *Māhele* in 1848 *maka 'āinana* had already made land claims, and that these also included foreigners that had sworn an oath of allegiance to the king. For Osorio, this indicates that the debate was not about whether *haole*/foreigners should own land, but that land ownership was to be linked to Hawaiian citizenship (2002: 50), which has remained a central argument of the Ka Lāhui grassroots initiative in debates on Hawaiian sovereignty.

47 Additionally, the Civil War (1861-1865) resulted in Northern states boycotting Southern sugar producers, making Hawai'i even more attractive (Wilcox 1996: 2).

the Hawaiian nation (2014: 62), an idea promoted in early Hawaiian language newspapers (Silva 2004: 34f). Indeed, MacLennan describes the sugar plantation era commencing in the mid 18th century as the *third wave of ecological change* that most profoundly impacted the Hawaiian landscapes. Counter to the prevalent categorization of the Pacific's environmental change into two waves – Polynesians' dispersal across the Pacific, and the arrival of Europeans in the late 1700s - MacLennan argues for third wave, which was much more profound in Hawai‘i than on other Pacific islands (2014: 16).

The sugar baron's push for duty free export to the United States was framed as either establishing a treaty with or annexing to the United States - the only viable market they conceived of⁴⁸. This eventually led to the Reciprocity Treaty in 1875 that established duty free export of sugar to the United States (Daws 1968; Wilcox 1996). By 1886, foreigners obtained two thirds of the land in Hawai‘i that was used for sugar (Silva 2004: 43). Yet knowledge of sugar growth, technological equipment and irrigation ditches only slowly translated into productive, industrial agriculture. Further, Kānaka Maoli largely refused to undertake the neck-breaking work required on the plantations, which fed into the stigma of the Hawaiian as idle, lazy workers (Beechert 1985: 40). This was coupled with the argument that the white race was incapable of performing labour under the “difficult” conditions of the tropics (ibid.). Hawaiian monarchs' belief that their people needed to be maintained by intermarrying with a cognate population, such as Japanese, resonated with planters' call for a pool of docile, cheap and hard working people.⁴⁹ As against other sugar-producing countries at the time, the Hawaiian

48 Crucially, the success of this new economy depended on the tariffs that the United States put in place against foreign sugar.

49 Beechert (1985: 60f). In 1852, Chinese workers started to get shipped in to chop sugarcane, followed by Japanese workers after 1868, and Filipinos after WW II, who then also worked in the pineapple industry

Kingdom had a comparably just legal framework, since imported workers were regarded as citizens (Beechert 1985: 43ff). Regardless, masters still had authority to discipline their workers (ibid.). Eventually, in the 20th century labour unions on sugar plantations held numerous strikes, which led to stronger health protection and better wages (ibid).⁵⁰ Plantation camps housed workers according to their race, yet concurrently, inter-ethnic marriage became increasingly common. To this day, a certain nostalgia of this time resonates, for instance, the annual Kōloa Plantation Days festival on the South side of Kaua‘i.⁵¹

In 1893, Hawai‘i was illegally overthrown by American settlers, and two years later Queen Lili‘uokalani was put under house arrest in the kingdom's Iolani Palace.⁵² In 1897, US President McKinley signed a treaty of annexation that was enforced by the white oligarchy in Hawai‘i, the representatives of the Republic of Hawai‘i (Silva 2004: 146). Yet Kānaka Maoli did not observe the loss of sovereignty passively. The same year, and at a time when the Hawaiian population counted about 40,000 people, the Hui Aloha ‘Āina (the Hawaiian Patriotic League) that protested the annexation collected over 21,000 signatures of Kānaka Maoli (Tate 1965, quoted in Silva 2004: 124). Meanwhile, Hui Kālai‘āina, which fought to restore the monarchy and thus free Queen Lili‘uokalani, represented over 17,000 more people. The two petitions thus totalled 38,000 votes – 95% of the Hawaiian population – that were presented to President McKinley and the US Congress, and which were aimed to kill the Annexation Treaty

(Kehlor 1992: 148; quoted in Larsen et al. 2010: 418).

50 In the 1940s, some 7,000 were intentionally recruited to break the sugar strike that was organized by the International Longshoremen's & Warehousemen's Union, the ILWU (Sharma 1984: 337; Larsen et al. 2010: 418). However, a successful eighty-day strike in 1946 also led the pineapple industry to sign its first contract with ILWU (Larsen et al. 2010: 419).

51 The Kōloa Plantation Days take place every July and celebrate the “many ethnic groups that came to Hawaii to work on sugar plantations, and the Hawaiians who welcomed them” with music, dance, food, etc. <http://koloaplantationdays.com/about.html> [accessed May 1st 2016].

52 See Sai (2008) and Silva (2004) for a more in-depth account on the illegal overthrow of Hawai‘i.

in Congress (Silva 2004: 157ff). Yet the commencing Spanish-American War in 1898 was enough reason for American settlers to declare Hawai‘i United States Territory, and further, Hawai‘i was seen as a central Pacific army post for the United States (ibid). Meanwhile, Hawai‘i had contributed over one billion dollars to the US treasury while it was not allowed to vote for the president of the United States, a circumstance that seemed to make statehood inevitable (Daws 1968). Besides this economic discordance, the 'threat' of communism and concurrent debates of Alaska joining the US were other major factors that turned the Territory of Hawai‘i into a state of the United States in 1959 (ibid).

As mentioned above, New England-style agriculture was a component of missionaries' school education. The idea of homesteading suited this pedagogical purpose as well. In the early 1900s, authorities sought 200,000 acres to 'bring back' Kānaka ‘Ōiwi to their soils to rehabilitate the dwindling population (DHHL 2014). Prince Kuhio eventually spearheaded this through the Hawaiian Homes Commission Act (HHCA) (ibid.). By instilling the notion of property as a 'natural' right, homesteading was sought to raise Hawaiians out of poverty and degradation, and likewise suited the US Congress' efforts to Americanize, and respectively 'democratize' Hawaiians as a counter measure to the monarchy (Hasager & Kelly 2001: 199). Furthermore, plantation owners saw the HHCA as a welcome opportunity to secure prime agricultural land. Indeed, the HHCA did not find fruition until 1920 when the planter elite held titles for the majority of Hawai‘i's prime agricultural land (Hasager & Kelly 2001). Their proposals were included to limit Hawaiian Homesteads to lands not already under cultivation, and to require a 50 percent blood quantum for Kānaka Maoli to be allowed to live on Hawaiian Homesteads (Kauanui 2008).

The establishment of Hawaiian homesteads was thus a convenient land allocation that secured the white oligarchy's prime resources for sugar production and concurrently bounded Kānaka Maoli not only to barren land⁵³ but also to an increasingly common notion of Hawaiianness defined by blood quantum. American studies and anthropology scholar Kēhaulani Kauanui points out that the racially defined 'need' for land through the blood quantum marked a “shift from a reparations and entitlement framework to one formulated on the basis of welfare and charity” that ultimately undermined Kānaka Maoli sovereignty claims (2008: 8f). According to Kauanui, the unilateral, reductionist blood quantum definition “works to deracinate (uproot), whereas genealogical connections are inherently about *rootedness* by putting the recognition of ancestors back in 'ancestry' – and, therefore, connecting Hawaiians to the *‘āina* (land)” (ibid: 41). In effect, marginal homesteads lands led many beneficiaries to lease their lands illegally to pineapple companies (Hasager & Kelly 2001: 207). This was also advantageous for growing pineapple, which is a plant that prefers acidic soil (Siper 2000). As a result, the commission did not deal with lack of water access, climate of marginal lands or pests, and thus promoted pineapple, and in some instances sugarcane, as the basis for the economy (Hasager & Kelly 2001: 207). In 1990, 70 years after HHCA was passed, the appointed Hawaii Advisory Commission found that due to the department's severe mismanagement a mere 17.5 percent of the designated Hawaiian Homesteads land was in fact homesteaded (HAC 1991: 1). Furthermore, over 62 percent of the land was being used by non-Hawaiians (ibid.).

53 The approximate 200,000 acres, whose location had never been specified in the HHCA, included a mere 10 percent of prime agricultural land (Hasager & Kelly 2001: 200).

At the peak of its production in the 1920s, the pineapple and sugarcane industry cultivated 250,000 acres of Hawaiian farmlands (HDOH 2009: 465). By then, the second generation of missionary descendants headed the 'Big Five' corporations - Castle & Cook, Alexander & Baldwin, C. Brewer & Co., American Factors (later Amfac), and Theo H. Davis & Co. In 1933, they controlled 96 percent of sugar crops.⁵⁴ The Hawaiian Sugar Planters' Association (HSPA)⁵⁵ report of 1915 describes that while the mainstay of sugar production in Cuba was cheap land, and in Java cheap labour, Hawai'i (having neither) must maintain efficiency in applied science and technology for establishing water irrigation systems (MacLennan 2014: 46ff). Sugar plantation owners founded private water companies that essentially built the surface-water collection system in Hawai'i, and thus laid a foundation to this day (Wilcox 1996: 17). Indeed, had it not been for the immense movement of water, the sugarcane industry - and with it the lasting sociocultural changes bringing workers from Asia to Hawai'i - would not have occurred. In 1835, with the Koloa Plantation, Kaua'i became the birthplace of the first sugar plantation. While at first sugar sales fluctuated, investment in water was a safe and lucrative business (Wilcox 1996). In the 1940s, military, tourism and a growing urbanization started to slowly edge aside sugar as main economic drive. In 2009, landowner and operator Gay & Robinson ended Kaua'i's legacy by closing the island's last sugar plantation.⁵⁶

54 Daws (1968), MacLennan (2014). Sugar exports rose from 260 million pounds in 1890 to 2 billion pounds in 1932 (Wilcox 1996: 20).

55 The HSPA was formerly the Planters' Labor & Supply Co that was established just after the Reciprocity Treaty. It coordinated the recruitment of foreign labour and served as platform for plantation owners to share scientific and technological advise (MacLennan 2014: 45). In 1996, it changed its name to Hawaii Agriculture Research Center (HARC) as to reflect its expansion to other crops and its specialization on "agronomy and plant nutrition, plant physiology, breeding, genetic engineering and tissue culture, and [...] integrated pest management" (HARC 2014). I will return to HARC in chapter 5.

56 In January 2016, HC&S (Hawaiian Commercial & Sugar) on Maui, with the last sugar plantation in Hawai'i,

From an ecological point of view, sugar and pineapple plantations left a bleak legacy of contaminated soil as a result of almost 50 pesticides that were used over more than a century (HDOH 2009: 493ff). Due to the tropical soils' higher levels of iron oxide and the large adsorptive surface area, herbicide use for sugarcane in Hawai'i has been higher compared to the continental US (Santo et al. 2000). Only since the 1960s have pesticides and other contaminants been recorded systematically, and even though many pesticides, such as DDT, were banned after stricter regulations, it is likely that such pesticides were still applied later using up existing supplies (HDOH 2009: 468). Atrazine and glyphosate are two prominent herbicides, as is 2,4-D (ibid.), a 50 percent component of Agent Orange (Extension Toxicology Network 1993). A century of agricultural management, both in sugarcane and pineapple cultivation, turned fields into open-air labs for chemical testing. In the case of pineapple, mealy bugs and ants carrying wilt were persistent pests. Even though the in the 1970s recently established Environmental Protection Agency (EPA) ruled out several pesticides as toxic, when the formicide Mirex was banned and the ant problem worsened, the EPA allowed the likewise banned Heptachlor "to be used as soon as practicable" (EPA; quoted in Larsen et al. 2010: 325ff). The pesticides could have been dumped in the soil, and – literally - under the surface of public debate were it not for dairy farmers, who had been encouraged to use pineapple leaves as cheap cattle feed. When traces of Heptachlor were found in human breast milk this prompted a statewide scandal.⁵⁷

announced that it would close operations by the end of the year (Gomes 2016). Thus, this ended the 180-year-old, third wave of ecological change (see MacLennan 2014).

⁵⁷ Smith (1982). Farmers and the general population were not informed about the dangers of these chemicals even when legislation prohibited further use. Studies are still conducted on the long-term effects of heptachlor in breast milk fed to infants (see Miller 2013).



Figure 1: Contemporary life of pineapple: Advertisement for Dole plantation tours for tourists, Honolulu Airport, January 2013.

In more recent times, the federal Brownfields Program by the EPA has provided funds for management of contaminated land to clean up and 'reinvest' into so-called “brownfields” (EPA 2014). Around 2011, the Hawai‘i Department of Health (DOH) recorded more than 1,700 sites of potential contamination due to toxic waste of which half were determined worth cleanup (Hollier 2011). On Kaua‘i, in 2004 the County's Office of Economic Development (OED) received an EPA grant to remedy past plantation lands damaged by harsh chemicals, i.e. DDT, Chlordane, heptachlor (County of Kauai 2004; 2012). Recognizing a shift from an agricultural to a tourism-based economy, the OED assured that abandoned properties will be put “to higher uses, thus increasing our tax base, creating more jobs and reducing the pressures to develop open or prime agricultural lands” (County of Kauai 2004). The work plan called for

State and County agencies, agribusinesses, private landowners, non-profit organizations and interested parties to submit proposals for brownfield cleanups. For this, “Evaluation Criteria” were set to select “top” 4-5 sites for consideration (ibid.). The proposal accumulated to 91 sites of which two former sugar mills and the Anahola Bike Path were selected among the “top 4.”⁵⁸

Under this scenario, responsibility of plantation owners or other contaminators to return leased lands in the condition they received it has vanished (see County of Kauai 2012; EPA 2014) – their responsibility, literally, dumped into the ground. This is further evident in that the Hawai‘i Department of Agriculture's (DOA) responsibility is the enforcement of “sale, distribution, and use of pesticides”, and not soil remediation.⁵⁹ While the federal law of 'joint and several' keeps anybody associated with contaminated land - previous contaminator and current landowner - responsible for cleanup, matters get complicated when land undergoes several different ownerships, which is not uncommon in Hawai‘i (Hollier 2011). Acknowledging “uncertainty and risk” in this “joint and several” regulation (ibid), EPA's programs - Brownfields Program, Superfund Removal Program – are, as I suggest, reactive solutions to the often elusive legal steps that come with land ownership transition. This concurrently eases responsible contaminators' way out of trouble. Such solutions celebrate the mastery of collaborating across different governmental agencies. For instance, the EPA

58 County of Kauai (2007). One of the 91 sites was the Wailua Agricultural Station under University of Hawai‘i's management, with “Agent orange by-products, storage drums, dioxins” (ibid.). In 1968, UH partnered with the US Army to test the effectiveness of Agent Orange that was subsequently used in the Vietnam War (Deepe Keever 2005). Despite the US administration's and UH scientists' knowledge of its adverse health effects, the tests were conducted without warning employees and local residents. After the testing, over five 55-gallon drums of Agent Orange were buried above a reservoir in Wailua, and only in the mid 1980s a reporter's investigation led to their removal to a hazardous waste facility out of state. Yet they were merely moved into a *Matson* shipping container in Kaua‘i's Nawiliwili harbour where they remained unnoticed for another decade. In 1997, the EPA and Hawai‘i's Department of Health fined UH with \$1.8 million (including another infraction on Hawai‘i Island). Only in the year 2000 were the barrels finally shipped off (Deepe Keever 2005; DOH 2011: 8). Needless to say, the Wailua Agricultural Station site did not 'make it' into the “top 4.”

59 DOA Pesticide Program Manager Thomas Matsuda (quoted in Gibson 2014: 226).

describes the clean-up of 814 tons of arsenic- and dioxine-containing soil from a former sugar plantation in Kilauea (Kaua‘i) as a “joint effort [of county, state, and federal level that] is an example of the success achieved by the state's program targeting old pesticide areas that have the potential to harm nearby communities” (2012).⁶⁰ Success here means reducing risk by mastering bureaucratic hurdles across governmental agencies rather than reducing risk of contaminated soil for any affected community. It is also noteworthy that in an etymological sense 'brownfields' entails brown, a colour commonly conceived to be less desirable and with dangerous, un-pure connotations of 'dirtiness' (see Douglas 1966). Ironically, soil *is* often brown. In a twisted way, the terming of land as brownfields creates a soon-to-become neutral space, a *terra nullius* that is to turn become productive. Such chromatic framing, I suggest, establishes a manageability of risk where land finally is to awake in its destined, economic life.

As Karl Marx famously elaborated, real property that generates greatest economic value is favoured due to its capacity to circulate - by transforming still, 'idle' land into moveable money (2015 [1867]). By this logic, as Sheila Jasanoff elaborates for the United States, “[u]ndeveloped land offends U.S. law's predisposition toward use and commerce”, as it favours the rendering of land as fluid to overcome its inert, bounded condition (2012b: 157). In Hawai‘i, prime agricultural land was liquidated for the commercial production and export of sugar just as brownfields are now freeing and freed to become developed. In that sense, brownfields also become new spaces of colonial land appropriation.⁶¹ For Hawaiian

60 Circulation did not stop here either, as the soil from the affluent North shore (Kilauea) was disposed of at the Kekaha Landfill on the - socio-economically lower standing, predominantly Hawaiian – West side of Kaua‘i. Thus, economically high-value property is cleaned off its economically low-value (contaminated soil) which is subsequently moved out of sight - a “Bag it and tag it” tactic (Hollier 2011). Kekaha residents contested the disposal, arguing that the landfill is near groundwater sources and flood plains (LaVentura 2012).

61 Dené scholar Glen Coulthard makes a similar argument about Vancouver's often pathologized Downtown Eastside (DTES), which houses the highest concentration of drug addicted, homeless people in Canada, and

Homelands, in the past this was the case for sugar and pineapple while at present such liquidation occurs in the form of agrochemical corporations like Monsanto, obscurely able to lease Hawaiian Homesteads land (Perez 2013). Similar to the original project of homesteading Kānaka Maoli, brownfields on Hawaiian Homelands become re-appropriated to house them or to function as entrepreneurial space (see chapter 3).⁶² In this sense, land is also a conglomeration of several strata that lay on top of other histories and epistemologies: the Kanaka Maoli conception of *‘āina* as kin, ancestor and feeder that is buried just as are plantation owners' responsibilities as previous contaminators. Concurrently, land is kept *fluid* wherever government agencies contribute to washing away traces from such past: from the illegal annexation of a sovereign nation, over regulations (joint and several) not being enforced, to current agencies like the Department of Health not being responsible for clean-up. The paradox here lies in washing away such histories while only the longterm aim of commodifying land momentarily unearths its toxic particles. In other words, knowledge about contaminated soil is often only available when the respective land is destined to be transformed into an economic asset, which subsequently buries such contamination.

2.3 Normalizing Hawai‘i as part of the United States – in law, education, and agriculture

As much as Haole policymakers were also plantation owners, they were likewise involved in designing the Hawaiian education system. One instrumental person was Charles R. Bishop,

also includes many First Nations people (2014). Coulthard states that supporters of gentrification of the DTES argue that they improve a place that used to be a wasteland. In that sense, he continues, the DTES is becoming the same Terra Nullius created through early colonial processes that legitimized conquest of ‘discovered’ land (ibid).

62 Another example is the previously contaminated Kaka‘ako, Hawaiian Homelands on O‘ahu (HDOH 2011; Hollier 2011), part of one of the biggest redevelopment projects of the Department of Hawaiian Homelands (see also HDOH 2009: 182ff). A former pesticide container disposal in Kilauea/Kaua‘i is now a public housing area (HDOH 2011: 7).

who not only held investments in the sugar industry but served as the president of the Board of Education, and later as minister of foreign affairs (see Goodyear-Ka‘ōpua 2013: 20f). As president of the Board of Education from 1874 to 1893 (Benham & Heck 1998: 95), he warned that the rising generation of Native pupils, particularly those educated in “higher schools and in the English language” had become less industrious than their ancestors (Bishop 1874: 18; quoted in Goodyear-Ka‘ōpua 2013: 20). He thus recommended manual labour of 2-3 hours per day on “Government lands lying contiguous to common school houses, now unemployed”, while “avails of the labor would [...] furnish the pupils with means to pay for books” (p. 17f).⁶³ The cluster of motives for such manual labour complemented each other in that government land having become “unemployed” - foreigners promoting Kānaka Maoli to leave their taro fields and seek labour in urban settings - was turned into training grounds for Natives to become industrious Christians. How social and natural orderings were co-produced (Jasanoff 2004) becomes most evident in how Protestant ethics were inscribed both into the land-landscape and educational landscapes: Kānaka Maoli were trained at missionary schools' gardens to prepare them for labour on sugar plantations. Education in its peculiar coalescence with land has thus left its mark early on in the 19th century.

Charles R. Bishop's marriage to the great-granddaughter and heir to Kamehameha I, Princess Pauahi forms another noteworthy dimension in land-education relations. Princess Pauahi inherited vast amounts of land that, together with some of Bishop's estate was to serve a

63 This vocational education in agriculture was common in other missionary schools across the United States where working the land was delegated to “Indians” and “Negroes,” and Kānaka Maoli students were brought to in order to teach such work ethics. Missionary Richard Armstrong's son Samuel founded the Hampton Normal Agricultural Institute in Virginia, which was inspired by the Hilo Manual Labour School that his father had operated, and which was founded by the Lymans, a missionary couple. Pupils' agricultural labour at the Hampton Normal Agricultural Institute was even more crucial, for it financially sustained the school (Okiihiro 2009: 103).

Protestant school after her passing. Bishop was a leading trustee to implement her last will, which was to provide “support and education [to] orphans and others in indigent circumstances, giving the preference to Hawaiians of pure or part aboriginal blood”⁶⁴ – Kamehameha Schools. She further held that the estate trustees “use the land to educate her people” (KS 2015: 3).⁶⁵ In the meantime, Bishop the politician passed a measure to allocate seven times more funding to select English-medium schools as compared to Hawaiian-medium common schools (Goodyear-Ka‘ōpua 2013: 21f). Kānaka Maoli students were taught in Hawaiian in common schools until 1896 when it was banned as medium of instruction (Silva 2004: 46), and remained so until 1986.

In 1900, the Organic Act established a government for the territory of Hawai‘i. As a result, the public school system was further centrally administered, as the superintendent and commissioners of education (later the Board of Education, or BOE) were appointed by the governor. This is a pattern that Dotts and Sikkema see as not vastly different a century later (1994), as the current 291 public schools are still centrally administered. Yet, as the authors argue, there was a tension between sugar planters and certain government officials and advocates for free public education, the former eventually pushing through the argument that education would pull the young generation away from vocational training in agriculture, woodworking or lace making (ibid: 43ff). As Scottish plantation manager Watt assured: “Every penny we spend educating [plantation workers'] kids beyond the sixth grade is wasted” (quoted

64 http://www.ksbe.edu/about_us/about_pauahi/will/ [accessed December 7 2015]. There has been much debate on how Pauahi's last will should be interpreted (King & Roth 2006: 283ff.; Goodyear-Ka‘ōpua 2005). It can be stated since preference should be given to Native Hawaiians, and KS is far from serving all Hawaiian students, admitting Native Hawaiian students may be a logical consequence of these demographic circumstances, and not an exclusive policy, as often argued.

65 Today, the “Bishop Estates” comprise about half of Hawai‘i’s farmland (11 percent of all land in Hawai‘i), thus making KS the largest private landowner across the Hawaiian Islands (see Voosen 2011).

in *ibid*: 54). The paradox was then that Kānaka ‘Ōiwi and ethnic minority groups were expected to “Americanize” while being socially isolated from settlers' everyday practices (*ibid.*: 46). This structural segregation and institutionalized racism eventually led to the conversion of select schools into private schools and common schools into public schools (Benham & Heck 1998: 21; Stannard 2000). English-only instruction subsequently guaranteed the illiteracy of many generations of Hawaiians in their language, cultural practices (such as hula), and value system (Kahakalau 2003, Silva 2004, Trask 1993). This led to Hawaiians growing up in post-statehood Hawai‘i to speak English in order to adapt to an increasingly western lifestyle (Maunupau 1994: 47).

Yet since the late 19th century, efforts of Kānaka Maoli to remain sovereign addressed the sore ramifications of such 'lost' generations. Newspapers were essential in communicating issues of Hawaiian sovereignty, and thus operated as crucial tool of public education (Silva 2004). “Aloha ‘āina” showcased in many names of early newspapers (*ibid.*). It reappeared in the 1960s and 1970s in the Hawaiian sovereignty movement - and with it its educational mandate. When the *Protect Kaho‘olawe ‘Ohana* (PKO) and its leader George Jarrett Helm Jr. raised the issue of US military bombing of the island of Kaho‘olawe, he appealed to his fellows “to do their 'homework' – to do the research and reading that would put their activism on solid ground” (Goodyear-Ka‘ōpua 2013: 38f). Political scientist and co-founder of the Hawaiian-focused charter school (HFCS) *Hālau Kū Māna* Noelani Goodyear-Ka‘ōpua points out that these and other initiatives had one thing in common:

Kānaka ‘Ōiwi have arguably invested more time and energy into designing and implementing educational initiatives than in any other aspect of our movement in the poststatehood era. Late twentieth- and early twenty-first-century Hawaiian social movements have been consciously and explicitly pedagogical, including popular-

consciousness raising, community-based educational programs, and formal school-based reform initiatives. (2013: 49).

Education in political theory, via study sessions, popular education campaigns, school visits, and more recently engagements around genetically engineered and patented *kalo* in the form of publicly pounding poi (paste made of taro), all display an interrelatedness of education and activism. This sentiment reverberated in experiences of one of my interlocutors, Lorilani Keohokalole-Torio, a fierce community activist and mother of four, when she attended University of Hawai‘i in the 1980s. As, in her own words, “one of a small handful” of Kānaka students, she recalled that she “wasn't really there to learn” but “that there was an awakening that was off campus as well, and that was amazing to be part of” (IV_250413). Education for her thus took place in the Hawaiian sovereignty movement more than in the state's learning institution.

In Goodyear-Ka‘ōpua's words, on a policy level the illegal annexation of Hawai‘i worked to “fracture the historical precedent of recognizing Hawai‘i as an autonomous nation-state” while ideologically Kānaka Maoli's collective understanding was to be transformed “to a small and relatively powerless racial minority domesticated by the United States. These dual forces,” she argues, “have shaped public education in the islands ever since” (2013: 22). To this I add the socio-cultural and environmental transformations through the science and technology pursuant to sugar and pineapple production, and those of the “New Economy,” including agricultural biotechnology (see chapter 5), which has – following MacLennan's categorization (2014) – inaugurated a fourth wave of socio-ecological change in Hawai‘i.

2.4 Hawai‘i's school system and Hawaiian-focused charter schools

A characteristic of the public school system in Hawai‘i is its single school district – the Board of Education – that people often compare to locally funded school districts common in the continental US. The initial idea for this centralization was to provide a more democratic distribution of resources from a general fund rather than property taxes, particularly to students in rural areas. Demographically, Hawai‘i is also unique in that it does not have a clear majority of one ethnic group.⁶⁶ Instead of a desired democratizing effect, critics argue that this hierarchical structure has retained existing colonial and political power structures where Haoles and Japanese-Americans dominate state institutions (Dotts & Sikkema 1994; Fujikane 2002: 39; Kahakalau 2003). Japanese-Americans often maintain political power through their support from large public worker unions, such as the Hawaii State Teachers Association.⁶⁷ The majority of public school teachers are Japanese-Americans (34%) followed by Caucasians (27%), Native Hawaiians (10%), Filipinos (6%), etc. (see Fujikane 2008: 25). Teachers face a student body comprised of Native Hawaiians/Part-Hawaiian (26.9%) and Filipinos (20.4%), Caucasians (13.6%), Japanese (9.8%), etc. (OHA 2011). These factors are joined by the worrisome statistics of Kānaka ‘Ōiwi: higher rates of poverty, substance abuse, criminal activities (particularly among youth), teenage pregnancy, poor educational outcomes, etc. that reflect the mismatch of needs versus provided facilitation.⁶⁸

66 “White, race alone or with other races” account for 43.4%, “Asian, race alone or with other races” are 56.3%, “Native Hawaiians and Other Pacific Islanders, race alone or with other races” make up 26.1%, “mixed population (two or more races)” are 23.1%, and “minority population” account to 77% (DBEDT 2013). These high numbers indicate that people increasingly intermarry and, as I argue, point to the difficulty, even dubiousness of census according to race.

67 Okamura (2002: xii). As Tamura (2002) argues, settler colonialism in Hawai‘i has been beneficial for Japanese-Americans, who did not seek to change the social and economic system but rather aimed to fit in to succeed in the 'American way of life.'

68 See Blaisdell & Mokuau (1994), Tibbets (2002), Kahakalau (2003), Kana‘iaupuni & Ishibashi (2005), and

This is not unrelated to Hawai‘i’s peculiar ratio between public and private schools. The State of Hawai‘i spends the least amount of per-pupil expenditures in public education, ranking 50th across the nation (see DOE 2013). Yet as University of Hawai‘i education professor Ann Baker argues, the low quality reputation of Hawai‘i’s public schools is rather connected to the common perception that goes back to missionary and plantation days when elites were sent to other schools than commoners were (quoted in Wong 2014). Dotts & Sikkema also observe that “communications media [continue] today to reflect the view that many people in the United States, including Hawaii, regard public education as preparation for a job” (1994: 56). Settler epistemologies have forged a status quo of land management with a co-evolving public education system that is questionably close to the military,⁶⁹ and more recently the biotechnology industry (see chapter 5). Out of this historically grown hierarchy, as a state Hawai‘i is now home to most private schools in the nation, serving almost 16 percent of all students, and thus twice as much as the US national average.⁷⁰

Among them is Kamehameha Schools, the private Protestant school⁷¹, and at a market value of \$11 billion (KS 2015) the wealthiest K-12 school in the United States. While students receive a widely acknowledged, academically rigorous education, Goodyear-Ka‘ōpua – a KS alumni – critiques the school’s lack of cultural sensitivity in curricula and its complacency with dominant US-American liberal discourses (2005; King & Roth 2006).⁷² Recent controversies

Stannard (2000).

69 Besides the Hawai‘i Board of Education’s three representatives at large, six representatives of the main islands, and one student representative, it also encompasses a “military” liaison representative (BOE 2014).

70 It should also be noted that the span of tuition fees among private schools is as great as reaching from \$3,300 (Kamehameha Schools) to \$27,600 for a special-education school on Maui (Wong 2014).

71 It should be noted that students often are of various religious background, and Kamehameha School does not overtly advertise itself as “Protestant” school.

72 See also Kamanamaikalani Beamer (2014), who describes how his well-known grandmother and cultural practitioner Nona Beamer was expelled from Kamehameha Schools as student in the 1940s to subsequently be

over the trust's lease of agricultural land to the agrochemical company Monsanto has sparked anew grounds for mistrust, and poses the question how the trustees interpret Princess Pauahi's last will to use "land to educate [her] people" (as I will discuss in chapter 6). KS thus forms another nodal point where education and land are inextricably linked.

Largely due to Kānaka Maoli educators' efforts, in 1978 cultural and educational practices became legal in required Hawaiian Studies classes in public school curriculum. Under the Hawaii State Constitution Article X regarding Education, subsection 10.4 "Hawaii Education Program"

The State shall provide for a Hawaiian education program consisting of language, culture and history in the public schools. The use of community expertise shall be encouraged as a suitable and essential means in furtherance of the Hawaiian education program (State of Hawaii 1978).

In 1984, the first public elementary indigenous language immersion class in the United States, the Hawaiian language immersion program Pūnana Leo opened its doors (DOE 1994; quoted in Benham & Heck, 1998: 200). Their educators' activism led to the passing of a bill in 1986 that eventually established Hawaiian as language of instruction at public schools. While doing pioneering work, Hawaiian education programs, such as public Hawaiian immersion schools, have also been criticized for their underlying western curriculum (see Goodyear-Ka'ōpua 2005; Kahakalau 2003). Hawaiian scholar Julie Kaomea further points to the ineffective, underfunded implementation of Hawaiian Studies in public schools that, as she demonstrates, results in a

hired by the school as instructor of Hawaiian music and culture a decade later. Her activism in the 1990s also led to structural changes of KS including more rigorously Hawaiian Studies (ibid: 11f).

savage-oriented, racist, and exoticized interpretation of the Hawaiian past.⁷³ Yet programs that implemented Hawaiian education were confronted with a persistent stigma, as the founder of the first Hawaiian-focused charter school (HFCS) *Kanu 'o ka 'Āina*, Kū Kahakaulau, shared with me:

[In the mid 1990s], when you said Hawaiian-focused, or even just Hawaiian programs, the stigma was always that those were remedial programs, that those were drop-out programs, alternative learning centre, special motivation [...] designed for students who did not have the capacity to do the normal regular rigorous work in the classroom, and they would be sent into the taro patches (IV_100113).

This containment of Hawaiian education is reflected in legislative form as a subsection of Article X. Intended as conscious effort to make the unique role of Kānaka 'Ōiwi education more explicit, it concurrently constitutes a framing of Hawaiian-focused education as alien, monolithic body within (or outside) Hawai'i's public school system. Similarly, KS educational analysts Kana'iaupuni et al. (2010: 3) discern that promoting cultural awareness for diversity has led to a practice of teaching *about* cultures rather than embedding education within a particular community's cultural framework. Education scholars Lomawaima & McCarthy describe such containment in regards to the US federal educational policy, which in their words has enabled zones of “safe” cultural difference as enclosed within certain regulation (2006). In adapting this concept to HFCS, Goodyear-Ka'ōpua describes that “[j]ust enough 'culture' is allowable, so long as it does not threaten or undermine settler-colonial relations of power” (2013: 8). This attribution is reflective in the subsectioning of “Hawaiian Education Program”

73 Kahakalau (2003: 51) and Kaomea (2005) also criticize that implementation of Article X Section 10.4 was dissatisfactory, as lack of data collection could not show the actual impact of these public school programs.

and in that sense mirrors Hawaiian-focused charter schools' situated, bounded space within the wider Hawaiian schooling landscape.

The wider scoped *Native Hawaiian Education Act* (NHEA) in 1994 aimed to provide better access for Native people to education, medical, and economic benefits, and recognized that

Native Hawaiians have a cultural, historic, and land-based link to the indigenous people who exercised sovereignty over the Hawaiian Islands, and that group has never relinquished its claims to sovereignty or its sovereign lands (NHEA 1994).⁷⁴

The same year, the Hawaii Charter School Law was passed, which allowed 25 schools to convert into charter schools (Kahakalau 2003: 16f). Charter schools are now legal in 42 US States and the District of Columbia. As public schools, they operate quasi autonomously in regards to curriculum, spending and personnel decisions, and in turn are accountable for both academic results and fiscal practices as set by states (National Center for Education Statistics 2014).⁷⁵ Kū Kahakalau proposed a bill in Hawai'i to expand the existing law to include start-up charter schools (2003), and in 1999, the New Century Public Charter School Act allowed the creation of 23 additional charter schools. With the establishment of the first HFCS *Kanu o Ka 'Āina* on Hawai'i Island, Kū inspired other educational political activists to create “spaces and dynamics of entanglement and possibilities for indigenization” (Goodyear-Ka'ōpua 2005: 12f). *Nā Lei Na 'auao*, the Native Hawaiian Charter School Alliance that was founded in 2000, was “to support models of education that are community-designed and controlled and reflect,

74 The act formalized for the first time the role of the US government and its citizens in undermining Hawaiian sovereignty (Benham & Heck 1998: 219f).

75 It is crucial to note that the history of charter schools in Hawai'i is different to the continental US, and that many Kānaka Maoli educators recognize the colonial and state-defined context of this institution (see Goodyear-Ka'ōpua 2013; Gugganig 2009; Dingerson et al. 2008).

respect and embrace Hawaiian cultural values, philosophies and ideologies” (Nā Lei Na‘auao n.a.). HFCS thereby aim to provide a culturally-based “alterNATIVE” (Nakanishi 2000) to regular public schools, with smaller classrooms, more individual care for students, and multi-grade classes. The perpetuation of Hawaiian language, practices and values based on a hands-on, family-oriented, and community-based education model, in the words of Kū an “Education with Aloha,” reflects the central value of *aloha*, love, affection, compassion, and *‘ohana*, family (Kahakalau 2003). Learning activities range from planting *kalo* (taro) to sailing and paddling *wa‘a* (canoes), and learning complex Hawaiian *oli* (chants), *mele* (songs and poems) and hula dances. Students visit *wahi pana* (sacred places) and are immersed in cultural protocols on a daily base. Of Hawai‘i’s initial 33 charter schools, 17 HFCS aligned with *Nā Lei Na‘auao*, and attract primarily Kānaka Maoli students, who make up about 90 percent of the student body (KS 2012).

Overall, the new legislation did not fundamentally improve charter schools' precarious financial situation, particularly in regards to land and facilities. In 2013-2014, public charter schools received a per-pupil funding of \$6,127.61, slightly more than half the amount of regular public schools (HDOE 2014). HFCS thus need to find other funds, primarily via the Office of Hawaiian Affairs, Kamehameha Schools⁷⁶ and/or by leasing land from the Department of Hawaiian Homelands (DHHL). After Kū and other educational leaders secured \$2.1 million in federal grants that were spent on a van, two full-time positions and a media lab for each HFCS, funding became an issue. As Kū explained:

76 Through their non-profit organization *Ho‘olalo Like*, KS serves about 4000 students, across 34 HFCS (KS representative Wai‘ale‘ale Sosona, FN_300513), as well as public schools that have a minimum of 50 percent Native Hawaiian students (KS 2006).

Then we had a change in that [KS] came on board with supporting our schools by giving us one dollar for every four dollars that was being given by the State of Hawai‘i. And with that one dollar became lots of strings. Including frequent meetings and lots of paperwork. And the time that we used to use to meet as Hawaiian-focused charter schools independently to do what we felt was important, all of a sudden we couldn't meet anymore because we had to meet to fulfill the requirements of that dollar. And so, from then on our communication amongst ourselves and looking for funding outside, etc., etc. diminished. And I want to say at this point there is still some communication going on but the intense relationships and friendships and aloha that was shared, I don't know that it's at the same place anymore that it was in 2001, and 2002, and 2003 (IV_10013).

While partnering with third parties interested in improving Kānaka Maoli students' education, this administrative burden has concurrently hindered educators to maintain relationships and exchange over innovative, experimental education models. The dependency of charter schools on other funding⁷⁷ and a smaller budget than regular public schools is intrinsic to HFCS' 'freedom' for their 'choice' of curriculum, teacher allocation and school mission. In regards to land-education relations, Goodyear-Ka‘ōpua points out that lack of funding translated to inaccessibility to land – as foundation for building schools, and as claimed right to such lands inhabited by Kānaka Maoli ancestors (2013). HFCS principals acknowledge the illegal annexation of Hawai‘i by the United States, and the related circumstance that they do not receive a base – land – on which to build a school.⁷⁸ The commonly framed binary between academic rigour and culture-based education succinctly illustrates a skewed polarization between education as standard- and test-driven endeavour, and education on, and lessons

77 In contrast to other US states, Hawai‘i's charter school law does not allow for-profit entities, so-called educational management organizations, to operate charter schools (see Goodyear-Ka‘ōpua 2013: 9).

78 These two claims are neither inevitably contradictory nor without friction, as many HFCS teachers shared ambiguity regarding the structural dependence on a fake political system's departments (see also Gugganig 2009). They see the model of charter schools as vehicle to perform what Goodyear-Ka‘ōpua describes as *kuleana*, commonly translated as rights and responsibilities, which also implies genealogy and place (2013: 64). I will refer to this double bind in the following two chapters.

learned from the *‘āina*. The resultant land epistemologies have contributed to an understanding of education as 'inside' the classroom, while anything *ex-situ*, 'outside,' in the environment and outdoors, is seen as vocational, recreational, thus non-rigorous practices. HFCS are thus also institutions fostering the decolonization of educational practices in this sense of moving out.

Education systems in democratic societies are often described as having undergone a neoliberal turn that is defined by market-driven competitiveness. This “neoliberal shift” often remains a blurry, unspecific term that is too often deployed as final explanation (Ball 1998; Boyles 2005; Giroux 2005; Molnar 1996; Weis et al. 2006). Standardized education in neoliberal politics serves in comparing places – i.e. students' grades between Alaska and Hawai‘i – and times where an education system is envisioned as constantly progressing and 'evolving' from the past. One such policy is the educational standardization measure of No Child Left Behind Act (NCLB). Goodyear-Ka‘ōpua provides an excellent analysis of how NCLB has contributed to the *reseparation* of 'academic rigour' in the classroom from 'culturally-based education' in the outdoors due to demands of standardized testing at the HFCS *Halau Ku Mana* (2013). While I observed this tendency also at Kanuikapono, standardized learning per se was not seen as impediment. Rather, the challenge was considered in how best to prepare students for life as young Kānaka Maoli, and for a job (as I will discuss in the next chapter). If what defines Hawai‘i's education system is neoliberal, it may not be standardization per se. Instead, it is this readying of society to support the system's 'production' of skilled individuals in a particular trait, which is coupled with a peculiar understanding of land as continuing basis of progression. This becomes apparent in the “New Economy” in Hawai‘i (chapter 5), where the biotech industry demands schools, colleges, and the University of Hawai‘i produce “high quality workers” (PMP Public Affairs Consulting 1999: 12) for their

purposes. It speaks to Dotts & Sikkema's assertion that in the United States and Hawai'i public education is often viewed as mere preparation for a job (1994: 56).⁷⁹ By this, the industry and supporting politicians assure people that young generations are equipped for the future labour market in an increasingly insecure, unstable, and risk-defined world. This risk-awareness in turn shapes education into a form of continuously available and relatively stable source of workers for emerging industries, and with it, how land should figure in this calculation. It reopens the debate among educational reformers – from Antonio Gramsci (1971) through John Dewey (1929) to Paulo Freire (1972) - on where to draw the line between general education and specific vocational training. In other words, education is often argued to be either a tool of (individual and collective) liberation or a tool of outside indoctrination through a nation/economy/political system interested in a suitably trained labour force. Across the three field sites that I discuss in this dissertation, I will describe how these forms of education move within but also well beyond this binary..

In this chapter, I gave an overview of Hawai'i spanning from the Kanaka Maoli creation story Kumulipo to the transition of Hawai'i as both mediated and mediating “World System,” and the eventual and fateful normalization of the islands as part of the United States. I traced this shift back to an ontology of land as “that which feeds us” - *‘āina* – to which people had a “sociality rather of kinship than celestial power” (Kirch & Sahlins 1992: 17). It increasingly transformed into a notion of land as property bound to labour as means of possession and liberal democracy. Through the interlinked ordering of land and education, this notion also found its way into the

79 Indeed, as US Democrat candidate and supporter of the Bush Administration's NCLB Act John Kerry flippantly affirmed, NCLB “is really a jobs act when you think about it” (quoted in Torres 2008: n.a.).

Hawaiian kingdom's legal documents and missionary schools. I drew land and education together to think of Protestant ethics of industrious and efficacious work as inscribed into both the land-landscape and educational landscape of Hawai'i. One of the ramifications has been a land epistemology wherein education is seen as in-situ ('inside' the classroom) while anything ex-situ ('outside', environment, public sphere) has the stigma of vocational, non-rigorous activities. Hawaiian-focused charter schools challenge this separation by attempting to implement education as *trans-institutional practices* that have 'āina at the core of learning. To these practices and challenges I shall now turn to, more specifically, to Kanuikapono public charter school on Kaua'i.

Chapter 3: Kanuikapono: a “school without walls”

Back at Nā Pua No ‘eau⁸⁰ we had this discussion. There was a few of us, there's probably about six of us. All around the same age, women who knew that we needed to start something alternative for kids, not only the enrichment program but for school! Because the schools do NOT teach the culture. You know, they do not touch on the subjects that are important to our kids. They don't go out and get their hands in the dirt. [...] We're surrounded by the best place on earth to learn, and the schools don't utilize it (Mealoha Montgomery, school staff, IV_070513).

Well, just like the way our school is, it's flexible, and nature, like with nature and the ‘āina, you never know what it's going to be, like you can't always depend on it to be sunny, [and] we need to come forth and be like nature and be flexible and not always have like want: Okay, we're doing this, and this, and this, and then with Kanuikapono it doesn't always work out cause like that room might not be available or whatever, so it's just about flexibility. And that's really important to have with life [...] you know, flexible, like bamboo! (18-year-old Caucasian student).

How does a Hawaiian-focused charter school (HFCS), such as Kanuikapono operate within a western educational system while fostering a Hawaiian worldview? What motivates educators to establish and work at such schools, and how do educators implement their visions in light of often unforeseen obstacles? How do the pragmatics of establishing a HFCS in turn define the school's teaching and learning epistemologies? In a broader sense, how do they influence more common definitions of “education” as both an accountable institution and a liberating endeavour?

Following these questions, I will commence this chapter by tracing my own encounter with the school, walking the reader through the school campus and describing the school's mission and values. This will lead me to describe practices and spaces that were created

80 Nā Pua No ‘eau is a centre that aims to increase educational opportunities for K-12 Hawaiian students. It was started in 1989 at the University of Hawai‘i and later continued across the islands' community colleges.

between the school's ethics and the lived reality of a construction site, depleted soil, and many new, non-Hawaiian teachers. I will commence by describing what it means to build a “school without walls” and to teach *mālama ‘āina* (care for the land) when soil is depleted and building materials – plastic or concrete – are considered unsuitable to the school's mission. I will then turn to tensions between what was envisioned in the mission and what everyday life presented. These tensions often manifested in collective double binds, where the school often faced contradictory obligations that could not be resolved in satisfactory ways. These double binds manifested in two prime ways: first, by aiming to give preference to Kānaka Maoli students while wanting and having to admit any student as a (non-discriminating) public school. Second, like many other Hawaiian-focused charter schools (HFCS), Kanuikapono aims to implement Hawaiian education and is expected to do 'academics,' which in turn is seen as diverging from Hawaiian education practices, such as *mālama ‘āina* projects. These are typical experiences for Indigenous Peoples operating “within established political, legal, and cultural frameworks” that bear often incommensurable contradictions (Fortun et al. 2010: 227). I use Michael Fischer's concept of ethical plateaus (2003) to describe these scenarios, particularly in regards to building a campus and forming a school *‘ohana* (family). By ethical plateau Fischer means a terrain where people's “often incommensurable frames of references come into play, involving irrational passions and fundamental commitments, as well as rational calculations.” (2003: 56). Hence, synergies and tensions among teachers, staff, students and the school leadership were often contentious – albeit articulated on the quiet - and formed what I refer to as *contested terrains of ‘āina and education*.

3.1 Situating Hawaiian education: Kanuikapono Public Charter School

As described in the previous chapter, Hawai‘i has the highest discrepancy between public and private schools within the United States (Wong 2014). Yet this is more reflective of the main island O‘ahu (with the capital of Honolulu) than the neighbouring island Kaua‘i. The northernmost island is also one of Hawai‘i's least populated islands (ca. 65,000 people) and accordingly its school landscape differs from O‘ahu (with almost one million inhabitants).⁸¹ While in Honolulu alone more than 35 percent of students attend private schools, less than 7 percent do on Kaua‘i (Wong 2014). Besides ten public elementary schools, two middle and three high schools, in 2012/2013, Kaua‘i had five private schools, and four K-12 Hawaiian-focused charter schools (HFCS). Students oftentimes switched between public, charter, and private schools depending on location, willingness to commute, school type, and economic feasibility. For instance, in case of HFCS, many students at *Kawaikini* on the East side of Kaua‘i came from all over the island while on the more secluded West side *Kula Aupuni Niihau A Kahelelani Aloha* (also the smallest charter school in Hawai‘i) and *Ke Kula Ni‘ihau Kehaha* had students residing in closer proximity.⁸²

81 To give a sense of proximity, the island of O‘ahu (“Honolulu County”) and Kaua‘i have about the same size (600 and 620 square miles respectively) while the former has a density of approx. 1,590 people/square mile and the latter has 108 people/square mile (US Census Bureau 2010).

82 These two schools are Hawaiian and Ni‘ihauan immersion schools serving also students from the island of Ni‘ihau while *Kawaikini* had Hawaiian immersion programs. Kanuikapono was the only HFCS on Kaua‘i with no Hawaiian immersion.



Figure 2: Map of Kaua‘i, indicating Anahola in the *Moku* (district) of Ko‘olau. Clockwise, the other districts are Puna, Kona, Mānā, Nāpali, and Halele‘a.

Anahola, a quiet town on the North-eastern side of Kaua‘i (see Fig. 2), with beaches frequented by local families, a few homeless people, and occasional tourists faithfully following their tour guide's promised 'hidden gems' of the island. Coming from south on Kūhiō highway (the only highway circling the island from Polihale in the West to Kē‘ē Beach in the north) driving down a dip, on the left hand side is Kamehameha Schools' (KS) Preschool,⁸³ followed by a Baptist church, some tourist stands, a small post office, a whaler store, and a

83 This is the only KS school admitting non-Hawaiian students, as it leases land from the Department of Education (Ipo Torio, pers. conversation). KS does not hold much land on Kaua‘i, which is not unrelated to the fact that King Kamehameha I never conquered the island, and thus less land there was passed down to Princess Pauahi Bishop (Kamealoha D. Forrest, pers. conversation). A significant estate is the 1,600 acres large Waipā *ahupua‘a* on the North shore that is stewarded by Waipā the non-profit organization Waipā Foundation, which was founded in the 1980s to prevent the development of the valley (<http://waipafoundation.org/about/> [accessed August 30 2015]).

burger stand that form the nodal point of Anahola.⁸⁴ The town of 2,000 inhabitants is Kaua‘i's largest Hawaiian homestead community of mostly low-income and working class families,⁸⁵ with most of the land undeveloped (DHHL 2010). Children playing at the Anahola Village Park, dogs barking, and infrequent cars driving by are the typical soundscape of Anahola. These sounds were also a significant part of my daily life, since I rented a room in a one-family house close to the Village Park. If one turns prior to the dip right, into Kukuihale Road, one passes residential houses, rusty cars and a dry grassy area until Kanuikapono public charter school emerges on the right.



Figure 3: View of the school from the main entrance on the northern side of campus.

84 According to Kamealoha D. Forrest, Kanuikapono's Hawaiian resource teacher and composer, in the past the town was spelled "Anehola," *ane* meaning breath of life, *hola* meaning the hour. The two words together translate as birth. Geographically, the town lies opposite Polihale on the other side of Kaua‘i, which is known to be the place where spirits are guided to leave the island. A rich, in-depth description of the town and its people can be found in *Anahola: Kauai's Mystic Hawaiian Village* (Marti-Kini 2009).

85 Kanuikapono's Accreditation Application for "Accrediting Commission for Schools" of the Western Association of Schools and Colleges (WASC) (pers. possession, and onwards referred to as (AA_WASC_301112). WASC is an accrediting agency serving public and private higher education institutions in California, Hawai‘i, and the Pacific that the US Department of Education recognizes as "certifying institutional eligibility for federal funding" <http://www.wascsenior.org/about> [accessed Oct 6th 2015].

In summer 2011, I first visited the school to talk with the administrator Delton Johnson and Maui Ola Cook, a *kumu hula* (hula teacher) and teacher of *'Ike Hawai'i* (Hawaiian knowledge) about a potential collaboration for the following year. A few months earlier I had emailed the school with an offer for a collaborative film project with students, teachers and community members on *kalo* (taro) or another topic of interest. Arriving there this sunny day in August, I strolled around campus before meeting with the administrator. The campus consisted of several trailers; similar to many other HFCS I had visited before, which often depend on classrooms that are affordable and easy to set up. Yet Kanuikapono's campus had at its core something bigger, the main *hale* (house) that connected a trailer with classrooms and bathrooms through a large wooden platform. A sign between two large sliding doors of the *hale* read: "you can enter if your slippers are put together NEATLY." So I did, entering this bright, high roof loft building with a central gathering room and four adjacent, smaller ones. In the front part was a small library where a young man was preparing teaching material. He enthusiastically introduced himself as the new high school teacher. After chatting about our potential collaboration next year, I strolled around further. A large cupboard housed books and instruments, prizes and acknowledgements, among them for the hula teacher (and school board member) Pua Dawson, for "Leader of the Year for Kauai." In the back were the, for Hawai'i typical long, thin glass windows, allowing a nice breeze and calming eastward view of the campus and the ocean beyond. I learned later that after years on multiple campus sites in Anahola, the non-profit organization *Kanu INK*, which operates Kanuikapono, had only a year earlier secured a thirty-year lease from the Department of Hawaiian Homesteads Land (DHHL). The trailer that was connected through the platform housed, or rather crammed in, school administration, the principal's office, and two classrooms. Two yurts stood right next to

it on the south side, with an additional trailer on the other side of the *hale*. To the west, behind the administration trailer, was a small, deserted concrete playground and a few attempts at gardening. Looking down south towards the ocean was a greenhouse and a large field of characteristic Hawaiian red volcanic dirt: dry land, hopeful for more arable times, and awaiting to be transformed into a K-12 school campus. This, I thought, must have looked very different even just a few months ago.



Figure 4: View from the oceanside with the main hale on the right and the yurts on the left. In the background is Anahola's iconic mountain Kalalea.

Commencing fieldwork in summer 2012, one late July morning I found myself on the same platform, this time nervously awaiting teachers and staff for the first of several teacher meetings before the school year would start a week later. Above the door of the *hale* was now another, slightly faded sign inviting people to the *Humehume* theatre play that had taken place a few months prior. Earlier conversations with Maui came to my mind over how energizing yet exhausting and last-minute the preparations for this play had been. Later conversations with

teachers and students resonated with this sense of spontaneous, ad-hoc planning I was familiar with from other HFCS. The school had accepted my offer to instruct high school students in a film class on visual and research methods while doing ethnographic research on what it means for high school students to learn about the *‘āina* and Hawaiian culture. I had planned to be more immersed as class instructor because I wanted to understand how the often stressful working conditions and lack of money and facilities shaped visions and operations at this HFCS.



Figure 5: Drawing of kalo as the elder brother of Kānaka Maoli, Hāloa, in the main *hale* at Kanuikapono.

There are several other signs in Hawaiian that I now noticed, which depicted Hawaiian proverbs, *‘Ōlelo No ‘eau*, such as “E kūlia i ka nu‘u” (Strive for the top of the mountain, for excellence). There were also drawings by kindergarten children that depicted *kalo* as Hāloa, the sacred plant and elder brother of Kānaka ‘Ōiwi (see Fig. 5). Where the library had been the

previous year was now a big table. On the back of this cabinet was a mirror that was now used for hula practice. Lots of things were lying around, indicating that the school year was just about to commence.

The principal of Kanuikapono Ipo Torio-Ka‘uhane, a middle-aged Kanaka Maoli and mother of four sons, is what is often referred to a strong *wahine* – a woman not intimidated by too many things. The struggles and successes of building and running a school from scratch reverberate through her energetic, busy, calm, at times tired, yet constant on-the-call demeanour. In 1997, Ipo started a Hawaiian cultural education summer program at *Nā Pua No‘eau* at the Kaua‘i Community College (KCC; see quote at the beginning of this chapter). The program later morphed into Kanuikapono to further provide after-school, youth leadership, family-based enrichment, sports, and recreation programs. On occasion she explained that the *kūpuna* (elders) of Anahola had chosen her as young woman to open and lead a school for the Hawaiian community of the town.⁸⁶

Kanuikapono Public Charter School opened in 2001 as a result of the New Century Public Charter School Act. The goal was to open a learning *‘ohana* (family) that provides “an academically rigorous program based and fully grounded in the universal principles of Aloha” (AA_WASC_301112). The school's mission is

To nurture lifelong learners able to embrace the world of our ancestors and the 21st Century; skilled and community minded with aloha and respect for self, family, community and the environment (Kanuikapono 2012).

86 See the documentary of the French-German channel ARTE *Hawaii – Rückkehr zu den Wurzeln/Hawai‘i – retour aux sources* was screened on ARTE on July 28 2015, and our interview, July 10th 2013.

Kanuikapono envisions and implements this by *Ma Ka Hana Ka 'ike* – “in working one learns,” or, that knowledge comes from working with one's hands, such as in project/place-based learning.⁸⁷ Further, as “school without walls [...] the environment, or nature, is considered the best classroom” (Kanuikapono 2012). The *‘Ōlele No ‘eau*, Hawaiian proverb, listed as first “*‘ae Like*” (value) on the pamphlet for new students is “malama i kekahi i kekahi”, to love one another.⁸⁸ *‘Ōlele No ‘eau* are moral pillars that were made more explicit in signs and boards across the school campus (see Fig. 6). It was also a central component in one daily ritual. Every morning at 7.45am all students, teachers, and the principal would gather for *piko*⁸⁹ to ask ancestors for guidance to learn and to commence the day at school with one student announcing the weekly *‘Ōlele No ‘eau*.

While Kanuikapono started off as elementary school, it gradually included kindergarten, middle school and since 2010 a small high school program. In the school year of my fieldwork, Kanuikapono served 150 students across twelve grades, a significant increase from 120 students in the previous year, and the highest number the school had had thus far.⁹⁰ The gender among students was fairly while 4th grade had significantly more boys than girls. Teachers were

87 The seven foundational values are: *'Ohana* (Intergenerational family engagement), *'Olelo* (Hawaiian Language), *'Aina* (“That Which Feeds Place-Based Learning”), *Ma Ka Hana Ka 'Ike* (Project-based Learning), *Kilohana* (High Standards), *Ho'omakaukau* (College-Readiness), and *Ke Ea* (Sustainability and Entrepreneurship) <http://kanuikapono.org/mission-statement/> [accessed December 29 2015; punctuation as on website].

88 The next four *‘ae Like* include: (1) “Maintain my own personal **kuleana** [responsibility], and always **malama i ka 'aina** [care for the land]”; (2) “Carry myself with dignity and pride at all times”; (3) “Remain committed to learning and perpetuating the Hawaiian language, culture [sic], its values and traditions”; (4) “Demonstrate pride in the quality of my work by putting forth my best effort, and turning in my assignments on time” (pers. possession).

89 *Piko*: navel, umbilical cord, node (also, where a leaf is connected to the stem), in this case the centre for gathering in one point. At *piko* one student would blow the *pū* (cone) shell towards east (for inspiration), south (focus), west (gratitude), and north (wisdom). All students then chant and for each *hui* (class) one student says a sentence on the date, stage of the moon, and whether it is good or bad for fishing, planting, harvesting, etc. (in English and Hawaiian).

90 Kindergarten and Elementary School (1st-5th grade) was comprised of approx. 100 students, the Middle School (6th-8th grade) of 24 students, and high school of 14 students.

predominantly women (as is often the case in schools), with one male full-time teacher and five male project or support teachers (project teachers would only come for one or two hours/week). Overall, of the twenty full- and part-time teachers, five were Kānaka Maoli, while project teachers (including me) were a mix of Hawaiian and non-Hawaiian teachers. Of the male teachers, four were Hawaiian and two were white (who were predominantly project/support teachers), while of the ten full-time and four part-time/project teachers only two were Hawaiian, who were full-time. Kanuikapono is a high-poverty school, as defined by the Federal Register, since about 58 percent of students qualified for free or reduced lunch (taken as indicator for the economic status of families) (AA_WASC_301112). The school estimates that nearly 40 percent of newly admitted middle and high school students are in need of one to three years of remedial teaching, as they come with “chronic and excessive absentee records, very poor nutrition and begin, at a minimum, two or more grades behind in math and reading.”⁹¹ Once there, Kanuikapono's students have an approximately 98% student attendance record.⁹²

In regards to students' ethnicity, Kanu did not reflect the statistic of 17 Hawaiian-focused charter schools (HFCS), as Kānaka Maoli overall make up about 90 percent of the student body (KS 2012). Occasionally, I would overhear people referring to Kanu as the “haole school,” and staff and teachers would sometimes share with me on the quiet that this is due to Kanu having the largest non-Hawaiian student body among all HFCS: over 60 percent

⁹¹ In their WASC application for accreditation, Kanuikapono relates the students' schooling experiences to the overall experience of Native Hawaiian students, who average an 11-percentage point lag in both math and reading while having the highest high-school drop-out and incarceration rates, lowest college-completion rates, and poorest health rates (AA_WASC_301112). See also Blaisdell & Mokuau (1994), Tibbets (2002), Kana'iaupuni & Ishibashi (2005) and Stannard (2000).

⁹² This number did not reflect the high school students' attendance, which was more likely 70-80%. Regardless, on occasion the students would comment that they felt more inclined to come to school at Kanu than they felt at other (mostly public) schools where interactions with teachers felt impersonal. This is another incident that shows the importance of *'ohana*, in this case a school *'ohana*.

were of Native Hawaiian ancestry and thus significantly lower than most other HFCS. The overall demographics of students at Kanuikapono were indeed diverse, from fairly affluent Caucasian students from the North shore to economically less well-off students from Anahola or other Hawaiian communities. Yet within Kanuikapono the Haole denotation did not hold for the high school, since out of 14 students (eleven at the end of the school year) only one was ethnically not Hawaiian, and that student had attended the school since its inception. This demographic shift reflects the trend among many HFCS where in the early 2000s the schools targeted primarily Kānaka Maoli students. Many school founders and educators were themselves Kānaka Maoli, who specifically targeted Hawaiian communities and also brought their own children (see Kahakalau 2003; Goodyear-Ka'ōpua 2005).

As film class instructor for the high school and educational assistant to the new high school teacher Katie Capadouca, my fieldwork was primarily dedicated to that program (to which I turn in more detail in the next chapter). In high school, besides the “core subjects” math, language arts, science and social studies, the school provided *‘Ōlelo Hawai‘i* (Hawaiian language), hula (dance), mele and oli (song and chant), sports, *mahi‘ai* (farming), multimedia (in this year, my class), and career planning.

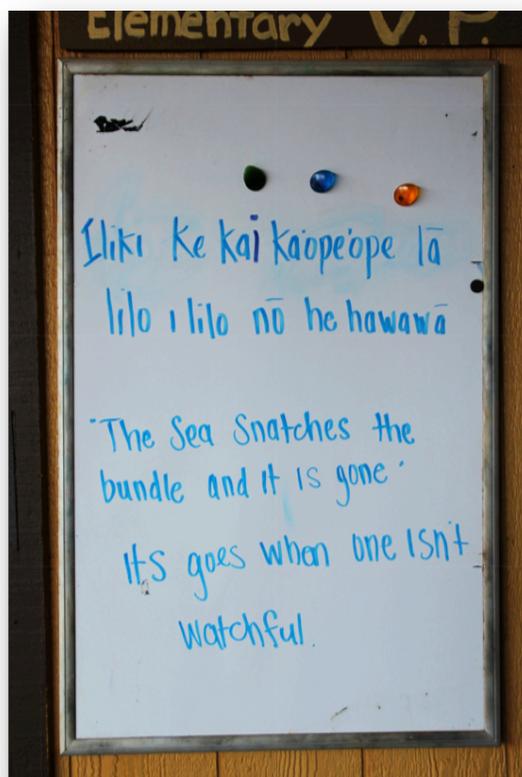


Figure 6: Weekly *‘Ōlelo No ‘eau* are also displayed on school boards.

During my fieldwork in 2012/13, the campus was still defined by a shifting infrastructure, both in a constructional and social sense. The two yurts (that many teachers disliked due to the heat and dust accumulation inside) were moved down the hill, across the wide field of dry land with a few plants that made up the core of the campus. A tractor in the middle of the field indicated that yet more physical change of the school campus was to come. As I was told, the enthusiastic high school teacher from the previous year had left after the high school students had bullied him out. At the end of the school year in May 2013, he would be followed by three long-term staff members and four teachers.

3.2 Building a “school without walls”

For the school to open at its current location, the non-profit organization *Kanu INK* had to collaborate with several governmental agencies, from the County of Kaua‘i to DHHL to the Department of Water. As Ipo reflected on the nature of these collaborations:

We are always the ones that are asking the questions that nobody has the answers to because nobody's asked the question. And because of that, we find a lot of government agency representatives sitting on the fence, and they don't know what to do. Because nobody wants to take responsibility. Whose road is it? Whose jurisdiction is it? It's Hawaiian Homes, no it's the County, and we've always been kind of stuck in the middle, wondering: Ok, well, who do we listen to [...] We can't hold our progress just because people don't know what to do! And we kind of cleared the path and journey along and apologize when we need to [laughing] (IV_110713).

Not unrelated to the DHHL's irresponsive governance of land in the past (see previous chapter), it continues to be a bureaucratically managed, indeed, neglected entity, which gets juggled between little responsive government agencies that often do not know property lines or future plans.⁹³ At the same time, DHHL encourages Hawaiian Homesteads residents to use land for entrepreneurial purposes, such as “Project Faith,” which was a planned educational, economic and cultural centre that originally was to host Kanuikapono. The school's current campus is situated on a former pineapple plantation, and is illustrative of the many decades that Hawaiian Homesteads land has been used illegally for the pineapple and sugarcane industry.⁹⁴ The campus is also adjacent to a former (unregulated) dumpsite.

93 Not knowing where exact land property lines are is indicative of the Hawaiian Homesteads Act in 1920 where the location of the 200,000 acres was never specified. In terms of future plans in Anahola, the DHHL had planned a road next to the school that had never been communicated to the County of Kaua‘i, which delayed the opening of the campus for several years (Ipo, IV_110713).

94 Hasager & Kelly (2001). Hawaiian Homesteads land was also used for military bases, public parks or other County facilities (Kauanui 2008: 177), and most recently, on Moloka‘i it has also been leased to Monsanto, which has provoked much resistance by local residents (Perez 2013).



Figure 7: Newly planted 'ulu trees with the help of organic fertilizers, mulch, and children's *oli* (chant), November 2012.

One Saturday morning in November 2012, on the 'Ohana Planting Day⁹⁵ the school laid grounds for a food forest by planting 'ulu (breadfruit) trees (see Fig. 7). While Ipo shared with two mothers and me that this particular spot had more recently been a dump hole, one of the moms pulled a license plate out of the ground as if it was the most normal thing to do. Without much ado she placed it in a bucket with other rubbish dug out of the ground that day (Fig. 8).

95 Kanuikapono offered this gathering event at least once a term to the students' families to get more involved in the school and to practice *mālama 'āina*.



Figure 8: Remnants of a close-by dump field dug up during an 'Ohana Planting Day at the school, November 2012.

As Ipo affirmed in our interview, the school's soil is far from healthy:

[The] soil is very toxic. Soil is toxic all over Hawai'i, and we can thank [the] sugar and pineapple industry for that. [...] Maybe you got a grant to remediate the soil, it costs about a million dollars an acre. [...] The soil is not just depleted, you got just years and years, decades of irrigation and plastic that's just been turned into the soil. So, we can probably go down six feet, and we've gone at least six feet, and you still have plastic popping out of the dirt.

The plastic Ipo mentions are remnants from pineapple plantations where plastic strips were laid over previously fumigated areas (Siper 2000). These plastic flakes were a common sight across campus, indeed across the island.⁹⁶

96 In other areas, such as at the Kauai Food Forest on the North shore, plastics strips were often accompanied by irrigation tubes that never got cleaned up by the pineapple company when their leases expired. On a local radio show of the community radio KKCR, organic farmer Sun Hadley asserted that while the plastic per se may not be hazardous they are indicators for a pineapple plantation, and thus the use of dichloro-diphenyl-trichloroethane, the carcinogenic insecticide DDT (FN_220413).



Figure 9: Hawaiian volcanic soil is characteristically red due to its high level of iron. This, the toxic compounds of past planting industries and the nearby dump, as well as the windy, dry location makes plant growth on campus challenging. November 2012, before the (rainy) Makahiki season.

When I discussed the topic of soil health with the school site manager (and Ipo's husband) Kamahalo Ka'uhane, he concurred that there is still 18 to 24 inches of compacted, depleted soil. In our interview he soberly clarified that remediation is not as straightforward as one may think. Rather than reworking the present soil "bringing heavy machinery and ripping it apart, and tilling in these nutrients into the soil", covering it up with other nutritious soil may be just as affordable. He preferred the covering up practice "because you're not going to kick up any of that old stuff" (IV_170613). In that sense, "ripping it apart" would constitute a similar violence to the dirt as covering it up.⁹⁷ I could not help but think of the violent history of misplacement of the *'āina* and people, and how remedy/redemption are not quick fixes but often long (cost-intensive) processes that are replete with compromises.

⁹⁷ Eventually, it was a mix of both strategies, as evident in fig. 9, where compost and nutrients were laid in a hole of this hard soil that was dug out by an excavator to plant breadfruit trees.

Just as remediation, 'dirt' itself was not a straightforward matter, both in a physical and metaphysical sense. In one way, people referred to dirt when they indicated fertile, dark, soft dirt, as in to “dig in the dirt” in order to learn from and through the *‘āina*; a Hawaiian sense of knowing a place. On the other hand, 'dirt' also indicated dry, red dust that always overlaid any surface. One student expressed this frustration as follows: “You only just walk into your class, and like red dirt stains are already on your clothes. And you JUST took a shower” (IV_240513). This kind of dirt also earned the school the derogatory stigma of being the “school in the dirt.” At the same time, in the words of another student, being in the dirt at the school showed resilience: “You are outdoors, working! Not in the class, being all prissy. You're DOWN and dirty” (IV_060513). Kapule Torio, a teacher at the Waipā Foundation on the North shore and Ipo's brother, sees almost all students of the island's schools coming to Waipā for school trips. He shared with me that even compared to other HFCS students, Kanu kids are not hard to encourage to get dirty or go in the stream.

Dirt is thus malleable, indexing anything from an aspired, hopeful future of healthy, nutritious soil, a striving, proud Hawaiian culture, to a depleted, dry dust that is haunted by a history of cultural genocide and ecocide. It forms a spectrum from righteousness to toxicity where the school aims to operate an *‘āina*-based ethic on depleted land; in other words, to recover dirt as regenerative rather than filthy term and practice. Through different approaches, Kanuikapono has to decide to either recover healthy soil that is buried under many feet of toxic soil, or to lay new, outside soil on top, which ends up being the cheaper alternative. It is a powerful metaphor for colonialism: the efforts to recover ancient cultural practices from underneath the many layers of historical dispossession, and contemporary articulations of indigeneity with available means (see Clifford 2001).

On occasion, long-term teachers, students and those having heard the story many times before, told me with pride or reverence that Kanuikapono started off as a school of tents. In the first teachers' meeting, Hawaiian language teacher Palala Harada reflected on sitting under tents while rain dropped down on his marked papers. A decade later, a month into the school year 2012/13, two new trailers had been added to the campus-in-formation a donation from Kamehameha Schools right off the ship from O'ahu. Different than originally planned, they sat there for some months until construction started in October and classes moved in in January 2013. The trailers housed the elementary school and kindergarten classes while middle school remained in the former greenhouse and trailers at the bottom of the campus. The high school spent the first term at the Anahola clubhouse on the other side of Kuhio Highway (about a two minute drive), and we were relocated over the Christmas break back on campus into the kindergarten's former trailer. At the end of 2012/13 for the first time all K-12 students were housed on one campus on Kukuihale Road.

The school being a construction site, with its noise and dust, also often entailed schedule and classroom changes, or other inconveniences that took away from teaching. In that respect, and talking more generally about her vision for the school, the then new middle school teacher Diane Sands shared the following with me. Between the nearby Cafe Hemingway in Kapa'a town and moving boxes at her place, our interview at the end of the school year also marked somewhat of a final point for her, as she was leaving the school and island the next week:

I have to ask myself: Are my frustrations with the school because this isn't the vision that I wanted for the school? And, but it is Ipo's vision, and I'm not Hawaiian, and like, I REALLY want the school to do well and do some great things. And they are, but, you know, Ipo grew up here and she's Anahola and she knows all the politics in Anahola,

like maybe she knows that's just how it needs to grow. [...] Cause we're not building a house, we are educating kids and you only get one chance of it.

Diane expresses a sentiment many teachers felt in wanting the school to thrive, though strategies and vision often diverged. What was often seen as obstructive, such as building houses, was for the school leadership a crucial part of founding a school *'ohana*. Kanuikapono had difficulties establishing a community within and with Anahola. The “politics in Anahola” entails not only the reputation of being a “Haole school” but the fact that many families in town were not on speaking terms. Talking about the Anahola community at the ‘Ohana Planting Day, Ipo shared with the two mothers and me that it makes her chuckle when she sees the kids circling up for *piko*, knowing that their families do not get along.⁹⁸ Building houses is thus more than mere infrastructure. It entails putting into practice a vision where an estranged community may find a place to come together: a “piko that people can come to that is neutral,” as Kamahalo put it, who was well aware of the tensions in town.

How vision and strategies were not always clear became evident in an instance where different school personnel debated – albeit not overtly – the materiality of a particular infrastructure. Elementary teachers proposed a playground, which they saw as an important outlet for younger students, who had to make do with a rather uncharming, concrete basketball square. The principal had asked Andy Capadouca, a landscaper, volunteer teacher and Katie's husband (both came to Hawai‘i earlier from Vancouver), to be on the planning committee for this playground. Yet to his regret, he sensed little interest by other teachers as to whether the playground aligned with the school's mission:

98 There were other reasons for disgruntlements between town residents and the school, such as towards the end of the year when there was widespread disagreement regarding the school board member Robin Danner, who had a reputation for using Hawaiian Homesteads land for questionable purposes.

A: From an ecological standpoint, a giant plastic structure has impact on the community, that paving the area that is the playground is significant. The detoxifying effect of the soil.. [...]. So, I felt that the mission statement of the school, and the school name itself would be impacted by such a structure.

I: Why?

A: Ahm, the school name, it has a meaning that I think relates somehow to planting and growing with righteousness.⁹⁹ And, ah, if you put a 25-foot tall piece of plastic on top of a 14 inch deep piece of concrete it's very, very difficult to plant now or in 40 years.

Andy refers here to the severity of the depleted soil that the school stood on. He aimed to generate a more general discussion among the school board, staff and teachers as to what the best strategy would be to deal with this toxicity. Yet this discussion did not quite resonate with the pragmatics of the everyday operation of the school, such as the elementary teachers' quest to have a space where their students could frolic around without being covered in a whirl of dust. When the administration found the playground to be too costly, the teachers started fundraising to cover the \$100,000 cost. Andy reasoned that “instead of the administration administering the mission statement [they did not use this] medicine that transmutes the toxicity into something pono.” In his understanding, the translation went the opposite way by *not* transforming the toxicity (of the soil) into something healthy, righteous as to align it with the mission, and rather added toxicity - a “McDonald’s like play structure.” I was reminded of a senior student's father, who shared with me that the money could have been used much better for planting. Kamahalo, having been with the school since its inception, shared a similar view:

I'd be honest in saying that I can get a little concerned of where we're heading, you know, not to contradict what we're doing. But I think the more buildings we put up, it takes away, it'll take away from where we are, where we were. And that needs to be

99 Kanuikapono was often translated as *kanu* (planting) *i ka pono* (in righteousness).

made sure that the mission stays that way. [...] We have to make sure that the kids stay grounded. Because they don't know that it started off from the 16 by 16. Or they don't know that one day we were under a great tent.

The comfort of walls, of classrooms comes at a price that concerns Kamahalo, and resonates with Andy's observation that the school had reached a pivotal moment. Much of the foundation was laid in its first decade, both agreed, and the school could now decide, in Andy's words, “to become a conventional concrete playground-standardized-test-institution” or stay “true to the mission statement and its name” - to plant in righteousness. For Kamahalo, staying with the mission also meant that students of recent and coming generations understand that education is not defined by infrastructure per se. Here is yet another double bind in the concomitance of building a school – literally walls – while affirming the school's distinguishing feature as a “school without walls”: to dig in the dirt and engage in community issues while building an infrastructure for exactly such 'wall-lessness.' Again, it is exemplary for Indigenous People bound to a sovereignty that is dependent on economic resources, and which is perceived to be at odds with clichés of Indigenous People as money- or material-averse (see Cattellino 2010).

In the high school, the school year itself often felt like a construction site, a being in-the-making that constantly moved on shifting terrain. Even though it was clear from the beginning that the clubhouse would only be temporary, the infrastructural change in the middle of the year was not welcomed by most high school students and their teacher. In our interview, Katie reflected on the school year as follows:

K: We were at a different campus, uhm, the school seemed to be more supportive, there was a lot more aloha [and 'ohana], how can we help, you know? [...] I felt included, and, ahm, the kids worked really well in that environment.

I: Even though - you felt included even though you were outside?

K: Outside, yes, I was outside. I was included because I was outside, possibly. Ahm, and I never really looked at it that way until now, but that's probably a huge part of it.

It did not make sense to me until much later that Katie described – and I suggested in my follow-up question – a crucial point in community-building and connection to the *‘āina*: Building a school on one, unified campus for students of such large age range certainly did not entice a warm feeling among all students and teachers. As described by Katie, and in many students' preference to maintain some autonomy at the clubhouse, being closer, or 'inside' the school – the school's ethos of growing *pono* – seemed to entail being 'outside' of it physically.

The tension between the kindergarten and elementary school - being housed in new trailers - and middle and high school – those who had been with the school the longest getting the 'rest' – was exemplary in an incident on the last weekend of the Christmas break. Katie had set up the new classroom when an elementary teacher came in and, in a rather demanding tone, informed her that she would take the new blackboard that was leaning against the wall. This new blackboard could have just as well replaced the one in this classroom, which had a crack. Yet as the elementary teacher explained, *her* old blackboard had a crack. Katie, as she later shared with me, told her she didn't care about any crack but that “you do realize that there's a difference between asking and rushing in and demanding what's yours” (FN_070113). This *how*, the fact that providing education also encompasses good social relations among teachers, points yet again to the centrality of *aloha*, and to the consequences when it is felt to be missing. Throughout the year, and especially the second term, this tense division between elementary school teachers and high (and less so middle) school more generally was difficult to miss.

I hold for now that land and education, through its connecting infrastructure of a built campus, emerged as a constantly shifting terrain. Boundary zones on land were moved from previous pineapple fields to a dump site to a school campus, as educators pushed for their own conceptions of Hawaiian education on that land – contaminated land. This interconnectedness is also reflective in the *kaona* (hidden, double meaning) of *Kanuikapono*: as both planting righteousness into students and planting righteously in the *‘āina* (as my interlocutors often translated it as either or both). Put differently, epistemologies of education and *‘āina* were co-produced with the ethos of *pono* (righteousness), which the school had to navigate on top of contaminated soil. Yet not all protagonists agreed on how this righteousness should be executed. The shifting terrain thus occurred not only on a physical plateau but, in Fischer's term, on an ethical plateau “where often incommensurable frames of references come into play, involving irrational passions and fundamental commitments, as well as rational calculations” (2005: 56). Passions, commitments and calculations were part of deciding how to best remediate the depleted soil proper, how much 'wall' should be in a school and how much school (its vision) in the walls (playground), as well as how the high school students, their teacher and the principal connected space to the school's (core value of) *‘ohana*. Such contradictions also emerged in the derogatory or hopeful ways that people evoked “dirt”: it seemed 'irrational' to refer to depleted soil as *‘āina* – “that which feeds us” – yet people still talked about “*mālama ‘āina*” when they envisioned healthy, nutritious soil.

These mandates – to educate children, to build a school and school *‘ohana*, and to remediate *‘āina* – revealed how satisfying all of them may obstruct from educating students (i.e. not being able to follow standardized lesson plans); how building (and its material) and soil can challenge the ethical pillar of the school; and how the central value of school *‘ohana* may

not map onto one central place. Put differently, educators and site managers interpreted these mandates as either incommensurable or intrinsic to each other. Some teachers, like Diane, found that building a school should be separate from educating children, following her experiences that doing both was tremendously challenging. I sympathize with this quest, as the constantly changing schedules were personally my biggest challenge (while, of course, not all were due to construction). Similar to the school's leadership, I recognize that the terrain of education was inseparable from that of buildings and *'āina* (albeit depleted), which was to eventually form community, a school *'ohana*.

With Kanuikapono, then, the ethical stance – the school's mission – was often not so clearly indicatory. Rather, from the moment of the school's inception – as an underfunded Hawaiian-focused charter school – the school's mission has been entangled with given conditions: lack of infrastructure, contaminated soil, lack of teaching material, etc. Put differently, the *ought* (school's mission) and the co-produced *is* (given conditions) conflated at the school, as a school-in-the-making. Yet when individuals made the school accountable, they divided out the school's mission. As we have seen with Diane, Andy, Kamahalo and the high school students, their ideological stances were in constant renegotiation that in turn defined the school. Hence, if aspects of place are in motion, so are aspects of ethics, and vice versa. In Fischer's terms, this debate over how the mission should resonate with given conditions is an ethical plateau, where people's different frames of references, passions, commitments and rational calculations emerged – albeit few were interested in having a more open discussion. This was also a central double bind of the school: the incommensurable nature of implementing the school's mission through a concrete foundation and (plastic) playground that should allow children to play and concurrently overbuild a whirl of dust while such practice did not solve the

problem of depleted soil or was seen as productive avenue to *mālama ‘āina* (care for the land) projects. This shifting ethical plateau constituted what I refer to as *contested terrain of ‘āina* – soil remediation, campus construction, material infrastructure – which also always entailed a *contested terrain of education* – the social setting as a school *‘ohana*, a “school without walls.”

Not unrelated to these spatial and social shifts, I will now detail the larger obstacles that arose for Kanuikapono operating as a public charter school.

3.3 On preference and discrimination

As staff member Mealoha Montgomery expressed in the introductory quote of this chapter, in the early days of the Hawaiian educational movement there was a recognition that public schools had failed Kānaka students, rather than the other way round (see also Kahakalau 2003; Goodyear-Ka‘ōpua 2013). A main motivation for HFCS educators has therefore been to provide free schooling primarily to low-income Hawaiian families, who lack other alternatives to public schools (Kahakalau 2003).

How the realities of poverty and absenteeism spoke to larger issues in Anahola, and to conceptions of schooling for Kānaka Maoli, became apparent to me at the Kamehameha Schools (KS) community meeting I mentioned in the introduction, which also gathered input for what the private school could provide on Kaua‘i. At this meeting, one woman gave a firm and passionate speech that succinctly captured the sentiment on education for Kānaka Maoli. She opened by saying that “We really want and deserve a campus,”¹⁰⁰ and went on to specify

100 In the last decade, KS has expanded its campus in Honolulu/O‘ahu to one on Maui and Hawai‘i Island. The woman presumably referred here to the injustice of these islands having a KS campuses while Kaua‘i has none.

that this is especially the case in Anahola given the prevalence of drugs, alcohol, and homelessness. Education, she explained, is the only thing that could help the kids because it can “get them out.” She also asked whether people wanted Native Hawaiian children together with other non-Native Hawaiian children or whether “we want them to be of their own kind” (FN_070213). What defines Hawaiian education may thus mean addressing Hawaiian students within one exclusive school – such as at KS – or supporting them across different schools. This exclusivity can be read in multiple ways, for instance that it reflects racial segregation. However, the woman's statement that day reverberated a sentiment I have grown familiar with since my first encounter with Hawaiian-focused charter schools back in 2007: that there is an urgent need for an institutional setting where Kānaka Maoli values and concepts are foundational, most centrally that of *‘ohana*. Regardless, while the woman's argument can be laid out according to her demand for a KS Kaua‘i campus,¹⁰¹ her question also spoke to other participants' sentiment that Native Hawaiian students should be supported across all schools.

It is this tension that points to Kanuikapono's reputation as “Haole school.” The high number of non-Hawaiian students was entangled with the attempted catering to Kānaka Maoli students – or not – which turned out to be more complex. As described above, the motivation for HFCS has been to provide schooling for Kānaka students *primarily*; yet the school is not to discriminate against any students, as it is a publicly funded institution. A loophole selection that HFCS implement is that in the admissions process they look for students and their families that are interested in perpetuating Hawaiian culture.¹⁰² Prioritizing Kānaka Maoli student enrolment

101 Many parents at this meeting also raised the point of not having to send their children to boarding school off island (mostly to O‘ahu), yet another instance showing the importance of *‘ohana* being in one place.

102 See for instance Kanuikapono school's website <http://www.kanuikapono-charter-school.org/> [accessed August 10th 2015] or Hālau Kū Māna charter school's website:

while at the same time operating as a state institution can be read as discriminatory towards other ethnic groups.

This argument has gained traction particularly following the Rice vs Cayetano legal decision in 2000. The US Supreme Court ruled that restricting voting of Office of Hawaiian Affairs (OHA) representatives to Native Hawaiians, which had thus far been the case, violated the 15th Amendment of the US Constitution. In this American discourse of race-equality, where Indigenous People get equated with other ethnic minority groups, settler colonialism and Indigenous People's existence within such structures are easily, and conveniently washed away (see Beamer 2014: 14f; Deiringer 2009; Kauanui 2008). In case of HFCS, the spin-off of such politics results in a pull between the Office of Hawaiian Affairs (OHA), the Department of Hawaiian Home Lands (DHHL) and Kamehameha Schools (KS) on the one hand, and the Department of Education (DOE) on the other. In other words, OHA's and KS' affirmative policy targeting Kānaka Maoli, and DHHL (from which *Kanu INK* leases land) postulating high enrolment of Kānaka Maoli students stands counter to the DOE's insistence on non-discrimination. In our interview, the principal Ipo explained this tension as follows:

I: The moment Kanuikapono stops serving the Hawaiian community, and stops giving them.. not so much giving them priority because as a public school Hawaiians don't have priority. But it's all in the targeted recruitment, and making sure that we are always going to be a Hawaiian-focused charter school. Because if we cease to be a Hawaiian-focused charter school serving a majority, and you're talking at least 74 percent should come from the host community, then you shouldn't get..

M: Well, is it now 75¹⁰³?

<http://Kahakalau.halaukumana.org/about/aelike.jsp> Parents are also asked to volunteer 16 hours per term for school, gardening, or fundraising projects. Often the admissions process with Hawaiian families is not as stringent.

103 Number postulated by DHHL.

I: No, right now we're below 75, so we need to give ourselves this year to come up with a plan. And part of that drop in Hawaiian population is because for every, you know, we were such a small school, and for every.. but it's a numbers game. In order to pay the bills you have to have certain numbers [of students]. And for every non-Hawaiian that we've recruited we should have been recruiting three Hawaiian students (IV_110713).

Ipo is tempted to say “priority” yet was also hesitant and aware that it is not the right word.

Referring to this strain to come up with the right student numbers indicates that there is not yet a proper term that would accommodate such dilemma. Operating within a public (non-discriminatory) system, the school both needs and wants students (and teachers) that are interested in learning about and perpetuating *'Ike Hawai'i* (Hawaiian knowledge) while also aiming to steward Hawaiian families (that may or may not have the impetus to learn about Hawaiian culture), which creates tensions that never get fully resolved. In other words, while the objective of Kanuikapono is to focus on educating Kānaka Maoli children, economically, constitutionally, and in its ideological stance, the school cannot and does not want to discriminate against others. Goodyear-Ka'ōpua's notion of *settler aloha 'āina* is conducive here, which she describes as follows:

A settler aloha 'āina can take responsibility for and develop attachment to lands upon which they reside when actively supporting Kānaka Maoli who have been alienated from ancestral lands to reestablish those connections and also helping to rebuild Indigenous structures that allow for the transformation of settler-colonial relations (2013: 154).

It can be added here that what is true for *'āina* is no less true for education. In other words, educators at Hawaiian-focused charter schools actively seek teachers (and students) that support their emancipatory efforts, which could be termed *settler 'Ike Hawai'i*.

This tension is a common double bind that Indigenous Peoples experience, as they foster care for their practices, languages, etc. “within established political, legal, and cultural frameworks” (Fortun et al. 2010: 227). In her ethnography on the aftermath of the Bhopal disaster in India, Kim Fortun (2001) extends Gregory Bateson's communicational and psychological theorem (1972) of double binds to the wider scale of collective dilemmas: the double bind of force – to get reparation to the disaster's survivors – and contradiction – to do it within often adversarial systems, such as the politico-legal system in India and the United States – never get fully resolved. Cultural Studies scholar Stuart Hall's notion of “politics without guarantee” similarly depicts these mechanisms of liberation that are always entangled with what they critique (1996; quoted in Fortun et al. 2010: 227). Double binds thus “create a persistent mismatch between explanation and everyday life, forcing ethical agents to 'dream up' new ways of understanding and engaging the world” (Fortun 2001: 13). Cattelino (2010) details another example of this type of tension, a case of the Seminoles in Florida, who are bound to a sovereignty that is dependent on economic resources, in this case casino revenues, which is at odds with mainstream clichés of Indigenous People being anti-material. In other words, as Indigenous People often execute (not uncontested) governmental rights, they are concurrently denied successes made therein – say, economic profits – if these successes do not fit a particular idea of indigeneity. This manifests contradictions that often lead to no possible resolution (ibid: 236).

Kanuikapono's aim to give preference to Kānaka Maoli students within a race-equality-based system (while being labelled a 'Haole school') is a case in point. How people made these constituents operable within the different (yet intersecting) systems was evident in the tensions between the different agencies, the demographics on the Eastside of Kaua‘i, Anahola and the

school, and Kanuikapono's own policy. Yet Kanuikapono dealt with this double bind in one fundamental way: in the *'ohana*-based (family-based) learning setting. The social learning environment of a school *'ohana* meant both a widely inclusive stance on student admission, as well as a reluctance to expel students (i.e. for reasons of misbehaviour, misconduct, etc.) from this *'ohana*. Anna Olvera, a consultant who was hired to assist with aligning the admission process with the school's mission, spoke to this duality in our interview. She held that over the years Kanuikapono's admission policy veered off its mission as it accepted any student that would apply (IV_020513). While she lamented this fact, when I asked her what she found most unique about Kanuikapono, she responded as follows:

There's something unique in assuming that every child is a member of your family. That's what's unique, and it makes one feel welcomed, and it makes one stand up taller and want to learn. And that's a very indigenous value. I grew up with that, you are responsible for every child, doesn't matter if he's walking down the street, that's your child. [...] That's one of the reasons why kids continue to come back, why families come back because they crave that, families crave to belong. We are in a culture in which families are not revered or honoured. And Kanuikapono does a great job in revering and honouring families and children.

This sense of inclusive family was also evident in the high school program where two students over 18 years of age – meaning that the school did not receive any more state funding for them – were still allowed to attend the school. This is not insignificant, given that the high school program is the most resource-demanding branch in a K-12 school. The ongoing fostering of a sense of *'ohana* was evident in daily interactions and also in the use of kinship terms. Typical for Kānaka Maoli settings, teachers – just as anyone of one's parents' or grandparents'

generation – were addressed in kinship terms, as “Auntie” or “Uncle.”¹⁰⁴ How notable this was only appeared to me in settings outside of Hawai‘i, such as on our Vancouver school trip in April 2013 where friends and colleagues of mine would suppress a giggle whenever students addressed me as Auntie Mascha. Yet not every teacher approved of the closeness that these kinship terms suggested. For many, it compromised the necessary distance they felt that teachers should have to their students.

Personally, the school's openness was the most distinct feature I witnessed as well, though as Anna expressed at another point in the interview, there was still an unfortunate “them versus us” that “comes from unhealed wounds on both side” (IV_020513). Further, discrimination and preference towards particular students or teachers was not uncommon. I believe it is also this facet that defines *‘ohana*-based education: families can often be supportive and constricting, caring and conflictual. Providing schooling for Kānaka Maoli students as public school thus turns out to be more complex than the commonly referred discrimination-preference binary where Native Hawaiians are equated with other ethnic groups. Instead, this complexity speaks to the often unresolved – or yet unresolvable – contradictions in the commitment and care for one's cultural heritage, place and people. Another double bind emerged in a different, more fundamental instance.

104 This is reflective of the in kinship studies known “Hawaiian system” where people emphasize both distinctions between generations and gender, and the equality of the mother's and father's side, which is reflective in these terminologies (Morgan 1871). Later anthropologists have highlighted kinship as interpretation of genealogy rather than as biologically determined concept (Lévi-Strauss 1963; Schneider 1984), which certainly pertains to the school *‘ohana*.

3.4 On Hawaiian education and academic rigour

In the school year I had joined Kanu, a tension became evident that I had known from other HFCS. In 2012/13, Kanuikapono was to become accredited as a public school.¹⁰⁵ The principal, teachers and students recognized that in this particular year more emphasis was put on “academics” than on *‘āina*-based projects. As Mealoha shared in our interview:

This year is accreditation. So, everybody is worried about scores and AYP [Adequate yearly progress] and blablabla, and, you know, ACT [American College Testing] and HAS [Hawaii State Assessment], and dadada. You can't have both, you know what I mean? You can't make that your main focus and be SO test-score driven, and do the *mālama ‘āina* and have it be strong. I think you've got to [know] what is going to be your MAIN focus.

Mealoha points to a plethora of standardized assessment that purportedly guarantee academic rigour, which according to her is impractical when the school also wants to foster a *mālama ‘āina* approach. In this logic, the school can *either* choose to be academically rigorous *or* foster *mālama ‘āina*. Whatever it chooses to follow will bring with it a stigma of being either 'too' academically rigorous (thus not being a Hawaiian school), or there is 'too' much *mālama ‘āina* (thus not having enough academic rigour) – a discursive contradiction that often leads to no possible solution.

This is a prominent double bind for Hawaiian-focused charter schools: a dichotomy of being either 'culturally-based' or 'academically rigorous.' Many scholars (Goodyear-Ka‘ōpua 2005; Kahakalau 2003; Kaiwi 2006: 31; Kaomea 2005; Meyer 2003) refute the idea that 'academic rigour' is located somewhere outside 'Hawaiian culture,' which reverberates with

¹⁰⁵ Charter schools are encouraged to get accredited to certify that the school is a trustworthy institution continuously engaged in improving its educational program. See here for more details <http://www.chartercommission.hawaii.gov/#!accredited-schools/co9b> [accessed June 20 2016].

Bruno Latour's classic critique of modernity's fascination with pure 'traditional' entities that are repugnant to 'modern' forms (1993; see also Haraway 1995; Deloria 2004).¹⁰⁶ As separate realities, one can seemingly only navigate them by 'walking in two worlds.' Yet, such framing can be misleading, as it perpetuates such pure entities and suggests full access to both worlds (Brandt 2007; Henze & Vanett 1993; Goodyear-Ka'ōpua 2013). While such framing has the force of a double bind – to suggest that there is no possible solution – it is more a paralyzing stigma. As described in the previous chapter, for Kū Kahakalau anything Hawaiian-focused had the stigma of being a remedial, drop-out or special motivation program “designed for students who did not have the capacity to do the normal regular rigorous work in the classroom, and they would be sent into the taro patches” (IV_100113).

Besides the *'ohana*-based approach, another strategy that HFCS like Kanuikapono have developed is an experimental teaching approach. While educators at HFCS recognize their dependency on a state institution, they aim for a project-based and *'ohana*-oriented liberatory pedagogy that challenges these larger, settler colonial structures (see Kahakalau 2003). This positionality is most evident in another paradox that charter schools more generally find themselves in. On the one hand, there is the expectation to come up with innovations and new models in schooling, which dates back to the original vision of policymakers and educational reformers in the 1990s for charter schools to open up a dialogue with failing regular public schools (Dingerson et. al. 2008: 12). On the other hand, schools have been accounted to the

106 As I will show in chapter 6 and 7, this dichotomy parallels the conception that “culture” is incommensurable with “science.” Hawaiian anthropologist Lynette Cruz argues that whatever is called 'science' is not intrinsically western science. Kānaka Maoli, she argues, have practiced science for centuries, such as by building and navigating canoes, reading stars, but also “develop[ing] the mind, to be able to leave the body and roam the universe” (2015). Yet these modes of knowing, as she argues, are always framed as “cultural practices” (ibid). [<https://en-gb.facebook.com/ukhuna/posts/1075113669170719> accessed June 24 2015]. In that sense, Cruz, and other scholars (see Nader 1996; Turnbull), claim science as existing beyond western conceptions.

same standards of regular public schools (ibid).¹⁰⁷ As Kū Kahakalau shared in our interview, in her experience there has been an increasing shift from the former to the latter (IV_100113). Hence, this *paradox* has increasingly turned into a *shift* – from being a hub for innovative schooling models to obeying nationwide learning standards. Such quantifiability also suggests that one can compartmentalize 'cultural' knowledge. Lomawaima & McCarthy (2006) refer to this existence as “safety zones” of cultural difference within certain regulations.

In the remainder of this chapter, I will discuss how this paradox-turned-shift occurred at Kanuikapono, which will lead to my preliminary conclusion that Hawaiian-focused charter schools like Kanuikapono have not stopped practicing and experimenting with innovative forms of schooling.

On a warm January morning in her house in Hamakua on Hawai‘i Island, I reconnected with Kū Kahakalau whom I had interviewed in 2007 as part of my Magister research (see Introduction). Five years later, she reflected on the early days of operating *Kanu ‘o ka ‘Āina* charter school:

[It was] difficult with Hawaiian language education because there was nothing. The students weren't consumers but they had to become producers, it was a blessing in disguise because they had to be innovative, they produced a CD-Rom in 1994 (IV_100113).

As Kū frames it, this discrepancy was a “blessing in disguise,” as it ended up offering more learning opportunities than what was at first expected. The lack of teaching materials forced the

107 In Section § 302B-5 of the Hawaii Statutes regarding Public Charter Schools and more specifically the establishment of start-up charter schools, one required element includes a plan that “[i]ncorporates or exceeds the educational content and performance standards developed by the department for the public school system”. Section § 304B-14 concerning accountability, among others, lists: “The identification of any innovations or research that may assist other public schools” <http://codes.lp.findlaw.com/histatutes/1/18/302B> [accessed November 3 2015].

students to think of themselves as both producers and consumers – in the sense of producing and selling a CD-Rom, presumably as additional financial source for the school but also as resource for Hawaiian education.¹⁰⁸ It is an example of how teachers, administrators and students acknowledge larger contradictions – i.e. operating as a state school – while opening up space for creative agency.

At Kanuikapono, Ipo, the principal, often framed the overcoming of this contradiction as “bridging” the DOE's¹⁰⁹ teaching and learning standards – the Hawaii Content and Performance Standards (HCPS) and/or the Hawaii State Assessment (HSA) – with culture-specific content. This either-or situation was shaped not so much by resistance to academic standards¹¹⁰ but by pragmatics that are common in Hawaiian-focused education programs. These included a general lack of teachers who are proficient in cultural practices – such as hula, fishing, or crafts work ideally passed down by elders – and certified teaching practices from state-approved, higher education programs. As Ipo explained, there was a compromise that was made several years ago:

[Hawaiian teachers] are now the minority [...]. And that's not a bad thing, I think when you're growing you have to prioritize and choose your battles wisely, and one of the priorities we set forth about five years ago was to recruit and hire highly qualified teachers, and make sure that there was a strong, academic foundation. Particularly in the core content area math, language arts, the reading and the writing. [...] Somebody that's

108 I do not suggest that students were doomed to produce these commodities for the school (though in some instances this was the case at Kanuikapono). Rather, I want to point out that a commodity is never just a profitable product, and that by the same token there is a huge economic market behind the ubiquitous textbooks used in regular class instruction. Neither is solely a moneymaking endeavour or a liberation from a form of indoctrination, such as western capitalism.

109 “DOE” – Department of Education – was a term often used to refer to a public or state school/teaching/curriculum.

110 See for a slightly different argument Goodyear-Ka'ōpua (2013), who discusses No Child Left Behind's standardized assessment, which forced teachers at her HFCS to have to cover 'academic rigour' in the classroom and 'culturally-based education' outdoors.

highly qualified¹¹¹ comes with all of the certifications and licensing but none of the cultural background. And then I have to choose between the highly qualified – actually, the choice is already made for me, and we have to hire highly qualified teachers, as well as administrators.

This was also discernible in the teacher makeup at Kanuikapono. Of the fifteen full- and part-time teachers five were Kānaka Maoli, while project teachers (those coming in only for one or two hours a week) were a mix of Hawaiian and non-Hawaiian teachers. Yet just as being Hawaiian does not guarantee having a “cultural background,” non-Hawaiian teachers (with certifications) may not have other crucial qualities that define a good teacher. If teachers' ethnicity *is* a factor, then certainly in terms of being an empowerment for Kānaka Maoli students, who see role models among their own people having other jobs than being employed in the tourism industry or at McDonald's.

How this “bridging” took shape is illustrative of the everyday teaching practices and the school's resources. For instance, the volunteering high school math teacher Andy shared that the required online math course allowed students to work at their own pace where some students completed their HSA ahead of the scheduled time. To him, this opened up the opportunity to apply these standards in a “culturally significant manner”, for instance using geometry to investigate traditional fishing villages. But, as he continued, that takes work, resources and a staff that is willing to “incorporate the challenges of being outside into the classroom. It's a far less controlled environment.” Eventually, such incorporations did not take place due to lack of both resources and that willingness. Chad Durkin, a math and science

111 “Highly qualified teachers” or “HQT” was set via the No Child Left Behind Act and has been criticized for a narrow definition of teachers' knowledge and skill set (Berry 2004), also by Kānaka Maoli educators, such as Kū Kahakalau (IV_100113) and Goodyear-Ka‘ōpua (2013: 176f).

instructor for the educational program Mālama ‘Āina,¹¹² shared a similar sentiment by “remapping” this bridging metaphor:

The analogy that I use is one of a map. If you want to go from point *a* to point *b* the shortest distance is a straight line. But if on that map there are benchmarks, which are points *c* through *z* [...] the job of the teacher to teach the benchmarks is to take detours to each of those specific benchmark content pieces on the way through that project process. So, an example would be building canoe paddles. [...] You don't need any math or science in particular. You could fashion a canoe paddle kind of based on seeing one. BUT, if you take the time you can hit quite a few benchmarks [...]. So, it's that time in curriculum development that is really valuable. And I know that the ideal would be for every teacher to have the time and the expertise to be able to deliver really quality lessons to develop student knowledge and understanding. But yeah, that's the resource shortage.

In his words, besides providing sufficient means for writing curricula, it is a matter of forging Hawaiian content *as* math and science – rather than “bridging” two entities – by making detours (standards) relevant. Hence, the Hawaii Content and Performance Standards, the HCPS standards on science and math leave little to no space for Hawaiian-focused charter schools to define, create, and implement their own epistemologies of science and math, not to mention the assessment thereof. Here one can see that charter schools' innovative spirit, initially envisioned to generate input for regular public schools (Dingerson et. el. 2008) would fall flat as soon as charter schools were assessed by (the same) state-required standards. Yet Ipo, similar to Chad, holds that standards are not inherently bad:

I think there is too much fear around standardized testing, and it's too much of a high stakes. Standardized testing is just one way of looking at how a child is doing. And

112 The organization assists Hawaiian-focused charter schools with implementing the Hawaii Content and Performance Standards, HCPS (or “hick-ups,” as often succinctly pronounced), into the schools' place- and project-based learning settings. Kanuikapono's middle school was among them.

certainly we should be using more than that kind of data point. So, standardized testing does tend to get in the way sometimes, and too much focus is put on it, but as better curriculum is available, and as the standardized testing improves, because standards are great. They're really good. But, they have to be relevant, you know. Our kids get tested on [jaguars], animals that they've never heard of.

Andy interpreted the relevance of standards in another respect. Many students were crushed when they scored very low on a test run of the HSA test, but, as he asserted, this was not due to the standards per se or the students being “dumb.” Rather, he had wished for the school to prepare the students more with test-taking strategies, even basic computer literacy, in other words with tools to learn *this* form of knowledge assessment.

Lacking resources, time, well-versed teachers instructed in college and in (community-based) *Ike Hawai'i*, and willingness to make such incorporation and collaboration happen influenced how the dichotomy between academic rigour and culturally-based education lived – or died. Standardization of education itself was not seen as intrinsically negative but should make sense in speaking *through* Kanaka epistemologies. On top of that, as Andy argued, students should likewise learn the tools for “hitting the standards,” regardless of whether they are agreed upon or not, since they are invaluable for college preparation. In our interview at the end of the year, Ipo acknowledged that in that specific school year the stronger focus on academic content meant both less *mālama 'āina* projects and having pushed teacher collaboration too much – particularly with many new “highly qualified” Non-Hawaiian teachers that were unfamiliar with the school's *'ohana*-based learning environment. Her words reminded me of the first teacher meeting, which was a retreat down at Anahola Beach. In a kava ceremony, longterm teachers at the school conveyed to newcomers the importance of this *'ohana*-based learning environment, the importance of a trusting and fun social setting as foundation for the school. This spirit wore off with every school day, turning more and more

cumbersome. Teachers, staff members and educational assistants (including me) felt increasingly overworked due to additional tasks as a result of a shortage of personal. Andy, for instance, with a degree in biology and as volunteering gardener/landscaper, was asked to also teach math. Hence, skills were pooled together as they were available while recognition for such stretch often fell by the wayside. At a meeting of Kaua‘i schools in May 2013, a Kamehameha Schools representative for *Ho‘olako Like* (the program supporting HFCS) introduced herself jokingly as “recovering charter school director.” The laughter was indicative of how educators in the room understood the burdensome work that entails working at a HFCS.

I merely got a glimpse of the resultant teacher turnover, an almost annual ritual of teachers coming and leaving:¹¹³ from the enthusiastic high school teacher I briefly met in 2012, and who only lasted for a few months, to the four teachers and two long-term staff members that left at the end of our school year. That reality became clearer to me when I perused old film footage of the school that showed a growing campus, many, much younger faces of current students that helped build the school, but few familiar teachers. I was reminded of the look of some of the high school students when I told them that I would be at the school for a year: indifference mixed with disappointment that they knew far too well with the passage of teachers.

It is crucial to put this in context of the constant shortage of teachers across Hawai‘i’s schools, which has been a concern for state authorities since the early 1990s. The annual ritual

¹¹³ On several occasions, teachers and former students across Hawai‘i have shared this story with me, which indicates a much broader phenomenon. In the traveling exhibit “Hawai‘i beyond the Wave, Hawai‘i beyond the Postcard” that I conceptualized as a result of this research project (see Epilogue), a person that grew up on the continental US shared that Hawai‘i has always been present in the form of frequent TV ads that aimed to recruit teachers to work in “paradise.” I believe this encounter with Hawai‘i speaks to the long history of Hawai‘i aiming to recruit, and making itself dependent, on trained labour and professionals from outside (see also MacLennan 2014).

of teachers leaving schools after a year or two parallels the annual ritual of Hawai'i's Department of Education recruiting teachers from the continental US (see Terrell 2015). This has been a concern also for Hawaiian-focused charter schools, not least since many teachers arrive in Hawai'i with romantic ideas of paradise, and/or little understanding of Hawaiian cultural protocol, as Kū Kahakalau shared in our interview. To understand cultural protocols intimately relates to a willingness to teach at an institution that considers itself primarily a school *'ohana*. This concept became most evident in how we adults were referred to – Aunty *x*, Uncle *y* – which to some Non-Hawaiian teachers suggested too much closeness to their students. As I had observed throughout my year at Kanuikapono, the school *'ohana* was a liked concept in theory, but as I mentioned above, not everyone agreed upon the extent to which one had to commit to the school as family. In that way, it was another ethical plateau where different protagonists brought in their own understandings of what a school and a family are supposed to look like.

In summing up this chapter, I showed that the pedagogical foundation and building ground of a school-in-the-making emerged as shifting ethical plateau: as “school without walls” the school's mission was projected onto its walls (i.e. a toxic plastic playground) and its ground (soil remediation), and resulted in *contested terrains of 'āina and education*. These interlinked plateaus were not least discernible in the meaning of *Kanuikapono*: epistemologies of education and *'āina* were related to the ethos of *pono* (righteousness). In a practical sense, people debated how best to implement this *pono* growth – both in the students and the planting – which illustrates how the school's vision was likewise defined by given circumstances: the

construction site, the contaminated soil, and the high school teacher (and her students, as I will show in the next chapter) wanting autonomy and space as *part* of the school *'ohana*.

I further showed that education at Kanuikapono was a matter of being knowledgeable in both western and Hawaiian ways, as well as seeing these worlds through each other. The school sat squarely between and in these forms of education dealing with contradictions, such as being a Hawaiian-focused charter school with a reputation of being a “Haole school,” and a school that aims to disrupt the dichotomy between academically rigorous and culturally-based education. Such ambivalent, often unstable settings resulted in dissonances that can be seen as shifting terrain in the school's pedagogics – the ethical plateau (Fischer 2003). As Andy's case shows, a willingness to collaborate, be it with colleagues or the “far less controlled environment” in the outdoors, is paramount for HFCS, and points to the importance of the social setting for teaching. From this plateau, teachers unearth new practices and definitions of Hawaiian education, such as how this bridging, in Chad Durkin's words the detouring to include benchmarks, would look like. I will return to this tension – a charter school's continuous efforts to come up with innovative teaching models – in the last part of chapter 4.

Chapter 4: The high school, *learnsapes*, and education as experimental system

It is important that we know about [our culture], knowing about it. Our [generation], we can't just sit on the couch, we need to talk about it. At other schools we learned sentence patterns but nothing about my own culture. This school has changed my thinking [...] and to tell people not to be ashamed of their culture (19-year-old Kanaka student, FN_280912).

It's certainly an inspiration to know that like things like the school, like a Hawaiian charter school can start from nothing and turn into something so big. And it's also so nice because they've always been so welcoming. They're like a.. they're like a second family to so many people. And it's always nice to know that there's always someone there, in Hawaii too¹¹⁴. And is there anything we can improve for the high school students.. Ah, I think that would be communication. I feel like if I'm going to have important information I should be informed by like a teacher [...]like, I shouldn't have to hear it from another student who doesn't know exactly all the details. And I don't know what's going on half the time (18-year-old Kanaka student, IV_240513).

What did it mean for students to attend Kanuikapono's fairly young high school program? How did the mandate of the school – to perpetuate Hawaiian culture and *mālama ʻāina* – feature in their final year(s) at the school? How did the students express their learning process? In other words, how did practices of the students redefine epistemologies of education? Finally, what was my role as ethnographer at the school, and how did it affect my insights?

I begin by situating myself in the school and then turn to the high school program. I will outline its idiosyncratic character within Kanuikapono and then proceed to describe the high school students' reputation as 'troublemakers' and embed it in the larger context of the youth employment prospects outside of the school, particularly in respect to land-related professions.

¹¹⁴ This student also has family outside of Hawai'i.

Following on the previous chapter, I will connect teachers' expectations of what students were to learn with student's ways of learning about – by connecting to – the *‘āina* and being Hawaiian. I refer to this process as *learning as land-ing* and *learnsapes*. As a result, students formed tacit forms of expertise that may neither be registered in a standardized curriculum nor in common conceptions of what Hawaiian education should look like. Finally, I argue that education – similar to this ethnographic research – formed an experimental system with often unpredictable outcomes system (see Fortun 2003; Rheinberger 1998). I will close this chapter by revisiting the shift in charter schools from an innovative mandate to a standardized accountability that has defined charter schools, and how the value of experimental teaching shifts the meaning of school education.

4.1 Ethnographic engagements: on wearing many hats

In the second school week, the high school students spent four days camping on the North shore at the cultural learning centre, Waipā Foundation. “The tone [for the upcoming year] needs to be set through the culture and the *‘āina* in the outdoors,” Ipo had explained in a previous teachers meeting, adding that the students need to be clear about the cultural expectations. She had turned to me saying that I can informally start with camera work with the kids so they will learn about leadership and about how to ask interview questions, which should eventually lead them to produce oral histories. Her firm instructions were not surprising, as I had agreed to work as a film class instructor for the high school that school year. It was expected that the students were to take on leadership roles, move out of their comfort zones by interviewing strangers, and become documentarists of their *kūpuna* (elders). Hence, I was instructed by Ipo to “hit” these “benchmarks” (learning standards). As mentioned earlier, I had

offered Kanuikapono a collaborative film project with students, teachers and community members, which morphed into this film and research methods class for high school students.¹¹⁵ I also helped Katie, the high school teacher, as an educational assistant for her language arts and social science classes, which often entailed brainstorming topics and crafting student assignments. Besides that, I offered to visually document events at the school for a film about Kanuikapono, which eventually turned into a short film about the senior students' visit to Vancouver/BC¹¹⁶ as well as a short film on the senior students' reflection on their time at the school. Of course, one needs to be flexible in these situations, and sometimes I would attend the middle school's classes or school trips, shuttle students with the school's van or supervise lunch breaks. All in all I spent between three to four days a week at the school engaged in participant observation.

What soon became clear to me soon was that “collaborative research” was not a straightforward matter (see Lassiter 2005). Hawaiian-focused charter schools are often dependent on people volunteering their time and skills, and in past experiences – and as described in the previous chapter – the pooling and taking advantage of such skills often leads to burn-out. I was further becoming increasingly aware of the limits of my own capacities. This was added to my sobering anticipation that the film class would not result in my envisioned short films that the students would produce, and which would have formed the basis of my analysis. Concurrently, while these intersecting roles as instructor/educational assistant and

115 I taught basic techniques in filming, editing film, photographic composition, film analysis, as well as audiovisual and interviewing practices. My background in filmmaking, research methods and teaching stems from filmmaking experiences throughout and along my anthropological training at the University of Vienna (visual anthropology) and UBC (ethnographic film methods). In addition, I had many years of experiences working specifically with children, youth and film. My repertoire was, I would say, a typical blend of different skill sets like many other volunteering instructors at HFCS.

116 See <https://www.youtube.com/watch?v=gWizfViloj4> [accessed January 5 2014]. All material is under Kanuikapono's copyright.

ethnographer were not always easy to navigate they offered insights into the everyday life at Kanuikapono that I could not have had otherwise. After all, it was this close immersion I had aimed for, as I wanted to better understand how Hawaiian-focused charter schools' lack of means (primarily of financial, infrastructural, and instructional resources) resulted in often stressful working conditions, and how that in turn shaped education.

One way in which negotiation of collaborative research occurred was in frequent encouragements by teachers outside the high school to not just look at (the comparably young) high school but also the (more established, academically successful) elementary school. More generally, there was a prevalent notion that I had started noticing in previous fieldwork at different HFCS and Hawaiian education programs, and that resurfaced at Kanuikapono. I was often directly or indirectly (i.e. in teacher meetings) reminded by teachers that elementary school students had more demonstrable success, achieving better grades than high school students. It was more generally a common belief among adults that it was easier to “mould” a child into learning Hawaiian cultural practices, the language, or general lifestyles.¹¹⁷ Yet besides that, or rather exactly because of that, my interest remained with how 14-19 year-olds – as having 'passed' their prime time of knowledge absorption and being more 'resistant' to grasping these values, practices, language etc. – chose to care for Hawaiian issues and the *‘āina*. The adolescent youth – at length analyzed by anthropologists as existing in a liminal stage between childhood and adulthood (see Bucholtz 2002; Turner 1967; Van Gennep 1960) – in Kanaka educational revitalization seemed an odd child – indeed, a neglected child.

117 For instance, at the KS community meeting some people agreed that the “critical stage” is 6th-8th grade rather than elementary kids, who are “still cute and moldable” (FN_070213). Similarly, at the film screening of “Seeds of Hope” in Hanalei, the speaker Stacy Sproat from Waipā Foundation stated that the younger kids are the easier it is to make them passionate about healthy eating (FN_241012).

Hence, my involvement at the school took contours of what Kim Fortun describes as *experimental system*, in that the object of study “gathers contours, turns in on itself, mutates into something unexpected” (2003: 187). Put differently, collaboration was a constant back and forth and checking and weighing between my capacities and interests, and my research participants' visions and needs. In other words, while my research subjects and I shared basic morals and ethics, I wanted to provide “openings, images, and discursive resources [...] to make out gaps and fissures from which something new can emerge” (ibid: 188).¹¹⁸ My film class thus became a central part of fieldwork while my research centred on the Hawaiian youth as this 'neglected child,' on the high school students' 'troublemaker'¹¹⁹ status, and on how the students learned about Hawaiian issues and the ‘*āina*. Collaborative research then developed into an (at times implicit) mutual agreement to offer my skills as its film class instructor, educational assistant and other services while following my academic inquiries.¹²⁰ My hope is that my insights will be of interest to the school and beyond.

The principal and high school teacher arranged that the film class would take place once a week as a required course for all high school students except senior students.¹²¹ My initial proposal was for an elective but the principal made it a required course for students that were still in

118 The principal had wider plans to engage me in the multimedia component of the school, particularly in a film production of the last year's theatre performance *Prince Humehume*. From the many negative recollections of teachers and students, the film production thus did not receive much explicit support from teachers, volunteers and students.

119 In one of the school's pamphlet on strengths, weaknesses, opportunities and threats of different schooling models, the strength of “Integrated Projects” was juxtaposed to the weakness in “Fear of High School students around Elementary students” (pers. possession). While to my knowledge the high school students were not ostracized in open ways, such explicit description of a potential “weakness” spoke to a tacit sense at the school.

120 I did not receive reimbursement for several reasons, primarily due to my visa status in the United States but also in order to remain a degree of independence. That said, Kaua‘i is a car dependent island, and for the Waipā camp in the beginning of the school year I did accept the school's \$250 gas money.

121 Most senior students were excluded, as they were scheduled for other course credits that they still needed to attain.

need of credits. By making the class mandatory, it became more challenging for me to cultivate a sense of interest among students in learning about visual work and research methods, since many now felt forced to attend, or they attended merely for credits. Yet it did not occur to me at the time that my idealistic notion of students being 'truly' motivated out of their own will to learn was rather simplistic: *you* are motivated to learn, thus *I* am motivated to teach.¹²²

For several months, this presumption that students always needed to be motivated to learn and I needed to be motivated to teach prevented me from recognizing how teaching – and education more generally – are always shaped by social relations. Such social tensions ranging from trust to mistrust between me and the students also defined my ethnographic research and ethics more generally. In hindsight, the film class was also an ethical plateau for the principal, the high school teacher, the students and me, and indirectly for Kanuikapono's school board and the Department of Education for setting a particular amount of credits as standard to graduate from high school. In that way, it revealed different conceptions of appropriate behaviour among students, decision-making (see Fischer 2003), as well as the importance of school credits or the very ethics of consent. My vision of teaching only students motivated to learn filmmaking was in alignment with my research ethics that no one should be coerced to any actions and that I would not grade students. This stance coalesced with the principal's commitment and rational calculation (Fischer 2005: 56) that students need to gather sufficient credits. The compromise was that the high school teacher Katie would do the grading and students were assured that their participation in my research would have no impact on the film class, and vice versa. This

122 This was not (merely) my personal pedagogical approach but coalesces with Hawaiian epistemology when in the old days students were hand-picked by teachers that they considered ready: "I cannot be a teacher unless you are willing to be a student" (Meyer 2003:182). I discuss this tension of choosing students within a public school system in my Master's thesis (Gugganig 2009: 108).

was a somewhat 'half-baked' compromise, as Katie was not always present just as much as I could not assure that – even if informed from the beginning – the students always differentiated between the class and my research. Indeed, this was just as difficult to guarantee, as it was illusory to always be a “ready” and “motivated” student (or instructor).

I follow here Fischer's notion of reflexivity that means juxtaposing “cultural, moral, or social discourses as socially situated [which] require further scrutiny of their formation, efficacy, and place among contesting perspectives” (Fischer 2003: 12). In more simple terms: ethics and ethnographic research – as much as education – are never *not* shaped by constantly formed social relations. In any case, all information used in this dissertation was attained with written consent from the involved students, their parents, and the teachers. Out of 14 high school students nine participated in the research project,¹²³ as well as eleven teachers, staff and volunteering instructors, and the principal. With few exceptions I conducted semi-structured interviews (see Bernard 1995) with all the participants that lasted, on average, one to two hours. I interviewed six high school students in three sessions, which included three students in the first, two students in the second, and one student in the last session. I conducted all interviews at the end of the school year in May, and in the last months of fieldwork, between June and October 2013.

The ambiguous space due to my multiple roles was not always easy to navigate. During lessons I sometimes sat in front of the students closer to Katie and at other times, when I was more observing and less involved as educational assistant, I sat in the background. One day the principal sat in one of Katie's classes, one in which I had sat closer to the students, and she later

123 One 10th grader, two 11th grader, and six senior students; four female, five male; eight Kānaka students, one Caucasian student.

asked me to sit with Katie so that students understand I am not one of them. Recognizing her qualms, I had to juggle the different commitments: as instructor/educational assistant to be an authoritative figure and as (adult) ethnographer attempting to comprehend students' lived-in worlds. Yet the 'educational in-between spaces,' mostly outside the school or Anahola, on the *'āina*, at community events, or on school trips were moments that I felt the students were most comfortable with me and vice versa; in other words, outside the 'walls.' As I will demonstrate below, they were also where I had the most revealing insights. However, I never pretended to be their friend or 'less' of an adult, and as I stated above, it was difficult to know exactly how the students perceived me. My overall sense though was that many found me an odd, knowledgeable, slightly impatient Auntie that always urged them to take a camera and film, and who was otherwise not overly intrusive to their lives (as I did not cover any “core” school subject).¹²⁴

Ethnographic fieldwork started within the school while out-of-school collaborations and social networks, which I had fostered prior to starting fieldwork, expanded along the way, both in content and geography from the east (school) to the West side (biotech industry). My research then also reflects Kanuikapono's motto as “school without walls”, as I conceived of and followed education as reality inside, in-between and outside people's lived spaces. This is also reflective in the chronology of the upcoming three ethnographic chapters. Following my encounters with the high school students at Kanuikapono (chapter 4), I move – along with the

124 The students were generally not very talkative, which was an observation that many other instructors made as well. Needless to say, I did not directly ask them what they thought of me. One incident I recall is indicative of some students' sense of my alienness. Towards the end of the school year, two students and me sat in the audio recording studio when they asked me to play a song on my ukulele. I played the song “Creep” by Radiohead, and at the line “..what the hell am I doing here? I don't belong here..” the students couldn't stop chuckling.

students – to the food sovereignty movement (chapter 6) and an agricultural biotechnology corporation (chapter 7).

4.2 The high school and youth – a neglected child?

When I began my fieldwork, the high school had only been operating for two years and had 14 students (by the end of the year there were 11 students). It felt indeed more like a high school *program*.¹²⁵ High school can be the most resource-demanding unit for a K-12 school, as teachers and curriculum, on top of innovative project-based education with a Hawaiian focus, are expensive. Further, the principal did not find a director for elementary school that year, which left her taking on the role as principal of the entire K-12 school. In short, the high school was severely underfunded, and understaffed; the high school teacher Katie taught four grades with no set curriculum, except the online curriculum in math, science, biology, and chemistry.¹²⁶ Some interlocutors quietly shared with me that Kanu – as the school was commonly referred to – had rushed into expanding to high school, and instead should have consolidated energies to establish a sound elementary and middle school. In addition, many middle and high school students arrived at the school largely harbouring negative previous schooling experiences. As could be seen from the quote at the start of the chapter, “At other schools we learned sentence patterns but nothing about my own culture.”¹²⁷ Consequently, the

125 For convenience and in reference to the commonly used term, I will refer to “high school.”

126 That school year, the school introduced “hybrid learning” to the high school – combining online and in-class instruction - with the online K12.com curriculum. Language Arts, Social Studies and Hawaiian Language were instructed directly (AA_WASC_301112).

127 In a social studies class students also discussed how pledging to the US American flag at other schools didn't make any sense to them, how they would just mumble it and instead of holding the hand over their heart they would often only hold the middle finger.

It is worthwhile to mention that what the students learned at HFCS did not only concern “cultural” issues. In

school administration prepped Katie in a rather sobering way: last year's high school teacher had quit a few months into his job due to the students bullying him, who were described to her as at-risk, disrespectful, with behavioural dysfunctions and learning disabilities. Katie, Ipo and myself were also aware of the obstacles the two of us would face as Haole foreigners with our 'weird' (Canadian-American and Austrian) accents. "They will test you," Ipo warned me in the beginning of the school year – something I, with a degree of apprehension, was prepared for from fieldwork at another HFCS.

The school's expectations of "highly qualified teachers" it had recruited, such as Katie, were to guarantee "a strong, academic foundation" (Ipo interview, see previous chapter). Yet these expectations did not always map onto reality, as Katie shared with me:

You can't go in thinking you're going to get them all an A and advanced placement Algebra 2, you know? It's like, okay, you need to get the grade, how do we get you the D so you can get through, so that you can get your high school diploma, so you can move on and possibly get a career in college, or you know, a job.

Similarly, in one of our first meetings, Ipo explained to me that I should treat the students as if they were PhD students, to which I hesitantly nodded. A few weeks later, not fully having heeded her proposal, I learned the hard way that this would be rather challenging. In a lunch break Katie shared with me that she had informally asked the students how the classes went thus far, and they also briefly talked about me. Their feedback was positive only that "sometimes you talk a bit over their heads," Katie said, alluding to my convoluted, academic

our interview, Kū Kahakalau told me that a 16-year old Kanaka student once shared with her that what it was that he learned at *Kanu 'o ka 'Āina* was reading. To Kū his response reflected the importance of the *'ohana*-based school setting that gives students faith and confidence master anything (IV_100113).

English. I laughed, as it reminded me of this weakness, and I remained hopeful that my then bedtime reading – *Hunger Games* – would perhaps offer remedy.

As Katie and my experiences show, challenging the students enough without alienating them reveals that education is not a clear-cut transmission of content from “highly qualified” teachers to students.¹²⁸ Further, it demonstrates that the school, as well as *‘ohana*, are just as blurry concepts.¹²⁹ Rather, it is shaped by students' schooling experiences, teachers' and the school's vision, means for teaching and, as elaborated in the previous chapter, physical space. The infrastructural shift for high school when we had to move from the clubhouse to the main campus, which many were not happy about, brought up another defining factor for the youth's education experience. In our film class several students even suggested to shoot a film on why they should stay at the clubhouse, recalling stories of the previous year's trailer classroom on the more secluded south side of campus that had incessantly accumulated dirt and dust. One Sunday afternoon in late September, I met Katie at the nearby Kealia Beach, and while throwing sticks for her dog Savannah we reflected on the students' and her own discontent. She found she had finally formed a good rapport with the students to which I nodded in agreement. Besides some turmoil here and there the students trusted her, perhaps because they could in some ways identify with her as a (Haole) outsider. In her words, it took the students so long to

128 School systems are still largely based on this Nuremberg Funnel (Nürnberger Trichter) pedagogy, which underlies the idea of an effortless funnelling of taught lessons into a child's brain. This philosophy found much popularity in the 19th and early 20th century education models in German-speaking countries but is also discernible in the English idiom of “drumming something in” someone's mind. It certainly also was at the pedagogical base of missionaries aiming to 'get the Indian/Hawaiian out of children.' The rise of standardized assessment and audit culture still resonates with this conception that taught content can be equated with learned content. As I will discuss later, even what seem more open and fluid ideas, like “educating others/yourself/the public” underlie this rather simplistic “copy & paste” model of knowledge dissemination and acquisition.

129 The blurriness of *‘ohana* is not unique to the school but pervades all aspects of everyday life in Hawai‘i. One would frequently hear at social gatherings, in grocery stores or other public venues people addressing others older than themselves as “Auntie” or “Uncle.” To this day, my former students still refer to me as “Auntie Mascha,” and it will likely stay that way.

get used to the new setting at the clubhouse – and to us – and now that she finally got them at a place where they could work they had to move again. “These kids need routine so badly, probably more than the kindergarten kids,” she added with a sad yet affirming voice.

Her statement was not merely a call for equal treatment across all grades. She more so alluded to the often-ignored circumstance that many high school students at Kanu came with previous belying schooling experiences, particularly due to frequent teacher turnovers. In contrast to kindergarten students, who needed daily structure for different reasons, she affirmed that it is exactly because of the high school students' fractured experiences that they needed a stable, routinized school life. At the same time, as one 18-year-old student explained to me, it was the often ad hoc daily changes that were also a lesson to learn from, to be “Flexible, like a bamboo!” (see previous chapter). Indeed, three high school students concurred that while Katie was somewhat left on her own with the high school, they responded to the lack of teachers and resources by making do with what there was, which forced them to work and learn independently.

Besides this infrastructural concern there was also concern over the quality of taught content. In the second term Katie struggled to teach “the academics” after humanities subjects got reduced from five to three hours a week in order to make time for practicing hula for *Ho‘ike*, the end of school ceremony. She would have also wanted more time for math and science, and while it was again debated in an “academics vs. culture” discourse she made another observation:

They're are so behind in their academics, all of them. And especially because these kids need to be challenged. You know, at-risk kids need to be busy all the time, to keep them out of whatever it is that they're doing. So, ahm, the kids are bored, and they're not challenged in their Hawaiian-focused studies. They're not, they've learned it all before.

She emphasizes “academics” not for the sake of knowledge, passing standardized tests, or even getting into college or a job. None of it matters if the students do not get “challenged” enough in *any* subject. Some students also shared this sense of boredom and it was something I often witnessed myself – not least in my own class where I attempted to convey film basics. While this is certainly in part related to pedagogical style, there was indeed a sense at Kanu that the high school students had already 'covered' the taro planting, koa planting, fishing, etc. in earlier grades, but also in 'covering culture' at the beginning of the school year's Waipā camp. In her car on the way up to the camp the principal proudly shared with me that the high school students knew most about the “cultural stuff.” After the camp it took a whole month until I even realized that the high school students had not had one single class in the outdoors. Another instance was the *mahi'ai* class, the farming and planting class that all middle and high school students took from which seniors were exempt. The main assignment in that class was to learn about native and endemic plants and to establish an aquaponic system. Yet it lacked financial resources for dedicated curriculum development, and students were often left with the uninspiring task of watering or repotting plants. They quietly complained about it, and in that sense juggled between wanting to be more challenged but not necessarily wanting to have more work.

Besides this sense of boredom over repeated activities and content, there was a constant sense that high school students had to 'catch up' by completing their grades in order to graduate. As a result, outdoor and culturally-specific learning, such as harvesting plants for making *leis* (garlands), were often referred to as fun activities that would be forgone if the students did not have their grades in order. At the end of the school year Ipo somewhat defeatedly admitted that

in that year the school was putting more focus on the “academics” than on *mālama ‘āina* projects. Many would agree that the high school students had experienced more of the “cultural stuff” in the early days of HFCS before curriculum became more standardized. At the same time, it seemed as if by now, the repetitive 'cultural' curriculum rarely got updated with more age-appropriate, engaging editions. At the end of the day, the high school students seemed to be trapped between early experiences in 'cultural stuff,' a boredom over its repetition due lack of an advanced curriculum, and a reputation of already having 'covered it' all, leaving them to 'catch up' with their academics.

Yet the issue of boredom seemed not specific to Kanu. Kapule Torio also worked with youth, and when I first met him at the Waipā camp while filming Kanu's fifth graders, we chatted a bit about our respective work. After he learned that I worked with the high school he recalled a Waipā youth project from a few years back that to him was a failure because of its low standards, which failed to challenge the kids, “Like, adults showing love to the keiki [children], and really, really basic stuff.” Hence, the question arose what the students' prospects were once they graduated. After a day filled with the adventurous energy of fifth graders, we talked about Waipā 's lacking programs for high school students. When I asked why, Kapule speculated that working on the land just does not seem a viable job prospect for youth, which to him was also not unrelated to the negative stigma about farmers. Job providers in land restoration would rather recruit scientists from the “mainland” than consider the local youth, he continued. It was a strange contrast talking about these dire circumstances while ten-year-olds were planting koa trees and paddling in the stream right in front of us. Couldn't we see how Hawaiian education worked? As Kapule stated later in the year:

There really isn't anything going on on this side of the island. I mean, the [high school kids] can surf, they can paddle canoe.¹³⁰ I talked to a couple of high school kids now that were actually at Kanu, and they ended up getting their GED¹³¹ like as soon as they turned 15. And then I run into them, and they're working, you know? They're in the system that they find that they found a fit in. They're trying to make it work, and so they're like: Well, I didn't need the last three years of high school education, really, if I wanted to make 12 dollars an hour. Or, who needs.. you need that when you're working on a farm? Possibly, maybe if you want to run the farm or you want to go intern somewhere, or mentor. [...] Are these farmers in Hanalei, do they have high school kids that.. Ok, they're not going to college, they're home over here. Are they working on the farm? So, are we gearing them up to be lost, is basically what we did (IV_170613).

Driving back east later that day, and passing through Moloa'a where most organic farms are located, his words left me pondering on an observation I had made for some time on the island: an idiosyncratic symbiosis between gentlemen farms and 20-30 year-old "mainland dropouts" that work-trade at organic farms on their estates. The two groups formed a symbiosis that rarely included the local youth.¹³²

My interlocutors' words clearly confirmed my research focus on what appeared to be a neglected age group, and provided a different perspective on the school's encouragement to also focus on the (better functioning) elementary school¹³³. I am reminded of a picturesque scene from this day at Waipā when I filmed the fifth graders exuberantly planting and playing in the taro patch with the backdrop of a breathtaking, tropical valley. Standing there somewhat in awe, it dawned on me how this image resounded with ideas and visions of Hawaiian education and cultural revitalization projects that rarely feature adolescents. Rather, it is these 10-year-

130 Kapule refers here to the North-East side where many local youth work as surf instructors in the small tourism industry.

131 General Educational Development tests, which in the United States and Canada certify that a student has high school level academic skills in science, math, social studies, reading, and writing.

132 There was one high school student at Kanu, who lived on such a work-trading farm with his mother, though to my knowledge this was a rare occasion.

¹³³ Grades 7-12 are similarly challenging for indigenous language programs in Canada (and presumably in the United States). I thank my dissertation reviewer Patrick Moore for pointing this out to me.

olds or younger peers, innocent and tender children, perhaps not unrelated to the inception of the first Hawaiian language program *Aha Punana Leo* (“Language Nests”) that was established for kindergarten children in the 1980s. The focus, it seems, has been on younger children: ranging from developmental arguments that younger brains more readily grasp information and are more easily 'moulded,' to the cuteness-factor in images of young children that visualize language programs, which conveys care for fragile, young ages, and hope for a brighter future. This is certainly not a limited or set spectrum, and more comparative research to what was expected of youth in ancient Hawaiian times can be instructive.¹³⁴ Regardless, it does bring up the question whether adolescence as the liminal stage between childhood and adulthood in contemporary times depict more ambiguity than their younger peers, who are seen as instinctively ready to learn, to absorb culture. That moment, standing with my camera next to the taro patch, I somewhat shamefully realized how the kids' energy was a welcoming break from high school.

In sum, when considering the need to reconcile students' negative schooling experiences and their experience of boredom, it becomes apparent that the simplistic “academic vs culture” dichotomy does not account for what is needed most: the time, space and monetary means for infrastructure and content, specifically a set classroom with routinized school days and challenging curricula across all subjects. This also means recognizing the students' own understanding of what they learn – to be flexible if circumstances require, like a lack of teachers. Kapule raises another central point, as the local youth do not have much incentive to

134 A simple internet search on Hawaiian youth/adolescence in history or traditional/ancient times did not bring any useful results, yet it is noteworthy that results for “Hawaiian youth” significantly correlate with substance abuse, violence, incarceration, suicide, teenage pregnancy, etc. It also needs to be stated that the very categories of youth, teenagers, or adolescence refer to western conceptions of stages of life (see Bucholtz 2002) and were likely not prevalent in historical times in Hawai‘i.

consider a land-related job, college or any other profession besides the seed industry, the military, or construction.¹³⁵ Eventually, they may realize that their performance in school makes little difference for an hourly 12-dollar job, and that they will likely never access land, which gradually gets bought up by wealthy 'mainlanders.'¹³⁶ One high school student, who was working full-time at McDonald's while attending Kanuikapono was a case in point that not only belied the vision of the school but is more representative of life for most people in 'paradise,' particularly for Kānaka Maoli.

Towards the end of the school year I could sympathize with Katie's sentiment that the high school students' reputation as disrespectful and replete with behavioural dysfunction was too simplistic. Their reputation as 'troublemakers' spoke a story of its own: it is true that the adolescents did not seem as excited about their grades, *mālama 'āina* and/or *'Ike Hawai'i* as their younger peers but this was partially based on pre-existing ideas of imagining learning and living *'Ike Hawai'i*. It also did not take into account the dire prospects awaiting youth after school. The urge to learn among the youth was not lacking but simply not as readily accessible as fifth graders planting kalo. Before turning to the high school students' places and modes of learning, it is important to hold that while they experienced tacit ostracism from some non-high school teachers, some high-school teachers likewise experienced ostracism from them.

135 For Kanu's high school this became evident when I joined them to an orientation day at the local Kauai Community College. Walking through campus the students' body language was of a coolness and indifference that seemed to ward off any potential future failure would they ever consider going to college. When staff member Mae asked them what they thought of the day many responded that they liked the tour but that they didn't see themselves going to college.

136 The most recent example is Facebook CEO Mark Zuckerberg's purchase of 740 acres in Kilauea on the North shore "in excess of \$100 million" dollars (LaVentura 2014).

4.3 Learning as land-ing and emergent learnscapes

At Kanu, as much as in other Hawaiian-focused charter schools, students are encouraged to preserve Hawaiian culture in the widest sense. The students shall 'own' the language and chants that they learn, they are to *mālama 'āina* and to learn what Goodyear-Ka'ōpua calls land-centered literacies, such as “finding meaning in the responses of winds, rains, birds, waves, or stones” (2014: 34). At Kanu, high school students were also encouraged to be “ambassadors of aloha,” to embrace their *kuleana* (responsibility, but also right) to share what they know with the world outside the school. This was also expressed in their written essays for class assignments and in in-class presentations (see quote of the 19-year-old student at the beginning of this chapter).

Apart from these written and spoken words, I was also interested in what the students were *doing*. My main research question: what it means for the high school students as young Kānaka Maoli to learn about their culture and to *mālama 'āina* at Kanuikapono – converged early on in my fieldwork in a place that had rather unexpectedly become a locus to which we returned several times. Kē'ē Beach, the northern tip of the island, could be seen as a Waikiki Beach of Kaua'i, and is adjacent to the entrance of the Napali coast trail that leads into the picturesque Kalalau Valley. It has one of the most impressive coral reefs of the island, and is a prominent tourist spot for memorable sunsets. In the following I refer to my fieldnotes:

After a kapu kai (water cleansing) at 5am in Hanalei Bay [close to the Waipā camp], we reach Kē'ē Beach around 6.30am where we are greeted by the uncles with whom we are to fish that morning. They give us permission to walk on the reef to catch he'e (octopus). With the students



Figure 10: High school students catching *He'e* (octopus) with the stick at Kē'ē Beach, August 2012.

I warily walk on the reef with my non-waterproofed camera. After two students caught two he'e [octopus] and after less successful attempts at catching fish, it is 11am and we slowly walk back to the showers to rinse dirt and salt off our bodies and gumboots. This is when I notice how some of the tourists look at the kids, the "Hawaiians." I don't pay too much attention to it, since they also stare at me, and we all are clearly in different gear. But when I walk over to the van some girls are upset about what one student overheard: Walking back on the beach, a tourist said to another one "Oh, look, there are Natives that live here too!" As if ascertaining what they said, I look over to the showers where two other students rinse off while tourists look at them surreptitiously. Hawaiians are objects in this white touristy space where not a single Hawaiian lies on the beach or hikes up the Napali coast. I catch myself staring in dismay at tourists staring in a mix of confusion and curiosity at Hawaiians rinsing off salt water and dirt.

When we walk over to the start of the Napali coast trail we walk a bit off to circle up and chant to the ancestors. Some students are very focused while others seem fidgety – the surrounding noise of hiking tourists is unsettling. For our lunch break we sit down at the nodal

point where tourists walk through in order to enter or leave Hawai'i's most famous trail. I can see their discomfort, and the students mock them so skillfully that they don't notice it. One student mimics the tourists, standing in front of the sign reading it, he walks up the hike to then pretend walking out of the valley. Two other students read the signs that explain the history of Kalalau while blocking tourists from reading it, stepping aside only when they realize their 'mistake.' Other students are littering the place with orange peels. One student makes fun of tourists dressed in high quality trekking gear that I recognize from Austria. Amongst this plethora of international hikers, they indeed look a bit ridiculous. The student later refers to them as Russians, and when I correct her they were German I add that one can tell by their overdone equipment. She laughs. Two other students tell me that they never went up that hike. It dawns on me, somewhat naively, that these kids have vastly different experiences of Kaua'i than tourists. Had they been at the same spot exactly a year before I – having hiked the trail – would have been as easily a target of their mocking. Perhaps this whole performance was also a way to show me, the haole, that this is how they see the world.

The next morning we drive up to Kē'ē again, this time earlier, this time to sand ipu, gourd instruments at the beach. Being so immersed in the sanding, I don't realize a large group of what seems like tourists have gathered at the periphery of the beach, only a few daring to come to the water. There is a complete reverse to the day before in how space was made. Today, the Hawaiians were the 'first' to be at the beach, and the tourists were standing at the edges, of the iconized 'paradise' of Hawai'i. Eventually a few come over to greet [the Hawaiian teacher] Uncle Palala, and when I return from the bathroom the whole beach is reordered. The tourists turn out to be a group of spiritually-minded people that are now spread across the beach, and when I see Mealoha [staff member], Palala and three students joining them to do a

breathing activity (Qi gong, as one student later tells me) I partake as well. One student makes overly exaggerated body movements, breathing in and out while two other students stare at us in disbelief. Mocking haoles has become an eerily common thing it seems.

Tourists going into nature for pleasure, retreat or meditation, and Hawaiians hunting, fishing or gathering food exemplify that space is not neutral but socially made (Lefebvre 1991). As historian William Cronon shows, settlers and Indigenous People shape and experience nature through their different ontologies (1996). The students mocking tourists or US-Americans practicing Asian spiritual body work can be described as countering these ontologies, or more simply, as them being disrespectful and a straight out rejection of Haoles¹³⁷ and Haoleness. I want to propose a more nuanced approach, and pose how these experiences define and redefine first, a sense of Hawaiianness and *mālama ʻāina*, and second, education itself. In other words, I ask how to conceptualize these experiences as learning – in recognition that any social experience is a learning experience and vice versa (Lave & Wenger 1991) – apart from the more 'formal' moments of chanting to one's ancestors or sanding ipu.

Firstly, learning at HFCS encompasses these place-based learning practices from and about the land, *Ike ʻĀina* (hoʻomanawanui 2008), or what Goodyear-Kaʻōpua describes as land-centered literacies, such as “writing ourselves into the landscape by drawing water through irrigation ditches to loʻi kalo [taro patches] and then back to streams” (2013: 34). Oliveira similarly speaks of performative cartographies – hula, chants, reciting *moʻolelo* (genealogical

137 My use of Haole in this context reflects one of the students' definition, who used it in a derogatory way to describe tourists coming to a fast-food restaurant (where he had worked at the time) in a film clip they made in one of our film classes. When I asked him later what he meant by that, asking further whether I was a Haole too, he clarified that I was not Haole, but people that “don't respect our culture” (FN_181012).

chants), etc. (2014). What I want to point out is that besides these knowledge practices learning did not simply stop when the students mocked tourists or littered the place. In this line, place-based learning, performative cartographies and land-related literacies *as well as* students' 'contrary' behaviours took place and made up processes that I call *learning as land-ing*: knowing with and about land that includes more or less affectively planting trees or fishing for *he'e* as well as these other, often overlooked frictions that are no less spheres of learning. Hence, these are contestations over land, identity and practices. More specifically, *learning as land-ing* depicts how the students reconcile the double bind between expectations of their adult social world to be and act as young Kānaka Maoli, and their everyday experiences: to “walk in two worlds” (Henze & Vanett 1993) as in the 'Hawaiian' and the 'western.' I relate this to philosopher of science Isabelle Stengers' *etho-ecological* perspective that presumes an “inseparability of ethos, the way of behaving peculiar to a being, and oikos, the habitat of that being and the way in which that habitat *satisfies* or *opposes* the demands associated with the ethos [...]” (2005: 997; emphasis added). Put differently, the students learn that being Hawaiian relates to specific articulated ethics, like showing aloha or *mālama 'āina* spelled out by their adult social world. Concurrently, their agency manifested in these learning practices in their everyday life. Consequently, *learning as land-ing* is also an alternative reading of the often framed inherent link between Hawaiian identity and *'āina* in articulations of Hawaiianness (see Clifford 2000; Halualani 2002). What I mean by this is that while such rootedness is *central* to notions of Hawaiianness, of practices relating to one's (cultural) identity and place, it is not *essential*. I will return to this point further below.

Secondly, *learning as land-ing* involves place-making practices that are grounding, both in a place and one's identity, and may involve demarcation from the 'other' (such as from the

tourists). This reasoning follows Lave & Wenger's practice theory of *Situated Learning* (1991) where in the process of learning the negotiated character of meaning involves the whole person rather than merely a receiving body of factual knowledge (ibid: 33). More specifically, the authors' notion of *legitimate peripheral participation* in communities of practice is useful here, as it pays attention to the act of changing locations and perspectives as part of an actors' "learning trajectories, developing identities, and forms of membership" (1991: 36).¹³⁸

Peripheral participation here is a critique of the equation of periphery and subjugation, as Lave & Wenger argue for a favourably naïve, constructive space (1991). This also resonates with Donna Haraway's assertion that knowledge is always situated, that by locating oneself one moves more fully towards knowledge (1988: 583). For instance, in case of the students, their learning trajectories at Kē'ē Beach involved a movement from fishing for *he'e* on the reef (where tourists have no access), to occupying a nodal point for tourists to enter the trail entrance, to shadowing – and making fun of – tourists. These trajectories concurrently affirmed their identities as Kānaka Maoli as well as their identification to that place.

In extension, *learning as land-ing* brings together the contention that any learning is an inherently social matter (Lave 1988; Toren 1993) with Henry Lefebvre's notion of place and practices that form a *lived* space (1991). *Land-ing* reflects not only the immediate association of arriving somewhere, perhaps at a new terrain of insights, but also depicts a situatedness of learning (Lave & Wenger 1991) through peculiar place-making practices. The practices at Kē'ē Beach were not essential to "tourists" or "Hawaiians." As the students later expressed, they did

138 "Communities of practice" suggest a boundedness that makes overlaps with others a matter of 'bridging' different lived-in worlds. The concept of *learnscares*, as I will describe below, aims to move beyond such boundedness.

want to hike the trail¹³⁹ but not one that is invaded with foreigners, their strange languages and overly equipped high-quality gear, rushing in and out of the trail. They were not straight out rejecting the tourists' practice of hiking – even though, or perhaps because of mimicking them. Rather, it was a matter of *owning* place-making practices, which in this case was a mocking and littering. Moreover, as I argue, it was a littering of the *tourists'* space of retreat, of their picturesque image of this natural paradise of Hawai‘i that is to be void of humans (and their pollution). Among Haoles creating a white space – “*Oh, look, there are Natives that live here too!*” – the students were “talking back to white supremacy” (Rohrer 2010: 35) through their mockery of the 'other' while their orange peels marked a space, *their* space. The students knew that this was neither an act of *aloha* (towards the tourists) nor one of *mālama ‘āina*, and before we left the place they had to pick up all the trash, like clearing a stage after a performance. *Learning as land-ing* here occurred through nonverbal satire and littering as place-making practices, which created a space of their own and their (Kanaka) identity, and in effect formed what I call *learnscape*, Before I explain this scape in more detail, two other instances from the field are instructive.

139 Ipo affirmed later that some of the kids never went on a hike except for up to Kalalea (mountain in Anahola), and also lamented that some of the kids, having grown up there, did not know much about Anahola.



Figure 11: Kalalau Lookout (incidentally I took this picture after a *Hula Hui* (Hula group) danced and their kumu had asked outsiders not to take pictures), October 2012.

In our interview at the end of the year, the 10th grader Taylor shared another story of tourist encounter, one that occurred at the Kalalau lookout in Waimea Canyon, where a few years back her class danced hula and chanted to their ancestors:

T: I remember being so like, like irritated, I didn't want to do it because there was so much tourist there. [...] And it was like, we were wearing like a lolo [gown] and everything dressed up full on, like we, well, we had our Kanuikapono school shirts on. But we had hula skirts, pā'ū [woman's skirt], and then we had lei on and just some other stuff and then Uncle Palala had his ipu. And then we all lined up and the tourists were looking at us, like trying to take pictures, and everyone, we were just like: Don't take pictures of us! Like, we won't allow that stuff, or whatever.
[...]

I: Was a weird feeling?

T: Yeah. But after like when we started really, when I started really getting into dance, it's like, I didn't even care about them being there. It was like.. and Uncle Palala was

like: Take a minute and connect with your ancestors, and I was just like: Okay, [Taylor], don't cry, don't cry.

In the tourists' discomfoting presence, the student felt better once she grounded herself in dancing hula and chanting the *oli*, presumably connecting to her *kūpuna*. Just as the circling up at Kē'ē Beach, these were land-centered literacies (Goodyear-Ka'ōpua 2013), performative cartographies (Oliveira 2014) that she had learned at Kanuikapono from her Hawaiian teacher Uncle Palala. By *learning as land-ing*, she further took ownership of a place in the sense of *arriving* in a moment, practice and place where tourists had no permission to enter: her introspection, focus and connection to her ancestors and/or the place. Compared to the scenario at Kē'ē Beach, she also bonded with her peers, though in a much more personal introspection and *despite* the tourists' presence (rather than actively demarcating from them). In a larger sense, these practices of internal groundedness also spoke to the external: the ancestors, the place and as a recalled memory in our interview, manifesting a *learnscape*.

A note should be made about adults that were supervising the students. On school trips, Uncle Palala often reminded students to focus on their practice and their ancestors and – as in the segment above – to not get disturbed by gazing tourists. When we sat at Kē'ē Beach and students were littering and making fun of tourists, it surprised me that he did not intervene. Rather, it was a time for him to catch up with the Uncles from the North Shore with whom he talked story. In a way, it conveyed to me a common characteristic among Hawaiian families in that children and youth are rarely supervised. It is another instance of a blurry line between the school where a teacher is expected to supervise and correct wrong behaviour among students, and an *'ohana* setting where young ones are mostly left to themselves.

The third case brings us back to Kē‘ē Beach. Just as the students wanted to hike the Napali coast trail, the division of 'touristic' and 'indigenous' place-making practices did not hold in this instance. As part of a school trip for the film class, a couple of students came with me up to the North shore to practice filming and interviewing. One student had prepared three questions for tourists: 1) What brought you to Hawaii? 2) What do you know about the Hawaiian history? 3) Do you support Hawaiian sovereignty? On our way up to Kē‘ē, we stopped at another beach, as he insisted on interviewing tourists there, exclaiming, “Look, these, let's interview them, or them!” When I calmed him down, saying that I needed to park first and that there are plenty of tourists, he laughed, adding that “it's like shopping for the best tourists!”

We get to Kē‘ē Beach, and I am reminded of the experience a couple of months earlier where the students would make fun of the tourists. It is somewhat telling that I can't find a parking spot. I didn't realize it is sunset and more than usual the parking lot is filled with tourists' rental cars. I drive the kids to the beach to let them get off, telling them to go talk to tourists, and that I would come back once I parked the van down the road. When I get back to the beach I walk up and down in anticipation of students eagerly interviewing tourists, but the kids are gone. The tourists stand in awe to witness the sunset, couples cuddle, an older couple even put up a picnic table sipping wine, taking in the atmosphere to the fullest. I look over my shoulder to take note of yet another breathtaking sunset and take a few pictures myself. Oddly, I find myself acting just like the tourists around me. Looking through my view-finder, I finally see the students: on the other side of the cliff they are hopping on large rocks back to the beach after the sun sets. As teacher I am concerned: they carry the school's cameras jumping from one

stone to another, perplexed they did not interview tourists, and also a bit angry that they would exploit my trust to just have a fun time chasing the sunset. My second thought almost 'calms' me, as my ethnographic mind tells me that this is fascinating because it is so unexpected: they were choosing the path to take the best sunset pictures. They came closest to the sunset, closer than any of the tourists at the beach. Tourists would not be able to go that far had they even dared to take the risk because the lifeguard wouldn't let that happen (the kids knew the lifeguard). How often, I think, are these students mobile to experience the North shore and this sunset that they may find at least as spectacular as tourists? Anahola is the place where the sun rises, not a prime setting (and timing, in regards to sunsets) for beautiful images. When I approach the students and ask why they didn't interview any tourists, one of them responds: "I don't know, we saw all the tourists enjoying the sunset, and we didn't feel like interrupting them. It felt like we were intruding on them." Sunsets should be there for everyone, it seems.

After the students briefly hang with the lifeguard – now I learn that one of them is [a student's] brother and others are friends – we walk back through the parking lot, and after I urge them the students interview one more family. The father expresses his support for the students wanting to learn about their culture. At some point the mother joins the conversation, saying that she came to Hawai'i to look for the "heartbeat of the earth." Her husband asks her what she means by that, drums? Well, not what the young people over there listen to, referring to the lifeguard and the local boys that listen to blasting R'n'B music. The students secretly share glances that express a mix of irritation and politeness (FN_081112).

My assignment for the students to interview tourists coalesced with a moment that most of them found disrespectful towards the tourists: disrupting their practices – watching the sunset –

and a practice they wanted to partake in just as much. I am reminded of cultural studies scholar Rona T. Halualani's argument that allegedly 'tourist' activities such as purchasing souvenirs from Hawai'i are not just practiced by tourists. A Hawaiian youth from the continental US may as well buy a plastic statue of God Kū, yet less for the sake of purchasing "nativism" but rather as symbol of cultural sovereignty (2002: xxxi). She asserts that colonialist dispossession of Hawaiians is entangled with "imaginative reorganizations of imposed meanings" (ibid: xxxvi).¹⁴⁰ Hence, tourist imaginaries of Hawai'i as "paradise" – i.e. a picturesque beach, sunset or hike – are just as much entangled with Kanaka youth, who chase the sunset with their cameras, or want to hike down the Napali coast, albeit for different reasons. Indeed, it may be this cultural sovereignty (or a more personal sovereignty as adolescents) that becomes their carved out space. Hence, *learning as land-ing* here occurred through students' place-making practice of filming and taking photographs that is familiar to tourists, who in turn attempt to own a place that is unfamiliar to them through this practice, and often in intrusive ways, such as at the Kalalau lookout. The students took ownership of a place that was closest to the sunset, and that only they had access to, all the while respecting (or ignoring) tourists' own place-making. Out there on the rocks they formed a sovereign space, a *learnscape* of what it means to connect to *āina* as young Kanaka.

As I have shown so far, *learnsapes* depict anything from a physical place – entrance to a famed hiking trail, a lookout or rocks, etc. – to a conceptualized space - non-Haole space, introspection, memory, etc. – that is shaped by practices of *learning as land-ing*. In other words, *learnsapes* capture the intricate forms of learning about, fighting for, connecting to, or

140 See also Tengan's book *Native Men Remade* (2008) on articulations and redefinitions of Kanaka Maoli masculinity, and more specifically Chapter 3 *Pu'ukoholā: At the Mound of the Whale* with a discussion on the Native/tourist boundaries, and the notion of authenticity (p. 96ff).

mere thinking of 'āina (or land) as both place-making practices (*learning as land-ing*) and places. Although Arjun Appadurai's work (1996) on global “flows” and the five related mediating “scapes”¹⁴¹ could be seen as similar, *learnscares* attends more to this personal and/or communal intersection of place and learning. Students 'moving out' from and to – as in *educere* – (created) spaces of learning in the act of claiming a place and sense of (Kanaka) identity. In that sense, *learnscares* can also be seen as an act of decolonization. Here is also a correlation to a 'o, as both teaching and learning were overlapping in these practices. Learning in that understanding does not stop once teachers 'teach' just as much as students don't stop learning (or teaching) once they 'move out' of what adults define as education – often literally out of the physical school building. Mapping a landscape of both land and learning also resonates with Indigenous scholars' and anthropologists' critique that cartography itself is a colonial activity in need of constant reflection (see Oliveira 2014). As Appadurai asserts for colonial ethnographers, their practices “incarcerated” a people through the conception of “natives” by fixing them to their location on a map (1988: 37), both spatially and temporally. *Learnscares* counters such fixation in its malleable, spatially and temporally overarching property that is virtually boundless and rather dependent on people's idiosyncratic and collective learning trajectories.

Mobility was a matter I soon learned was a central part of the students' lives. Whenever we would talk about filming locations outside of school, I insisted on also filming (and interviewing people) in Anahola, which did not elicit much excitement. Even though they would give valid reasons to go to the North shore and the West side (interviewing tourists,

141 These are ethnoscares, technoscares, financescares, mediascares, and ideoscares.

relatives in other parts of the island) there was always a sense of boredom when we went down to Anahola Beach. But there was also another reason. Frequently I would drive to different public hearings and events that dealt with a variety of land issues (see chapter 6). The principal and the high school teacher (and me) thought it was a great idea to bring along students, as it would expose them to political issues that concern the community, which was also something I had an interest in.¹⁴² I had set up para-sites (Marcus 2000) that also resonated with my adult interlocutors' standpoint that the students should get more immersed in the political arena on the island. Indeed, I had several people – parents, community activists and a politician – come up to me at different events to explicitly thank me for bringing the students, who, as they said, would be unlikely to come on their own. Kanuikapono was happy to let me use the school van to drive the students to these community events or public hearings. So, while I was interested in youth getting involved in political issues (which was the main reason I did not opt to work with middle or elementary school students) I was also curious about adults' expectations that they would be interested in politics.

The people thanking me also spoke to the lack of mobility they were aware of, and mobility I was willing to offer. In fact, in these voluntary trips, the youth always seemed to enjoy the ride as much, if not more than the actual events. Oftentimes they'd find a sneaky way out of a public meeting, film screening or hearing. On other occasions it was a welcome opportunity for them to meet *'ohana* and create a space of *'ohana* at different events. One day in September 2012, while driving to an anti-GMO protest in Puhī, we passed through the long stretched Kapa'a town and a road construction site. Throughout the ride, the student sitting next

¹⁴² It is noteworthy that at all these meetings there were few if any youth, which in itself speaks to the space that politics took in young people's lives (and vice versa).

to me would great and cheer to so many people that at some point I said: “Jeez, you know a lot of people on this island!” – “I am related to this island!” she exclaimed, and how right she was. Hence, my proposed out-of-school school trips became rare and favoured occasions for many carless students to be out and about on an island with a deplorable bus service,¹⁴³ and to connect with people they (were) related to. Not least, cruising the island allowed them to get away from the often stifling adult social worlds of home – certainly not a phenomenon unique to Hawai‘i’s adolescents.

As I argue, their boredom with Anahola and their desire to be mobile also has relevance for the notion of Hawaiianness and *mālama ‘āina*. Kanuikapono seeks to establish a sense of rootedness in central practices and knowledge forms, such as digging in the dirt and chanting to ancestors that connect to the *‘āina*, one’s ancestors and culture. Yet as I laid out in the ethnographic vignettes so far, it begs the question what distinguishes a *place* from *‘āina*, and whether being ‘rooted’ in the latter is people’s prime practice or rather a spelled out legitimization of being Hawaiian. How would one explain students’ care for their culture and claims to connect to the *‘āina* when they trash the ground and ‘disrespect’ tourists? Often in relation to taro as *Hāloa*, the elder brother of Kānaka ‘Ōiwi, rootedness is a defining element of Hawaiian culture.¹⁴⁴ If this is the case then mobility is always part of it, as it is what adolescents seek to get to *their* places they feel grounded in, connected or rooted to – be it an abandoned swimming pool on a backroad, meeting friends and family, or hunting pig in the forest.

143 The Kauai Bus drove on a half an hour to one hour schedule from Monday to Friday until around 8pm, and on the weekends on an hourly schedule until around 5pm. My experiences coming from a European city certainly formed a bias in describing this bus system as “deplorable.” One student found it not so terrible while others saw it worthwhile enough to make a short film about it.

144 See for instance Kauanui (2008: 41) Oliveira (2014: 40). Rootedness also often gets expressed in *mo‘okuauhau*, genealogy (Pukui, Haertig & Lee 1972: 57). It is also evident in other Polynesian societies, such as in Tahiti (Kahn 2011: 63) and in western culture’s affinity with arborescence (Deleuze & Guattari 2009 [1980]).

This may be a trivial point, as anyone familiar with Kaua‘i would agree that there is a car-dependency in order to be mobile. What I pose here is more specifically how much mobility – as much as the choice to move away from Hawai‘i – is accounted for when adolescent Kānaka Maoli are expected to be “rooted” in the *‘āina*. Hence, does being rooted in culture imply being rooted in a specific physical place? For instance, Halualani describes diaspora Hawaiian communities in the continental US (2002). Many people chose to move away from the increasingly unaffordable Hawaiian Islands and/or particular ideas of Hawaiianness. These conceptions of Hawaiianness are either blood-quantum-defined or consider a rootedness with the islands as an essential part to being Hawaiian. In a similar way, I argue that the students care for *‘āina* and their culture by developing a sense of rootedness that may imply movement, in this case away from conflictual relationships and places of their everyday life.¹⁴⁵ Connecting mobility to *learning as land-ing* exemplifies what James Clifford describes for Native Pacific peoples' experiences of the indigenous and the diasporic, the rooted and routed as mutually constituting (2001: 470). Just as Indigenous People in contemporary times find ways to exist through cultural tradition, landedness and “ongoing histories of displacement, travel, and circulation” (ibid: 483), so did the high school students find their ways to both be mobile and grounded in places of their choosing. And just as Indigenous People of the Pacific contest assimilationist nation-states by making autonomy claims, so do these adolescents make claims over the spaces that speak to their identity. The concept of

145 This evokes a story that a *kumu* (teacher) and cultural practitioner from Hawai‘i Island shared with me in 2007. As hula teacher in the early 1990s, she had moved to Seattle for several years to get away from the anger that many Kānaka felt at a time when many relearned their own history and culture (Gugganig 2009: 71). I suggest that this, and her recognition and decision to *remove* herself from the politically charged facets in this emergent cultural awareness may have parallels to Kanaka youth's sensitivity in their own lived-in worlds.

learning as land-ing attempts to account for this interplay between the youth's activities, formed identities and identifying places without essentializing any of these components.

Mobility, then, is not new but has defined Kānaka Maoli since their arrival to the islands a millennium ago (Kirch 2012). What *is* new is that in times of cultural revitalization there is a *kuleana* for the upcoming generation of Kānaka Maoli to take the torch and lead it further, to know their cultural expectations, as Ipo described for the Waipā camp.¹⁴⁶ These spheres of learning, as I have found, need more attention, both in everyday experiences and in an analytical sense.

This brings me back to Kānaka youth's experiences and their teachers' expectations, and how the students negotiated this double bind. Along these expectations, the students developed often unarticulated forms of knowing: skilfully mocking tourists without them realizing it; reconciling the irritating feeling that comes with tourists staring by fostering a deep connection through one's hula practice, chant, and ancestors. It also includes surreptitiously shared looks over tourists' opinions about what music they should listen to (as was the case with the family the students interviewed) that express a mix of confusion and reverence to not offend these adults. These are what I call *tacit forms of expertise* that may never find expression because they reside between assertive narratives to *mālama 'āina* and “show aloha,” planting plants, trashing the ground, connecting to places dear to them, or disconnecting from people harmful to them. It speaks to Henze & Vanett's (1993) critique of the reductionist metaphor of “walking in two worlds” that not only fails to comprehend indigenous youths' life complexities but

146 This expectation also speaks to a dilemma I faced when I facilitated and co-organized with Prof. Galla a school trip to Vancouver for high school students where they presented what they learned at Kanuikapono at UBC's First Nations Longhouse. After the initial proposal to only take the (five) senior students – since all eleven students would have been too costly – a long discussion ensued as to which students – middle school, high school or only senior students - were most proficient in the cultural practices, like hula and chant. In the end, it was decided that the five senior students would travel.

submerges their own lived realities. Their alternative metaphor for indigenous youths' identity is useful:

The visible pieces of [young adults'] identity are a bit like the exposed peaks of a newly formed yet still submerged island, peaks located distantly enough from one another that it is easy to assume there is no coherent whole connecting them underneath (ibid: 125).

It is in these shallow waters, so to speak, where their tacit expertise lies. In Candis Callison's words, it is exactly in this crux, the double bind, in which ethics reside (2014: 278, fn. 15), or more precisely, in its interstices. If these experiences – their own tacit ethics – do not align with teachers' more articulated ethical guidelines this does not mean that the students inevitably counter them. Rather, I argue that it is out of a sense of fidelity that the students align their own experiences over and over again with what is expected from them as young Kānaka 'Ōiwi. In other words, they navigate between the formal, informal, tacit, articulated, and tacit knowledge forms.

Yet not every student perceived the *kuleana* that was put on them in the same way, and teaching itself became a mode of conciliation, as I will detail below. Before that, here is a clarifying note: I do not argue that informal education, boredom or frictional experiences result in 'more' *learnscares*. Rather, I point out that learning *also* happens when students are bored or frustrated with the lack of communication in school: be it in the words of one student to learn to be flexible like a bamboo, or navigating when one should voice concerns over being bored in class and when it would compromise relationships to their peers (and their cool persona). This does not deflect from the importance of the content that gets taught at schools and to take seriously the shame among students for *not* knowing, for instance, what the words in their

chants mean. Rather, I aim to expand the context, space and materiality of learning and education. Further, as I illustrated, learning and education is part of social practices as much as anything social is a learning practice (see Freeman & Mathison 2008; Lave 1988, 1990; Lave & Wenger 1991; Toren 2011), and thus co-produced with what is considered proper content; in this case to learn about the importance of *‘āina*, *aloha*, and *‘ohana*.

4.4 Sacrifice, guinea pigs, and education as experimental system

As mentioned earlier, the school started off with basic tents and students often shared heroic tales of having been there since the first hour. What the students' connectedness to Kanu meant did not become clear to me until one day in March, when the school was hosting an afternoon learning session for the *Ku‘i ka Lono* conference, the Hawaiian-focused charter school conference. On a windy, rainy day standing outside, the principal was prepping the high school students in planting seedlings, their Hawaiian names, and soil amendments. With a slightly reprimanding voice she tried to attract attention from the largely inattentive crowd of high school students, saying that they are sacrificing for future generations of students to come. It struck me as a powerful line that I understood to be a compromise for certain things, like a lack of classrooms, teachers, resources, or in this case having to build the school's food forest. Several months later, in our interviews I asked the students what they thought about this statement, to which one student responded:

I think the high school is a good idea, and it's very interesting, it's just that – It's not, it hasn't really like prepared us for what we are supposed to be doing later on in our lives, like, like for college. It like, the standards are a little lower than what we're supposed to, than they're supposed to be. And if I intend to go to college then I have to know those REAL standards, and it's, it's very different.

About a month earlier, we had sat at a Blenz coffeeshop in Vancouver, Canada, where I helped to bring the senior students for a school trip. We sipped tea while she shared a point I had heard several times before: Kanu was better for younger grades, adding that it is a better school for those staying on Kaua‘i because it didn't teach enough about the world, like European history. The student's concern over “REAL standards” that she stated as sacrifice alluded not so much to learning rigorous or abstract, factual information but a guarantee to be able to go to college and/or learn beyond Hawai‘i.¹⁴⁷ When I interviewed the other students, I was surprised over their expressed pride in what I had interpreted as “compromise.” One student was part of the school when they helped build the current campus, and responded as follows:

When we came here every Fridays for Project Days and like helping to build the school and stuff, I feel like maybe that was a way of me, I don't know, paving the way for some kids. [...] The people that came before me, they just being in the school, they kinda made a way for me, cause if they didn't attend the school then it's like there wouldn't have been a school I guess.

The student refers both to feeling obligated to future generations and to being a benefactor herself, acknowledging *kuleana* and genealogy with and towards the school. Another (Caucasian) student interpreted sacrificing in a similar way, while she was accompanied by nods of her student co-interviewees:

I guess by sacrifice like, since this is such a young program, it's like we're kind of an experiment – not experiment but we're just helping, help mould and put down that foundation for the future generation. So that like by the time the kids that are in

147 Several years later, whilst writing this chapter, another student came for a visit to Vancouver, as at the time he had lived in Seattle to work as a bank clerk. We sat at the back porch of my house talking about Kanu, when he shared that he was glad he had gone but that he wished there was better preparation for college, and for leaving Kaua‘i.

kindergarten are in high school, there's going to be a solid high school program, and I think it's just really awesome that we're part, we are part of the sprouting process and the growing process.

Here was not just a sense of *kuleana* and genealogy but another term that struck me. The student is uncertain how best to describe her and her peers' role as growing part of the school, being aware that “experiment” alludes perhaps too much to free-run, tinkering with young people's minds. Yet experiment was not an accidental slip.

As discussed in the previous chapter, the school found itself in an ambivalent space between construction site, shortage of resources and overly flexible schedules. In Kū Kahakalau's terms, lack of resources was often a “blessing in disguise” for potentially creative work. While this constituted an 'on-the-go' teaching style by making use of what resources were available,¹⁴⁸ students also took note of these circumstances. This constituted a pedagogy of *a'o* and experimentation. This is best articulated by Kapule, who used to work at Kanu as *mahi'ai* (farming) teacher. Overlooking the famous Hanalei Bay on a breezy July day, I started off our interview with a question about his time at Kanu:

I was privileged to be [at Kanuikapono] in part of its growth stages and I gained a lot of the tools that [...] came from that model, that project-based, place-based model of Kanuikapono, being the driving force, and supplemented through specific content and detail through the academics. [...] Some of the successes when I was working at Kanuikapono was being able to experiment with it. Like, the kids were like guinea pigs really, and here's the project, and let's just see how we're going to implement this, and then every project we did, I always reflected back and was always constantly making improvements, you know checking the students and seeing: Did you get that concept? [...] And it just came with more practice and experience, you know, reading up on: Well, what's the scientific method? Okay, how can I apply the scientific method to the lo'i

148 This has been structurally preconditioned for HFCS from the first hours of operation, as they have to demonstrate legitimacy – in assessment of students and teachers - while concurrently, in an 'on-the-go' teaching style create curricula.

patch? Oh! We're going to do an experiment with soil. And it was just through those simple connections of bridging the two that was, it's not impossible, it's not hard to do. And yet it becomes, science becomes relevant, and obviously, working with kalo or the plant material that is relevant to their sustaining their lives. It's a REAL learning happening. [...] My classroom is the environment, my teacher is the environment, my mentor is the environment. And everybody else that I meet. We all share in our expertise and things that we know that if our common goal is to perpetuate this place, and perpetuate our culture, then how do we do that together with the environment, with this wahipana [sacred places], with our earth papa honua. And it's a great place to do more experiments (IV_170613).

Kapule later added that experimentation is nothing new, that it “took our kupunas [elders] YEARS of being in a place, with observation, keen observation, and trial and error and experimentation to have developed a super productive way of sustaining everything!” There are several central points here. First, experiment is not a shunned term and practice, which also resonated with some students' expressed experience at the school. Second, connecting to discussions in the previous chapter, Kapule describes education as both a *between* and *through* different systems, where academic standards are a way to look *through* Kanaka epistemologies. Third, expertise was not defined by institutional norms, people's degrees or other credentials but by willingness to share what one knows: in the care for students, a place and a culture.¹⁴⁹

In *Ethnography In/Of/As Open Systems* (2003), Kim Fortun revisits Michael Fischer and George Marcus and Michael Fischer's classic *Anthropology as Cultural Critique* (1986), where she reaffirms that ethnographies of increasingly globally and locally intersecting systems are themselves inevitably experimental systems. Ethnographies (such as this one) draw on particular genealogies while they concurrently “facilitat[e] shifts and displacements that allow something new to emerge” (Fortun 2003: 186). What if, I reasoned, the very institution that I

149 I will return to the notion of expertise in chapter 6.

ethnographically describe falls into this category? Fortun offers a quote by historian of science Hans-Jörg Rheinberger (who writes on experimentation in life sciences):

An experimental system can be compared to a labyrinth whose walls, in the course of being erected, simultaneously blind and guide the experimenter. The construction principle of a labyrinth consists in that the existing walls limit the space and the direction of the walls to be added. It cannot be planned. It forces one to move by means of checking out, of groping, of tatonnement (Rheinberger 1998: 291; quoted in Fortun 2003: 185).

Rheinberger's words strike me as pertinent to Kanuikapono in two ways: as discussed in the previous chapter, it may be worrying in what direction the school heads, now that it has erected walls that can be both blinding and guiding. The future is uncertain, it is hard to plan how project- and *'āina*-based learning will look due to financial insecurity, contaminated land, nationwide standardization of learned content, among other obstacles. On another level, it is hard to plan ahead more generally what a new school model – Hawaiian-focused charter schools – will look like when protagonists (have to) “move by means of checking out, of groping.” Further, in Kū Kahakalau's words “blessings in disguise” (due to lacking means) may become the prime approach for educational sovereignty. Kapule elaborates that building a best practice – a Hawaiian-focused curriculum – cannot be expressed other than in such 'on-the-go' experimental teaching styles. This, as I may recall, has been a central mandate for charter schools, yet one that has shifted to increasing standardized, nationwide assessment: to come up with innovative modes of schooling in order to facilitate a dialogue with regular public schools (see Dingerson et al. 2008).

As Kapule recognized, founding a school like Kanuikapono needs time, that successes and failures are inevitable parts of building innovative places of learning. When charter schools

are no longer seen as hubs of schooling innovations, the learning process of 'failure' is also no longer appreciated. Regardless, charter schools, and perhaps particularly Hawaiian-focused charter schools, are experimental systems in *that* sense: a “device that not only generates answers; at the same time, and as a prerequisite, it shapes the questions to be answered” (Rheinberger 1998: 288; quoted in Fortun 2003: 186). Kapule “always reflected back”, “constantly making improvements” by checking with the students if they understood a particular concept – a back and forth between generating answers and shaping questions. To describe students jokingly as “guinea pigs” needs to be understood in this light. Just as ethnographies draw on theoretical genealogies while providing “shifts and displacements that allow something new to emerge” (Fortun 2003: 186), so do charter schools like Kanuikapono. While *kupuna*, ancestors and *akua* (gods) are consulted for best practices, so does Kanu engage – deliberately or not – in these shifting physical and ethical plateaus so as to create ways of educating future generations to care for Kanaka Maoli epistemologies, places, and practices. Those students align themselves in this process, and exemplify this interplay between genealogy and shifts, and with it the ambivalence that comes with calling it “experimental.”

In education literature the notion of experimentation is also prevalent in suggesting a learner-centered approach. Steven Goodman, who makes short films with inner-city youth in New York, calls this expansion of boundaries for learning – also in going beyond classroom walls – a “laboratory for learning”, yet one that requires much planning and structure (2003: 56). This point is crucial for what seems an unruly, laissez-faire endeavour: every experiment needs a framed setting, committed people and space allowing trial and error to occur – from teachers, parents, students, the financiers of the school, and most importantly policymakers that

constituted charter schools as hubs where “innovations or research [that] may assist other public schools” (Hawaii Public Charter School Law Section § 304B-14).

In that sense, education as experimentation flies in the face of nation-wide standardized assessment of 'instilled' information in students that is presumably ascertainable in their tests. Education as experimental system in case of HFCS and Kanuikapono more specifically reflects *a'o*, the interrelated epistemology of teaching and learning not merely in a romantic idea that one never stops to learn but also that one never stops to *fail*. Here lies, perhaps similar to students' non-explicit ways of knowing, the school's tacit form of expertise. Indeed, in regards to common conceptions of “education” as state-controlled accountable institution or processes of liberation (see Giroux 1992; Gramsci 1971; Freire 1972), education as experimental system veers off these positivist, teleological notions that often dismiss and thus mute failure. It points to both of these educational efforts as not always manageable and with predictable outcomes.

Yet it is exactly such an experimental setting that allowed a conciliation of the haunting stigma of HFCS as being trapped between “academically rigorous” and “culturally-based” education. As in the case of the high school students, the school also found itself in a double bind in whose interstices it formed a new terrain of ethics. This will have consequences both for the school's pedagogical outlook as well as preparation for high school students to go on to college – if they so desire. At the same time, all of the students that left the school knew that they would always be welcome at the school, even if just for a visit. I believe it is this forgiveness and lack of resentment – if students choose to transfer¹⁵⁰ – that reflects the school's recognition that it *is* in an experimental stage and students' participation was always voluntary. The question remains whether this experimental system was a momentary phenomenon of a

150 In 2012/2013, four out of 15 students transferred to other schools or dropped out of high school.

school in the making or a larger pedagogical outlook of how learning and teaching should take place; in other words, whether this new terrain of ethics entailed a provisory or a contingent understanding of education as experimental system. It is this concern that Andy and Kamahalo (in the previous chapter) were alluding to: that Kanu is submitting to a state education system and their epistemology of predictability of knowledge that leaves on the wayside its mission, and perhaps – in Kapule's words – conceptions of observing and listening to changes in nature, just as *kūpuna* had experimented in the past.

In summing up this chapter, as ethnographer and engaged instructor at the school my research reflected the motto of Kanu as “school without walls.” I traced education beyond the school to in-between spaces and *trans-institutional practices*. I then elaborated how Kanu's high school students – and local youth in general – formed a 'neglected child' that was trapped between early experiences of *'Ike Hawai'i*, and boredom over its repetition, thus eventually being left to 'catch up' with academics. The students' liminal stage also figured in a friction filled in-between space where they redefined Hawaiianness and *mālama 'āina*. This, as I argue, is a neglected sphere of learning, of *learning as land-ing* where students, out of a sense of fidelity, attempt to reconcile the double bind between a spelled out ethos and the reality that a modern world presents to them. This *learning as land-ing* occurred through place-making practices and experiences that created spaces for groundedness: both in a place and one's (cultural) identity. This, I described, in turn formed *learnscares*, a concept that captures this 'moving out' and to physical places and created spaces through people's idiosyncratic and collective learning trajectories. I thus proposed to expand not only what education means but Hawaiianness, by looking at everyday place-making practices that include and go beyond *mālama 'āina* and land-

related literacies: nonverbal satire, littering, or taking photographs as resignified identity practices (Halualani 2002), as well as rootedness through mobility.

These *learnsapes* in consequence got articulated (or not) in *tacit forms of expertise*. Both in the case of the students and HFCS, these forms of expertise may not be registered as knowledge-worthy according to parameters of Hawaiian education, teachers, or public education. Regardless, they exist, residing between assertive narratives to *mālama ‘āina*, “show aloha,” and trashing the ground. And just as much as these *learnsapes* and forms of knowing are unpredictable, so does education at Kanu form an experimental system that reverberates the easily forgotten mandate of charter schools to be hubs of innovative schooling models.

The high school students continue to form a golden thread throughout the different fieldsites: as significant learners and companions across the school, the anti-GMO movement (chapter 6) and the biotech industry (chapter 7). Before I explore this further, it is essential to provide a background of the agricultural biotechnology in Hawai‘i, which is the theme of the following chapter.

Chapter 5: Agricultural biotechnology: the Hawaiian forms of life of a global industry



Figure 12: Cornfield close to Polihale, sacred place where Hawaiian chiefs were sent to the next sphere. Mānā, West Kauaʻi.

Hawaii became a state in 1959. What a wonderful addition to the United States of America! The culture and the beautiful islands are beyond priceless. What we have learned is the value Hawaii brings to US agriculture, specifically in the Midwest and corn production. I am thrilled the seeds I plant on our farm were researched, developed and produced in the United States of America (Farmer from Illinois, quoted in HCIA & Hawaii Farm Bureau n.a.).

This chapter provides a background to Hawaiʻi's agricultural biotechnology industry that took shape in the early 1990s, and grew to become the largest agricultural industry in the state.

Similar to chapter 2, which provided a background to chapter 3 and 4, this chapter speaks to its subsequent chapters, on the movement (chapter 6) and the agricultural biotechnology industry

(chapter 7). I will commence by outlining the biotechnology regulatory system of the United States and then turn to the emergent forms of life of biotechnology, specifically the one in Hawai‘i (see Fischer 2003). Second, I will highlight how Hawai‘i’s “New Economy” at the turn of the new millennium took shape as a planned triangular “partnership” between the biotech industry, the state, and the educational system. In a larger sense, Hawai‘i was not only interesting for the biotech industry as part of the United States regulatory system, but biotechnology concurrently reaffirmed Hawai‘i as part of the United States. The biotech industry proposed a partnership between with the state and education system of Hawai‘i, among others to create a “University of Hawaii 'culture' that would look favorably upon technology development via education on [its] benefits [...]” (PMP 1999: 16). Yet this mapped out “partnership” and re-nation-building did not account for the public's concern over this new technology a decade later. Attempts to contain risk in the early days of federal regulation, and with it public discontent on genetic engineering re-emerged in Hawai‘i in such instances as genetically engineered (GE) cotton, GE papaya and GE taro. Social containment of controversies, I argue, was framed in 'educating the public' on the benefits of biotechnology, which, however, transpired to be more complicated than expected.

I will thirdly discuss the GE taro case where Kanaka Maoli assertions to keep taro – and thus their elder brother Hāloa – a taboo zone for genetic engineering soon turned into a rhetorical battle between regulating genetic engineering and impeding Hawai‘i's economy. It thus parallels the centrality that *‘āina* has gained in public discourse, and thus related rearticulations of culture in the present. This will lead me to elaborate on science as a purportedly value-free entity, a claim which corroded in quests of taro farmers, Kānaka Maoli and environmental and food activists. These actors exposed what I refer to as *industrious*

objectivity among scientists and politicians. By this I mean an objectivity that scientists like to adorn themselves with when downplaying the profitable aspects of their research. It also delineates an objectivity that politicians favour among professionals who have a background in the industry, and whom they therefore would like to become politicians as well. Yet, as I will demonstrate, this industrious virtue has been ingrained in entanglements of business and politics that go back to the early 19th century. I will end the chapter with a closer look at the ubiquitous 'void' narrative that often surfaces in discussions of the sugar industry having left a void that was subsequently filled by the biotech industry, as well as the abandoned Hawaiian belief system having left a void that was filled by missionaries. I suggest that these instances exhibit worthwhile parallels to managerialism in education systems, and how such discourse constructs both a smoothness and a constant “catching up” of Hawai‘i with the rest of the world.

5.1 Regulating Biotechnology the US-American way

Biotechnology was actually “born” in Hawai‘i (Russo 2003). At a conference on plasmids in 1972 in Honolulu, Stanford medical professor Stanley Cohen and biochemist Herbert Boyer from the University of San Francisco shared their respective research findings.¹⁵¹ This tale of the birth of genetic engineering is one that rests on the idea of “brilliant insights sparked by chance encounters between prepared minds” (Jasanoff 2005b: 188). Yet initial scientific precaution among researchers led to what is known as the Asilomar conference three years later

151 Cohen had previously introduced plasmid DNA into *Escheria coli*, which enables the propagation of cloning of plasmids in the bacteria. Boyer's work on the enzyme *EcoRI*, which could split the double-stranded DNA molecule, could slice both plasmid DNA and the DNA of choice, and subsequently attach the DNA fragment to the plasmid DNA to then clone the whole in *Escheria coli* (Russo 2003: 456).

where scientists called for special procedures regarding recombinant DNA (rDNA) research. In the decade following Asimolar, researchers increasingly questioned early fears around rDNA, while the US Congress lost its momentum to legislate, which caused a time of confused bureaucratic authority in this scientific and legal uncertainty (Jasanoff 1995: 142ff). Concurrently, there occurred a shift from preserving science's autonomy in the 1960s to regulating the purposes of scientific production in the 1990s, manifesting in a conversion of “high-powered university labs into de facto incubators for industry” (Jasanoff 2005a: 235). In 1980, the Bayh-Dole Act allowed academic institutions to gain patenting rights to inventions, and thus commercialize discoveries otherwise “gathering dust.”¹⁵² This Act “changed the longstanding presumption that publicly funded work could not be privately owned and exploited.” Deliberations now occurred largely outside of the public sphere (Jasanoff 2005: 235ff). In 1984, President Reagan expanded this ethos through the science- and industry-friendly biotechnology policy of the *Coordinated Framework for Regulation of Biotechnology* that concluded that the USDA/APHIS (United States Department of Agriculture/Animal and Plant Health Inspection Service), the EPA (Environmental Protection Agency) and the FDA (Food and Drug Administration) sufficiently regulate biotechnology under existing statutory authority.¹⁵³ In the spirit of the *Coordinated Framework*, to this day, the FDA considers food and feed derived from genetically engineered (GE) organisms to be equivalent to conventionally grown organisms: “In most cases, the substances expected to become components of food as a result of genetic modification of a plant *will be the same as or*

152 A prime motivation of the Act's sponsors was to counteract the fact that about 95% of some 28,000 discoveries at public universities never found their ways into the wider public, as no company risked investment if they did not own the title (Leaf 2005).

153 Office of Science and Technology Policy (OSTP 1986).

substantially similar to substances commonly found in food, such as proteins, fats and oils, and carbohydrates” (FDA 1992; emphasis added). The substantial similarity concept is also reflected in USDA/APHIS regulation, and rests on the assertion that *process* was not novel enough to require further regulation, since the potential risk was rather seen in the end *product*¹⁵⁴ – as in “will be the same as” proteins, fats, etc. The USDA is merely required to ask biotech companies to self-evaluate ecological risks of their field trials, and – perhaps not all too surprisingly – in a review of 8,000 field tests no environmental assessment was conducted (Cummings 2008: 13).

The FDA's streamlined approval process for GE food was not unrelated to attempts by politicians to gain back public trust after the agency had undergone financial scandals and regulatory backlogs in the early 1990s (Jasanoff 2005a: 131f). It was also consistent with the Council on Competitiveness that was founded by the Bush Administration according to which the United States was to continue as leader in this economically viable technology, and that unjustified government burdens should be reduced (Marden 2003: 741). The Council's 1991 published *Report on National Biotechnology Policy* describes federal agencies as “gatekeepers” to biotechnology development that shall not inhibit growth of this industry (quoted in *ibid*). The then vice president and head of the Council Dan Quayle affirmed that its new policy, by assuring that safety would not be impaired and neither would a compromise be made for the United States as world leader in biotechnology (Leary 1992). This reasoning exemplifies well

154 In *Designs on Nature*, Sheila Jasanoff juxtaposes the political culture of the US where biotechnology is framed as a collection of *production* with Britain where it is considered a potentially hazardous technological *process*, and Germany, where biotechnology is conceived of as threatening *program* (2005: 95; see also Jasanoff 1995: 156f; Marden 2003: 740).

how science and policy were co-produced to constitute a notion of safety in genetic engineering (see Jasanoff 2004).

In 1980, the landmark Supreme Court decision in *Diamond v. Chakrabarty* resulted in the ruling that patenting of life forms was covered by the existing Patent Law.¹⁵⁵ This signalled a further 'hands-off' stance towards science policy with the reasoning that courts were ultimately powerless to deter scientific advancements (Jasanoff 1995: 144f). The consequential exclusion of courts from debating how biotechnology should be regulated formed what Jasanoff calls a “social containment” of issues not yet foreseen by scientists; namely, a public questioning governmental regulations, the potential for new litigation, and legal activism (ibid.: 142, 157). The divisive character of biotechnology lawsuits in the 1980s in the United States can be described as adversarial with a penchant to “staging conflicts” as a means to conflict resolution (Yoxen; quoted in Jasanoff 1995: 159; 2005). Jasanoff points out that such idiom of “staged” conflict speaks to the progress of biotechnology: “rituals that, in the formal guise of conflict and resolution, opened only a limited and technical space for dissent, and then only to close it the more firmly with the magisterial authority of the law” (1995: 159). As I will elaborate further below and in the next chapter, such social containment that was given a limited space for dissent likewise played out in Hawai‘i in the form of the Kaua‘i County Bill 2491.

155 The Supreme Court was charged with determining whether the Patent Act sufficiently covered the interpretation of patenting life forms in case of a patent that was sought for a bacterium capable to break down oil (Jasanoff 1995: 144).

5.2 Realigning Hawai‘i to the United States: the case of biotechnology

The common understanding that the agricultural biotechnology industry replaced sugarcane and pineapple fields in the 1990s (Cummings 2008: 24; Di Pietro, quoted in Conrow 2009; Mitra 2014) by 'filling the void' that was left behind¹⁵⁶, is congenial but falls short of acknowledging preceding socio-political arrangements. Already in the 1960s, plant breeder James Brewbaker of the College of Tropical Agriculture and Human Resources (CTAHR) at the University of Hawai‘i (UH) commenced Hawai‘i's corn seed industry by promoting it as winter nursery and year-round harvesting potential, which allowed the growth of ten generations in three years as compared to ten years in temperate climates (Brewbaker 2003: 67). The first winter nursery, founded in 1966 on Moloka‘i, was a collaboration between CTAHR and different seed companies that later also included a planting for Pioneer Hi-Bred International, which would later morph into the foundation of the industry's stakeholder Hawaii Crop Improvement Association (HCIA) in 1969.¹⁵⁷ In *Corn Production in the Tropics: The Hawaii Experience*, Brewbaker also notes that since Hawai‘i's corn industry consists almost entirely of unadapted temperate germplasm (corn imported from more temperate regions) and pest diseases prefer the subtropical environment, it requires heavy pesticide treatment (2003: 51, 59). Hawai‘i's corn industry is therefore made up of two different types: hybrids that are developed on the islands for tropical conditions and to resist local pests, and the seed industry's predominantly unadapted temperate germplasm that require regular pesticide use.¹⁵⁸

156 I will return to this framing at the end of this chapter.

157 Serving seed producers of Hawai‘i, HCIA reviews state policies and USDA and serves as research platform for the major companies operating on the islands (Brewbaker 2003: 69). These are Dow AgroScience, Monsanto, Pioneer Hi-Bred International, Syngenta and BASF that produce “conventional and biotech parent seed lines” of seed corn, soybean, sunflower and cotton (HCIA 2015).

158 The first transgenic corn that was introduced to Hawai‘i in 2000 – *BT11* - is resistant to earworms, yet it is noteworthy that Brewbaker, who is a known proponent of the seed industry and GE research, cautions that

In recent years, environmental journalist Joan Conrow has written most extensively about this issue (2004, 2005, 2008, 2009) while an earlier, crucial article has received less attention. Teresa Dawson's "A Quiet Revolution: Genetically Engineered Crops Change The Face Of Hawai'i Agriculture" (1999) gives detailed insights to the biotechnology regulatory process in Hawai'i, and thus to the dynamic between industry, state policy and the public. She describes how in 1990, when field testing of GE crops was still in its infancy, John Harrison of the UH Environmental Center and Bob Grossmann, then assistant to the Department of Health's (DOH) director, shared a concern with some state officials that Hawai'i would become "kind of a wild west, with Monsanto coming in."¹⁵⁹ The fact that the state was merely allowed to review applications and make recommendations to applicants did not sit well with those who wanted more influence for the state and the public. Grossman was instrumental in creating an ad hoc committee to review and monitor biotech research, and lobbied lawmakers to approve a bill that would have required an environmental assessment for proposed field trials, in other words shifting USDA's responsibilities to the state level. At the time the bill was debated, Calgene, Inc. (now owned by Monsanto) applied for a field trial for GE cotton. In this climate of urgency, opponents of the bill argued that USDA's permitting process already allowed public input, and that environmental assessment of the small number of field trials would be a burden on a just developing industry (Dawson 1999). The bill died, just as the committee died when Grossman left the DOH in 1994 (Conrow 2005). Yet only one year later, the EPA found that geographic and temporal isolation of the Hawaiian cotton (*huluhulu* or *ma'o*) from GE cotton

earworms may develop resistant strains, that it has no advantage to controlling other boring insects, and that intellectual property rights prohibits the public sector from using *BT11* (2003: 59).
159 If not otherwise stated, in this paragraph I refer to this article (Dawson 1999).

cannot be guaranteed, and thus restricted the latter's sale, use and required buffer zones (Dawson 1999; EPA 2001: IIC10).

The US regulatory system, the favourable climate conditions with the foreseeable decline of the sugar industry (see chapter 2) and the related suitable workforce were not the only reasons for the biotech industry's expansion in Hawai'i. As the Department of Business, Economic Development & Tourism (DBEDT) detailed in *A New Millennium Growth Strategy For Hawaii's Economy*, the proposed "New Economy" was to be based on the scientific and high-tech advancements of IT, biotechnology, medical technology, and earth/ocean/space sciences (DBEDT 2000: 23). The post-statehood (Hawai'i became a state of the United States in 1959) economic boom that depended on large inflows of overseas investment and labour ended in the 1990s, and its lack of applied technology was not to be repeated (ibid.: 7). Hawai'i was to awaken from a deep slumber, the dream of tourism continually filling the state coffers. It was to pick up the pieces that the sugar and pineapple industry left behind and open (its fields) to new technological applications that had already advanced most of the world. Yet "Are we really 'in' the New Economy?" then Governor Ben Cayetano asked, and "If not, what does it take to catch up or secure more of its benefits?" (DBEDT 2000) After all, as the person who facilitated the biotech industry in Hawai'i (Pacific Business News 2002), Cayetano predicted that biotechnology would lead to cures for deadly diseases and help feed the world's hungry (Associated Press 2000).

Several influential policies paved the way for an inconspicuous agricultural, thus economic turn. In 1994, the Hawaii Legislature established the Agribusiness Development Corporation (ADC) whose main task was to "administer an *aggressive* and dynamic

agribusiness development program” (ADC; quoted in Maehara 2007: vi; emphasis added) in order to facilitate the transition from a “dual-crop (sugar and pineapple) industry to a diversified, multi-crop and animal industry” (ADC 2008).¹⁶⁰ 94,000 acres became available after sugar plantations closed down in the 1990s, and the ADC announced that in order “[t]o meet the challenges of globalization, Hawaii must seize this unprecedented opportunity to reinvent an agricultural industry, empowered by farmers with an entrepreneurial market-driven philosophy” (ADC 1997: 2). After taking over 28,000 acres of former sugarcane plantations on Kaua‘i in 2002, ADC eventually entered into long-term leases with six “agricultural, primarily seed-growing operations”, an aquaculture operation, and two nonagricultural tenants (Maehara 2007: 14ff).

In 1998, the report *The Potential for Commercial Biotechnology and Advanced Technology Agriculture in Hawai‘i* for DBEDT anticipated that Hawai‘i would become a world leader in biotechnology application to tropical plants and marine organisms that could generate a potential revenue in excess of \$7.4 billion (Markrich & Harrington 1998). A partnership was formed between the DBEDT, the Governor’s Technology Advisor, UH, the National Science Foundation (NSF) and other biotech research and industry representatives (PMP 1999). The related report *Biotechnology in Hawaii: A Blueprint for Growth*, prepared by the life sciences marketing and consulting firm PMP Public Affairs Consulting describes “an industry-based biotechnology competitiveness strategy” (ibid.).¹⁶¹ Hawai‘i’s competitive biotechnology industry due to first-class university facilities, its climate and mid-Pacific location, and the local

160 The state categorizes anything but sugar and pineapple as “diversified agriculture” (see Gibson 2014: 229), which makes the predominant cultivation of corn as “seed” diverse by definition.

161 Besides PMP Public Affairs Consulting, the Washington-based Biotechnology Industry Organization (BIO), the “world’s largest trade association representing biotechnology companies, academic institutions, state biotechnology centers [etc.]” (BIO 2014), served as the second consulting entity.

industry's unique commercialization opportunities (PMP 1999: 1, 5) served well for such planning. Indeed, just like the reproduction of a technical drawing, the report laid out for Hawai‘i the *Blueprint* of biotechnology as technocratic scheme for economic growth.

In the following section, I will give a closer analysis to this report, as the socio-technical planning it outlines came with ramifications that I will describe ethnographically in the upcoming two chapters. It details the need for a state-wide growth strategy in order to (again) “*aggressively* move technology industries, and biotechnology specifically, forward”, particularly in respect to Asia-Pacific leadership and public-private partnerships (PMP 1999: 2; emphasis added). In order for this to happen, the biotech industry, the government, and the state education system are to work together in a peculiar relationship: First, “[t]he *biotechnology industry* is the main player in this plan” as it is responsible for plants, equipment, and the hiring, training and retaining of the workforce (PMP 1999: 8; emphasis original). Second, the government is to “serve as a catalyst and facilitator to the industry” by creating an “effective regulatory structure that minimizes impediments” and creates “a climate that enhances industries' competitiveness” (ibid: 3, 9; see also DBEDT 2000: 19). Third, Hawai‘i's K-12 education, community college, and university system is responsible for retraining workers through a “Biotechnology-Age Curriculum”¹⁶² that shall “include classes tailored to company needs and product development schedules” where “[v]ocational education in high school and community colleges must be retooled from established trade skills to job skills in the fast-paced biotechnology sector” (PMP 1999: 3; 16). On a higher education level, it is recommended to

162 Not unrelated to this, as taro farmer Penny Levin shared with me, back in 2005 biotech companies would hand out “boxes with lesson plans for an entire semester with all the answers given out to teachers at county fairs, CD video games and cartoon books for kids designed with the outcome that GE corn was champ” (email conversation, April 2016).

create a “University of Hawaii 'culture' that would look favorably upon technology development via education on [its] benefits [...]” with the added benefit of an “increased understanding and support of the industry by the general public” (ibid: 16).

The *Blueprint* report, in other words, is a peculiar engagement proposal where the biotech industry is willing to court with its euphemized “partners” as long as the latter tailor to its needs. In the *New Millennium Growth* report published a year later, Governor Cayetano finds more balancing words when he envisions government, business, and academia “working together” to form a “knowledge-based and idea-based economy” (DBEDT 2000: 4). In order to appreciate the “vast potential that biotechnology offers, care must be taken to *educate consumers* and provide adequate assurances that products are safe for consumption and the environment” (ibid: 45; emphasis added). Similar to Jasanoff's account of the introduction of GM food in US markets a decade earlier, “[i]t was, in all, as much a process of making the world safe for the introduction of GM as making GM safe for introduction to the world” (2005a: 131). The imagined public, I argue, oscillates between being a beneficiary of science and technology research that is appreciative of this work and readily absorb it, and being in need of more deliberate instruction, such as with booths at Farm Fairs or in the form of public education curriculum. As I will show in chapter 7, more deliberately 'educating consumers/the public' was key to ensure that this new information did not fall on unworked ground.

Governor Cayetano was also cautious to point out that this shift was not novel, that “[w]e have made these changes before”: Hawai‘i always stood out with its technological advancement in the sugar and pineapple industries (see Helmreich 2005: 122), tourism, the technology-intensified health care industry, and business computer service (DBEDT 2000). What was new in the New Economy was the call to understand “risk, uncertainty, and constant

change [as] the rule, rather than the exception” (ibid: 4). And while there were already 45 small biotech firms in 1999, *biotechnology* was still novel enough to be framed as indispensable to Hawai‘i’s then plummeting economy.¹⁶³ Hence, the ordering of nature through knowledge and technology, by providing land to grow GE crops for research and development (R&D), cannot be disassociated from the ordering of society through power and culture (Jasanoff 2006: 14) – in commanding citizens to be flexible and ready for a new industry. Put differently, the human capacity to reconfigure nature by producing facts and artefacts are co-produced with ordering and reordering society through such devices as laws, regulations, and political campaigns, etc. (ibid.). Land that hosts revenue-producing industries of whatever kind (sugar, pineapple, military, biotechnological research on seeds, etc.) has thus constituted a flexibility that is co-produced with an adaptability that society is told it has always known. In that sense, the ontology of *‘āina* as “that which feeds us,” as ancestor and kin, continues to be buried deep under the surface of 'productive' land use through agricultural practices. Such overlays of colonialism reverberate in a reaffirmed ethos of maintaining economic stability, yet only one that serves a global economy (see MacLennan 2014).

Hence, flexibility also figured in policies of the “New Economy” that, in order to attract out-of-state technology companies and investors, were intended to shift support from ventures secured by real estate to those that are secured by intellectual property. This was facilitated through Act 178 that was passed in 1999 for the purpose of establishing quality high-

163 The malleability as novice yet well-rooted business parallels the rhetoric of proponents of biotechnology, who describe it as both a continuation of a thousand-year long tradition of plant breeding – often explained to skeptical citizens or regulatory agencies – and a novel technology that is ripe of promises for feeding the world, curing cancer, etc. - as it is often presented to funding agencies.

technology business (QHTB) investment and research activities.¹⁶⁴ Little investment occurred, so two years later Act 221 raised tax credits from 10 to 100 percent (Higa 2012), making Hawai‘i the most generous state in the nation (Kato et al 2009: 7f). In 2002, the Washington DC-based Biotechnology Industry Organization named Governor Ben Cayetano the “Biotech Governor of the Year,” an honour primarily given due to Act 221 (Pacific Business News 2002). However, the act had many critics, since data on business investment tax credits were in publicly undisclosed income tax returns, which neither offered information on the law's success nor on the names of QHTB.¹⁶⁵ As a response, the State Legislature let Act 221 sunset in 2010 (Kato et al 2009: 4), its success highly debated. What is known is that in 2009 the QHTB investment credit led to a \$857.6 million loss of tax revenues, and that it took six years to commence studies of the act's effectiveness and disclosure of the QHTB's that benefitted (DOTAX 2010). Regardless of its apparent failure, high-tech gained a reputation as promising a new economy. This was particularly the case for the “seed crop industry” – or as I refer to the agricultural biotech industry – that in 2013 accounted for the biggest contribution to the life sciences biotechnology industry (Loudat & Kasturi 2013: 16).

This attempt to attract companies from outside, I argue, also contributed to a nation-bonding project that goes back at least to the Hawaiian Kingdom's overthrow by the United States in 1893. In contemporary times, this bonding endeavour becomes evident in narratives of an imagined community (Anderson 1983) of the United States. The introductory quote of this

164 Hawaiian taxpayers that invested in QHTB were given a non-refundable tax credit of up to \$2,000,000 (Bolante 2003; Sakai & Bird 2006: 1). Biotechnology was eligible for QHTBs in Act 297 in 2000 (Kato et al. 2009: 5f).

165 Bolante (2003); Higa (2012). The *Hawaii's Seed Crop Industry: Current and Potential Economic and Fiscal Contributions* report prepared by HCIA and the Hawai‘i Farm Bureau asserts that the seed crop industry “required no governmental support in the form of subsidies, targeted tax credits, tax breaks, etc. to locate and operate in Hawaii” (Loudat & Kasturi 2013: 6f). Yet the “Liberation construction” language in Act 221 allowed any firm that argued for qualification as QHTB to be accepted as such (see Kato et al. 2009: 6).

chapter by the farmer from Illinois illustrates this nation-bonding narrative well. Research and development (R&D) funding plays an important role in such endeavours. Upon receiving research funds from the federal government – NSF, NIH (National Institutes of Health), and the military – in turn the State of Hawai‘i is to encourage the development of Hawai‘i’s technological resources to attract businesses from the continental US and Asia (DBEDT 2000: 8). This investment in R&D in turn provides Hawai‘i’s taxpayer “the most technically advance [sic] society on the planet, with arguably the highest standard of living” (ibid). Yet facilitating such growth is not merely a matter of bringing industry and its technoscientific notion of progress to the islands. As Benedict Anderson famously shows, nationhood is based on an imagined community that shares the *idea* of a particular nation, which is facilitated by symbols that are most prominently shared in print media (2006 [1983]). Jasanoff extends this instrumentality to technologies of representation and communication (2006: 26). What MacLennan postulated for the sugarcane industry – to forever link agricultural wealth through export with the kingdom’s national sovereignty (2014: 62) – now occurs with a twist of reordering Hawai‘i with a strong emphasis on science and technology (S&T) as part of the United States.

Technological virtue thus continues to weave in with the story of a sovereign nation – in the past as Kingdom of Hawai‘i and at present as 50th state of the United States. For instance, CTAHR at the University of Hawai‘i warns that it should not become an “object of criticism by some individuals and groups [criticizing the college’s taro research, see below] who desire their beliefs and agendas gain broader attention,” which is “not unusual in context of the many seemingly intractable controversies that plague the U.S. body politic and strain national unity”

(CTAHR 2009: 6). Biotechnology thus acts as institution of governance¹⁶⁶ where the naturalized “State of” Hawai‘i and the United States' technoscientific advancements re-establish a science-savvy, progressive nation. Oddly, the population native to the Hawaiian Islands was reminded of their belonging to “the mainland”¹⁶⁷ just at a time when their sovereignty movement experienced an upsurge a century after the kingdom's overthrow. This also coincided with Kānaka Maoli's and farmers' claim for water use after the demise of the sugar industry (see Helmreich 2005: 122; Ho‘okanao 2014; Sproat 2014). Furthermore, DBEDT Director Theodore E. Liu reminded the people of Hawai‘i that businesses in science and technology (S&T) provide “higher paying jobs to bring back our children to Hawaii after college education on the mainland” (Liu 2009).

Hence, S&T reasserts the bond between Hawai‘i and the United States by attempting to nullify a colonial past (and present) that could “strain national unity” and as a guarantor of a new economy that would allow families to stay together in their increasingly expensive home that is Hawai‘i. Biotechnology as institution of governance, but also as discourse (Jasanoff 2006: 283f) of labour, wealth, progress, and eradicator of world hunger in these ways reconstitutes Hawai‘i as part of the United States.

These dynamics get further complicated when lingering issues of colonialism remain unresolved and exploitation of natural resources takes on new forms. Communication between

166 Sheila Jasanoff differentiates biotechnology as *material technology* - redesigning nature to perform new tasks -, as *metaphysical device* - creating new entities of life -, as *discourse* - i.e. of progress or invasiveness -, and as *institution of governance* (2006: 283f).

167 The term “mainland” suggests a centrality of the United States that implicitly pushes the Hawaiian Islands to an imagined periphery (see Hau‘ofa 1993). In 2012, students of the HFCS Hālau Kū Māna produced a school video that brilliantly questioned this notion in reenacted everyday conversations (the video was accessible online for a brief time). I am also intrigued by Okihiro's mapping of the world according to tectonic plates, which create new life on their borders, such as the Hawaiian Islands, and thus become centres (2009: 2). My alternative use is “continental” US.

scientists and the wider public is often defined by a lack of transparency, which as a result has often created separate spheres of knowledge production (see Bamford 2007; Berkes [1999] 2008; Cruikshank 2005; Haraway 1988; Jasanoff 2005; Nader 1996; Shiva 1995). Particularly in respect to indigenous people, a growing literature describes struggles with research institutions and governments that ignore indigenous peoples' intellectual property rights (Cummings 2008; Fitting 2011; LaDuke 2005; Schlais 2007). These processes have often been termed bio-piracy, bio-prospecting (Greene 2004), or biocolonialism (Howard 2001; Little 1999: 267f). Bamford asserts that biotechnology has been actively confronted by indigenous people's understanding of their relationship to other life forms (2007: 153; see also Cram 2005; Roberts et al. 2004; Reynolds 2004).

Overall, the political plans that were set out in the late 1990s were not overtly questioned in the decade to come. Clothed in the language of the “New Economy,” biotechnology was simply a new prospect for politicians, landowners and unemployed workers that face uncertainty. Yet biotechnology entered a more public scene in Hawai‘i in another, more ubiquitous way. When Dennis Gonsalves was a plant pathologist at the University of Hawai‘i and at Cornell University he spearheaded genetic engineering research on papaya, which had suffered a severe infestation of the ringspot virus on Hawai‘i Island in the 1980s. His ringspot-resistant “Rainbow” papaya is the thus far the only commercially grown GE fruit in the United States that was developed by public-sector scientists (see Voosen 2011). The GE

papaya has arguably saved the papaya industry and was welcomed by a large number of papaya farmers on Hawai'i Island.¹⁶⁸

People critical of GE research often raise ecological and environmental concerns, and it is worth looking at the epistemological dimension of how GE papaya was *made* safe, as it illustrates (social) containment efforts in the regulatory process in Hawai'i's agencies.¹⁶⁹ In the 1990s, CTAHR horticulturalist Richard Manshardt started to develop GE papayas when experiencing several 'gene flow' incidents, in other words, cross-pollination with non-GE varieties. In 1998, the USDA charged Manshardt with violation of his permit, referring to the papaya ringspot virus coat protein as "highly virulent virus sequence." Manshardt subsequently contacted the University of Hawai'i Institutional Biosafety Committee (IBC)¹⁷⁰ and a CTAHR faculty and objected to USDA's description as incorrect, adding that if this information was to become public it could result in "serious repercussions for CTAHR and me." Two weeks later, the UH Environmental Health and Safety Office sent a letter to the USDA stating that Manshardt "made a sincere effort to comply and that there was no intentional wrongdoing on his part." Thereafter, the USDA changed its definition of the coat protein to a "transgene." While the USDA, the Department of Agriculture (DOA) and the IBC periodically inspect field test sites, Manshardt later affirmed that "a lot of what goes on is based on trust. Without it, the

168 For the GE Rainbow papaya, Gonsalves and his team received the Alexander Von Humboldt Award in 2002 as significant accomplishment in American Agriculture for finding a solution to the rampant ringspot virus (Brochure of *The Farmer Dialogue*, 2013). Within the scientific community and many papaya farmers, the GE papaya is referred to as success story (see Voosen 2011) while other farmers, environmentalists, and politicians have questioned this claim (see Bondera 2006; Dawson 1999).

169 In the following, I cite from Dawson's article *A Quiet Revolution: Genetically Engineered Crops Change the Face of Hawai'i Agriculture* (1999).

170 NIH requires all institutions receiving funding to establish an IBC that has to have a minimum of two outside members, which in the case of UH were from the Hawai'i Department of Agriculture (DOA) and the Hawai'i Department of Health (DOH).

system is difficult to operate.... [sic] The point needs to be made that it is possible to tighten up regulations to the point where nobody can do research” (Dawson 1999).

The measure to close off potential controversy over the safety of GE papaya illustrates biotechnology's success in maintaining “only a limited and technical space for dissent, and then only to close it the more firmly with the magisterial authority of the law” (Jasanoff 1995: 159). However, in case of GE papaya none of this deliberation took place in the public. Rather, closure occurred through the locking horns of UH and USDA. Further, this framing of GE papaya, just as arguments around GE cotton and the “New Economy,” speaks to the lawmakers' and scientists' belief that such a young industry needed not be burdened with overregulation. This relates back to the Council on Competitiveness and its policy that unjustified government burdens are to be reduced to guarantee global leadership (Marden 2003: 741). Protagonists of CTAHR, the IBC (including the DOA and DOH), the USDA, and UH disquietingly co-produced the notion that genetically engineered crops are “safe” as a scientifically indisputable fact – with and through the devices of a regulatory system and a reliable academic institution.

As this episode shows, such agencies are not 'objective' or impartial entities. The changing descriptions of the papaya ringspot virus coat protein from “highly virulent virus sequence” to “transgene” demonstrates, I argue, an often overlooked, central fact-constituting moment in Hawai'i of genetically engineered organisms as safe. Keeping at bay the danger of “serious repercussions for CTAHR and [Manshardt]” was an attempt of socially contain not yet foreseen potential controversies (see Jasanoff 1995: 157). In the papaya incident the containment worked, as people critical of the project pointed to the economic impact – i.e. Japan refusing to import GE papaya for several years – and the ecological impact in gene-

flows. There was in other words little debate over this epistemological black-boxing of 'risk' in genetic engineering.

Meanwhile, on the other side of the Hawaiian archipelago, on Kaua‘i, GE papaya has increasingly grown irrelevant, however. At the community event *The Farmer Dialogue: Talking Story About Farming, Food and Our Future* held in Kapa‘a in June 2013, Dennis Gonsalves was a panelist among other scientists and representatives of the biotech industry. Not a single person mentioned the GE papaya story. Gonsalves, it seemed, was invited as the token for a successful GE story that has lost its glamour. Neither GMO papaya nor this risk-containment featured much in another instance of genetic engineering that went to the core of Kānaka Maoli communities.

5.3 Hāloa – genetically engineering an elder brother and provider

In the early 2000s, CTAHR scientists conducted research on taro disease resistance, particularly leaf blight, which they considered to be most devastating for taro, as well as potentially destructive pests, such as the alomae-bobone virus complex that was prevalent in other parts of the world (Nelson et al. 2011: 9). Their reasoning went as follows: “The current set of taro pests and pathogens, including some known problems that may yet arrive here from afar, is a formidable challenge to the relatively narrow genome of the traditional Hawaiian taro varieties [...]” (CTAHR 2009: 4). The narrative of Hawaiian taro's “narrow genome” refers to the ancestral cultivation practice through asexual propagation by planting the stem that thus results in a “poor” gene pool (see CTAHR 2009). Taro leaf-blight led CTAHR plant pathologist Dr. Eduardo Trujillo to crossbreed the widely grown Hawaiian taro *Maui Lehua* with the leaf-blight-resistant Palauan *Ngeeruch* variety from which three cross-breedings were patented in

2002 (ibid.). Besides its unfavourable consistency for making poi – a favoured paste made of steamed taro – many taro farmers, such as Chris Kobayashi from Kaua‘i, found the license agreement counterproductive to the farmers' common practice of sharing the *huli* (stem) for vegetative reproduction.¹⁷¹ Around the same time, in another research project, genetic engineering was used to explore resistance to leaf blight by inserting the wheat oxalate oxidase gene, the rice chitinase gene and the grapevine stilbene synthase gene into taro's germplasm (He et al. 2013: 377; Miyasaka 2006). The promising results of the oxalate oxidase gene, arresting the spread of the pathogen that causes taro leaf blight, led to further research projects where an inserted rice chitinase gene showed resistance to the fungus causing southern blight (He 2006; He et. al. 2013: 378). The researchers sought to apply this method to the Chinese taro variety *Bun Long*, the Hawaiian *Maui Lehua* and the Samoan *Niue*, yet only succeeded with *Bun Long*.¹⁷² After it leaked out that genetic tests were done on Hawaiian taro and rumours of its possible genetic engineering spread, numerous protests by Kānaka ‘Ōiwi, including HFCS students, educators, as well as taro farmers ensued, urging the university to terminate research involving genetic engineering of any taro variety (see Hawaii SEED n.a.; Leone 2005). According to Hawaiian activist Walter Ritte the genetic engineering of Hāloa, taro, the elder brother of Kānaka Maoli, is an alteration of a kinsman, a desecration (see Ritte & Freese 2006). Eventually, the Dean of CTAHR Andrew Hashimoto stated that the college would refrain from any genetic engineering of Hawaiian taro varieties, and stressed that only genetic engineering of the Chinese *Bun Long* variety had been pursued (Hashimoto 2005).

171 I met Kobayashi in August 2011 as part of preliminary research.

172 In the development of tissue culture, the *Bun Long* variety created most regenerative *calli* (tissue) while the Hawaiian *Maui Lehua* produced none (He et. al. 2013: 372).

At the same time, in February 2006, the growing concern regarding the three patents led taro farmer Kobayashi and Ritte to partner with the non-profit organization Center for Food Safety to write a letter to the President of the University of Hawai‘i wherein they requested the patents be abandoned due to their non-compliance to the United Nation's World Intellectual Property Organization and the United States Patenting Law.¹⁷³ Ritte called the attempt at patenting Hawaiian taro the *second Māhele*, in reference to the Great Māhele (discussed in chapter 2): “They do not have the right to buy, sell, own and manipulate our mana¹⁷⁴ [...] We are Hāloa, and Hāloa is us. No one can own us” (quoted in Ing 2006: 1). Eventually, the University released a “Terminal Disclaimer” for the three patented taro varieties (Ostrander 2006). Opposing the university's attempt to ‘return’ the patents to the Hawaiian community, at a public gathering Ritte, Kobayashi and Hawaiian Studies professor Jonathan Kamakawiwo‘ole Osorio symbolically tore the taro patents apart (Essoyan 2006; see also Kanehe 2014).

Counter to the widespread conception that all Kānaka Maoli conceive of GE technology as harmful, Dennis Gonsalves is perhaps the most prominent example of a GE proponent whose ethnicity and origin in Hawai‘i is often made explicit in media or at public appearances.¹⁷⁵ While only few Kānaka spoke out in support of biotechnology, another GE proponent is Adolph Helm, “Native Hawaiian kalo farmer, president-elect of [HCIA] and project manager for the Dow Agro-Science research site on Moloka‘i”, who described genetic engineering as

173 One of the arguments was that ancestry of the female parent *Maui Lehua* is not “unknown” (Trujillo 2002) but had been introduced by first island settlers in the 4th to 5th century (Kobayashi & Ritte 2006). Furthermore, claimed properties of leaf-blight resistance, tolerance to root rot and vigorous growth (Trujillo 2002) were not valid, as a month after the third patent was issued, CTAHR stated that “only preliminary observations are available on ... disease susceptibility ... and yield of the three new cultivars” (Kobayashi & Ritte 2006; Trujillo et al. 2002).

174 Mana: divine power, authority.

175 See for instance a *New York Times* article (Harmon 2013), Helm (2008) or the documentary *Nā Kupu Mana'olana - Seeds of Hope* (Miller 2013).

one among many tools to sustain this culturally significant plant (Helm 2008). Hugh Lovell is another Native Hawaiian and “researcher,”¹⁷⁶ who was hired as such by CTAHR. In a video with two other CTAHR scientists, he puts the narrow genome narrative of Hawaiian taro in relation to early Native Hawaiians' weakness to diseases that came from abroad:

When you look at the *ali'i* [kings] of Hawai'i they basically bred within themselves to maintain the royal Hawaiian line. And because there was not too many branches on the tree, and their gene line became thin, when western diseases came they were the first to die. Same thing with taro. Taro was taken, bred back upon itself, and their gene lines gotten real thin. When disease came to hit, they're having a hard time (Lovell 2006).

Hawaiian scholar Lilikala Kame'eleihiwa countered a similar statement by CTAHR Dean Hashimoto. Kame'eleihiwa argues that “we didn't change the Hawaiian people. We attacked the disease” (quoted in , Lo 2006). Walter Ritte argues that it is not the intentions of the researchers that are problematic per se but the way CTAHR scientists behave like “old-time missionaries, trying to save us from ourselves” (Honolulu Magazine 2008). Taro farmers have likewise grown tired of the narrow taro genome argument and found Lovell's statement utterly insensitive.¹⁷⁷ In their view, as described in the *Taro Security and Purity Task Force* (OHA 2009), such framing distracts from more pertinent questions, such as access to land, fresh, flowing water, and the destructive apple snail. Over a thousand years Hawaiian taro farmers have cultivated about 300 varieties of taro from this gene pool by adapting to varying micro-climates, soil, cultivating practices with aloha, and hybridization (Handy & Handy 1972; OHA

176 Lovell did not earn a university degree (Aha Moku n.a.). According to a taro farmer, he was hired during the GMO taro debate, and as Native Hawaiian he was portrayed as researcher to appear more authoritative within the Hawaiian community, in other words, to act as spokesman for Hawaiians (personal communication, 2014).

177 Taro farmer (personal communication, February 2014).

2009: 8).

Efforts to end GE taro research of all varieties came to relative fruition at the legislative level when Senate Bill 958 was introduced in 2007, which detailed a ten-year moratorium on “developing, testing, propagating, cultivating, growing, and raising genetically engineered taro in the State” (Senate Bill 958 HD1 2007). Yet despite public protests of Hawaiian and taro farming communities, as well as food rights and Hawaiian sovereignty advocates, a full victory was denied. In April 2008, House Speaker Calvin Say and Chairman Representative Clift Tsuji introduced several amendments in executive sessions (Storch IV_100313), among which was the prohibition of the state and counties to ban the “testing, planting, or growing [...] of any genetically modified non-Hawaiian taro or other non-taro plant organism”, a reduction of the moratorium to five years and to Hawaiian taro varieties only (Senate Bill 958 HD2 2008). Consequently, neither state nor counties would have had legal power to regulate any genetically engineered organisms in Hawai‘i indefinitely. The disappointment in the taro farming community was enormous, and its spokespeople decided to revoke their support for the poisoned bill, which was consequently killed.¹⁷⁸

In an economic sense, the language of the amended SB 958 was in the spirit of the goals set out in the *New Millennium Growth Strategy For Hawaii's Economy* of almost a decade earlier, and reaffirmed that out-of-state seed companies, making up the biggest agricultural commodity, “need assurance that they will still be able to invest and operate in Hawaii” (Senate Bill 958 HD2 2008). The amendments were an assurance that the high-tech industry remain the

178 Storch (IV_100313). A few months later, the Big Island County Council passed a bill regarding the ban of testing and propagating of GE taro and coffee (Dayton 2008) followed by the Maui County Council with a ban on GE taro (Tanji 2009). Ever since the failed Senate Bill 958 similar state-wide bills have been introduced, yet all of them have been deferred.

motor of Hawai'i's "New Economy" that could not be jeopardized by anti-GE sentiments among an 'uninformed' public. Adolph Helm similarly contended that the "Hawaiian people, organizations and culture" were being steered, even hijacked to support this bill by outside influences that promote their own ideological and political agenda (2008).¹⁷⁹ DBEDT's director Theodore E. Liu testified on a bill similar to SB 958 that "We are concerned that a ban [on testing, releasing, importing, growing, etc. GE taro] would send an anti-science message to the community, at a time when we need to promote the importance of science to our children in Hawaii schools" (Liu 2009). The problem was thus detected in the malfunctioning collaboration of industry, government and the education system, the "partnership" that was set out in the *Blueprint* report (PMP 1999). There was perhaps a realization among politicians that more needs to be done to 'educate the public,' in order to have a 'scientific' discussion. They may have also realized that social containment of an 'uninformed' public is inevitable, as the shades and colours that a blueprint cannot convey started to figure more prominently in the form of public debates.

What is noteworthy is that in these public deliberations, the science and technology of genetic engineering was never openly debated. To better understand how and why, I return to Jasanoff's differentiation between biotechnology as *material technology* (to redesign nature), as a *metaphysical device* (to create new life forms), as *discourse* (i.e. of progress or invasiveness), and as an *institution of governance* (2006: 283f), as discussed above. In the GE taro debates, Kānaka Maoli and taro farmers were not referring to it as material technology, such as in what

179 Curiously, the person that introduced Senate Bill 958, the late State Representative Mele Carroll, points to her ethnicity as Native Hawaiian, and justifies the bill as following her spiritual belief in *kalo* as ancestor of her people that is in need of protection (quoted in Hamilton 2009). A simplistically constructed "Haole" movement also reemerged in debates around Bill 2491 on the regulation of the agricultural biotech industry on Kaua'i to which I will turn in the next chapter.

genes were inserted into taro's germplasm to enhance leaf or southern blight resistance. Rather, they problematized biotechnology both as discourse of invasiveness and as metaphysical device that counteracts Hawaiian epistemologies of where (not) to draw the line between society and nature – humans 'playing god' by injecting genes into plants – but also between society/nature and cosmogeny, since Hāloa is taro as well as the embodied god Kāne. What people reclaimed was the ontological conception of nature *as* kin. I argue that this is also the reason why those opposing the patenting and genetic engineering of taro often conflated these two CTAHR research projects as one, and why they referred to the “genetic engineering” of the Hawaiian taro *Maui Lehua* when it never developed enough tissue culture for that to happen.¹⁸⁰ This is not to say that people were wrong but rather that their reasoning was not the same as those of scientists. Biotechnology and the patenting regime were together targeted as discourse of invasiveness into Hawaiian culture.

Omitting biotechnology as material technology may in turn concern those in support of genetic engineering. Sarah Styan from Pioneer DuPont, who at the time was involved at Hawaii Crop Improvement Association (HCIA), noted in our interview that

taro is of cultural importance to the Hawaiian people, you cannot – I mean, because of that, it's not something that you can have a scientific discussion about. This is a personal issue. And that, you know, it makes it very difficult to be objective. And I understand that, I totally respect that (IV_070613).

180 I also note that opponents regardless made the point that none of the Hawaiian taro's “Pacific cousins” should be genetically engineered, also due to the likeliness of mixing up taro *huli* (stem) that is used for replanting (Hawaiian Civic Club Honolulu 2008; Kobayashi, pers. conversation 2011)

Styan asserts that emphasis on something of “cultural importance” precludes more in-depth discussions on biotechnology as material technology, and by that – similar to CTAHR's position – constitutes these two matters as incommensurable. Yet this separation of 'culture' from 'science' was also the discourse among opponents of GE and patented taro. Bills (State level) and Ordinances (County level), such as SB 958, did not debate potential uncertainties and risks of the science and technology of genetic engineering but rather reaffirmed the sacredness of Hāloa and the centrality of preventing cultural desecration.¹⁸¹ Another indicator is that earlier legal cases of 2005/06 where the Hawai‘i Department of Agriculture was charged for not having properly reviewed Monsanto and other biotech companies' biopharmaceutical research¹⁸² did not enter debates specific to GE and patented taro. Likewise, environmental lawyers referred to Native Hawaiians' dissent as a unique case in which *cultural* reasons were the main impetus for the termination of patents and genetic engineering (see Cummings 2008: 188; Kanehe 2014; Kimbrell 2013; Schlais 2007). Regardless, Haloa continued to occupy the public space as moral figure and symbol, later also in the anti-GMO movement, as I will elaborate in chapter 6.

181 See County of Maui's and County of Hawai‘i's passed Ordinance that ban GE research on taro, as well as Senate Bill 958 in 2007/08, Senate Bill 709 in 2009, or House Bill 735 in 2013. The County of Kauai only passed a recommendation to the Hawaii State Association of Counties to support SB 958 (Jeri Di Pietro, pers. conversation, March 2013).

182 In 2003, the environmental law firm *Earthjustice*, representing several Hawaiian-based and national environmental, food activist and cultural non-profit organizations, charged USDA for failing to require an Environmental Impact Assessment (EIS) from biopharmaceutical companies prior to their open-air field tests of corn and sugar cane plants that were modified to produce human hormones and vaccine ingredients to fight HIV and hepatitis B (Brown 2006). In landmark decisions in 2004 and 2006, federal judge Michael Seabright found that the USDA having granted permission for the biopharmaceutical field tests acted in “utter disregard” to the state's hundreds of endangered species, and ruled in favour of the plaintiff (Lo 2006; Weiss 2006). Since 2004, no field tests for crops that produce pharmaceutical compounds have been conducted in Hawaii” (USDA APHIS 2006).

5.4 Industrious Objectivity

The taro incident revealed several other aspects that give insights into how science and policy intersect in Hawai‘i, and how industry should or should not figure therein. In 2009, CTAHR published a report in response to controversies over their research projects, stating that

Assertions of values or cultural values, which may have religious connotations, do not readily find common cause with the principles that motivate the professional activities of CTAHR faculty that are (and, constitutionally, must be) secular (2009: 6).

Such ethics in which the articulations of values would compromise professionalism reverberates with a hallmark notion of science as an objective, universal, unbiased entity. This notion of science is described by sociologist of scientific knowledge (SSK) Robert Merton in his seminal paper “The Normative Structure of Science.”¹⁸³ The affirmation that science is separate from values, religion or beliefs has been amply studied by STS scholars and anthropologists to show that science and technology are themselves forms of cultural systems.¹⁸⁴ In the context of indigenous epistemologies, Roberts et al. (2004) state in their analysis of Māori genealogy *Whakapapa* that counter to the idea that modern science is value free, indigenous knowledge systems affirm rich, deliberately value-laden narratives as to offer moral guidelines for proper conduct (ibid: 15; see also Cruikshank 2005). This is akin to the Kānaka Maoli's moral guideline in their Kumulipo (creation story), such as of Wākea, sky father, genitor of Hāloa and the Hawaiian people where the latter are to honour Hāloa as to care for them. It may thus not be accidental that the GE taro debate played out in the way it did.

183 Merton lists four overarching norms among scientists: universalism, communism (as in common ownership of scientific findings among scientists), disinterestedness, and organized skepticism (1973).

184 See Gieryn (1995), Haraway (1988), Latour (1999), Nader (1996). Ensuing debates are known as the *science wars* (see Franklin 1995).

More research on the specific forms of biocolonialism in Hawai‘i, particularly in regards to the agricultural biotechnology industry, has been published in recent years (Brower 2016; Goldberg-Hiller & Silva 2015; Gupta 2015).

Besides western science's apparent independence of 'non-scientific' realities, this norm also refers to scientists' disinterestedness (Merton 1973) in regards to profit. Two decades after the Bayh-Dole Act, Hawai‘i's *Millennium Growth* report reverberated the Act's purpose that the government was to “substantially strengthen public-private partnerships to increase the number of commercially viable patents emanating from research laboratories [at UH]” (DBEDT 2000: 32). Agronomist Hector Valenzuela – a CTAHR internal opponent of the GE and the patenting taro research project since their inception – explained to me in which ways the Bayh-Dole Act ramified at the University of Hawai‘i. I had a chance to interview him after a workshop that he gave in Kekaha on Kaua‘i's West side on organic farming and agroecology in June 2013. He recapitulated the effects of the Bayh-Dole-Act:

The industries at that time realized that society was going to change from an energy-based to a biology-based economy. And this means an economy based on patents. So, everything matched perfectly, the universities were going to move to patenting and the industry was going to move to patenting. [...] So, at UH we have a big high tech or patent office that is trying to patent anything that is coming from professors. And if you have new ideas they are willing to come and help you. So, we have some professors that decided to make some crosses and develop new varieties of taro and say: Hey! We can patent these varieties, and we can, I can become real popular, and I have patents and can start getting royalties and so on (IV_090613).

Valenzuela describes a prestige- and product-driven mindset among UH scientists that in a Mertonian sense is decoupled from valuation, in this case of profit. Concurrently, in 2010 and 2011 the biotechnology corporation Monsanto granted a total of \$600,000 to CTAHR for the

support of education in plant science.¹⁸⁵ This is not surprising in the light of DBEDT's assertion that the government's subsidy of basic and advanced education should encourage more investment in education to attract business-funded R&D as “to offset the continuing drop-off in Federal support” (DBEDT 2000: 8; 17).

As mentioned above, Sheila Jasanoff describes a shift that occurred in the 1960s from preserving science's autonomy to regulating the purposes of scientific production in the 1990s, which manifested in a conversion of “high-powered university labs into de facto incubators for industry” (2005a: 235). Donna Haraway likewise points to this “growing industrial direction of education (especially higher education) by science-based multinationals (particularly in electronics and biotechnology dependent companies)”, calling for more research on the social relations of biotechnology (1983; n.a.). This appeal reverberates in Glenn Stone's advice to anthropologists to engage in academia's reconfigured relationship with state and industry, since “the parallels in the timelines of genetic modification and what is often called academic capitalism are striking” (2010: 384). Hawaiian scholar Gregory K. Schlais interprets Hawaiian epistemology as incompatible with ownership – say, of a patented gene – for heritage consists of a bundle of continuous relationships, and its sale would simply end them (2007: 593). André Perez, protesting against patented Hawaiian taro, made the following comparison: “Putting a patent on taro is like putting a copyright on Jesus, and every time you pray to him you have to

185 Schrire (2010; 2011). Interestingly, a few years earlier, the Dean of CTAHR rationalized the patenting of taro with the argument that Monsanto or another company could have slightly modified and patented the taro had UH not done so (quoted in TenBruggencate 2006). Remarkable is furthermore that one member of CTAHR's Board of Advisors is an executive of Monsanto (Valenzuela, IV_090613). It parallels other increasingly common cases, such as the deal between the biotech firm Novartis and the Department of Plant and Microbial Genetics at Berkeley University that also involved Novartis representatives being part of the department's research committees (Press & Washburn 2000).

pay me with bread and wine” (Ka Leo 2006).¹⁸⁶ This raises imperative questions as to when epistemological differences matter and when they do not (Callison 2014: 124f). Further, it points to a “brand of pragmatism” that descended from the Bayh-Dole-Act, and which has privatized discussions around its larger social purposes, objectives and consequences of biological R&D (Jasanoff 2005a: 237).

Following Haraway's and Stone's call for closer scrutiny, I suggest that politicians in Hawai‘i see private investment like that from Monsanto as a contribution to 'scientific progress' that translates into more revenues, a more lucrative economy for investment in Hawai‘i, and thus more jobs. Yet there is something more peculiar about Hawai‘i that predates Haraway's described industrial turn in education. As I show in chapter 2, business-politics entanglements date back to the sandalwood trade and the sugarcane industry, that were eventually ingrained in Hawaiian politics. This was not least the case in that landowners, investors and politicians were often the same people. During fieldwork, the complicity of politicians with representatives of the biotech industry was a frequently voiced issue that repeatedly came up in such rhetorics as politicians “being in bed with” the companies or being “bought out.” On my way back to Kaua‘i from the Legislative Opening in January 2013, at the Honolulu airport I ran into Kaua‘i Council member Gary Hooser, who had also spoken to the rallying crowd. Lining up to board our plane, he shared with me his concern about these terms. He recalled one time having been invited to a party of a politician and representatives of the biotech industry invited him for drinks. “Are you going to say no? You talk to each other, it's really just a drink to converse a bit, right?” He would likely not do that anymore, after his experiences with Bill 2491 (as I will detail in the next chapter). In our interview in June, he stated in regards to biotechnology that

186 André Perez was mistakenly cited as Mario Perez (pers. conversation with André Perez, July 2014).

most legislators, in Honolulu, everywhere, when you're looking for information on a topic, who do you go to? You go to university, you go to the trade organization that represents that group. So, here you go to the Farm Bureau, it's dominated by the seed corn companies, I mean, DOMINATED, dominated. You go to the college, CTAHR college of tropical agriculture, it's dominated by the GMO industry. [...] And then the Department of Agriculture, or the Chair person of the Board of Agriculture, who is the.. like, the board attached to the department, is [the] executive of Grove Farm Company. Grove Farm Company is a big landowner on Kauai, and their main tenant is a seed company. [...] You can say they are in bed with them, or they are bought out with them, and all that kind of stuff, but I don't really think that's true. I think it's like when you grow up in a certain environment, and you think that's the way it is, that's the life, right? It could be like religion or whatever, you know? So, it's hard to step out of that. So, when you are surrounded by other people, who think that GMOs are fine, and that anti-GMO people are a bunch of nuts, then you tend to talk like that too.

Hooser makes the crucial observation that politicians just as any other person that believes in something (i.e. religion) are naturally biased, and that in Hawai'i all official institutions are infiltrated by this one 'belief system.'¹⁸⁷ How do other lawmakers conceive of industry representatives in the political arena - of “conflicts of interest”?

A case in point is an appointment to the Commission on Water Resource Management in 2013. Hawai'i Senate President Donna Mercado Kim appointed Monsanto's community affairs manager Alan Takemoto to serve on the seven-member water commission following a recommendation of Senator Malama Solomon (Cocke 2013). Leaving aside for a moment that Kim received \$500 campaign donation and Solomon \$2,500 from Monsanto, Kim's reasoning for choosing Takemoto goes as follows: First, Takemoto had “this broad experience” as representative of the agricultural community, he served as Director of the Hawaii Farm Bureau

¹⁸⁷ It is worth noting that Hooser changed his position when in February 2016 he lobbied for Kauai County Bill 2614 that would among others ban gifts from lobbyists to government officials (Hooser 2016). I believe this speaks to the more radicalized climate of public deliberation between opponents and proponents of industry-friendly policy.

Federation, and he is on the board of the Agribusiness Development Corporation (Cocke 2013). Similar to Hooser, Kim states that “people get all sorts of contributions [...] If you eliminated everyone, than [sic] I don't think the mayor would be mayor or the governor would be governor” (ibid.). Another example is the attempted appointment of the lobbyist Carleton Ching of one of the largest landowners and developers – Castle & Cooke Hawaii – to the head of the Department of Land and Natural Resources (DLNR) in early 2015. While numerous environmental groups and politicians seriously questioned Governor Ige's choice, he pointed to the need for new governmental leaders that have skills for changing the culture and business in state government (quoted in Perez 2015). According to him, “Lobbyists generally have a good understanding of the legislative process, and that can help them when they take a position with the state.” Similar to Kim, Ige values Ching's business experience, which “the state needs, and now they are being asked to use their skills specifically for the people of Hawaii” who, as he adds, need to “hold us accountable” (ibid).

Conflict of interest here becomes an insulated matter that is sandwiched as potential hazard between everyday decisions made by state officials. What ensures the prevention of corruption is the skilful conversion of expertise of these former lobbyists to newcomer politicians. Responsibility of this oversight is not with the representatives of the public but the public itself. Expertise in business and the economy added by a familiarity with the legislative process, as lobbyists, appeals to state officials that envision a more dynamic state as business-akin entity. It is what I call an *industrious objectivity*, which politicians favour among industrialists and lobbyists whose industriousness they would like to see put to use in politics. In other words, it is not the expertise, in this case in natural resource preservation, the main mandate of the water commission or DLNR. Rather, it means translating one's prior expertise in

the private sector into that of a politician. As Valenzuela described above, I refer to industrious objectivity also when describing scientists' attempts at downplaying the profitable aspects of their research. In both cases, industrious objectivity means that a person can convey a sense of detachment while concurrently exhibiting the (aspired) industriousness to get a job done. What these public representatives see as a good politician is thus reminiscent of the early days of the sugar industry: a person well versed in business and politics where occasional overlaps point to its co-production in the Protestant ethos rather than to a conflict of interests.¹⁸⁸ In other words, speaking of these entanglements and networks between politicians and industry representatives as “conflicts of interest” suggests a few case-by-case incidents while it constitute a more systemic industrious objectivity that I believe is in need of more public reflection and deliberation.

5.5 'Filling the void' and embedding biotechnology

In the final part of this chapter I return to issues that I discussed in chapter 2. More specifically, I take a closer look at the historical trajectory from sugarcane to agricultural biotechnology an apparently seamless transition, as I argue, constructs a smoothness, managerialism, and a 'catching up' narrative of Hawai'i. As I will show, it is not much different to how education is often seen as a frictionless, standardized transmission of knowledge from teacher to learner.

188 Conflict of interest in Hawai'i's State House even attracted British comedian John Oliver's attention, who reported on a case where conflict of interest was dismissed when one of its members both worked for a legislature to introduce a fee for plastic bags and as consultant for the plastic industry <https://www.youtube.com/watch?v=Atxr8faVDkc> [accessed January 14 2016]. It is also noteworthy that Hawai'i's State House is part-time, meaning that many politicians have second careers – often in the private sector.

In media coverage, the explanation for explaining the agricultural biotechnology's presence in Hawai'i often presents a seemingly logical chronology of capitalism that merely changed its clothes – from sugar to GE corn. An often used idiom to describe this is the agricultural biotechnology industry having 'filled the void' that was left by the sugar industry. As activist and scholar Andrea Brower describes, “They came because they saw us as an exploitable community, left with an economic void when the sugar plantations hastily exited” (2013). Academics, journalists and citizens also point to the numerical significance of the 'Big Five' companies of the sugar industry, speaking now of the “New Big Five” – Monsanto, Syngenta, Pioneer DuPont, Dow Agrosience, and BASF¹⁸⁹ (Gibson 2014: 217; Hervey 2012; Mitra 2014). Being “eerily reminiscent” of the original Big Five, people fear the same increasing political and economic influence and control over natural resources (Gibson 2014: 230). Both industries exploit land and people, both are forces originally from abroad that present themselves as benevolent, caring providers, and both are global players with an interest in maximizing profits.

While this inevitability narrative is congenial, it is mildly deceiving. This shift no doubt constituted an abrupt change. It was for instance evident in the change of the Hawaii Sugar Planters' Association (HSPA) to the Hawaii Agriculture Research Center (HARC) in 1996, which now expands to other crops and new technologies, such as genetic engineering (HARC 2014). Still, such framing ignores the prehistory of agricultural biotechnology in corn research back in the 1960s, the formation of the industry's stakeholder Hawaii Crop Improvement

189 In early March 2016, BASF announced that it will close its operation in Hawai'i, as in many other parts of the world (BASF 2016).

Association (HCIA) in 1969, as well as the numerous research and regulatory initiatives (GE cotton, GE papaya) that had been underway before the sugar industry's departure.

A 'void' was also postulated for another, more well-known transformation with lasting impacts on Hawai'i, and which, as I argue offers worthwhile insights. As I describe in chapter 2, in 1819 Kamehameha II decided to eat with his stepmother Ka'ahumanu – a woman, and therefore taboo – and thus instigated the erosion of people's belief in the *kapu* system. Many scholars hold that this left an unfortunate, perhaps unintended religious void that was conducive to the first missionaries, who landed a year later.¹⁹⁰ Yet the focus on one event as game changer of such a fundamental human feature as religion disguises processes and other incidents that brought about change. For instance, numerous churches established across the islands incorporated elements of both Christian and indigenous belief systems. Hawaiian political scientist Noenoe Silva points out that “[m]any Kānaka Maoli did not experience the conflict between the ancient beliefs and their Christianity that the missionaries expected or wanted them to experience”, and that they often compared people of their own history with biblical ones, such as the goddess Hi'iaka with Abraham, or simply added them (2004: 85; fn. 118). In the words of Hawaiian scholar ku'ualoha ho'omanawanui, “the Hawaiians had four hundred thousand gods. One more was no big deal” (quoted in Silva 2004: 86). Furthermore, between 1778 and 1819 numerous foreigners had already visited the islands and intermarried with Hawaiians.¹⁹¹ In case of land, in the first years the sugarcane industry did not have a

190 See Kame'elehiwa (1992: 138), or an archeological report on Anahola: “With the advent of a written form of the Hawaiian language, the missionaries set out to fill the religious void throughout Hawai'i” (Sholin & Dye 2013).

191 In that sense, Kehaulani Kauanui questions the idea of “full Hawaiianness” by referring to Glick, who points to racial intermarriage and adoption of European children post-Cook contact (1970, 279; quoted in Kauanui 2008: 57). As he states, “[d]uring the 75 years after foreign contact began in 1778, many children of Hawaiian mothers and foreign fathers, mainly Caucasians, had been reared as Hawaiians and absorbed into the

successful start. Indeed, rather than a systematic plan to grow sugar for export, there was a lot of trial-and-error that was not unrelated to new but not yet professionalized technological advancements, especially irrigation (see MacLennan 2014). The pedagogics of teaching the 'idle' Natives what 'productive' land use should look like was not a straightforward endeavour either.¹⁹² Many refused to work on the plantations, and effective operations did not start until the landowners secured cheap labour from South-East Asia.

At present, this narrative of inevitability depicts the biotech industry as saviour that has prevented development of agricultural land and further economic losses after the sugar industry left in the 1990s (see Gibson 2014: 228; Voosen 2011). Now soil would be put in use even more productively, which is underpinned with the argument that Hawai'i's seed crop industry contributes 200% more value to the state than sugar did.¹⁹³ Further, if it was not for this industry, "Hawaii's diversified agricultural sector would decrease by 45%" and "land resources used by the [biotech] industry could have no alternative use and thereby remain idle, unproductive and make no economic contribution to Hawaii's economy [...]" (Loudat & Kasturi 2013: 16). Framing land as having *no* alternative to being *productive*, there is *no* other reality possible since no other imagination is permitted. In 'filling the void,' agricultural biotechnology not only becomes an economic improvement – it also gets constructed as inevitable, and those criticizing the industry likewise play into such inevitability discourse. The

indigenous group, a process facilitated by the widespread practices among Hawaiians of adoption and rearing of children by women older than the natural mothers" (1970: 279). "Hawaiianness" thus relates to a performative rather than a prescriptive structure where relationships grow out of practice and kinship is negotiated - such as adoption (Sahlins 1985).

¹⁹² Perhaps the best example for such nonlinear development of conversion is the 1897 petition to abdicate the provisional government of the white oligarchy that was signed by more than half of the Hawaiian population (Silva 2004).

¹⁹³ *Hawaii's Seed Crop Industry: Current and Potential Economic and Fiscal Contributions* (Loudat & Kasturi 2013), a report commissioned by the Hawaii Farm Bureau with funding from HCIA.

aggressive mode, as outlined by the *Blueprint* and ADC report, is a case in point that no time was to be wasted, just as much as the raised tax credits from 10 to 100 percent in Act 221 attempted to quickly attract as much investment as possible. More research would need to be done into this specific transition but it regardless parallels the metaphor of Kānaka Maoli 'catching up' in many other respects: be it missionaries' narrative of 'savage' Hawaiians converting to civilized Christians, political advisors moving Hawaiian Kings to open their lands for the globally demanded sugar, or educational bureaucrats reprimanding HFCS to not let their students 'fall behind' (in the former's set achievement standards), and in Cayetano's words to "catch up" with the New Economies of the rest of the world.

The void-narrative is in that way conducive because it offers quick clarity of a more complex and multi-layered process. However, along with it comes a notion of inevitability that in a troubling way suggests that people are powerless in the face of such large socio-political changes. Just as education as experimental system exhibits these complexities in teachers' failures – a trial-and-error process of finding out what works best at a HFCS – so can land be seen as an experimental system: from soil contamination to the trial-and-error attempts in sugar plantations to the most recent agricultural biotech industry. The void-narrative attempts to do something akin to an education system in its keenness for manageable, predictable learning results in standardized assessment tests. There are to be no 'gaps' or 'voids' between the teaching of content and its transmission into students' minds, like a Nuremberg Funnel. Put differently, experimental systems – teaching at Kanuikapono, converting Hawaiians to Christianity, growing sugar and perhaps most fittingly, developing genetically engineered crops – lose their appearance of trial-and-error, as back-and-forth procedures and projects of inconsistencies and unpredictabilities. Similarly, a managerial educational system shuns away

from voids and gaps by dismissing experimental forms of teaching simply because they are not predictable.

Having said all this, I hold that people still see little difference between sugar and corn. My critique of the void narrative stands somewhat counter to theirs, namely that the same capitalist patterns repeat. In the words of the elder Hana Kawahi‘okalo‘opele Montgomery:

Oh, they're [biotech industry] doing the same thing [as the sugar industry]. Same thing! Uhm, they have their cast system as well, you know, they're destroying the land, but their mark is that they're giving people jobs! And the people are buying that. And they need the job because they have to get a mortgage paid, they have to buy cars, and, you know? You don't HAVE to do that. You gotta tone down a little bit to be able to survive without all of that (IV_100613).

By this, she not only critiques the continuing rules of the profit-oriented system but also people's blindness to buying into its materialist culture. I purposely leave her statement open, next to my elucidation in hopes that more discussion occurs in this respect.

In summing up this chapter, I want to highlight those points that will resurface in the following two chapters. First, the “social containment” of a public questioning governmental regulation, of potential litigation or legal activism (Jasanoff 1995: 142; 157) gradually surfaced in Hawai‘i, discernible from the case of GE cotton to GE papaya to GE taro. Indeed, the latter case resulted in a figurative opening of a can of worms when an island-wide food sovereignty/anti-GMO movement aligned with the Hawaiian sovereignty movement. Second, accusations that the anti-GE taro movement was 'hijacked' by those of anti-GMO sentiments resurfaced in the movement that I describe in the next chapter in attempts to separate out a 'true' Hawaiian movement from a settler 'Haole' movement. Third, I will show in chapter 6 but more so in

chapter 7 that this social containment of controversies over GMO became branded as “educating the public.” How learning experiences of Kanuikapono's high school students were equally attempted to be contained I will discuss next.

Chapter 6: “You are choosing GMO by default if you don't educate yourself”¹⁹⁴ – Kānaka Maoli and food sovereignty activists' call to *mālama*

‘āina

I see that the most analogous resource in both fights is the land. The land is the important factor, it's – Hawaiians want to reclaim the land, and I think people in general want to reclaim their health. And reclaim the land is a way of doing that. The one other analogy or metaphor that I could draw is I feel like there needs to be more education and exploration on both sides. More education for genetically modified organisms, also what they do to the environment, and the effect that they have on your body, and long-term, along with Hawaiian sovereignty issues (Kepa Kruse, IV_120613).

I feel like our representatives do not understand how much we, the people of Hawai‘i, have been through and still are going through to fight for, specifically, not what we want, but what we need; and what we need is our land. The foolish decisions you have made caused so much struggle for Hawai‘i. For example, building over the many sacred burial grounds of our ancestors, bringing the Super Ferry here, causing pollution in the ocean and land, allowing companies that grow genetically engineered organisms to come and abuse our land. I am afraid that if the P.L.D.C. [Public Land Development Corporation] becomes real, then this will continue to happen. Excerpt from written testimony to Mayor Carvalho, 14-year-old Kanaka Maoli student, November 12th 2012.

How did the Hawaiian sovereignty movement and the more recent food/anti-GMO movement find themselves working together? Has it been a 'Hawaiian' or 'Haole' movement, or is such categorization futile? How did the high school students relate to the movement's issue of land use on their home island? What *learnsapes* did they form in these spheres? More generally,

194 Makana, KKCR Radio show, July 27th 2012.

what forms of knowing and education emerged in this movement, and how do they speak to common conceptions of an 'educated public'?

In line with these questions, I commence this chapter by describing publicly contested land-related issues I encountered during my fieldwork and provide a chronological outline of the merging of Hawaiian sovereignty and food sovereignty concerns. More specifically, I will explore why the GE and patented taro incidents did not lead to more collaboration among Hawaiian activists and food activists while later incidents, such as Kamehameha Schools' lease to Monsanto and the Public Land Development Corporation (PLDC), spurred the formation of a socio-culturally diverse public to act as watch-dogs of authorities. In 2012/13, the PLDC and the agricultural biotechnology industry were two main concerns of this emergent *mālama 'āina* movement, which found expression in the form of County Bill 2491 on the stricter regulation on research and development of genetically engineered crops and pesticide use.

I will then turn to the high school students who, as young Kānaka Maoli also lend their voices to the movement by testifying on the PLDC and welcoming Indian intellectual and anti-GMO activist Vandana Shiva to Kaua'i. As I will demonstrate, they contested common conceptions of education, again in the form of *learnscaapes*. The chapter will then outline the different forms of learning, knowing and consequently education in the movement, which took shape in the call to "educate yourself." This, I argue, was a process of opening up what politicians, courts, and scientists had hoped to (socially) contain decades earlier. The act of 'moving out' – *educere* – of issues that politicians preferred to keep contained took shape as a distrust towards entanglements of science and policy, in a call to connect to the land, and in getting educated on Hawaiian rights and sovereignty. This public education was defined and defined a Hawaiian civic epistemology, which was also shaped by *bodily ways of knowing* that

defied the Cartesian mind/body dualism, and indeed reconfigured reasoning. I will end by showing that these ways of knowing formed knowledge-able social experts, who consulted most trusted experts, which in turn demonstrates that knowing is always *inherently socially-mediated*.

6.1 Anti-GMO activists and Hawaiian sovereignty activists' get together – or not?

My first encounter with GMOs in Hawai‘i was during a brief visit to Kaua‘i in late 2007 when I passed by numerous corn fields on the West side that belonged to the local agricultural biotech industry. I also started spotting the omnipresent “GMO-FREE” bumper stickers on people's cars, and soon learned about the non-profit organization *GMO Free Kauai* that produced them. A few weeks later, when I was back on O‘ahu, GMOs emerged in a different form when the Kānaka Maoli and taro farming community, including the HFCS where I did fieldwork, rallied at the State Capitol for Senate Bill 958 that would require a moratorium on genetically engineering taro, as discussed in the previous chapter. Two years later on Kaua‘i, I happened to attend one of *GMO Free Kauai's* workshops on the effects of GMOs, both in the form of food and locally grown crops. From their appearance in stained work clothes, many people at this event, such as those representing the non-profit organization *International Regenerations Botanical Gardens* and *Mālama Kaua‘i*, seemed to work on the land. And, they were predominantly white. This surprised me, not least because the main speaker was Walter Ritte, a Hawaiian sovereignty activist from Moloka‘i. When I returned two years later for more fieldwork, I found that the movement countering the biotech industry had grown considerably, with a much larger number of NGOs like *‘Ohana o Kaua‘i* that catered more to Kānaka Maoli and *Kauai Rising* that targeted the affluent white North shore community. I recall the Earth Day

celebration and fundraising event for these and other NGOs in April 2013 where I noticed that the average crowd was grey haired and white. A week later, interviewing Lorilani Keohokalole-Torio (who also attended for *'Ohana o Kaua'i*), she shared that locals (including Native Hawaiians) would not come to such events because they prefer to stay closer to home and families, and “they're not really like looking to gather” (IV_250413). There were thus different modes, needs and motivations to come together over the generally shared concern of land use. Still, these coalitions gave the Hawaiian anti-GMO movement considerable leverage. But how?

As Walter Ritte and lawyer Bill Freese asserted in an article on the GE taro incident, there was not a significant concern among the broader Hawaiian community over genetic engineering until this technology related to Hāloa, while the movement before had been predominantly “haole (Caucasian) environmentalists and organic growers” (2006: 12).¹⁹⁵ Yet this did not translate into immediate coalitions, at least not on Kaua'i. In the first years since its inception in 2002, *GMO Free Kauai* – together with its sister NGOs, such as *GMO Free O'ahu* or *GMO Free Maui* that are all under the umbrella of *Hawaii SEED* – had had difficulties reaching out to locals and Kānaka Maoli. A decade later it started to slowly get better, as treasurer of *GMO Free Kauai* Mi-key Boudreau shared with me. In our interview I asked her how their work on GMO and taro/Hawaiian issues coalesced:

M: Our outreach at the [County] fair, let's say, it was in 2008 actually, that all of a sudden we saw a huge increase in people understanding that they needed to know [about GMO].
[...]

195 Concurrently, it was also due to genetic engineering (and patents on other taro varieties) that many Kānaka Maoli became more aware of *kalo's* sacredness (Gugganig 2015; see also Dow & Boydell 2015).

I: Do you think it had something to do with, cause I remember at that time the GMO kalo was an issue.

M: The GMO kalo, yes, that really did help in terms of reaching the Hawaiian community, yeah, that was huge. Yeah, the GMO kalo, that, that is, that is really true. I remember being in a classroom, in a high school, and the kids were kind of trying to wrap their heads around this whole GMO thing, and then somebody mentioned that they were going to try and gmo kalo. And there was a lot of Hawaiian kids in that class, and they immediately flipped out, [...] they were like: What?! Kalo?! No! They can't do that! You know, I was like, it was so.. Yeah, so probably that did have a big effect, it probably did (IV_060613).

Did the students understand GMO? GMO *kalo* (taro) for many Kānaka ʻŌiwi was indeed an entry point to biotechnology, yet what that 'understanding' means is anything but straight forward. Did the students above get 'too emotional' to understand, or is there perhaps more to it? As argued before, in the CTAHR *kalo* incidents Kānaka ʻŌiwi and *kalo* farmers were not referring to biotechnology as material technology – 'factual' knowledge of what scientists do with a plant in microscopic steps. Rather, biotechnology was debated as a discourse of invasiveness and ownership and as a metaphysical device countering Kanaka Maoli epistemologies of where (and where not) to draw the line between society/nature and cosmogeny.

One rainy afternoon in March, on a porch overlooking pastureland and Kaua'i's majestic Makaleha mountain, *kalo* farmer Bryna ʻOliko Storch took ample time to explain to me the CTAHR incidents and its countering movement that she was actively involved in five years earlier. One of her duties was to coordinate HFCS students at the Legislature Opening Day to give politicians *kalo* plants as a reminder of Hāloa's sacredness – an act that riffed on the lobbyists' custom of greeting legislators with handshakes and checks. She also reflected on Hāloa's role in the current movement:

In some ways the *kalo* became an offering to allow for raising awareness for GMO that is happening right now. It created an educational space in the heart of our community. In this way, in these modern times, the older brother Hāloa continues to protect and provide for us (IV_100313; pers. conversation, October 2 2013).

GMO *kalo* then was not merely a vehicle or symbol to those in the movement concerned with genetic engineering. As protector and *kumu* (teacher and/or source), it also offered a space to reflect on what was learned from these incidents. In some way, it speaks to the importance of sensory information in Hawaiian epistemology that Kanaka Maoli philosopher Manulani Meyer explains “is not only mediated by one's living resources, but by a whole host of historical and metaphorical images that continue to explain, educate, and inspire” (2003: 107). In other words, besides lived experiences, I see the metaphorical meaning of Hāloa providing explanation, education and inspiration. Later in the interview Bryna also referred to Hāloa as *mōhai*, which connotes both offering and sacrifice, and resonates with another *kalo* farmer's words:

For those who believe in fate, it could be said that the gmo'ing of Haloa was a gift in a strange way. That it was the absolute wrong plant to gmo. It woke the koa [warriors] from their sleep and stirred people to question the direction of agriculture and ethics in Hawaii.¹⁹⁶

This resonates with Callison's description of the Native Alaskan tribes' petition on the US inaction to reduce greenhouse gas emissions, which one author referred to as “a gift from our hunters and our elders to the world.”¹⁹⁷ In a related proposition, gmo'd *kalo* is a “gift in a

196 Anonymous taro farmer, by email, February 2014.

197 Watt-Coutier (quoted in Callison 2014: 66). Callison also makes a comparison to the *Delgamuukw v. British Columbia* Supreme Court case on the unextinguished aboriginal titles and rights where Wet'suwet'en and Gitksan elders equally referred to their testimonies as “gift” to the courts, metaphorically opening their culture (ibid: 269).

strange way” in that it is a sacrifice for the larger good in that it provides an educational space for GMO, agriculture and *pono* – good, righteous – ways of proper conduct in Hawai‘i.

'Understanding' biotechnology here may thus include a heightened awareness of *kalo's* sacredness just as much as a reflection on the social relations that shaped the CTAHR incidents, such as the arrogant ways that scientists approached taro farmers. It was also not merely an event that was political but had much deeper implications. For instance, at the 2013 Legislature opening that brought together protesters on multiple issues (as I will discuss further below), I met a former student from a HFCS I had known from 2007/08. When I asked her how it made her feel to see all the protesters that day, five years after the GMO *kalo* rally at the 2008 Legislature opening, she clarified that this day was not simply a protest but more so a moment to reconnect with *kūpuna* (elders), teachers, family and friends from afar. Here is a different conception of activism: one that, again, has at its core *‘ohana*. Further, education – including political actions – once again emerges as *trans-institutional practice* that encompasses learning from and remembering an event, the sharing of stories (of *kalo*), and the importance of social gathering, like pounding poi with *‘ohana* at a rally that challenges academics' and politicians' authority and expertise. As such, *kalo* opened a (conceptual) space for contingent forms of learning, people's individual and collective *learnsapes*. Hāloa, then, joined the slowly growing movement, although not all people knew about or were interested in tapping into this educational space. In this transformation, Hāloa would not stand exclusively for *kalo* and Hawaiian sovereignty but for any 'pure' (non-GE) plant and food sovereignty (see fig. 13).



Figure 13: Sign-making for an anti-GMO march, with a displayed taro plant, April 2013.

Yet overall, between 2008 and 2012 little discussion occurred between anti-GMO activists and the Kānaka activists who had appeared more prominently during the taro incidents. The claim that environmentalists and 'Haole hippies' instrumentalized the GE taro incident to mobilize Hawaiians (see Helm 2008) is unlikely, as coalitions between them were sparse and occasional. Further, it was certainly not unrelated to the debate having played out to be one of culture rather than science (as I described in chapter 5). Such dichotomous framing suggests in a tacit – and problematic – way that Kānaka Maoli cannot also be opposed to genetic engineering and share other people's concern for the environment, health, and food, or that non-Kānaka Maoli cannot be allies in the former's concerns. Dichotomous framings elide

complexities that underlie these issues along the division of cultural groups while it conveniently keeps the messy world of criss-crossing values and actions at bay. To the contrary though, the patented/GMO taro incidents left a strong sense among people that scientists and politicians have a responsibility towards Indigenous Peoples' rights, which people largely did not separate from concerns over uncertainty and ethics in agriculture and biotechnology. At the same time, it is important to state that tensions between Haoles and locals or Kānaka Maoli were real, as much as traces from a history of colonial dispossession are real (see Rohrer 2010). These tensions were likewise expressed in the suspicion that Haoles coopted Hawaiians, such as in social media, newspapers, and op-ed articles.¹⁹⁸

Meanwhile, sentiments of distrust towards scientists, politicians and landowners resurfaced in two incidents that preceded larger debates on the agricultural biotechnology industry: the Public Land Development Corporation (PLDC, to which I will turn further below) and Kamehameha Schools' (KS) lease of agricultural land to Monsanto. As described in chapter 2, the educational institution Kamehameha Schools (KS) was established by the last will of the Hawaiian Princess Pauahi Bishop and is reserved for students of Hawaiian ancestry. Because of this, most Kānaka Maoli hold this wealthy institution accountable to implement *pono* decisions to improve the lives of Hawaiians and their entrusted lands.¹⁹⁹ In 2012, debates in social media intensified when in June the group *Hawaii GMO Justice Coalition* launched the

198 For instance, Joan Conrow's blog "Musings: The New Colonialism" (2015), *The Garden Island's* "Aloha Warriors – the new Hawaiians" (Jeliazkova 2014) and Conrow's response "Musings: To the Victor" (2014), or *Civil Beat's* op-ed "The Only Way Back: GMOs, the Environment and Sovereignty" (Miller 2014). These articles directly speak to or euphemize (see Jeliazkova 2014) tensions between new settlers and Kānaka 'Ōiwi.

199 With 365,000 acres of its Bishop Estates (9 percent of the Hawaiian islands), the \$9.2 billion trust is the biggest private landowner in Hawai'i. 99 percent are preserved for agricultural and conservation purposes and one percent serves commercial and residential use (KS 2014). As Princess Pauahi Bishop held in her last will, the estate trustees are to "use the land to educate her people" (KS 2015: 3)

documentary “Stop Monsanto From Poisoning Hawai'i: Genetic Engineering Chemical Warfare” (2012). Investigations led into KS' lease of 1,033 acres to the agro-chemical company Monsanto – often referred to as the most evil transnational corporation in the world (Adams Sheets 2013). The group accused KS of using prime agricultural land unsustainably by allowing ecologically and health-damaging operations. The documentary also makes the significant claim that KS is the only institution that owns land and capital sufficient enough to reduce the current 90% of food that must be imported to Hawai'i (Hawaii GMO Justice Coalition 2012). More than a decade earlier, in 2000, KS underwent significant changes by switching land-management to more active agricultural practices, which has led to a total of 800 lease agreements for agricultural use, including growth of genetically engineered crops (Hannahs; quoted in Yap 2013). Kapule Torio's words speak to KS' not yet established protocol after this rather recent shift in land management: “They are really looking to utilize their lands in a more positive and agricultural way, as far as feeding people but they don't know how. [...] Nobody's written a book on it” (IV_170613).

After the release of the documentary, KS clarified on its website that in 1996 it leased 1,033 acres to a company that Monsanto bought three years later, and that Lake Wilson's low quality water, which irrigates Monsanto's fields, can only be used for such plants as seed corn or flowers. KS also stated that they “have to rely on [the Department of Health's] expert advice” that had thus far not issued any negative GMO-related health effects.²⁰⁰ Yet this was not merely a matter of KS delegating its (ethical) responsibility to environmental and health experts. It reflected a peculiar understanding of how land should 'feed into' education. On July

²⁰⁰ KS website: “Frequently Asked Questions” <http://www.ksbe.edu/land/faq/> [accessed May 28 2016].

24th 2012, the KKCR community radio station aired a show on KS' fateful lease. On the show, the school's spokesperson Kekoa Paulsen admitted that the GMO issue was new to them. He also affirmed that while sustainability was one aspect of the school's trust, the number one goal was education. After musician and prominent GMO critic Makana probed Paulsen on the *kuleana* (responsibility) of the trust – Paulsen again pointing to education – he inquired further about the hedge funds the school invests in, and whether those were beneficial for Native Hawaiians. Paulsen responded with silence (FN_240712).

The callers' and moderators' cornering of Paulsen indicates how education and land have followed the same extractive ethos of highest revenue/quality education. Current trustees interpret how to “use the land to educate [Princess Pauahi's] people” (KS 2015: 3) by handling education as monetary investment. It is fed by the highest revenue that is generated from land, which is managed in the most dynamic, commercial way just as much as the global motion of monies via hedge fund investments. The gains are legitimated to serve education that in turn makes young Native Hawaiians mobile – i.e. to attend higher quality out-of-state colleges. KS considers this *pono* practice, and not, as Makana argued, looking closer at the sources financing such education to see if they are *pono*.

Kapule, who worked at the Waipā Foundation that is operated on land owned by KS, added the following at the end of our interview:

I got a sticker on my thing that says: Evict Monsanto. But then I ask: Woo, is that ok if I.. I mean, Kamehameha Schools pays my salary, is that okay if I have that bumper sticker? (laughing) It's my personal opinion, you know, obviously – I think they might have got locked into an agreement and maybe now they're not understanding it but I know that they're not very much educated on the extent that those companies have deteriorated 'āina and land. [...] I think [KS] should get them off just because it doesn't perpetuate anything about our culture, not even agriculturally, in treating our land that

way. It, it really doesn't. It'll be a good learning lesson all the way around, for everybody, yah, yah. Definitely (IV_170613).

Kapule sees this incident as a moment of education on many issues: from *‘āina* over land stewardship to how practices like agricultural biotechnology are *pono* or not. An article in the *MANA* magazine depicted the Monsanto lease as “*serving* as the focus of a passionate debate in Hawai‘i over GMO foods and KS's [sic] role as the steward of its land” (Yap 2013; emphasis added). I highlight *serving* because just as the CTAHR taro incidents, the lease emerged as a pedagogical platform, a “good learning lesson” or “gift in a strange way” that facilitated new insights. For instance, as a result of public pressure KS acknowledges it has to learn more about GMO, as Paulsen explained. This is akin to seeing HFCS' lack of teaching material as a “blessing in disguise”, which likewise opened up new spaces to unpredictable, contingent forms of education. These experiences once again defined peoples' *learnsapes* on what is *pono* and in consequence formed *knowledge-able social experts* on respective issues *they* found pertinent.

In the meantime, on Kaua‘i people started adorning cars, shops and street corners with “EVICT MONSANTO” bumper stickers that displayed the emblem of the school, King Kamehameha, holding a container of Monsanto's “Round Up Ready” herbicide. At community events it soon was handed out interchangeably with the older “GMO-FREE” sticker. The latter was gradually shared beyond its initial group of 'Haole hippies' and environmentalists just as the “EVICT MONSANTO” sticker moved beyond Kānaka communities (see Fig. 14).



Figure 14: Back of a truck on Kaua‘i.

Around the same time, the Public Land Development Corporation (PLDC) provoked similar dissent, this time over politicians' approach to land use and ecological protection. Governor Abercrombie signed the PLDC into law as means to identify those public lands that are “suitable for development ... [determining] the best revenue-generating programs for the public lands identified in partnership with public and private sectors” (quoted in Souki 2012). The PLDC could “[o]wn, hold, improve, and rehabilitate any real, personal, or mixed property acquired; and sell, assign, exchange, transfer, convey, lease, or otherwise dispose of, or encumber the same.” Furthermore, projects developed by the PLDC would be “exempt from all statutes, ordinances, charter provisions, and rules of any government agency relating to special improvement district assessments or requirements” (ibid). The measure encountered wide resistance, both among politicians and the public primarily due to its unregulated nature and the fact that none of the requisite readings and no public hearings on major amendments took place (Hooser 2012). Critics called this is a local implementation of the global TTIP, the

Transatlantic Trade and Investment Partnership, which would serve to free land for out-of-state land investments.²⁰¹



Figure 15: Kaua'i Council member Gary Hooser speaking to a crowd opposing GMOs, pesticide & herbicide poisoning and supporting GMO labeling or the Idle No More movement. January 2013.

While KS' lease to Monsanto triggered dissent primarily among Kānaka Maoli, in parallel and interconnected ways, the PLDC galvanized a wider public to scrutinize the treatment of land. People often targeted multiple concerns (PLDC, KS, GMOs), which could be seen as an unfocused hotchpotch of separate issues, such as the high school student's testimony with which I opened this chapter. Indeed, politicians that introduced measures on GMO food labelling in 2013 were cautious not to confuse it with the biotech industry in Hawai'i, least the

201 Curiously, no talk occurred about the state's plans that were set out in the *New Millennium Growth* report a decade earlier, which indeed called for the “coordination of public infrastructure in support of private economic development projects” (DBEDT 2000: 83). The problem detected in the report was the fragmented financing of such projects across multiple state departments, which “hinder[s] the achievement of State economic development priorities”, and thus called for a single agency (ibid). PLDC certainly fits this description.

PLDC (FN_150113). Yet activists smashed this boundary work, most evidently in the Legislative Opening Day on January 15th 2013 where the march showcased the full range of land, food and Native Hawaiian rights issues (see Fig. 15 and 16). Indeed, the diversity of protest signs provide an insightful survey of unresolved public issues. Whether the proliferation of topics distracted from the focus on particular legal actions is as arguable as the opinion that Vandana Shiva, who came to speak at the Opening Day, hijacked the Hawaiian sovereignty movement.²⁰² Regardless, protesters saw these issues as inextricably linked: from politicians' unreflective approach to biotechnology as promissory progress to how Hawaiians' sovereign rights were continually dismissed. This led to a rudimentary cross-fertilization of social groups that found common grounds for discussing land use as a matter that is inextricable from GMO and Hawaiian rights.

Such coalitions, I argue, were negotiated as “enunciatory communities” where “collectivity is not a matter of shared values, interests, or even culture, but a response to temporally specific paradox” (Fortun 2001: 11). Enunciatory communities, in other words, formed in response to the convoluted irrationalities of government's, private landowners' and industry's use of natural resources in these temporally specific instances: be it the GE taro, KS' lease or the PLDC. Yet in Hawai‘i, there were many shared values and interests, and these specific instances themselves formed a string of paradoxes. What kind of knowing such enunciation was based on seemed crucial as well.

202 Vandana Shiva spoke as part of her Hawai‘i SEED Tour “Raise Awareness Inspire Change.” Two years later, she returned to the Legislative Opening, and Conrow's blog “The New Colonialism” (2015) as well as discussions on the Facebook group *Hawai‘i‘imiloa: Status of the Hawaiian State* (post from January 8th 2015) turned on whether Shiva was taking advantage of the Hawaiian sovereignty movement for her own agenda.



Figure 16: Hawaiian charter school students holding signs “END THE OCCUPATION OF HAWAII” and “GMO”. Others also read “ABOLISH THE PLDC”.

One of the interview questions that I posed to my interlocutors was whether and in which ways they saw parallels between the food and the Hawaiian sovereignty movement. Many pointed to both as having at their core a care for the land, *mālama ʻāina* as Kepa Kruse describes in the introductory quote of this chapter. Others stated that being sovereign *implies* self-sustainability, though some did not see many connections. What struck me most was the referral to GMOs and Hawaiian sovereignty as still not widely known issues. For instance, Kepa wished for “[m]ore education for genetically modified organisms [...] along with Hawaiian sovereignty issue” (IV_120613). It also reverberates with Goodyear-Kaʻōpua's description of the *Aloha ʻĀina* movements in the 1970s that had at their core liberatory education about the US-American occupation (see chapter 2). In daily experiences, Lorilani Keohokalole-Torio (Kapule's wife), mother of four and active advocate for Bill 2491, alluded to this notion of education in the everyday task of grocery shopping:

L: I stand in front of the produce counter just like anybody else, and I'm not even looking at the prices anymore. I'm looking at which one of those freakin' apples [laughing] is safe to eat! And is it! You know? Cause we love apples! We love apples and brie!

I: [laughing] I remember you posted one time [on Facebook]: nowadays you're not just a consumer, you're a scientist, and a detective, and a..

L: Yeah! You gotta do research, and like..

[...]

L: I especially feel like that when people act like I don't have a job and I'm not doing anything! [...] The people who look back and say: We've been eating GMOs since the 40s and 50s, you know, we've been sprayed on by Agent Orange from the last war and we didn't know. You know, I mean all of these excuses, they're so messed up. Cause it's like: But now you know! You know, you can make a choice. Like, that's going to be how you roll? Really? That's your excuse? [laughing] Of course, every processed thing that came out of a can or box had GMO in it, or some kind of preservative, major chemicals, like, you couldn't help it but then you didn't know, and now you do. So, it just depends how you move forward from there (IV_250413).

This passage conveys Lorilani's passion for better access to healthy food and, resonating with Kepa, the need to drop ignorance and educate oneself on the harmful traces of industrial food production. It also demonstrates this 'lumping together' of different issues that could be described as 'irrational' or making 'false' references, such as getting the times wrong on when GMOs started to get on the market (which did not happen until the 1990s). I am not saying that factually accuracy of information is irrelevant but rather quite the opposite. When I talked to Bryna, the *kalo* farmer, she referred to the importance of sharing accurate information about the harmful effects of the biotech industry's operation, that “it's important that we have the facts because we don't [want to] embarrass Aunty”, which she and others “can feel proud of.”²⁰³ She alludes to a sense of shame of repeating incorrect information, not unrelated to the Hawaiian

203 She later also stated that this is why more water, soil and air tests need to be done on the West side that would speak to the particular circumstances on site (IV_100313).

understanding that every word has *mana*, power. Yet to dismiss Lorilani's words as 'wrong' likewise does not depict the learning processes that come from this Kanaka Maoli woman's perspective, who also speaks to a history of cultural and ecological dispossession and destruction. In that sense, GMOs, preservatives and Agent Orange all have this common denominator. Hence, as part of enunciatory communities members respond to specific paradoxes, and this includes processes of knowing. Put differently, Lorilani's words, as much as the case of understanding GMO taro demonstrate that grasping complexity is itself a complex, at times rudimentary process. What was enunciated was a tentative sovereignty as multivalent phenomenon, not in spite of but due to these criss-crossing issues.

For all of their differences, enunciatory communities rest on what Sheila Jasanoff refers to as a culturally and historically specific civic epistemology: “shared understandings about what credible claims should look like and how they ought to be articulated, represented, and defended” (2005a: 249). Hawai‘i’s civic epistemology in the early 21st century aligns with the contentious and pluralist nature of public knowledge making in the United States, where interested parties – the industry, academic researchers, environmentalists, etc. – both provide and contest facts and claims. More specifically, it is akin to public demonstrations post-Seattle WTO (World Trade Organization) meeting in which citizens raised concerns over the co-produced order of the biotech industry and governmental agencies and thus questioned the division between science and politics so dearly held as a basic principle of modern states (Jasanoff 2003). Similarly, in ancient times, as Kamealoha D. Forrest, the Hawaiian language resource teacher at Kanuikapono explained to me, Kānaka Maoli practiced *ho‘opāpā*, a verbal contest where people bantered and battled through words and poetry, which entailed knowing all viewpoints of an argument (IV_011013). In more recent times, Kānaka Maoli have

challenged the overall illegal incorporation of Hawai‘i as 50th state of the United States. As I will show further below, public debates that often get described as 'emotional' expressions reverberated with such passion for banter.²⁰⁴

Hence, deep suspicion towards politicians' entanglements with the biotech industry – towards biotechnology as institution of governance (Jasanoff 2006) – is the latest of a long history of epistemic contestations. It is made up both of new settlers rather suspicious towards the United States²⁰⁵ and Kānaka Maoli, who assert sovereignty by (deliberately or not) practicing *ho‘opāpā*. Hawaiian civic epistemology is thus defined by “markers of distrust”²⁰⁶ towards authorities and prevalent narratives, which once again raises the question where to draw the line between factual knowledge pertaining to one issue (i.e. the PLDC) and the 'lumping together' of seemingly unrelated issues (PLDC, Hawaiian rights, the biotech industry, etc.). As I will show further below, styles of public knowledge making were defined by claims of *bodily ways of knowing* (see Haraway 1988; Meyer 2003; Myers 2008; Oliveira 2014; Prentice 2009; Sahlins 1995) that moves beyond the mind as central source of comprehension. These were also expressed in the high school students' engagement in the movement, to which I will turn now.

204 Related to this are often shared folktales of ancient chiefs, who attempted to abuse powers by overruling commoners, particularly of the district of Ka‘ū on Hawai‘i Island. In the late 19th century, Hawaiian historian David Malo documented three popular stories of chiefs – Hala‘ea, Ko‘ihala, and Kohaikalani – that took advantage of servants. One story often shared involves the traveling chief Kohaikalani, who would order commoners ashore to prepare food for him. Yet after he kept changing the location to land, thus requiring the commoners to have to carry the food from place to place, the latter eventually decided to eat the food themselves, to fill the baskets with stones and to stone the chief to death (see Pukui 1995). These are tales I have heard as part of teaching morals at different Hawaiian-focused charter schools that were often referred to when stressing the importance of one's *kuleana* (responsibility, right) – of leaders as much as of commoners. In the context of the argument here it speaks to the history of commoners that are attributed and executed defiance to authorities.

205 A common term used for these newcomers is 'mainland dropouts,' which suggests this deliberate turn away from mainstream, US society.

206 I borrow this term from Gabriel Dorthe, who describes anti-chemtrail activists that are wary of federal geoengineering projects (Science Democracy Network conference, Harvard University, June 25th 2015).

6.2 “Speaking from the heart” – Kānaka Maoli youth voice their opinion

In summer 2012, the Department of Land and Natural Resources (DLNR) started to gather input from the public for amendments to the 2011 Public Land Development Corporation (PLDC). When DLNR representatives toured the islands with Governor Abercrombie, they seemed genuinely surprised to encounter strong disenchantment among citizens. Together with three Kanu high school students I attended the public meeting they held on Kaua‘i. This was towards the beginning of the school year, and I had hoped for the students learn about community issues by going to these events. It was also a convenient way for them to be mobile and get away from their homes for a few hours (as I described in chapter 4). From my fieldnotes:

When people started raising their voices, connecting the PLDC to GMO fields and the potential of biotech companies leasing public land under the PLDC, the politicians reminded the audience to remain respectful and not get “too emotional,” to look at the PLDC from a more positive side, and not always try to find the negative ones (FN_190912).

The citizens' frustration with state land allocation – be it the PLDC or the biotech industry – politicians' lack of deliberation and their paternalistic reminder to people on how to behave (as in this meeting) fuelled public discontent in the months to come. What seemed to erode was not merely people's trust in their elected officials, but – primarily for politicians – to show *aloha*. In this case, this meant remaining respectful of each person's time to speak and not getting “too emotional” (Ironically, it was the politicians themselves, who did not give the people in the room the time to voice their concerns). The cut cake offered at the public meeting (Fig. 17)

visualized well what many reprimanded, and was occasionally brought up over the following year: the lack of *aloha*.²⁰⁷



Figure 17: Governor Abercrombie's dished-up cake at a meeting to gather public input for the Public Land Development Corporation (PLDC). September 2012.

When I asked the students how they found the event one of them was indignant about the fact that the politicians staved off the fishermen (who had come to talk about their fishing rights) to Saturday, which at one point led them to stand up and leave the room. In the student's opinion that was a total insult, and shameful as they had wasted all their time driving to Līhu'e. The students and I brought up the issue in class, and together with the high school teacher we

207 In November 2013, *The Garden Island* published an article entitled “Adios to Aloha?” (D'Angelo et. al. 2013) on the apparent loss of *aloha* that endured through the introduction of Bill 2491, as I will discuss further below. Stephanie Nohelani Teves (2015) provides an analysis of the “aloha state apparatuses” which, as she argues, also serve as a grounding for Hawaiian indigeneity. See Brower (2016: 77f) and Ohnuma (2008) on the instrumentalization of “*aloha*” for the purpose of a bounding Hawaiian economy, respectively nation.

started researching and talking more about the PLDC. The students were initially very engaged, with one student even giving a presentation where he connected the PLDC with Hawaiian land rights. A less successful collection of signatures to repeal PLDC was initiated, yet the sentiment in class was clear: we do not like it because it continues to dispossess people indigenous to this place.

One day, about a month after this event, the principal sent me an email about a public event that was to take place at the mayor's office in order to have a dialogue with him about the PLDC, which he supported. She wanted four senior students to chant and give testimony that would have to be “factual, and come from their heart.” This came somewhat as a surprise. Just a few weeks prior, on the occasion of an anti-Monsanto march, I had been told that I could shuttle students to the event but that the students could not wear the school's shirts. The school had to “stay under the radar” because at the moment it depended too much on Office of Hawaiian Affairs' (OHA) funding. I recalled a teachers meeting in early September about how per-pupil funding for the upcoming school year would not increase, and that both OHA and Kamehameha Schools were reducing their funding. Now I wondered if the school might have secured funding.

The high school teacher conveyed to the students that the testimonies can be factual or come from their heart. Later she shared with me that by that she acknowledges the students' different strengths in conveying their message. In other words, some may be more knowledgeable about the factual details of the PLDC while others deliver better messages of their overall take on this policy. Two days prior to the event we had community activist Felicia Cowden come to class to talk about how to write and convey a testimony. The students were attentive in a way Katie and I rarely experienced. At the end, Felicia also touched on the

youth's role in politics, referring to a phone call from the mayor, who had confirmed just an hour before that he would certainly be present at the community event should the students come. She then asked the students why they think their voice matters. They responded that it was due to their age. “Not to speak in clouds,” she responded, “it's also you being brown.” Some kids looked at each other and giggled. Their glances conveyed that this maybe not quite politically correct statement was unexpected, coming from a Haole. Similar to their response to the tourist who was convinced that 'blasting music' was not for Hawaiian youth, here was another, perhaps more blunt moment of *learning as land-ing*: the political currency their skin colour bore. From my fieldnotes:

On the day of their testimonies, five nervous but steadfast students stand amidst a small group of about 20 protesters, mostly haole, and several cameras turned towards them. I wanted some of the students to film the event and interview activists [for the film class] but this never ends up happening because the students themselves are the stars. So, I join the five other cameramen and women and document the event. Two students blow a pū shell and a bamboo flute, and rather unsuccessfully they produce not quite the right vibrant sound. They chuckle, aware, it seems, that this is a performance. Then all of them chant E hō mai. The mayor, also Kanaka Maoli and visibly excited to see the students, chants with them. He seems to demonstrate solidarity with the students, with the Kanaka Maoli students. Then the students chant the more vocal I kū mau mau – 'Stand up together.'²⁰⁸ Overall they stay focused. One student plays one

208 *E hō mai* is often sung to grant oneself with wisdom and knowledge by entering a ceremony. David Malo, Hawaiian historian of the early 19th century (1793-1853) is credited with *I kū mau mau* that was sung when “logs for canoes and/or heiau idols were hauled. The spirit of the chant calls for the joining together of people for a single purpose.” Nowadays, it is often chanted at rallies and marches to demonstrate Hawaiian's unitary

of his songs “This is the Land” that the other students chant in as well. It expresses concern over how land is treated. [A 17-year-old Kanaka student] wrote this down and testified:

Years ago I asked [former Governor] Linda Lingle if she had Aloha Aina (love for the land) at a super ferry protest, and if so i asked her to say it. As expected Linda Lingle never responded. Was it out of fear, was it just honesty, or was it because a 12 year old boy showed a 45? Year old women [sic] what was Pono, what was righteous. [...] So I ask u [sic] this for those who agree with the [PLDC]. Can you honestly say [...] u have love for the land when u are giving it to people only use [sic] it for profit.

Others also give testimonies and express frustrations with how their home island has succumbed to development, and [one student] raised how this relates to legal aspect, the exemption of PLDC from environmental laws. After some back and forth between the activists and the mayor, assuring them that he would only do what is best for the community, he hugs the students into a circle, and invites them up to his office. When I ask them later how it went one responds that “he just tried to brainwash us,” telling them that it is not that easy to repeal an act like the PLDC. We convene for a luncheon in Lihue, the Hamura. When an activist asks the students the same question, full of expectations about what the mayor said to them, one student responds: “When we eat we no talk politics!”

The students, while energized by their public performance, were just as sobered up by the political process that they witnessed that day. They may have agreed to the activist's and my understanding of what was learned that day: that their voices on land issues as Kānaka Maoli have weight. Yet despite the activist's and my expectation to gain some fruits from our labour (of having prepared them for that event) by receiving their feedback at this luncheon, the

stance towards their sovereignty, such as in protests against Kamehameha Schools' mismanagement through the Bishop Estate Trustees in 1997 http://www.huapala.org/Chants/I_Ku_Mau_Mau.html [accessed May 1 2016]. More recently, this has also been the case at anti-GMO taro rallies in 2008.

students refused this simplistic input-output conception of education: that teachers provide information (or prepare them for a public speech), students digest it, and subsequently present their masticated knowledge back to the teachers. They presented to us that assessment is never divorced from social relations, be it for the sheer reason that they could read our nosy attitude – being *nīele* –, our excitement and perhaps our desire to pat our own shoulders about the politically literate and engaged students we helped to foster that day.²⁰⁹

A couple of months later (and a few weeks after the students had introduced the activist Vandana Shiva at a public speech on GMO, to which I will turn in the following), the high school teacher shared with me that the principal got “squashed” by the District Senator for the students having testified against the PLDC and that she was told that they cannot do that anymore.²¹⁰ Kanuikapono was reminded by a state authority to stay within the “safety zone” of cultural practices and education, and those should not entail 'threatening,' respectively 'political' practices, such as students chanting and questioning the state's land use (see Lomawaima & McCarthy 2006).²¹¹ In this way, state authorities determine boundaries of what is considered proper education. The high school students “speaking from their heart” were not considered to have informed, 'factual' opinions, and perhaps to have been instrumentalized by their surrounding adults.

209 In her ethnographic work on urban Hawaiian women maintaining their cultural heritage through the “talk story” practice, Karen Ito shares her own experiences as ethnographer being accused to be *nīele* (nosy): asking too many questions (1999: 10f).

210 Eventually, in April 2013, the PLDC eventually was repealed under the increasing pressure of the public and numerous politicians.

211 Sheryl Lightfoot (2010) makes a similar argument in international politics where she analyzes how states respond to indigenous rights regimes. She refers to “over-compliance” among certain states (i.e. Canada and New Zealand), which denotes the exceeding commitment towards treaties while concurrently pushing for a state-centric model of reconciliation. Similar to the “safety zones” in school education, respective authorities provide a contained space of learning/deliberation while leaving out more contested issues, such as land rights (as pointed out by the testifying student above) or an emerging indigenous rights discourse on the state level. See also Niezen (2009).

At the school, the students received positive feedback on their courageous testimonies, and they were invited to speak at KKCR radio's Out of the Box show that was hosted by Felicia Cowden. Yet concerns over instrumentalization resurfaced when the high school students welcomed the internationally acclaimed Indian anti-GMO activist Vandana Shiva to the island. Before I elaborate on this, it is important to describe how GMOs and biotechnology were (or were not) a theme at the school.

I first encountered Kaua‘i not through Hawaiian education programs. Rather, when I came in 2010 and 2011, I had attended several community events that involved GMO Free Kauai where I met founders and longterm members Mi-Key and Jeri di Pietro. They also connected me to Chris Kobayashi, the taro farmer from the North Shore, who was instrumental in moving the University of Hawai‘i to let go of the taro patents (see previous chapter). I was interested in the continuing story of taro after the GMO and patenting incidents. I was likewise interested in GMO Free Kauai's activism on the biotech industry and GMOs, which to me – coming from a country where GMOs for human consumption are restricted – was intriguing. My origin from this Austrian 'non-GMO paradise' at times also made me a curious informant for activists on Kaua‘i. During my preliminary research for this doctoral research in summer 2011, Mi-key and Jeri offered to let me look through their vast collection of booklets, handouts, information brochures, books, signs, posters, etc. that was evidence of many years of local activism. While perusing the material of GMO Free Kauai, I became curious how this form of activism related or did not relate to the (activist) work around *‘āina* that Hawaiian-focused charter schools were engaged in. Further, how did it relate or not relate to the GMO taro incident of 2007/08?

Starting fieldwork a year later, I did not approach Kanuikapono with a pre-set idea to expose the students to (GMO) taro, GMOs or biotechnology, no matter what. Overall, my interest was broader, in how high school students at a Hawaiian-focused charter school learn about *'ike Hawai'i* and *'āina*, and if and how (GMO) kalo and the agricultural biotech industry on the island became an issue.

In the first teachers' meeting of the school year, Ipo handed out a chart of the three projects that she had envisioned for high school: *Kanaka Lawai'a* (Fishing), *Mahi'ai* (Farming) and *Mo'olelo* (Storytelling), which included media and film, and which we agreed I was going to teach. Each project had subcategories, such as Native Hawaiian Rights, Entrepreneurial, Academic Skills, etc.²¹² For *Mahi'ai*, under Social and Environmental Justice stood GMO, which at the time I did not take much notice of because I was too occupied with and nervous about preparing the film class. Yet in the first weeks of the school year, the issue of GMO came up again in different settings around the school. In the first class, when the high school students had to state what they wanted to become after high school, and what they wished for, a student mentioned that he wished there was less ignorance in politics, “like the GMO thing here on Kauai, and what happened with *kalo* [taro].” Later that day in Social Studies class, two students had to present on an article on the disappearance of King salmon in the Kenai River in Alaska that had made the headlines that summer. The students asked their peers if they could think of a similar case of environmental destruction on Kaua'i. After a long pause, one student mentioned the farming situation in Hawai'i, and that Monsanto controls the local food production. A week before, two project teachers had shared with me that they wanted to start a film project with the

212 The whole list of categories was: “Native Hawaiian Rights; Rights of Nature; 'Ike Hawaii – Cultural Practices and Traditions; Social and Environmental Justice, Entrepreneurial, Academic Skills; Career and College Readiness; Community Service” (pers. possession).

students that would be kind of a modern Prince Humehume story (see chapter 3) with contemporary struggles, such as land issues and GMO. On our drive up to Waipā at the beginning of the school year, I mentioned to Ipo the issue of Kamehameha Schools leasing land to Monsanto, which she found was an important topic to teach the students, as long as they learn to build their own opinions.

Hence, the issue of GMO, the biotech industry in Hawai‘i, and less so GMO taro, came up quite frequently in the first few weeks, albeit rudimentally. As educational assistant to Katie, the high school teacher, we often brainstormed what topics she could talk about in the Social Studies class, and when I suggested GMO and the biotech industry, she thought it was a great topic. Around that time, I also told Ipo that Vandana Shiva would be coming to Kaua‘i in January, and that it would be a great event for students to learn about GMOs. Katie and me had planned to have a guest speaker both from GMO Free Kauai and from a local biotech company, so that students would hear both sides. Due to scheduling difficulties, a guest speaker from GMO Free Kauai did not come until December, and, as I will detail in the next chapter, the visit to Pioneer DuPont did not happen until the end of the school year in May 2013. In the lecture by the GMO Free Kauai representative, my sense was that while many students knew few things about GMO, this was the first time they heard a more structured presentation from a critical perspective.



Figure 18: A “GMO Free Kauai” sticker altered by a student, Kanuikapono school.

Hence, the Vandana Shiva welcoming involved me as initiator and middle woman between the school and GMO Free Kauai that had invited Shiva to Hawai‘i. Furthermore, from previous experiences at HFCS where students were closely involved in political issues (see fig. 16), and Kanu's openness as “school without walls,” I articulated the idea to GMO Free Kauai and Ipo that Kanu's high school students could meet Vandana Shiva to learn about international land and food activism, perhaps by welcoming her to the island. Mi-key was as open and willing as Ipo was, though the latter was perhaps a bit turned off by Mi-key's enthusiasm when I suggested this collaboration at a community event at Waipā. Ipo had earlier suggested that we could have Vandana Shiva visit the school, yet this seemed to be too complicated to organize. The decision was finally made to have the students welcome her at the Kauai War Memorial Convention Hall in Lihue where Shiva would give a speech together with Walter Ritte and director of the Washington-based Center for Food Safety, Andrew Kimbrell.

With this meeting between the students and Vandana Shiva I had set up something akin to a para-site (Marcus 2000), which are “spaces for interaction, collaboration, and reflection that are consciously constructed and orchestrated by both researchers and subjects/informants” (Callison 2014: 281). However, there are three three points where my set-up diverged from this definition. First, it was my proposition – albeit all involved adults agreed that for the students to meet Shiva and learn about GMOs was a great idea. Second, the students had no say, since teachers usually construct lesson plans. Third, it was not consciously put together among the involved protagonists to create a space of interaction for this doctoral research project. As educational assistant to Katie and an instructor to the high school students, any idea I would propose was generally welcomed and approved by the school – as long as I could organize it on my own. This often put me to the limits of what I could achieve on my own and with available resources (and also speaks to the difficulties of teacher collaboration at such underfunded institutions like HFCS). In such liminal space between film class instructor/educational assistant and ethnographer (as I discussed in chapter 4), it was never easy to delineate when and how was I collaborating (as educational assistant/ethnographer), helping (instructor/educational assistant/visual documentarist) or leading (instructor/author of this research project/ethnographer). I believe that it is crucial to interrogate what I believe is a common phenomena in ethnographic research that aims to be collaborative: the blurry line between research collaboration, service, and research.

The enthusiasm with which some teachers and I regarded this welcoming was just as much a chore for other students and teachers. The circumstances of having had to move the high school from one campus to another just weeks before, and a general sense of teacher burn-

out contributed to the students being underprepared for this event. Furthermore, I was not able to organize this set-up on my own, which left Katie most of the burden of preparing the students for the event.²¹³ They were joined by a sudden interest of some community activists' in the students' voices. About a week before, I received a phone call from a woman from the West side saying that it would be great if the students wrote a piece in a local newspaper as a way to get other youth (mostly from the West side) involved. The engagement with the community activist that came for the PLDC testimonies, who was again willing to come to the school, created frictions with the high school teacher:

Katie told me that the students can prepare for the event themselves, “they don't need anyone to tell them what to say. There are already too many cooks in the kitchen.” I agree. I realize that she sees the community activist just as another adult that “infiltrates” the students, rather than as someone that wants to assure the students to come up with their own words, “speaking from their heart.” This notion of “speaking from their heart” seems to be seen by adults as a more “direct” way for children and youth to express their own views; a way that ensures that their opinions are not biased by adults' agendas. The “pure,” “uncoloured” voice of the students. [Four days later:] I realize what a unique role these students play. They are “sexy” for this movement. Not only are they young but also Hawaiian (mostly). “Giving voices to the children,” I realize, asks for a lot of adult input, organization, arrangement, etc., particularly by adults that are motivated by a cause.

213 Here was a compromise for me as educational assistant and ethnographer when I went to O‘ahu the week before to witness the State Capitol Opening Day (described above) and Vandana Shiva's speech at the University of Hawai‘i. I contributed to the Kanuikapono students' preparation with a short video that I shot of students from Hālau Kū Māna, a HFCS in Honolulu, who partook in the rally at the State Capitol.

The general concern among the involved adults thus was to ensure the youth's voices would not be distorted by other adults' influence – quite the opposite to the politician's concern above. This also became apparent when the discussion moved towards the actual ten-minute-performance on stage. Were the students allowed to say something personal, or just do the Hawaiian chant, or both? Eventually they chanted and gave personal speeches.



Figure 19: Kanuikapono high school students give their speeches welcoming Vandana Shiva at the War Memorial Convention Hall, Līhu‘e, January 17th 2016.

Kamahalo Ka‘uhane, co-founder of Kanuikapono, reflected in the following way on the student's engagement outside of the school:

The whole mission and vision [of the school] is to get the children out into the public [...]. It goes back to genealogy. When you're out there speaking that's just speaking for your family. That's your bloodline, and how you represent yourselves, even if it's not through Kanuikapono, it's when you're out in the community, that's your bloodline.

Kamahalo emphasizes once again the centrality of *'ohana* and commitment towards one's family – be it one's blood-related family, the school, extended family, etc. Katie, who was not Hawaiian, saw things a bit different. While the students were invited primarily due to their expertise in Hawaiianness, she saw a danger in the performance being more about the school than the students:

It's just been used as a public relations thing. As a – token! The token Hawaiian kids coming to present at Vandana Shiva, like. It's great, the kids did a great job, the message was heard, they were proud of themselves, they were empowered. But, you know, the school takes credit for it. When who should be taking credit for it is the kids who did the hard work.

While Katie criticized the school for gaining from this event, she also points out that this did not prevent the students from making their own experiences. Yet the school taking credit is not as straightforward either, as Kamahalo showed. For Katie, school politics should have stayed out of this event while Kamahalo speaks of a genealogy – whether with or without the school – and the students' *kuleana* to represent their (learning) *'ohana*. In other words, there was a multiplicity of whom and what the students were representing, or more accurately, chose to represent: their school, themselves, their culture, community, their genealogy, and so forth. As pointed out by Katie, the students did express their own opinions and learned to go after an issue that they were passionate about. In interviews later in the school year, many of them appreciated events like welcoming Vandana Shiva and giving the PLDC testimonies, which were unique to Kanuikapono. They felt honoured to have welcomed a renowned scholar and activist that they only recently heard of in Language Arts, despite, as they expressed, the feeling of having undergone a chore and dealing with teachers who were frustrated with their lack of enthusiasm – including me. Others were horrified by the thought of talking in front of a

thousand people, or they sensed cooptation by the school. Their bodily resistance in the rehearsals, their sensing of some teachers feeling doomed to prepare them for the event, and some students' decision not to show up at the event are testimony to that diversity of engagement.



Figure 20: “GMO Free Kauai” sticker altered by a student to decorate her booklet, Kanuikapono school.

These acts of *learning as land-ing* were both related to and independent of their adult social lived-in world. There is also no doubt that the students were aware of the politics around their voices, since the plans concerning what they would be allowed to say on stage constantly changed. These aspects – the social and the political more than perhaps learning about biotechnology as material technology – formed the students' *learnsapes* in whatever sphere of decision-making they felt they had. This in turn shaped their tacit forms of expertise: how they accepted that the mayor tried to “brainwash” them – as several students framed it – with a

shrug that expressed a mix of disappointment and lack of surprise, how they employed the Kanaka Maoli virtue to not talk about politics when we ate at the luncheon, or how they quietly observed the fuss among adults over their voices.

In *Giving Voice to Children's Voices: Practices and Problems, Pitfalls and Potentials* Allison James (2007) scrutinizes the ubiquity of giving voices to children, which assumes a more accurate, authentic account because they are children, while it misses the point that all research is a process of representation. When teachers or activists believe that youth are more 'pure' by 'speaking from their heart' they assume a certain authenticity that easily gets constructed as being free of the role of adults. Yet 'giving voice' already entails the benevolent act of *giving* something to students that they presumably did not have before. Adults are linked by the sheer fact of setting up a stage – literally – which involves a lot of organization and adults' own interest in the youth's voices. This dissertation, then, is no exception, as it is also based on numerous set-ups during fieldwork, an ethnography as experimental system (Fortun 2003), such as in my active role as middle woman between *GMO Free Kauai* and the school. The students no doubt were aware of my interest in biotechnology, and this may have been part of the reason that they welcomed Vandana Shiva. Whatever the students learned was influenced by these *inherently socially-mediated ways of knowing*, such as in the activist's and my nosy attitudes towards them after the PLDC testimony.

Just as with the “gmo'd” *Hāloa* and the Kamehameha Schools lease to Monsanto, the PLDC testimonies and the politics around welcoming Vandana Shiva formed an educational space – one that is contingent and unpredictable in a way that a politician would not recognize, and one that is equally difficult to quantify in school assessments. This is primarily so because *‘ohana*, *aloha* and (aloha) *‘āina* were so central in these forms of education: a protest is not

merely a gathering for a political cause but means fostering people's personal relationships of *'ohana* and a public demonstration of resilience to continue to care for the land, to *mālama 'āina*, and to foster *settler aloha 'āina* (Goodyear-Ka'ōpua 2013). In terms of school education, 'apolitical' (or 'unbiased'), standardized conceptions have grown to become school education's main defining marker. This makes it hard to conceive of education as anything else, as I will now illustrate in the case of the social movement.

6.3 Bill 2491: “a discussion of science in a very emotional place”²¹⁴



Figure 21: Street graffiti painted over – at least attempted to – by local authorities. Po‘ipu, South Kaua‘i.

Towards the end of the school year in May 2013, the high school was invited to the Pacific Missile Range Facility where our guide shared in passing a sentiment that had reoccurred in numerous other instances during my fieldwork. He said that people who spray “no GMO” on

214 Kevin Folta, horticulturalist (quoted in D'Angelo 2013c).

the streets (Fig. 21) “just don't know.” They are just activists looking for an opportunity to jump on the bandwagon and spread their agenda. This is a common US-American invocation of scientific authority over the 'unknowing' public.²¹⁵ Along these lines, the Kauai Farm Bureau, a farmers' non-profit organization that is influential in agricultural politics and supportive of biotechnology, listed its four most pressing issues among which was “the misperception of agriculture by the uninformed” (Fujimoto 2014).²¹⁶ Besides this argument of lay people 'not knowing' biotechnology, there is also the common dichotomous framing of 'factual' knowledge vs. 'emotions,' as exemplified in the PLDC meeting cited above. Another instance is Kevin Folta of the University of Florida's Horticultural Sciences, who spoke at the public *The Farmer Dialogue* event, which was organized by the Hawaii Crop Improvement Association to “encourage meaningful discussion about genetically modified organisms and pesticide use.” There Folta affirmed that “[t]his is about a discussion of evidence. This is a discussion of science in a very emotional place. Science is what helps us sort that out” (quoted in D'Angelo 2013b).²¹⁷ Hence, his framing maps Hawai‘i (and Hawaiians) as wanting of science that could

215 For instance, such “struggle between scientific expertise and the misguided, if exuberant, ignorance of youth” appears in a response to protesters of Monsanto at the WTO meeting in Seattle in 1999 (Jasanoff 2006: 285). As Missouriian Republican Senator Bond explained at a meeting of the American Association for the Advancement of Science, “[t]he scientific debate is not being controlled by Ph.D.s but apparently by young people with a proclivity for street theater [...]” (ibid.).

216 The other three, ecological concerns included hogs wiping out crops, the ring-necked green parakeet posing threats to a variety of crops, and predation of crops by endangered species (Fujimoto 2014).

217 Folta came to Kaua‘i as “independent” speaker yet under dubious funding circumstances. Two years later, the *New York Times* reported on the nonprofit group *U.S. Right to Know* that had disclosed email exchanges between Folta and Monsanto where after financial concessions were made – despite Folta's repeated assertion on Kaua‘I that this was not the case (Lipton 2015; FN_300713). Many anti-GMO activists also disliked his paternalistic behaviour, both in social media and public speeches. In a Garden Island article reporting on *The Farmer Dialogue* event in Waimea, Folta is cited saying that “[w]e have different opinions [...] But on science I really want to agree to agree.” To this, an orthopaedic surgeon from the audience responded that what “Folta was really telling the crowd [is] 'We're going to club you on the head with what we have to say, and you're going to listen'” (quoted in D'Angelo 2013a).

correct understandings of biotechnology by erasing such blinding emotions in an enlightening way.

On the other side of the spectrum, GMO sceptics often prompted their fellows to 'educate yourself,' which alluded to an individual's responsibility to gather information on GMOs, the biotech industry, and how politics was embroiled with science. Makana's call (the title of this chapter) is a case in point, as is Kanaka Maoli community leader and educator Malia Chun, who shared the following on KKCR radio the following:

This is a *kahea* [call, cry out], a plea actually to my west side brothers and sisters. I would say our time of being *makapo*, of being blind is over and my plead to you is to educate yourself, to educate yourself so that you can make informed decisions based on the health and well-being of your 'ohana, of your keiki. [...] What I would say to those people that rely on the biotech industry to sustain their family, you know: don't take your employer's word for it. You know, go out and educate yourself because the answers, the facts are right there before us (FN_160713).

Malia alludes here to the past times where being *makapo*, blind, towards one's boss – the sugar barons who provided for one's food and shelter – are over. Her appeal is also akin to GE-critical consumer-citizens, who question entanglements between science and policy concerning GMOs, thus asserting the right to make their own scientific conclusions by practicing *constitutionalism from below* (Jasanoff 2003; 2005a). They would point to flaws in genetic engineering and to a general tendency among scientists to reduce complexities in genomics science, which to them is defined by an instrumental-commercial culture (see Wynne 2005). Malia's call was also a call for fellow citizens to “educate yourself” – in other words, to become watchdog citizens. Hence, education emerged as *democratic right* of concerned citizens, farmers and environmentalists, and as *sovereign right* of Native Hawaiians to assert sovereignty in their choice and cultivation of food, and how the 'āina was treated. These demands often did not correlate with specific socio-cultural groups. Rather, the specific paradoxes – in

this case the entanglements of colonialism, land allocation to transnational corporations, research and development of GMOs, and a lack of locally sourced food – formed an enunciatory community.

As explained earlier, these public debates define styles of public knowledge making of a Hawaiian civic epistemology, yet its register of objectivity does not consist merely of facts and numbers. On the same radio show, Lorilani articulated this educational call in the form of rebuilding one's relationship to the land. This resonates with the one student's PLDC testimony, who pointed to a lack in politicians' ethos, in this case Governor Lingle's: *Aloha 'Āina*, love for the land. Hence, what counts as objectivity is also the authoritative position that *'āina* holds – or at least should hold.²¹⁸ It is this constitutionalism from below – to make their own scientific conclusions by consulting their facts and resorted objectivity – that culminated in the wake of County Bill 2491 that was to regulate the agricultural biotech industry (see also Brower 2016).

The back story of Bill 2491 dates to the year 2000 when Waimea residents (on the West side) wrote a petition to the agrichemical and seed company Pioneer DuPont to take steps regarding fugitive dust and pesticide applications, yet to no avail (Van Voorhis 2011). In 2006 and 2008, students, teachers and staff at Waimea Canyon Middle School and at Kekaha Elementary School fell ill and had to be taken to the hospital after pesticides were applied in adjacent agricultural fields (Ludwig 2013).²¹⁹ In 2011 and 2012, more than 150 Waimea

218 Article XI Section 3 of the Constitution of the State of Hawai'i states that "the State shall conserve and protect agricultural lands, promote diversified agriculture, increase agricultural self-sufficiency and assure the availability of agriculturally suitable land" (State of Hawai'i 1978). The motto of the Great Seal of the State of Hawai'i is *Ua mau ke Ea o ka 'Aina i ka Pono* – The life of the land is perpetuated in righteousness.

219 In response to this incident, the group *Maluhia* (peace) formed as "coalition of Waimea Canyon Middle School staff, parents and community members concerned with the use of pesticide, and the agriculture of GMO crops on lands adjacent [to Waimea Canyon Middle School] campus" <http://maluiawcms.blogspot.ca/> [accessed October 15 2015]. Teachers and parents suspected Syngenta of pesticide drift, yet the company claimed that the strange odour and symptoms were due to stinkweed (Ludwig 2013). Between 2010 to 2012 - four to six years after the incidents (!) - molecular bioscientists from UH collected air samples wherein they detected five pesticides (including the restricted-use pesticides chlorpyrifos, metolachlor and bifenthrin) and about half the chemicals associated with stinkweed (Li et al. 2013). The pesticides were below acceptable

residents entered lawsuits against Pioneer DuPont and its land lessor Gay & Robinson due to pesticide-laden dust blowing into resident's homes almost daily over the period of a decade, claiming to affect their health, the environment, and property values.²²⁰ Attempts by Council Member Gary Hooser to request data about the use of restricted-use pesticides (RUP) by most biotech companies failed because company representatives themselves were not allowed to share such CBI (confidential business information) or trade secrets.²²¹ All of this occurred against the backdrop of data that over 3,000 permits for GE open-air testing field trials had been granted in Hawai'i since 1988, more than in any other US state.²²² As a result of this complex and costly process of obtaining CBI, concern over GMOs and pesticide drift, Hooser, together with Tim Bynum, introduced Kauai County Bill 2491 in June 2013. The bill was to mandate the disclosure of what general, restricted and experimental-use pesticides were applied, the establishment of 500-foot pesticide buffer zones around fields where 5 pounds or 15 gallons of RUP are applied annually, and implementing a temporary moratorium on expansion of "experimental genetically modified crops" until an environmental impact study was conducted (Bill No. 2491, Draft 1).

From June to November 2013, the County of Kaua'i hosted several lengthy public hearings to gather testimonies on how to improve the bill, which culminated in the second Council meeting on July 31st 2013 that attracted more than a 1,000 attendees over an almost 12

federal safety levels, yet as revealed by the concurrent Waimea lawsuit, community members insisted that federal regulation forbids any drift regardless of the level, particularly near schools (D'Angelo 2013b; Ludwig 2013).

220 In May 2015, a federal court charged Pioneer DuPont a total of \$500,000 for property damage to be paid to the residents while a judge granted a defence motion to exclude any references to health and environmental issues (Lyte 2015).

221 Interview with Hooser (IV_040613); Earth Day Roundtable, April 21 2013 (FN_210413).

222 <http://www.stoppoisoningparadise.org/#!/facts/c113m> [accessed January 7 2015]. As of May 28 2016, the total number of locations/permits in this 17-year period for Hawai'i is 3,659, which is comparable to Iowa and Illinois. <http://www.isb.vt.edu/locations-by-years.aspx> [accessed May 28 2016].

hour long session (Fig. 22). After dubious personnel changes in the County Council and Mayor's office, the Mayor's veto against the bill, and several other inconsistencies, in the final 18-hour-long hearing on November 16th 2013 the bill was passed with significant amendments: specification of pesticide use reporting, reduced buffer zones in different cases down to 100 feet, and dropping the moratorium on “experimental genetically modified crops” (Bill No. 2491, Draft 2). These amendments reflected a significant shift, namely from arguing about the safety of genetically engineered organisms to debating pesticide use.²²³ This shift, I argue, reflected a realization among bill proponents that contesting GMO's safety within the US-context where it has been established as “substantially similar” to conventional organisms could be a lost battle. Instead, they focused on pesticide use. This was because the severity of harmful effects of pesticides has been acknowledged by governmental agencies at least since the establishment of the Environmental Protection Agency (EPA), whereas the harmful effect of GMOs has not. In other words, activists recognized that arguing about the risk of GMOs would likely be a lost battle, since US governmental agencies in the 1980s have legally established them as “substantially similar” to conventionally grown organisms (FDA 1992; see chapter 5). At the end of the day, the contestation boiled down to whether the County could pass such legislation or whether it was pre-empted by other state and federal laws that regulate GE and pesticide use. After the bill was passed, the industry challenged Ordinance 960 (former Bill 2491) in court, and in August 2014 a US Magistrate judge ruled it invalid on the base of pre-emption by state and federal laws (Bernardo 2014).

223 For instance, for the big *Mana March* in September 2013 in support of Bill 2491, a person reposted on the GMO Free Kauai Facebook this call: “LETS MAKE OUR SIGNS FOCUS ABOUT POISON NOT GMO FOOD !!! The point of this Bill is Regulating The Over Use Of Pesticides on Kaua'i [...]” (FN_070913).



Figure 22: In order to accommodate the hundreds of testers, the council meeting was moved to the Kauai Veterans Center, Lihue. Proponents of the bill wore red while opponents – primarily workers of biotech companies – wore light blue shirts. July 2013.

The public hearings indeed resembled the earlier mentioned idiom of “staged” conflict in biotechnology's progress: “rituals that, in the formal guise of conflict and resolution, opened only a limited and technical space for dissent, and then only to close it the more firmly with the magisterial authority of the law” (Jasanoff 1995: 159). Yet within this liminal stage between June and November 2013, social containment of a public questioning federal and state regulation appeared like a genie released from the bottle. The hearings quickly emerged as tell-it-all sessions revealing evidence about public health and pesticide use that otherwise might have easily remained out of public consciousness. Indeed, the public hearings seemed to be the only legal way to disclose inconsistencies and flaws in existing laws, which often were poorly enforced due to severe funding cuts after the United States' economic crash in 2008. For instance, in one hearing Deputy Director of Hawai‘i's Department of Health (DOH) Gary Gill

asserted that it had no program in place to regularly test for pesticide contamination in the soil, air, or water, and that they used to have more specialists (toxicologists); budget cuts had led to reduced investigations to once a month. Further, the DOH had turned responsibility for testing drinking water for pesticides over to the counties when the sole position on Kaua‘i had been vacant for more than a year (FN_090912013). Gill added that enforcement of dust regulations on Kaua‘i is “probably badly” done (quoted in Cocke 2013). Further, while the birth defect registry had not been updated since 2005, all the same, medical doctors on Kaua‘i presented “strong anecdotal evidence” of a statistical difference of cancer, asthma and birth defect incidences between the West and the East side of Kaua‘i (County of Kauai 2013).²²⁴

Meanwhile, the State Department of Agriculture (DOA), which governs application of pesticides, did not have the means to track how many general use pesticides were being sprayed, as it only collects sales records for RUP (Cocke 2013; FN_050813).²²⁵ The DOA has one employee on Kaua‘i (six total in Hawai‘i) that reviews pesticide inspection reports, and this employee had not gotten around to reviewing them for several years due to public record requests, which meant that pesticide investigations took up to three years (Azambuja 2013). Further, the state's herbicide data had not been revised since 2006 while the hearings also brought to light biotech companies' annual use of 22 restricted-use pesticides totalling 18 tons (Brower 2013; FN_270913). Attorney Kyle Smith, who represented West side residents in the lawsuit against Pioneer, asserted that seed companies on Kaua‘i use as much as the highest amounts that are used on the continental US – two pounds per acre. Yet the climate in Hawai‘i

224 Gill also asserted that since the local population is too small for an epidemiological study to provide strong data, anecdotal data from the community is crucial (FN_090913).

225 Collecting data on *use* rather than sales was also one of the main incentives for Bill 2491, as Hooser clarified, and would thus distinguish it from the already existent State Law Act 105 on pesticide regulations (FN_270913).

allows for multiple harvests each year so that amounts of pesticides can multiply by four, which can lead to pesticides being sprayed up to 240 days in a year (Azambuja 2013).²²⁶ The American Academy of Pediatrics, the Hawai‘i Nurses Association, Hawaii Teachers Association, and the Local 5 Hotel Workers union all supported the Bill 2491.

What was on everyone's tongue around this time was the “divided island” and the loss of aloha that impacted many social relationships, within people's families but also as individuals felt the pressure of having to take a public stance.²²⁷ At first, I found that this mourned loss of aloha was a superficial way for politicians to convey to citizens not to disobey: in other words, I thought it reflected a past plantation mentality where, in Malia's words, being *makapo* (blind) was the norm. Yet when I revisited the interview with the *kupuna* Hana Kawahi‘okalo‘opele Montgomery (Mealoha's mother), who pointed out a difference between O‘ahu and Kaua‘i (in regards to how the Hawaiian sovereignty took shape), it occurred to me that there was more to it:

Here, or off islands [Kaua‘i], they're not as – strong as Oahu people are about things. We're more kind towards others. They're not. I mean, they have a mission, and they're going to do their mission regardless of who, and because we're close to our people then we're more ahm, protective of others. [...] You cannot go against one Filipino family because you know the family. Or the Japanese family, you know? So, you're kind of more quiet, and you don't use that anger (IV_100613).

226 This relates back to Brewbaker's assertion (previous chapter) that the second branch of Hawai‘i's corn industry - besides hybrids developed for tropical conditions and to resist local pests - is the seed industry's work with unadapted temperate germplasm that require regular pesticide use (2003: 59). In that sense, it defeats the commonly made argument by biotech proponents that genetically engineered crops require less pesticides. In case of Hawai‘i, where newly engineered crops are tested, these pesticide levels are subject to experimentation, meaning that these are not regularly used amounts.

227 This coercion to take sides is something I personally experienced as well when a journalist dismissed my research as being biased towards bill proponents. It took time and geographical distance to understand that had I had no stance in the debate it would not have put me in any worse or better position (see Haraway 1988).

She relates this to the so-called plantation mentality of obedience to one's boss but also the general small town care for one's neighbour, which in that sense certainly defined a more specific Kauaian civic epistemology. Bemoaning the loss of aloha was thus not merely a political vehicle but relates to the loss of a much more fundamental epistemology with which people grew up; quite certainly a sense of *'ohana* and community.

Testimonies of bill opponents, predominantly workers, biotech representatives, and scientists, revolved around the loss of jobs and pre-emption of federal and state regulations. They also referred to activists' accounts as lacking scientifically proven facts with the goal to scare the public into supporting a bill that was compelled by emotion and misinformation (see County of Kauai 2013). Bill supporters equally claimed that the biotech companies used fear and misinformation to make their workers believe that what they do was safe and that job loss was a real threat. Echoing the dichotomous narrative of emotion vs. science, the media likewise depicted hearings as “emotionally charged.”²²⁸ In the remainder of this chapter, I will tie this 'emotional talk' to Hawaiian civic epistemology and its styles of knowledge making, and end with how preferred forms of expertise displayed inherently socially mediated ways of knowing.

Besides a proclivity for banter, contesting scientific facts and numbers, and the centrality of land and community, Hawaiian/Kauaian civic epistemology was also defined by what anthropologists refer to as sensual knowledge. Donna Haraway's call to take sensory systems seriously (1988) alerts researchers to the multiplicity of sensorial ways of knowing (see Ingold 2000; Myers 2008; Silverman 2012). As Marshall Sahlins points out in *How “Natives”*

228 Bernardo (2013), Eagle (2014). Further, the public hearings reached such a massive scale that the media outside of Hawai'i picked up the issue of agricultural biotechnology and “poisoned paradise,” such as The New York Times (Pollack 2013) and online news channels, like the Huffington Post (Cocke 2013), Aljazeera (Letman 2013), or Truthout (Ludwig 2013).

Think (1995),

It is by means of [this] tradition [transmitted in distinctive linguistic concepts and adapted to specific life conditions], endowed also with the morality of the community and the emotions of the family, that experience is organized, since people do not simply discover the world, they are taught it. They come to it not simply as cognitions but as values. To speak of reasoning correctly on objective properties known through unmediated sensory perceptions would be epistemologically out of the question. Seeing is also a function of hearing, a *judgment*, and in the economy of thought [...] reason is invested with feeling and bound to imagination (ibid: 12; emphasis original).

Sahlins alludes here to the need to go back to sensory forms of knowing, to not take the Cartesian mind/body binary for granted and to recognize that reasoning is not (only) a matter of cerebral activity. Rather, reasoning also consists of feelings and imaginations that people make sense of according to a specific value system of what is considered 'rational,' 'objective' 'thinking.' Haraway speaks of restoring a form of objectivity that is located in specific embodiments, where only partial perspectives offer objective visions (1988: 583). Here I aim to extend analyses of civic epistemologies to suggest that questions of *how* we know need to also interrogate other realms beyond the mind; what I call *bodily claims of knowing*. Katie's deliberation and sense that the high school students had different strengths – from conveying factual knowledge to “speaking from their heart” – exemplifies this claim. She recognized that the former ways of knowing are not for everyone (less so resting on a cultural explanation than on students' individual preferences, skills and strengths). During the hearings for Bill 2491 people both contended and bantered in a cerebral style, such as when they referred to scientific facts, statistics and numbers over GMOs, pesticide use, or cancer rates. They often also conveyed their messages in 'emotional' ways. While bill opponents declared that those against biotechnology do not have their 'facts straight' and talk out of emotion, so did bill proponents

refer to the former (primarily the workers) as talking out of fear of losing their jobs if the bill were passed.²²⁹ In their multifaceted, messy ways of expressing knowledge, people practiced what Callison calls a “relationship-building and translation exercise with the scientific facts” (2014: 29). In other words, both sides either belied or affirmed the modernist attempt to keep factual, 'rational' knowledge – science – apart from biased, 'irrational' emotions – values (see Latour 1993).

Yet how exactly did emotion, the body and knowing converge in this debate? The following testimony (in support of the bill) gives insight:

K. HOKU CABEBE: [...] Upon my first discovery of the possibility of harmful effects of GMO on the *'āina*, my heart hurt and my *nā'au* told me that this was not right. [...] About a week ago, I found out that my daughter's school, Kawaikini²³⁰, which is in the beloved *moku* [district] of Puhi is in very close proximity to a large GMO field. [...] I have endured very long days and drives so that my daughter has the best opportunity for a strong Hawaiian education in a setting as loving as the one that I grew up in with Hawaiian values, Hawaiian history, Hawaiian culture, and Hawaiian language. [...] (County of Kauai 2013: 77f).

The testifier not only points to the significance for his child to be raised in Kanaka Maoli ways, and the centrality of the *'āina*. His reasoning itself speaks from a Hawaiian epistemology at whose core, as Kanaka philosopher Manulani Meyer asserts, is the *na'au* (2003: 123). In a dictionary from the 1860s, the *na'au* is described as “the small intestine of men or animals that the Hawaiians supposed to be the seat of thought, intellect, and the affections” (Andrews 1865: 404; quoted in Meyer 2003: 123). More than a century later, Mary Kawena Pukui and Samuel

229 There was much debate on whether biotech industry representatives told their workers they would lose their jobs, which they asserted in public hearings not to be the case. However, workers of the companies expressed in testimonies that they were told they would lose their jobs. Scientist Ryan Oyama of Pioneer DuPont shared in an interview that they would likely had to cut jobs were the bill to be passed (IV_100913).

230 This is one of the four Hawaiian-focused charter schools on Kaua'i.

H. Elbert, two authorities in Hawaiian language, defined the *na 'au* as intestines, bowels, guts; mind, heart, affections; of the heart or mind; mood, temper, feelings (1986). Quite likely, they put “mind” and “heart” as part of the *na 'au* in order to convey to westerners that intelligence (the mind) and emotion (the heart) in Kanaka epistemology rests in the guts.

The testifier's reference to both the heart and *na 'au* may express a similar sense and seat of knowing, just as the principal of Kanu wanted the students to give testimonies that are “factual, and come from their heart.” In following Sahlins' elucidation of reason, Meyer deduces that “[r]eason is not only linked with feeling, it is *considered feeling*” (2003: 123; emphasis added). I believe this is a crucial point in Hawaiian civic epistemology where *reason* is reconfigured, and so is *rational* thinking (in an etymological sense, rational as “pertaining to reason” and *ratio* as “reckoning, calculation, reason”²³¹). In contemporary times of scientific facts, quantitative authority, statistics, and translation exercises with scientific facts (Callison 2014: 29), I argue that reasoning in bodily forms of knowing likewise encompasses mind as “considered feeling.” Hence, 'speaking to the facts,' speaking from the heart, listening to one's *na 'au*, or hearing one's ancestor speak about what harms the *'āina* and people's health, does not inherently stand counter to the western concept of thinking with the mind. Rather, it 'repositions' – literally – the latter as one among many bodily forms of knowing.

In another instance the reference to the *na 'au* struck me as equally insightful. To my interview question what education meant to my interlocutors, Malia Chun responded as follows:

231 <http://www.etymonline.com/> [accessed February 20 2016].

Well, to me education is not about *palapala*²³², or attaining degrees. Education is expanding your mind to the possibilities of life. And in doing so, making informed decisions. [...] It's not necessarily taught in an institution or just, you know, within one school or one person. Education happens everywhere and at every minute of the day. But you need to be, your *na'au*, your insides need to be open to receiving that.

Malia in fact situates the *na'au* at the fundamental base of education. As internal, bodily source, in the etymological sense of *educere*, education is this moving out, an expansion of the mind. This transgressing character is also immanent to the word *na'auao*: learned, enlightened, intelligent, wise; learning, knowledge, wisdom, science; literally: daylight mind. I recall that the Native Hawaiian Charter School Alliance that was founded in 2000 named itself *Nā Lei Na'auao*, which can be translated as “adornments of knowledge.” If we reread Folta's assertion that Hawai'i is “a very emotional place”, he may not realize how right he is when stating that “[s]cience is what helps us sort that out” (D'Angelo 2013c) – for the sheer fact that in Kanaka Maoli epistemology they are part of the same, the *na'auao*. The contrasting of emotion and science is nonsensical in this respect, and if anything, such dichotomous framing reveals the situatedness of Folta's words in a western epistemology that is based on the Cartesian mind/body duality.²³³

While the *na'au* did not come up that often during fieldwork, the frequency with which people employed 'emotional' as descriptor is to my sense indicative. As HFCS co-founder Keola Nakanishi asserts, western academia neglects storytelling, or fiction, and emotional truth, the *na'au* as knowledge source (2000: 17). Calling out places, people, testimonies or debates as 'emotional' also points to this colonial heritage of suppressing a *way* of knowing by framing it

232 As many Hawaiian words, *palapala* has several meanings: document, bill, deed, writing of any kind, certificate, diploma, etc. Here, Malia likely refers to learning through written word.

233 See Scheper-Hughes & Locke (1987) for a seminal critique of the body/mind dualism.

as detrimental to reasoning. It is not unique to debates around science, as the PLDC hearing showed.²³⁴ As anthropologist Sabine Deiringer asserts in her dissertation *Organizing Hawaii-US Relations*, Native Hawaiians' "radical" outrage over burial desecrations diminishes a US-American expectation of moral integrity that is based on a rational, mutual understanding. According to her, the exclusion of emotional, "irrational freaks" is furthermore a paradox, since the US-American equality ideology – of equal rights for every racial group – suppresses long-lasting structural inequalities (2009: 67). For instance, for a HFCS to be told not to appear at an event that is related to land disguises the structural inequality of Kānaka Maoli's lack of access to land, which thus maintains an 'equality ideology' of the school as *public* school. In case of the GMO controversy, a conception of 'irrationals' that do not believe in the 'sound science' of genetic engineering conceals the structural inequality as to who gets to construct an "attentive public" that is understanding of science and technology (Wynne 1996). In both of these scenarios such ideology does not permit emotional, irrational freaks that challenge this ideology. Deiringer concludes that "society 'ought to be' organized on the basis of rational mutual understanding" excluding many irrational affects and aspects unregulated by the law, which results in a distorted image of *Native Hawaiians* as extra-societal entities (2009: 115).

These framings mirror once again lawmakers' attempts to corral public discontent by closing debates over the safety and regulation of genetically engineered crops back in the 1980s. This 'emotional talk' reemerges in the next chapter in an account of students challenging the notion of education as factual but void of emotions. For now, here is a thought experiment: while the *na'au* is the site of intelligence and emotions, it is also known that the head is home

234 Another instance is a biomass Energy plant that was proposed for Hawaiian Homesteads Land in Anahola whose hearings of a mostly Kānaka Maoli community Mayor Carvalho similarly described as "very emotional" (quoted in D'Angelo 2013a).

to one's spirits and *'aumakua* (ancestor gods) that “at times took beneficent possession of a person” (Pukui et al. 1972: 188). If we were to flip around a western interpretation of Kanaka Maoli thought, I would consider for a moment a Kanaka Maoli interpretation of western thought wherein the heads of scientists are possessed by the 'spirit' of science that is dictated by universalism, disinterestedness, and skepticism (see Merton 1973).

Authoritative ways of knowing are thus shaped by whether a rational mind, a heart, a *na 'au*, or a combination thereof are agreed upon as legitimate styles of public knowledge making, and as a result, of citizens as knowledge-able social experts. This once again points to the social context of knowledge making, and to what kind of expert is seen as credible, another central aspect of civic epistemologies (Jasanoff 2005a). Bill opponents consulted to a large degree experts from scientific fields in and outside of public institutions both from Hawai‘i and the continental US. Experts' scientific credibility was also a factor for bill proponents, yet theirs had the additional quality of being “international consultants” (Choy 2005). These experts, Timothy Choy argues, gain knowledge and prestige through (global) circulation that is similar to the Trobriand islanders' custom of *kula* ring exchange (ibid: 9). The profiles of such speakers as Indian activist Vandana Shiva, biologist Tyrone Hayes from the University of California, Berkeley, or environmental lawyer Andrew Kimbrell are those of mobile expert witnesses, who must bear these particularizing and universalizing marks simultaneously (see ibid: 6). For instance, they would show sensitivity for local issues by acknowledging GMO taro as rightly upsetting desecration and concurrently refer to other global GE incidences that have gone astray, such as Bt cotton in India. This speaks to many activists' apprehension of the particular circumstances in Hawai‘i and the industry's concurrent global dimension.

This was less so the credibility that GE proponents sought, who insisted on the sheer

universality of biotechnology as sound and objective, independent of locality. Yet in both cases expertise was significantly shaped by a sense of *rootedness*. Testifiers with almost no exception started off their speeches by asserting that they were born and raised on the island(s), or that for *x* years they had lived in Hawai‘i. Such positioning is a significant marker of trust, which demonstrates one's social capital and thus credibility: the longer one has been in Hawai‘i the more senior one is. Even in case of biotech proponents, locality and this sense of rootedness were not rendered irrelevant (as I will show in the next chapter).

Across different public events in Hawai‘i where international experts spoke to GMO opponents, it was discernible that expertise was quite specific in how it was embodied. While the individual character of experts does not play a large role in establishing their credibility on the continental US (Jasanoff 2005a: 268), in Hawai‘i the notion of character is powerful. When I spoke with people about their impression of Vandana Shiva, many commented on her passion, her strength as a woman, and her sense of justice speaking to the political implications of biotechnology in India. Equally outspoken, more flamboyant characters like professor of biology Tyrone Hayes are not regarded as experts among GE proponents due to his seemingly lacking 'objective' aura.²³⁵ Yet GE sceptics valued charisma, which to them revealed the person, and not 'just' the scientist. For instance, Tyrone Hayes started his presentation on the effects of atrazine on frogs at UH Mānoa in May 2014 with an image of his family, certainly playing to the particularity of Hawaiians high value of *‘ohana*, family.²³⁶ On Facebook, Hayes' lecture

235 See the New Yorker article *A Valuable Reputation* on the controversies surrounding his research for the agrochemical company Syngenta in which the journalist describes the flamboyant character of the scientific persona Tyrone Hayes, which the company attempted to present as proof of his lack of scientific rigour (Aviv 2014).

236 Online stream of his talk *A True Story of Scientific and Political Corruption* on O‘ahu on May 18 2014, new.livestream.com/accounts/3132312/events/3007280/player_pop_out [accessed live]

attendees later also commented on his credibility exactly because he did not merely speaking about scientific facts but also about the political context of regulating atrazine, and his personal harassment by Syngenta. In other words, *people located expertise in charisma* that makes an expert humane, which to them provides a more holistic view on science without denouncing an objective notion of science. One could also say that Hayes not only spoke to the *Hawaiian* value of *'ohana*. Rather, in instances like this and many others described in this dissertation, *'ohana* has evolved to become a central character of the enunciatory community in Hawai'i that consisted of people critical of GMOs, who came from diverse socio-cultural backgrounds (Fortun 2001).

In comparison to Hayes stands the emeritus plant pathologist Don Huber from Purdue University, who in his 80-something years of age has traveled across the globe to speak on the underestimated consequences of GM food and glyphosate. Huber's expert persona, white-hairy and often densely scientific language that is accompanied by wordy presentation slides on scientific studies, did not speak to many skeptics of GE. On Kaua'i, he enjoyed much less attention and fanfare, neither the usual ten minutes that were given to experts in hearings at the Kaua'i County, nor any media coverage. Here, it seems, a person appearing to be 'too' scientific did not have the same credibility as more edgy, charismatic characters that succeeded to make their presentations more personalized.

As Manulani Meyer asserts, Hawaiian intelligence is fused “with spirituality, with ideas of utility, with relationships, with a rich source of values, within an historical context and with a sense of environmental rapport” (2003: 125). I could not touch on all these aspects in this dissertation, though her enumeration points to the central value of relationships, in this case for becoming a knowledge-able social expert. These modes of preferred expertise show that how

people know depends on *multiply mediated facets of expertise that are situated in social knowledge and affiliations*. Experts are not neutral consultants but already speak to a particular proclivity of what one's own social setting considers trustworthy and credible.

In sum, for Kanuikapono, education in the public sphere was a juggling between practicing understanding of Hawaiian education as a “school without walls” and financial dependency on institutions while being reminded to stay within the “safety zone” of (apolitical) cultural practices, thus education. The same way that the high school students refused the simplistic input-output conception of education at the luncheon, Kānaka Maoli criticized Kamehameha Schools' manageable, predictable, extractable notion of education. Again, the high school students (just as the concerned public) engaged in their kinds of *learning as land-ing* by developing tacit forms of expertise: by disapproving with politicians' treatment of the fishermen, shrugging over the mayor's attempt to “brainwash” them, while learning that their voices are much courted. In other words, the social and the political more than material technology of genetic engineering formed the students' and activists' *learnsapes*.

This chapter also described the concordance between Kānaka Maoli activists and anti-GMO/food activists, who aimed to protect the *‘āina* in their separate and similar ways. Incidents like GE taro or KS' lease to Monsanto created an “educational space” or “gift in a strange way” for people to learn for the future, which formed their *learnsapes* of how to trust or not to trust authorities that are in charge of land use. These bonding processes produced enunciatory communities and informed a developing contemporary Hawaiian civic epistemology, which was in turn shaped by people's *learnsapes*, a Hawaiian-US-American hybrid of contentious deliberation, the centrality of *‘āina*, and bodily ways of knowing. The

latter complicates Cartesian cerebral reasoning and points to how 'knowing' cannot be reduced to factual reasoning. One of the outcomes were attempts to socially contain Kānaka 'Ōiwi's disgruntlement over the colonial past, as well as GMO opponents not knowing the 'facts,' which was often dismissed as “emotional” expressions. In this light, 'reasoning' itself needs to be reconfigured in order to accommodate both bodily ways of knowing, as well as people as knowledge-able social experts. Further, these ways of knowing – a rational mind, a heart, a *na 'au*, or a combination thereof – are styles of knowing that are multiply mediated and situated in social knowledge and affiliations, as I demonstrated in the students' reaction to their adult lived-in world and in people's choice of experts.

In the final chapter, I will turn to the agricultural biotech industry on Kaua'i. I start off with a vignette of a school visit to the company Pioneer DuPont, which will then lead me to describe the situatedness of of biotechnology on the island.

Chapter 7: The communal life of agricultural biotechnology, and how to “educate the public”

Towards the end of the school year, while I was interviewing Katie, we also touched on the issue of GMOs. We had introduced the students to the issue more from the opposing perspective via a visit from a representative of GMO Free Kauai back in the first term (see previous chapter). In the interview, I brought up our initial plan to visit Pioneer DuPont, a hybrid and biotech seed company on the West side, in order to get the 'other side' as well. “We still do. We will, if we can, if they'll let us,” Katie responded. The usual ad hoc way in which lessons were scheduled, added to the uncertainty over whether all students would pass their courses, meant that the last weeks of school were defined by rushing to teach core subjects and drilling into the students whatever the curriculum standards demanded. This was combined with attempts to carve out time to go up mauka (towards the mountain) to harvest ‘*Ōhi‘a lehua* (a cherished flowering evergreen tree), fern and other plants to make *lei, po‘o lei* (head wreaths) and hula skirts for the *Hō‘ike*, the end-of-school ceremony. To these pressing activities, Katie added the Pioneer field trip, which was eyed with skepticism not only by the principal and other teachers, but also by the students, who felt they had heard “enough already!” about GMOs. Not surprisingly, on the day of the school trip, the students were fairly unmotivated to go. Their antagonism reverberated throughout a dead silent, one-and-a-half hour bus ride to Waimea on the West side, and through Katie's charge, prior to entering the Pioneer DuPont building to be respectful. From my fieldnotes:

When Katie asks the students what to do if we have questions, one student shouts “to shut up!” This would be an interesting school trip, I think, and wonder whether education that provides the 'other side' on GMOs was such a good idea after all. This reminds me of what ethnographers are too familiar with – the risk of breaching trust with their closest interlocutors when they engage with the perceived enemies of those interlocutors.

As we enter the facility, Sarah Styan, the senior researcher with whom I had arranged the visit, greets us and after we pass a series of cubicle offices, we assemble in a conference room where her presentation awaits us. Mrs. Styan, it seems, is not unfamiliar with wary visitors, and tries to keep a cheery mood throughout a two hour-long presentation on “Biotechnology 101” and “Pioneer and the Seed Industry,” globally and on Kaua‘i.²³⁷ Mrs. Styan speaks passionately about her work as scientist, perhaps too joyfully, as I can read in the students' faces. Pioneer is a business, we learn, that sells their seeds mostly to “mainland farmers,” as there are none on Kaua‘i. Farmers are business partners, and they only want the best of the best on the market. Mrs. Styan's last two slides show the “Perception of Agriculture” in three separated bubbles: “Conventional”, “Biotechnology”, and “Organic.” The last slide, “Agriculture to me”, places biotechnology within the “Conventional” bubble, which fuses with the “Organic” one while both are connected through a bubble that lists: “Land/Water/Cover Crop/IPM [integrated pest management]/Crop Rotation Workforce.” There was no mention of pesticides.

I am reminded of stories that anti-GMO activists had shared with me, that Pioneer representatives often give overly long presentations and as a consequence leave little time

²³⁷ Sarah Styan kindly provided the slides via email.

for questions. Today, I think, it probably would have made no difference if there had been more Q&A time allocated. The students pulling long faces were determined to not even start a conversation. Indeed, throughout the two hours the students express their utter disengagement in ways perhaps not unsurprising for adolescents: their resistance speaks through every pore of their bodies: half awake, half asleep, they linger, some even pretending to sleep in their chairs as if it was the most normal thing to do, refusing to look at the presenter nor her presentation, or worse, give looks that could kill. After the presentation, Mrs. Styan gives us a tour through the facility, and partly due to her overstretching the two hours arranged for the visit, we all follow somewhat nervously, knowing that a long journey back to Anahola still awaits us. As most students are disenchanted by everything, particularly the smells (as many later indicate in the written reflections), they cough – whether simulated or not – and are also particular not to touch anything. In sum, they provide numerous indicators that this school visit was anything but a 'positive' learning experience.

On our way back to the East side, silence prevails once again in the van, after Katie exclaims with disappointment and resentment over the students' "lack of aloha and respect," not only towards Mrs. Styan but towards us and themselves. Throughout this ride back I feel somewhat amused, fascinated, and guilty: the strange virtues of an ethnographer as constant in- and outsider. Yet when we get back to the classroom, and Ipo, Mealoha, and Katie reprimand the students for their behaviour, my fascination evaporates within an instance. I realize that at this point I can't look into the students' eyes. Now I feel Katie's disappointment as well, almost as if my role as ethnographer has shifted the moment we entered the classroom. In my role as ethnographer I wasn't judging their behaviour as disrespectful or

lack of aloha but as their own acts of resistance within the little freedom, agency that they have. As a teacher, I am simply disgruntled (FN_200513).

The school day ended with what felt to me like an insincere *piko*, a closing that was meant to wrap up the school day in good terms and to forgive one another. The dynamics between being an ethnographer and educational assistant, offering education that breaches trust to my confidants, accountable education, social learning, agency and its embedded contingencies – all these experiences accumulated in this school day.

The dynamics of that day expressed several points central to this chapter. First, I will describe the power relations and agency that the students experienced, through which they formed their own *learnsapes*. As I will detail in the following, the students' *learning as land-ing* and their related tacit expertise lie in developing (and bodily expressing) strong sensibilities for social and spatial marginalization. Similar to performing social satire and learning the political currency of a movement, education here likewise entailed students exercising their agency by not “showing aloha.” I will depict how the students questioned adults' motivation in that realm, and in so doing scrutinize the actual feasibility of 'unbiased,' 'neutral' education. The teachers' expectation that the students would get 'factual knowledge,' rather than act on emotions during the school trip demonstrated how education cannot be easily partitioned into these domains. It relates back to the kind of expertise that GMO opponents favoured, which is a charismatic expert (such as Tyrone Hayes) who not merely speaks about scientific matters and facts but also the related political, social and cultural implications.

In the second and main part of this chapter, I will describe more broadly how trust of the agricultural biotech industry manifested, and related to that, depict the form of life of education in and around agricultural biotechnology. The biotech industry often framed their public outreach as “educating the public” on the benefits of biotechnology, which I argue is conceivable as a sociotechnical corrective of missed opportunities to do so in past decades. As I will show, trust and the demonstration of a particular kind of farmer expertise was not insignificant in this endeavour. In a larger sense, these processes were related to the industry seeking legitimacy as “good neighbours,” to establish themselves as local and ‘rooted.’ ‘Educating the public’ also entailed a moral call to support the industry in its proclaimed quest to alleviate world hunger. This call was prominently articulated in the sociotechnical imaginary (Jasanoff & Kim 2009) to “feed the world.” As transnational corporations operating in Hawai‘i, biotech proponents constantly shifted narratives between localness/rootedness and globalism/universalism, demonstrating that the universal virtue of science was always entangled in the communal life of science (see Callison 2014).

After having described how land and social engagement form *learnsapes* at the school and among a wider movement, I here aim to assemble them on an “epistemological terrain” in order to show where and why epistemological differences matter (Callison 2014: 124f). In wrapping up this chapter and leading to the final discussion of this dissertation, I argue that how evidence came to matter in all three contexts described in this dissertation was strongly linked to the trust that people gave to their social lived-in worlds – be it one’s peers, teachers, activists, *kūpuna*, or scientists, the scientific and regulatory process. It once again demonstrates how learning, knowing and education are inherently socially mediated.

7.1. The feasibility of 'unbiased' education – ideal or idealistic?

How the students acted on this school trip that they felt coerced into (some students even refused to enter the van at the school) resonates with a wide field of anthropological literature on agency and resistance in settings of structural violence (see Ortner 2001). As James Scott describes in *Weapons of the Weak: everyday forms of resistance* (1985), peasants' foot-dragging, false compliance, feigned ignorance or sabotage form “hidden scripts” that showcase a constant flux between oppression and resistance. Equally well known, Lila Abu-Lughod cautions not to romanticize resistance, and by that to disassociate acts of resistance from power relations (1990). Indeed, she asserts that acts of resistance form a window into understanding power relations (Abu-Lughod 1990: 42; see also Mitchell 1990). In the following I take up this lens to suggest that the students' resistance is a window into the effort of attempting to provide an 'unbiased' education on GMOs. Indeed, their resistance towards such purported lack of bias – be it for or against agricultural biotechnology – exposes mine, Katie's and the Pioneer scientist's situatedness (Haraway 1988).

For Katie, the way the students engaged – or rather disengaged – with Sarah Styan was not only an expression of utter disrespect but shameful, particularly as we came from a Hawaiian school where knowing and living *aloha* is seen as the most obvious virtue. At the Pioneer facility the high school students were no doubt aware that they represented a Hawaiian-focused charter school – just as they were when some students' giggled between blowing the *pū* shell at the PLDC testimonies. Perhaps causing shame for the school was not a hidden script the students were enacting (Scott 1985), as a *script* denotes a particular

deliberation, or a planned behaviour.²³⁸ Rather, I argue that their dismissive and contemptuous attitude more closely resembled what Miriam Kahn calls 'tactics,' which she observes among Tahitian elders who defy French officials by disruptively walking away during their presentations, performing their own eating, dancing, and joking (2011: 183). Similar to the Tahitian elders, the students carved out their own lived space (2011; Lefebvre 1991) by appropriating chairs as napping spots, refusing to engage by not asking questions, or coughing (whether faked or not) throughout the tour of the facility. In their own idiosyncratic and bodily ways the students were *learning as land-ing* (literally, *on* the chairs), and by that refused Katie's and my idealistic notion of learning from the very source of biotechnology – Pioneer's facility. Yet what did we expect after we had exposed them to activism first, and more so, occurring many months prior that now seemed to have little connection to this Pioneer fieldtrip?

Even “showing aloha” was more complex than I had thought, as I only realised in an interview with one student a week later. She explained her indifferent behaviour in reference to Styan's statement that there are no farmers on the island, which to her displayed ignorance about local conditions:

K: It's cause people here they [won't] buy your seeds, doesn't mean they're not farmers. Like, they choose to farm something that grows better here, which is *kalo*. And people don't like the idea of what your doing here, so –

238 Moreover, their acts were certainly motivated by multiple factors, class, gender, age, etc. (see Ortner 1995). While their age range throughout four grades displayed a seniority dynamic that is common among youth groups (Bucholtz 2002), many also formed their own opinions. For instance, in their written reflections some less vocal students responded that they were impressed by Pioneer's “bumble bee machine,” a rattling, loud instrument at Pioneer that made genetic samples.

[...]

I: Mhm. You didn't feel like you could say that?

K: Well, I didn't want to be rude.

The student points to several things here: First, to her the scientist's lack of recognition that there *are* farmers on the island is related to the scientist's category of farmers, namely, customers of Pioneer's seeds. Second, the student referred to the expertise of local farmers as to which plants grow better locally than others. Third, and most crucial here, she explained her choice not to ask the question as a desire not to be rude in someone else's *hale* (house), which would show utter disrespect, and thus equally no aloha. For her, I suggest, not expressing her discomfort with Styan's opinion was the better of two choices of “not showing aloha.” Her reaction also points to my naivety (and some of the teachers, as I will describe below) to have expected from students to comprehend biotechnology in a rational way while putting the expectation on them that they always need to express *aloha*. In that sense, the school, Katie and me created a para-site (Marcus 2000) that day where we expected the students to navigate an unfair double bind: if you are disrespectful, you show no *aloha*, if you show *aloha*, you convey that you agree to the biotech company's operations.

I return here to Stengers' *etho-ecological* perspective – a perspective I described in chapter 4 – wherein the *ethos* (in Stengers' words the behaviour of the being) is inseparable from *oikos* (habitat of the being) (2005: 997). Even if the teacher, the scientist, I or the principal may not have agreed with the students' behaviour, the student above illustrates that she had her way of expressing how her ethos related to her oikos (her home, the island). In that sense, the students – including the ones who did not care whether they were rude – formed *learnsapes* that countered the company's social and natural ordering; in other words,

the social hierarchy among employees and their land use for genetically engineered crops. As some students later wrote in the reflection, they disapproved of the fact that most scientists at Pioneer were white (though there was one Hawaiian scientist as well) while the workers who selected seeds in the facility were Filipino. More profoundly, they disapproved of the company poisoning the land by testing GE crops, and using pesticides and other strange smelling chemicals, as some of the students mentioned later. Put differently, they saw and interpreted things both through a racial and Hawaiian lens. The significance of land in *learning as land-ing* is then also to corroborate that their understandings of *mālama 'āina* was incommensurable with the company's practices; with the way Styan envisioned agricultural biotechnology on her presentation slides within the “Conventional” bubble fusing with the “Organic” one.

In that sense, I hold that the students did not separate *aloha 'āina* from showing aloha to humans.²³⁹ Put differently, Pioneers' practices went against the ethos the students in fact learned at Kanuikapono: that *mālama 'āina* means something other than planting GE crops and using large amounts of pesticides. At this school trip the students learned more about the negotiation of asymmetrical power relations than gaining 'proper' factual knowledge about biotechnology, as the school would have preferred. Their resistance was indeed a window into power relations on multiple levels: between students/youth and teachers/adults, between white scientists and Filipino workers, and between *'āina* and people. More broadly, their experiences demonstrate that learning about 'factual' knowledge cannot be disentangled from its peculiar, social, cultural, and ecological context. The students thus problematized the

239 This speaks to the larger experience of Kānaka Maoli active in sovereign issues, such as in the case of military facilities that use land in Hawai'i (see Deiringer 2009): How does one show aloha to people that in one's understanding do not show aloha to the *'āina*?

simplistic and purported straight-forwardness of *aloha* as always being nice, polite, or in harmonious agreement.

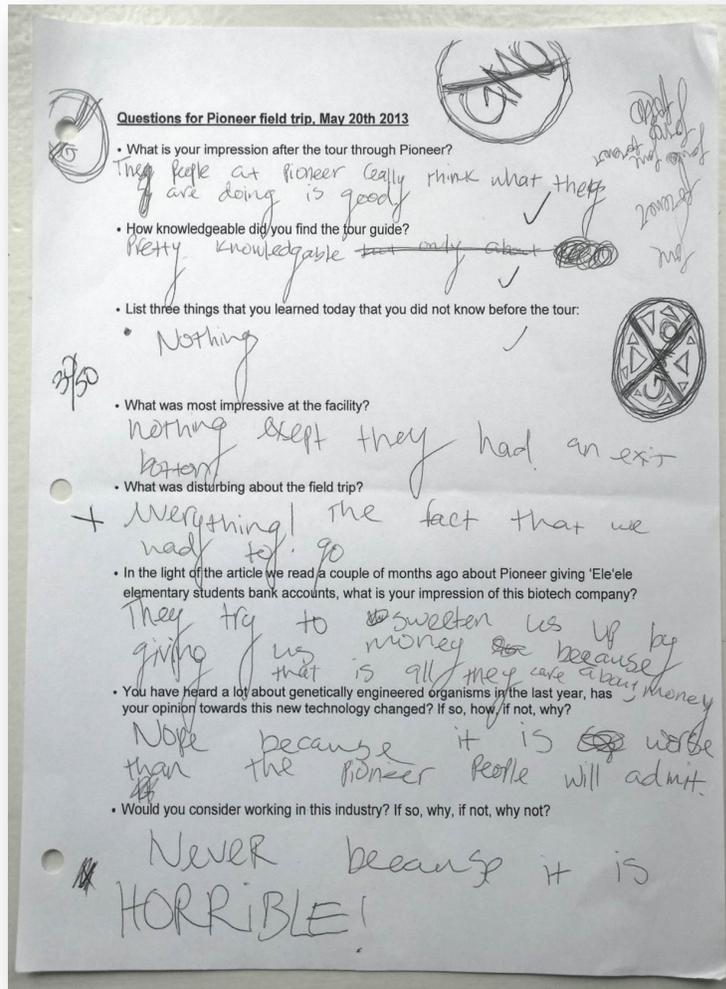


Figure 23: Discontent visualized in one student's feedback on the Pioneer field trip. May 2013.

The dynamics at play were also shaped by Kanuikapono's other teachers' view of the field trip. When I interviewed teachers and staff at the school about their thoughts on our field trip, at first not all resonated with Kamealoha Forrest's words:

I told [...] the students that was totally against going, that they should have went! That you don't have to accept everything they're saying but in order to have a good argument of why you don't like it, if you don't even understand their side of the argument, you can't have just one side. [...] If you're going to argue a point you need to be able to know all viewpoints. And that is, even in Hawaiian, in ancient Hawai'i they had this thing called *ho 'opāpā* [verbal contest], and the best *ho 'opāpā* person, or the one, they banter and battle with words and poetry. The one that knew the most things about all types of other aspects of life was the winner! (IV_011013)

For Kamealoha, *ho 'opāpā* – which, as I argued in the last chapter, shapes contemporary Hawaiian civic epistemology – is a central part of a learning process here. Concurrently, it brings up a central meaning of *aloha* in contemporary times: how does one argue while showing *aloha*? I refer here to a modern conception of *aloha* which entails a moralizing reminder that one has to always show and express affection, compassion, love, no matter what the situation is.

As mentioned above, the students disagreed and did not disagree to show *ahola*: they would not show *aloha* to people that show no *aloha 'āina*, yet they would also know when to do so (such as not to speak up when they disagreed with Styan). Thus, the students expressed what Hawaiian Studies scholar Beamer (2014) describes as *aloha 'āina*, which entails both *aloha* and *wiwo 'ole* (fearlessness):

Alohe requires one to speak and act out in the face of injustice. Aloha is active and something that needs to be put in practice, not something that is a state of being. The

problems around social, cultural, and ecological justice in Hawai‘I are not insignificant, nor are they something that we can will away through selfless compassion (2014: 15).

Hence, colonialism comes to full expression through an indigenous concept often misread as mere compassion, as an act of decolonization, which questions settler colonial, industrial, global and local power relations. Bryan Kamaoli Kuwada succinctly expresses this righteous anger over outside expectations within a settler colonial past and present in the form of a poem, which ends as follows:

And we are angry that they are pushing a mirage
There is no fucking bucket—
But we have always been crabs
Pai‘ea, Kapāpa‘iahehe, Ka‘a‘amakualenalena
Holding fast to the stones, fighting against crashing waves
Each struggling breath between sets reaffirms our ea
And what they refuse to recognize
Is that when we yell, when we shout
We do it not in anger
But to reassure our ancestors
That we are still here (2015b: 576).

Hence, what is needed is recognition that there are multiple forms of *aloha*, and that creating a space for *ho‘opāpā* and *wiwo‘ole* does not take away from practicing *aloha*, quite the opposite. In other words, it is premature and simplistic to categorize such articulations as “angry,” “emotional” or “irrational,” and merely perpetuates a stigmatization of Native Hawaiians as complacent people ignorant of injustice. *Pono* (justice) is part of *aloha* (see also Teves 2015).

Kepa Kruse, who taught music composition to Kanuikaponu's middle and high school students, initially felt not very different to the students:

Well, I was like: Wait, like, why are you guys going there? Like, don't even go there, like. But then, no! But that was my lesson, was, you know? Go there! And ask the right questions. You might actually get the answers you're looking for. [...] Don't act on emotion from the beginning. And I think for Hawaiians especially, we're emotional people because so sensitive to those around us, and what's around us. The food we eat, the music we hear, the images we see. We're very susceptible to that sort of information. (IV_120613).

Kepa describes two things here: He originally opposed a Hawaiian charter school's field trip to a biotech corporation, as in his view this conflicts with the school's ethos. Later he revised his position by transforming the question of whether it is ethically correct into what can be called an ethical terrain of deliberation on which the *students* should “ask the right questions.” Furthermore, this posed a lesson to learn from for him personally, a *learning as land-ing* moment, indeed. Second, he describes the role that emotions play for Kānaka Maoli, and the epistemological challenge when not to act “on emotion.” Curiously, he describes asking the right questions and acting on emotion as two different ways of knowing.

Like Kepa, Mealoha, who I interviewed her prior to our field trip, kept emotion and factual knowledge apart, yet in a slightly different way:

If we give them [students] the tools and give them all the articles and videos on the facts of what these issues are, not the emotional side but the facts. And then, because we are a Hawaiian-focused charter school, we give them the cultural aspect of it. You know, I mean Hawaiians are very in tune, in line with nature. [And GE] is one of the things that goes against nature. So, if we give them those tools but yet we expose them, like, you know, how we're going to take them down to Pioneer and let them see for themselves what's going on down there, and still, without an attitude (IV_070513).

For her, getting both sides means showing – factually – how GE technology is an example of going against nature. Yet, following the many conversations we had on the GMO debate in

those days, I suspect that “the emotional side” she referred to alluded to the wider adversarial atmosphere between opponents and proponents of the agricultural biotech industry that had pervaded everyday life – if not only for Hawaiians. Again, as I described in chapter 6, where people situate emotions (in or outside of reasoning) is as diverse as their different epistemologies and lived experiences. Overall, teachers considered the visit to Pioneer Dupont to be a fittingly 'sobering' experience for the students that would offer them a more direct source to 'factual' knowledge on GE. It was a similarly hopeful (*Nuremberg Funnel*) conception of education where content is transmitted from teachers hired for their “high” qualifications to students, as described in chapter 4.

As reality showed, however, emotional and 'factual' ways of knowing were not so easily divisible. Indeed, if one recognizes education as social phenomenon, the students' attitudes were part of it. In other words, the students' aversion also communicated to Katie and me their discomfort with having been taken to a company so despised by the public in those months before Bill 2491. They resisted our ideal of 'unbiased' education, which we sought to facilitate by presenting them with multiple perspectives. Instead, they exposed our own situatedness in being critical towards the biotech industry, which we disguised under the label of education. In that way, they refused the ideal of separating education from politically hot issues – and emotions, for that matter. Hence, similar to the way citizen-consumers and STS scholars interrogate the interdependence of science and policy – of 'fact' and 'values' – the students questioned the tacit co-produced order of 'independent' education and the policy behind Katie's and my decision to go. We, who had always been critical towards GE, had breached the students' trust, perhaps even compromised their health. Did they feel like a

social experiment?²⁴⁰ As much as they were reminded by teachers that one has to listen to different viewpoints on an issue, their sense of having lost faith in us prevailed, as they – and damn it, certainly we! – already knew how bad GMOs and the companies were. Our assumed 'balanced view' to provide two sides on the issue of biotechnology seemed to crumble into a mere educational ideal; on a topic that they had already formed a strong opinion on.²⁴¹ In their point of view the company was trying to “brainwash” them. Hence, their acquired, albeit (unacknowledged) tacit expertise lay in understanding that education is never neutral or without politics, and that keeping an “open mind” about perceived matters of injustice is not always easy – perhaps not even something to aspire to.

This refusal to get to know the other side is not separable from the larger experience of disenfranchisement, the repercussions of colonial dispossession that these young Kānaka Maoli have grown up to know (see Adelson 2001): be it living on Hawaiian Homesteads, alcohol abuse, or seeing their home island being used for experimental crop testing. On a much deeper and more profound level – such as when tourists created a white space at Kē‘ē Beach, or when foreigners recreated a social racial hierarchy between white people and Filipino, or poisoned their home island by growing Frankenfood, as some students mentioned – the students' tacit expertise lies in developing and bodily expressing strong sensibilities for spatial, social and ecological marginalization.

240 Around this time, there had been increasing talk in media and social circles that dust blows from these agricultural fields also potentially carry pesticide residues. The lawsuit by Waimea residents against Pioneer Dupont in regards to these dust blows was still pending.

241 In November 2012, Katie and I assigned the students to read and discuss a newly released article on Pioneer's donation of \$25 “seed money” for each student at ‘Ele‘ele Elementary School so they could open individual bank accounts (Fujimoto 2012). I recall one student pointing out that Pioneer would target elementary students, who can still be “moulded” and would believe things much more easily. Their discontent certainly also spoke to the late planning of the school trip that could have been organized closer to the visit of a GMO Free Kauai representative in the previous term (see previous chapter).

The students' irritation over engaging with 'the other side' also resembled my own work as ethnographer. The mandate of education was an ethnographically convenient opportunity to engage with vilified scientists without risking to severely burn bridges to my confidants. The school trip also resulted in two interviews with scientists from Pioneer. Both were happy to share their views on the GMO issue and took ample time for me as social researcher to see the 'bigger picture' although, or perhaps exactly because I pointed out that the base of my research is the school and the social movement. To this final part of the dissertation, following the chronology of my own encounters with these topics, I will turn now.

7.2 Situating science – agricultural biotechnology as 'good neighbour'

Throughout the first part of my fieldwork and during intermittent visits to Kauaʻi in 2008, 2010 and 2011, the agricultural biotech industry had been rather silent in mainstream media. Concurrently, throughout the last two decades, in Hawaiʻi the industry has forged allies with interest groups less overtly in the public sphere. The Hawaii Crop Improvement Association (HCIA), the industry's interest group, has gained considerable influence in Kauaʻi's economic landscape. My interview with two scientists at Pioneer DuPont revealed much about the local forms of life of the biotechnology industry. Engaging the 'other side' had its fortunate side as well.

I interviewed senior scientist Sarah Styan in her office a couple of weeks after the school trip. Although I am a fairly experienced interviewer who is familiar with the usually stiff first ten minutes among interviewees, this day it was me who needed some time to warm

up. Yet Styan, as mentioned earlier, seemed familiar with suspicious people, and took much time to answer my questions. One of the questions derived from the *The Garden Island* article “‘Ele‘ele students appreciate Pioneer ‘seeds’” (Fujimoto 2012), which Katie and I had assigned to the students a couple of months earlier. ‘Ele‘ele elementary school had participated in the University of Hawai‘i’s financial literacy program “Kid’s Savings Project.” When the University could not finance the program anymore, Pioneer stepped in. Styan expressed some degree of pride over Pioneer’s donation of \$25 “seed money” to students who were now able to open individual bank accounts. She was the mother of a child who attended the school and a member of the school’s committee council. This had been the third or fourth grant that her company provided, which she had initiated in response to a different financial shortage at the school:

[‘Ele ‘ele School] had this playground program, and they had been raising money but they were falling short by like five thousand dollars, or three thousand dollars, and... And I thought: Oh! Well, I can apply for the community investment grant, and see if we can help out because wouldn't that be a good thing to help in this community? (IV_070613)

Styan’s position that financial assistance from a large company like Pioneer might as well be used also speaks to what she sees as malfunctioning state education system²⁴² where “money gets taken away from [teachers]” (or the University, for that matter). In our interview

242 Particularly after the 2007/08 recession, DOE (public) schools received less funding, which lead among other things to the “Furlough Fridays” in 2009 when Hawai‘i’s 256 public schools ran four-day-weeks over a three-year period (Cook Lauer 2013). This circumstance was on top of Hawai‘i having provided the least school days per year as compared to other US states. It was legally set at a minimum of 180 days in 2010 (Associated Press 2010).

she further disputed accusations made in online comments to that article that the company tried to brainwash the students:

Maybe I'm, again, naive, but I just can't imagine that the kids could see that perspective of: Oh! We're not going to have a valid perspective about Pioneer because they're giving us money. I mean, I would really hope that they just know that – they have parents who work here. And: Oh, Amelia's mom works there. But that they could at least have a [sic] open mind that this is a company.. and we've been there! Cause the kids come here and see it. And they see us at other events, like when we're at the [Kauai County Fair].

Would the elementary students be concerned about what the company does they had to also question their own parents' actions and morals. Yet in a wider sense Styan's words reflect a sense of community, which stands counter to perceptions of people from the other side of the island that do not want to see, as she asserted, what the company actually does.²⁴³ Her reasoning reflects the widely shared ethos of *'ohana*, family, and *aloha*, support, compassion and love for one's community.

As much as I was aware of Pioneer's financial outreach, I was nevertheless astonished at the sheer abundance of community projects that it was involved in. Throughout her time at Pioneer, Styan has witnessed and been active in community investments, such as this financial literacy program, Hanapepe Library's summer reading program, or the Food Bank, to name a few. These initiatives lead to the “Pioneer Community Giving program [that]

243 This argument often came up during public hearings for Bill 2491 when biotech company representatives lamented the fact that bill proponents were quick to denounce what the companies do but were not willing to visit the facilities. It is certainly also in this light that Styan appreciated our visit, especially coming all the way from Anahola.

provides grants to communities where our employees and customers live and work.”²⁴⁴ They established after-school snack programs and backpacks “fighting hunger and helping students develop healthy eating habits”; they support a *hula halau* (hula school) and a non-profit organization that cultivates needed “cultural plants to make leis and use in cultural events” on the company's research farms – “a terrific opportunity to support both science education and an important cultural tradition on the islands” (Pioneer website). Styan also helped establish an island-wide resource directory for teachers with a list of mentors from local communities, and again contrasts this with state institutions could or should provide:

We do have a very small island but we have so many amazing people here actually. And trying to help facilitate some of that. Because DOE [the Department of Education] is – you know, everybody is doing their best but it's – like I said, it's depressing when you become a little more involved, and the resources and what is there [at the DOE]. So, I do think this partnering with indu – with companies, or industry, whatever you call it, is so important to help get these resources [out].

As Board Member at the Kaua‘i County Farm Bureau, Styan also advocated for the now widely known *Kaua‘i Grown* program, which labels agricultural products produced on the island. The biotech industry at large is also involved in island- and state-wide institutions, like the Kauai Economic Development Board (KEDB) that funds such initiatives as the *Aloha ‘ike Program* where teachers can apply for grants.

Taking all these examples into account, the biotech companies and their representatives have formed an increasing involvement in public and non-profit institutions. Yet such investment from outside was also not foreign to Kamehameha Schools, which

²⁴⁴ Pioneer website: <https://www.pioneer.com/home/site/about/business/pioneer-giving/community-giving/> [accessed December 29 2015].

legitimated their income derived from global hedge funds for the purpose of educating Kānaka Maoli students in Hawai‘i (and via scholarships to go to college on the continental US). On a different scale the anti-GMO movement would not have gathered such momentum without six-digit financial support from large out-of-state NGOs, such as the *Ceres Foundation* or the *Center for Food Safety* (DePledge 2013). On a much different scale, Kanuikapono had accepted – albeit covertly – a check from a biotech corporation that was used to found a school garden.²⁴⁵ The purpose of listing these cases is not to level out the different scopes, and it needs to be reiterated that scale is a crucial factor: using millions of dollars and accepting a \$250,000 or a \$5,000 check are simply not the same thing. Yet what I want to point to is that in all these cases it is not simply a matter of a foreign element overhauling existing lifestyles and values, such as community. The rather simplistic canon of industry opponents that the biotech industry uses money to “buy” workers' or politicians' voices does not scrutinize at this level the mechanisms of how community engagement and rootedness come to be.

This rooted localness also evolved through a complex meaning-making process that related to idea[l]s of localness/rootedness and translocalness/universalism, the particular and the universal (Choy 2011), in order to foster a local forms of life of technoscience (see Callison 2014; Fischer 2003), which in turn informed the notion of an educated public.

7.3 How to “feed the world”: Globalizing the local...

Comprehending how a foreign agricultural biotech industry grew from rudimentary plots of

245 This happened prior to my fieldwork, which Mealoha shared in our interview (IV_070513).

hybridized corn in the 1960s to considerable financial supporters and parts of communities on Kaua‘i half a century later requires a closer look at the situatedness of (scientific) knowledge production (Haraway 1988). While critical voices of the biotech industry connote science and technology with distant, global power, the industry has likewise emerged as accepted 'local,' “good neighbour.” As Choy argues, scientific experts must bear particularizing and universalizing marks simultaneously in order to be legitimate (2005: 6). In other words, they need to demonstrate both an expertise on universally applied biotechnology and a sensitivity to local circumstances. To analyze this dynamic, it is useful to look at what is envisioned as proper land-people-relations; in other words, at what Jasanoff & Kim refer to as *sociotechnical imaginaries*: “collectively imagined forms of social life and social order reflected in the design and fulfillment of nation-specific scientific and/or technological projects” (1999: 12). Such sociotechnical imaginaries may also be articulated and cultivated by corporations, social movements or professional societies not bound by nations (Jasanoff & Kim 2015: 5f). Genetically engineered crops illustrate such a project for the United States where scientists, funding institutions and policy makers frame and envision a public that is accepting and appreciative of such enhancement. How this collectively imagined social life and order comes to be – how in other words people are made to understand the benefits of agricultural biotechnology, as most productive tool applied to land – is a central question.

A central sociotechnical imaginary in agricultural biotechnology in Hawai‘i was the mandate to “feed the world” with applied biotechnology. In Hawai‘i, support for biotechnology, which “will help feed the world's hungry and likely lead to cures for deadly diseases” came in the 1990s from “Biotech Governor” Cayetano (Associated Press 2000).

More than a decade later this catch phrase popped up in numerous instances throughout my fieldwork. Moreover, it has turned into a mundane global catch phrase articulated by industry, policy makers, the United Nations, and wealthy philanthropists such as Bill Gates as well as anti-GE activists. In a spring 2014 article for the online *Earth Island Journal* – part of the extensive nationwide coverages that Bill 2491 had sparked – anthropologist Glenn Davis Stone is quoted saying that the claim that GM crops feed the world is “silly,” as we make enough food, just badly (quoted in Mitra 2014). Further, as he continues, the “feed the world” argument is part of a deceptive rhetoric of “soundbite science” that people on both side of the GM debate deploy (ibid). This resonates with philosopher of science Ludwik Fleck's description of the “magical power of slogans”; the social character of scientific activities that depicts the transformation of words into slogans, and sentences into calls to battle (1979: 43). These *slogan words* have their own form of life (see Callison 2014: 178), which leads to the question of who makes them come alive and for what purpose.

Moments of controversy often reveal the particular contours of slogan words, such as in testimonies that people gave on Bill 2491, like the following two:

COLLIN DANA: [...] Now, it is not the County's job to feed the world. Unless I am misreading our Constitution, the County's job would be more closely aligned with feeding Kaua'i (County of Kauai 2013: 135).

Here is a common definition of localness: small-scale, organic, and revived Hawaiian farming practices that feed people on the island, as Collin also shared with me at different community planting gatherings. This stood counter to another, exemplary testimony in opposition of the bill:

RANDALL UYEHARA: [...] My kids went to Waimea and graduated from there. My son got a scholarship from Harvard. He came back the first year, got a job at Pioneer, and never went back. [...] He works for Syngenta. They sent him around the world. I asked him, "Why?" He said, "Dad, an organic farmer on the North Shore is not going to feed people in India or Africa" (County of Kauai 2013: 112f).

The testifier refers to how Kaua'i's land use for mere immediate local food production does not respond to the call to feed a growing world population. With these global companies now operating on Kaua'i, he marks the island as both a central locus of *and* contributor to global food production, and as moral guide in this global endeavour. I will return to this in a moment and want to interrogate what form of 'local' people were talking about. A question that often came up during the Bill 2491 discussions was whether and how the biotech industry contributes to local food production. Commenting on the proposal raised by opponents of biotech companies' work to open land for people to grow food, Sarah Styan complicated the distinction between local and global:

You can't just say: You're bad because you're not producing food for the island. When you look at what we do in a global sense, the work we're doing here is producing food all over the world that comes back to this island. Because, the sad part, that we do import a lot of our food [...] when you eat white tortilla chips they probably came from seed that was, could have been even developed here. And, okay, that's not feeding us today, that white corn, but it's coming back as food.

She refers to the widely cited 85-90% of Hawai'i's food being imported (Page et al. 2007: 23), and highlights the central role that research facilities in Hawai'i play, as almost any

Pioneer corn seed at some point made a stop on the islands.²⁴⁶ While it is “sad” that so much food is imported, Styan emphasizes that somewhere in these confusingly global operations the local of Hawai‘i is an important player. She counters, or rather redefines the notion of the 'local' as food deriving directly from the island's land. Rather, any of the 85-90% of food brought to Hawai‘i – considering also that corn has become a major ingredient in food production in the US (Pollan 2002) – is more 'local' than people would assume.

Here are thus different 'locals' at play: the traditional local of immediate production, distribution and consumption, and the local of Hawai‘i as both a central locus *and* contributing part of 'global' food production. In that sense, the latter imaginary elevates Hawai‘i from a 'peripheral' chain of islands (Hau‘ofa 1993, Okihiro 2009) to a centre in global seed production, as one-of-many contributing part. This imaginary in turn resonates with the *Blueprint for Growth* report where hierarchy is flattened in the so-called “partnership” between the biotech industry, the government, and the education system, which maintains that the former remains “the main player” (PMP 1999: 8). It situates Hawai‘i as what I call a *peripheral hidden-gem-centre* that moves – and is moved – on a flexible scale between being an underestimated midpoint, and a humble contributing piece to “feeding the world.” This flexible scale also occurs in the dimension of time. As Styan points out, Hawai‘i *also* feeds Hawai‘i – albeit returning the fruits of labour in the form of tortilla chips years after it had been (presumably) researched locally.

When Hawai‘i is claimed as a centre on a global economic map – whether in regards to sugar production (MacLennan 2014) or newly created GE seeds – such localness also

246 In this context, it should be noted that Pioneer is also the largest seed producer worldwide (ETC Group 2008; Shand 2012).

serves to disguise the historically grown structures and institutions that have exploited Hawai‘i's people and natural resources. In more contentious words, I argue that biotechnological Kaua‘i now colonizes other parts of the world in a moral sense as guided with a missionary drive to feed those who presumably are in need of technological advancements from “developed” countries. Concurrently, biotechnological Kaua‘i also emerges as a benevolent, humble contributing “partner” to the United States as leading nation in this endeavour. Yet the “world” in this sociotechnical imaginary is much more specifically the vulnerable, less “developed” places – “Africa” or “India” – striking a chord with local values placed on feeding first those in greatest need (to which I will return further below). For now, I hold that Hawai‘i emerges as *globalized local* in these imaginary-constellations where it is made an inevitable part of “feeding the world.”

7.4 ...localizing the global

This enmeshed virtue of the local and the global became apparent in a different way when I interviewed Pioneer plant breeder Ryan Oyama, who rejected the idea that Pioneer produced for a “global market”:

The comment, you know, they're making seeds for a global market, not really. We're using global resources to develop seeds for local market (sic), which is a slightly different goal. Because [...] the seed varieties that you can sell in Iowa, you can't even sell those in Michigan. Because it's a different soil, it's a different latitude (IV_100913).

Oyama differentiates Pioneer from other corporations that sell standardized products across the globe, and adds what this means in terms of the diverse customers – farmers – that

Pioneer caters to:

The farmer wants the best of all possible worlds, right? They want everything.. I think there is this German idea: Die eierlegende Wollmilchsau. [...] The egg-laying, wool-producing, milk-producing pig, right? I mean, that would be for anybody in Germany like their dream come true. So, yes, they want drought tolerance but you can't give them a product that when you tell them: Okay, if you have drought, this thing is going to be perfect for you. But if it's a normal year, farmer Bob, who buys this other variety is going to do better. They don't want that.

Oyama refers here to the company's two working areas: the “traditional breeding program” hybridizes seeds with breeding stations across the world, such as Hawai‘i, where the focus lies on the germ plasm, hence, a seed's overall performance.²⁴⁷ These are seeds that are generally sold to small and large-scale producing farmers of industrialized countries, who want the best performing seeds – that figurative egg-laying, wool-producing, milk-producing pig. The “biotech trait program” comprises more continuous year round nurseries that create seeds which are valued for their specific traits, such as drought-tolerant corn or fortified sorghum with higher levels of beta-carotene.²⁴⁸ These are seeds that are predominantly developed for farmers in areas where a specific condition – drought, lack of beta-carotene or nitrogen – forms the pretext for Pioneer to develop seeds.²⁴⁹ One example of the biotech trait program that Oyama mentioned in our interview is the *IMAS: Improved Maize for African*

247 Hawai‘i is crucial, as seeds are shipped there in winter to grow another generation. The Pioneer facilities in Hawai‘i make crosses between the two in-bred lines, and they ship back (say, to Germany) the hybrid seeds for the spring planting where they are planted in seven different locations. In the traditional breeding program, Pioneer tests seven years, starting with about 10 000 new lines to create one single hybrid product.

248 These nurseries receive biotech traits from greenhouses in Johnston, Iowa - Pioneer's headquarters - and their seeds are planted in Hawai‘i, for instance to increase the number of seeds. After that, they may be shipped to Iowa, Nebraska or Illinois to again be tested in seven different locations. It could take up to 13 years to produce seeds with such specific new traits (Oyama IV_100913). Styan estimates that 30% of Pioneer's research relates to hybrid breeding, and 70% to biotech seed production.

249 This does not always involve biotechnology, as it may also entail going back to the ancestor of corn – teosinte - and identifying a native trait for i.e. fungal resistance that subsequently gets concentrated (Oyama IV_100913).

Soil, a collaboration with the Bill and Melinda Gates Foundation, USAID, African universities and agricultural ministers to create corn that would use nitrogen more efficiently. Hawai‘i is crucial, as it has similar tropical, volcanic, and nutrient poor soil (though the specific region in Africa was not clear to me).

Differentiating the global in that way breaks down this “world” into specific local fragments. As Oyama explained, drought resistant varieties do not satisfy the demands of farmers in Michigan or Iowa.²⁵⁰ Yet in public narratives, testimonies and news of “feeding the world,” stories of “farmer Bob” as beneficiary of Pioneer’s work did not prevail.²⁵¹ It is exemplary of globalization not merely as a process of drawing places together but one of erasure, of choosing certain localisms over others in a “displacement effect.”²⁵² More specifically, as STS scholar Nowotny et al. argue, multinational corporations realize their global potential by connecting “with and between highly decentralized and locally operating groups” (2001: 41). In other words, rather than “farmer Bob” it was the “world,” as in the “people in India or Africa” or the *IMAS* project in Africa, that featured in public accounts.

Innocent as it may seem, such framing is nonetheless driven by a political – moral – agenda. As Callison argues, “facts are organized in order to present or push ethical questions” (2014: 166). Hence, for their ethos to become credible, biotech proponents must establish the need for technological interference in seed production. Pioneer, like many other agricultural biotech corporations, promote their benevolent work efforts in providing time,

250 Still, in the brochure *VIEWS From the Farm* brochure (n.a.) by the Hawaii Crop Improvement Association (HCIA) farmers from different US states also point to the benefits of having planted drought resistant seeds, particularly in the wake of the 2012 drought that struck the US Midwest.

251 There was however one initiative where Pioneer together with other seed companies invited farmers from the continental US to share stories of how agricultural biotechnology has changed their work. The first prize was a vacation to Hawai‘i (*VIEWS From the Farm* brochure: n.a.).

252 Sheila Jasanoff, STS Program fellows meeting, Harvard Kennedy School, March 2015.

technology, and money for “developing” countries.²⁵³ Concurrently, the conviction that mandates feeding that hungry, malnourished “world” is a conception of (universal) technological advancements that helps feed not only those most vulnerable, but *all* of the world's population, as exemplified in the returning bag of tortilla chips. Further, as the testifier opposing Bill 2491 asserted, land is most valuable if it is most efficiently used, and this capitalist exegesis concurrently speaks to the conviction to care for one's – now global – neighbour. In other words, *if* agricultural land is used for food production one might as well grow those crops that, in a catchall effort strives to feed the world, including the local population.²⁵⁴

Such an understanding of agricultural biotechnology also took on more formal forms, aimed at public education. In the brochure *VIEWS From the Farm* by HCIA and the Hawaii Farm Bureau, farmers from the continental US describe biotechnology's impact on their work. I return to the farmer from Illinois that I quoted in the introduction of chapter 5, who affirmed that Hawai‘i has been “a wonderful addition to the United States of America!” While he thereby normalizes Hawai‘i as part of the United States (see chapter 5), he also notes that “What we have learned is the value Hawaii brings to US agriculture, specifically in the Midwest and corn production” (ibid.). Overall, *VIEWS From the Farm* shows “the value of genetically engineered crops and their ability to solve not only the problems facing farmers,

253 Pioneer donates not only the traits, i.e. for the nitrogen use sufficiency in corn, but also the infrastructure for testing and getting new seeds through the regulatory process.

The problematic separation of countries into “developed” and “developing” countries and the larger discourse of “Third World” countries has been discussed by several anthropologists of developmental studies (see Escobar 1995).

254 It is also worth pointing out that these are very specific grains that are considered to do this feeding – corn, soy, wheat, canola – not incidentally many of which biotech corporations have genetically engineered. There is thus also the question of the quality and diversity of the food.

but help *us* meet the global challenge of feeding more than 9 billion people by the year 2030” (n.a.; emphasis added). Hence, beyond supporting technological and scientific 'progress' and the related nation-building component, a technocratic effort to end world hunger relies on the *moral* conviction of an unspecified “us” to use such innovations for humane causes, such as the *IMAS* project. In an ethnography of US toxicology, Fortun and Fortun (2005) introduce the notion of “civic science,” which depicts how scientists among others conceptualize their responsibilities towards the “public good.” More specifically, it points to what scientists consider worthwhile to care for and in need of ethical attention (2005: 44). The authors relate here to a double bind between “good science” rooted in established knowledge productions and fundamentally new knowledge, which they argue is where ethics reside.

As alluded to earlier, I follow Callison when inquiring into how “facts are organized in order to present or push ethical questions” (2014: 166). Along that line of thought, scientists translate the benefits of biotechnology towards a local community not only as *part* of the techno-scientifically advanced (framed US-American) “us”; but more so, as a unity to do something about world hunger. This resonates with the Kānaka Maoli and island value of *‘ohana* (family) to look out for each other in the community of which providing food is the most basic, if not fundamental form of mutual support. The biotech industry thus manifests itself in local forms of life in that the rhetoric of scientific universality gets formulated both by responding to local epistemologies and by fashioning new conceptions of land use and food production (cf., Callison 2014; Fischer 2003). While for GE sceptics the binary revolves around *colonizer/Haoleness* and *Hawaiianness*, biotechnology emerges as articulations between *universalism* and *rootedness* that do not contradict each other, which in turn fosters the industry's acceptance – at least for some – on the island. The sociotechnical imaginary of

“feeding the world” thus opens a window into ways a global industry finds legitimacy in situatedness, and how Hawai‘i continues to be entangled in world systems by being a world system itself (Sahlins & Kirch 1994: 2). It becomes an imperative for the public to “know” the benefits of biotechnology not as material technology but as a discourse (cf., Jasanoff 2006) of universal altruism that suggests that being educated means knowing its promissory social, economic, and humane effects.

Hawai‘i once again emerges not only as a contributor, with its people and soil helping to “feed the world,” but as such a globalized local and moral guide. Yet both a specific locality and a generic “world” suggests that what is at play here is also a reverse process; to make biotechnology a crucial, morally imperative solution in global food production. Hence, here also a *localized global*: the needy “developing” countries with the token of Africa or India rather than middle-American “farmer Bob's” cornfields. It is this concurrency of localness and globalism where one never completely prevails over the other: a constant interplay that constitutes the biotech industry in Hawai‘i as “good neighbour” and part of local communities, and universalism as global altruism.

7.5 Faith in progress, locating expertise, and how to “educate the public”

Unpacking this 'knowing' illustrates that it is not merely defined by biotechnology as material technology, as envisioned for instance by Katie and Mealoha. More so, it is a discourse, from invasiveness to global altruism. In the case of the latter, it is knowing the implications of that science being applied (or envisioned to be applied) to real world problems. In the remainder of this chapter I will discuss how the biotech industry's efforts to “educate the public” got defined by a faith in the US regulatory system and a related notion of technological progress,

as well as a moral conviction that it should not be denied to 'less developed' countries. This was corroborated by a particular kind of expertise that derived from farmers from the continental US, as the one from Illinois that I quoted above. Further, local politicians pushed biotech representatives to consider the social, communal dimension of knowing biotechnology.

When we talked about scientists' responsibility to the public, Styan recalled an incident at a public agriculture event where a woman asked for unbiased information:

And I said: Well, you know, I think probably one of the best resources might be our land-grant universities. These are agricultural-based universities that have researchers, and they all have websites, and you can see the kind of research they're doing, and the information there. And she's like: But all the universities are controlled by your companies. And I'm like: Okay. And, so I'm guessing, I said: Well, there's always USDA, and all of our governmental... [...] USDA does research, you know they're a government organization, it's the United States Department of Agriculture! [...] But then those are controlled by the corporations too, so I mean, I explained, I said: Well, if that is something that I have faith in, and I believe in, I mean, so I consider that unbiased. But if you don't consider that unbiased then, you know, I can't really provide you a lot of resources that are better than that. Because from my perspective those are, you know, our universities, if we can't evaluate the information that's coming from there then that's kind of sad!

As she asserts, for the university and the US Coordinated Framework to be credible and thus “unbiased” depends on people's *faith* in the system, and for Styan this does not exclude scientists like herself. Faith is also conditional on the notion of 'progress' that public universities, a national regulatory system (such as proposed by Bush's Presidential Council of Competitiveness or Hawai'i's *Blueprint for Growth*), and an economy (*A New Millennium Growth Strategy For Hawaii's Economy*) buttress in researching, developing, testing, regulating and promoting technological and scientific innovations. According to Oyama,

biotechnology has allowed humanity to move beyond an agriculture prior to Mendel's heritage laws where “we had been blindly just selecting the better plants.” The “blindness” was in effect the as yet 'unseen' potential of deliberate crop production, and the technological progress that sprung out of that:

I know people get very cynical when they hear that 'feed the world' thing, but think of it: If we're going to turn our, if we're going to turn back essentially to the 1920s agriculture we could barely feed the three billion people that were alive then, how are we going to feed nine billion that we predict in 2050 using the method that we could barely feed three billion with. [...] And this is nothing to do with genetic engineering. This just has to do with plant breeding.

Technoscientific progress in agriculture becomes also an ethical question as something “we” in the First World would withhold from others. The reasoning – often promulgated by such philanthropists as Bill Gates – goes that if we keep that technology for ourselves, how could we go about our lives in good conscience, knowing that we are starving other people? Yet such “seeing” erases other ways of seeing, as of those critical of the 'feed the world' narrative, who assert that more than enough food is produced for the current population, and that the problem lies rather in distribution (see Holt-Giménez et al. 2012; Ponisio et al. 2014; Stone, quoted in Mitra 2014). It does not fit the reasoning of technoscientific progress in agriculture that depends on accumulated production – on selling more varieties of seeds. Nor does it reflect on technoscientific progress itself as western worldview with its underlying notion of (social and biological) evolution reaching for continuous progress.

Yet who exactly was this 'public' that *did* understand (the benefits of) biotechnology? During the Bill 2491 hearings many workers wore light blue shirts and held signs that read

“Save Kauai Ag” or “PROUD to SUPPORT KAUAI AG.” It did not occur to me at the time to wonder whether people saw themselves as farmers or whether, as argued by the opposite side, this was a mere narrative shared and printed on t-shirts that were distributed to workers of biotech companies for the purpose of opposing the bill. About a month after Bill 2491 was introduced, HCIA, Hawaii Farm Bureau and Kauai County Farm Bureau launched an initiative with the eponymous website “Save Kauai Farms.” What was surely the case was that “farms,” “AG[riculture]” and “farmers” were up for grabs, as both opponents and proponents of the bill shared this vocabulary, competing for its meaning and symbolism. Bill supporters' accusation that the biotech industry is not farming but researching and developing experimental GMOs and poisoning land with pesticides, revealed a notion antithetical to large-scale industrial agriculture. The bill-opposing narrative is well summed up in the words of Mark Phillipson, president of the HCIA:

Farmers from around the island, and hundreds of people who work on farms, as well as their family members and friends, are tired of people who don't farm and don't understand agriculture trying to destroy our livelihood, mischaracterizing our excellent record in caring for the environment, and belittling the good work we do for our community (quoted in Buley 2013).

Styan similarly questioned whether those not in support of GE technology were practicing, knowledgeable farmers: “Are they the people who are doing it or are they people who have these ideas of how they'd like it to be, what their ideal is?” So, apart from both sides' affirming who was a farmer, who were these farmers that industry kept referring to? Are these farmers the workers on these fields, such as the Filipino seed selectors we saw at Pioneer?

As described above, Oyama asserted that what drives Pioneer's work is what their customers – farmers – want. Yet, as Styan shared, “[i]n Hawaii we don't have customers. There's not people who buy Pioneer seeds, who can stand up and say: We love these products!” Being involved at the Farm Bureau, she had not seen many full-time farmers on the island. Yet the high school student's contention also shows that Styan's notion of farmers were only those buying her seeds while the student thought of *kalo* farmers and those in her immediate surrounding doing subsistence farming. The brochure *VIEWS from the Farm* made available at a public event called “Farmer Dialogue” offered additional insights. The brochure aims “for the people of Hawaii [...] to *learn* the truth about how biotechnology is helping *real* farmers” (HCIA & Hawaii Farm Bureau n.a: 1; emphasis added). The five farmers' stories explain how seeds – both genetically engineered and hybrids – helped their (predominantly large-scale) farming operations, which follow a narrative of risk elimination (e.g. drought), market-oriented cost-efficiency, and high productivity. Yet despite the effort to portray a unified (US-American) “us” of farmers, the brochure reveals where farming expertise is more specifically located. The stories are written by *industrial* farmers from the continental US – not by farmers in Africa, India or other “developing” countries, not to mention farmers from Kaua‘i – which cemented expertise in white, middle-America. As a farmer couple from Oregon explains, the benefit of agricultural biotechnology lies also in the pedagogical mandate the brochure sets out:

In our experience, the biotech community, from scientists to farmers, can do more to educate consumers and ease skepticism. [...] Like any technology—whether synthetic fertilizers in farming or penicillin in medicine—it can take time for the general public to catch up with science (quoted in HCIA et al. n.a: 4).

This statement alludes to a larger discourse that scientists and politicians in Hawai‘i have fostered: their missed chances to “educate the public” on the benefits of biotechnology, and a lagging-behind narrative of the public that needs “to catch up with science.” The Facebook group Pro GMO Hawaii that was set up in April 2013 and gained traction with the introduction of Bill 2491 states that “[t]his group is designed to spread the facts and educate the public about the benefits of biotechnology in Hawaii and the world.”²⁵⁵ In 2013, there were also numerous other campaigns that biotech companies started across the United States, including Hawai‘i.²⁵⁶ If only the public could know about the benefits and live-saving effects of this technology, the reasoning goes, then there would be acceptance of GE technology. The missed-opportunity-narrative speaks also through two Kauaian mayors who encouraged, indeed challenged representatives of the biotech industry to become more vocal. Styan recalled former Mayor Baptiste (2002 – 2008) telling biotech company representatives that

You guys have a great story to tell but, you know, really, you have to be, you know, getting this out to people. I mean, we're a bunch of scientists, right? We're not marketing people, I am not going to be able to sell you anything, I don't know the proper communication what I should or shouldn't s.. [...] But what the mayor said is you just have to be involved, and people have to know you.

Styan added that Mayor Carvalho (2008 – current) similarly told HCIA members to go out

255 Facebook group “Pro GMO Hawaii” <https://www.facebook.com/Pro-GMO-Hawaii-615389521823058/timeline/> [accessed October 5 2015].

256 These strategies, as I will show below, revealed how marketing (i.e. in the form of lobbying) and a public relations language became tools to “educate the public.” Other instances were the disclosed “G.M.O. Lobbying War” in 2015 among university scientists that were encouraged by companies to publicly promote biotechnology, in some cases also receiving money. The non-profit group “U.S. Right to Know” (funded by the organic food industry) disclosed email exchanges among others between horticulturalist Kevin Folta and a microbiologist working for Monsanto, who told him that “[w]e really appreciate independent scientists working to educate the public” (Reding; quoted in Lipton 2015).

there and be as vocal as the opposing side. This was likely also a *learning as land-ing* moment for the representatives: that science does not just land on fertile ground of understanding but that this ground has to be cultivated first. Oyama shared the point that scientists are not good communicators within, as much as outside, their fields, and indeed should receive better training through their education. He also makes another similar interpretation to Styan's. When I asked about the larger dimensions of economic dependency of so-called Third World countries on industrialized countries, Oyama felt he could not answer the question, and explained the distinction between “the research side of the company” where he belongs to and “marketing or sales.” He does not see his competence in communicating issues beyond science that both he and Styan equate with marketing skills.

Yet this is not a discourse unique to the biotech industry.²⁵⁷ For instance, as part of the meeting Kauai Agricultural Forum of 2009, agricultural leaders of diverse backgrounds listed priority goals in main areas, such as “Water”, “Capital/Financing”, “Distribution”, etc.²⁵⁸ “Research and Education” referred primarily to K-12 education and experiential learning, for instance via school gardens, while “educating the public” was a sub-item of “Marketing”, namely to “Use [the] County Farm Fair to educate the public” (Kealoha 2009). Another example is Hawaii Rocky Mountain Institute's *Island of Hawaii Whole System Project Phase I Report* – the main reference for the statistic of Hawai‘i's 85-90% food dependency – which sees one of Hawai‘i's local production opportunities in a

257 In *Drugs for life: how pharmaceutical companies define our health*, Joseph Dumit (2012) describes a peculiar form of such a cross between marketing and education. He analyses so-called advertorials that are quasi-educational ads whose function is to teach the public about specific disease symptoms so as to treat potential diseases. He succinctly calls this “education as patient cultivation” (ibid: 63).

258 The list of points reads: Water, Land, Labor, Capital/Financing, Crop/Commodities, Marketing, Distribution, Pests/Disease/Invasive Species, Waste/Resource Stream, Research and Education, Legislative Objectives (Kealoha 2009).

“MARKETING/EDUCATION Body” among others to “educate consumers through outreach, chef education” (Page et al. 2007: 55). This sub-sectioning and consequent equation of marketing with education is indicative of where, and most crucially *how*, education in/for/of the public is located, where the public becomes consumers rather than knowledge-able, *mündige*²⁵⁹ citizens.

Two long-serving local mayors encouraged biotech industry representatives to get their work “out to the people;” a process which is not only situated in sales, marketing and product consumption but to a greater degree reflects a widely shared (US-American) civic epistemology. For participants of the Kauai Agricultural Forum, K-12 education is part of “Education” while “educating the public” belongs to “Marketing.” The brochure *VIEWS from the Farm* is another of numerous educational sources revealing what the industry does. As a marketing measure, such an education artefact displays a particular input in order to receive a particular output: through the voices of expert farmers a public 'understands' biotechnology, namely it accepts it as safe, necessary, and ethically imperative. This approach parallels schools' efforts to assure that what is taught is what is learned; reflected in the assessment standardization trend where information is effortlessly transmitted as through a Nuremberg funnel to become knowledge.

Hence, as I have shown in this and the previous chapter, the boundary between 'unbiased,' 'multi-perspectival' education and (marketing-induced) one-way 'biased' education is blurrier than many – including myself, Katie, people in the movement, or proponents of the biotech industry – would perhaps like to admit. The students' reaction to

259 The translation of the German word *mündig* is mature, responsible, to be of age, yet it does not depict the essence of the word. Deriving from *Mund*, mouth, it alludes more to the attribute of being empowered to have a voice and be worth listening to.

our efforts, the activists' and GE proponents' tendency to consult only scientific studies that were recommended by people whose convictions were closest to their own – these forms of life of education all speak to the importance of the social setting for accepting or rejecting certain truths.²⁶⁰ These social and cultural settings ultimately shape understandings of expertise, of what is considered credible knowledge and thus particular civic epistemologies. As in Wynne's seminal work revealing how sheep farmers distrusted nuclear and regulatory scientists due to their arrogant behaviour (1996), *kalo* farmers likewise distanced themselves from the equally arrogant behaviour of CTAHR scientists.

When one understands the importance of the social, science does make a difference. As Callison describes the case of evangelicals accepting climate change, they only felt assured of its severity when their spiritual leaders “blessed the facts” (2014). In a slightly different way, the two mayors gave the scientists their blessing to engage with the public, yet not without nudging them to consider that biotechnology cannot be disintegrated from community building. Educating the public on biotechnology may emerge as *material technology*, such as in school curricula or at lab stations at the County Fair. Yet in a more mundane, daily experience, understanding biotechnology rather took on the form of a *discourse* (Jasanoff 2006) of global altruism to serve an imagined starving Africa. Here is a central link between the local form of life of biotechnology and education. Proponents of biotechnology needed to establish an ethos of both rooted-/localness and universalism (see

260 In *Teaching Youth Media*, visual educationalist Steven Goodman (2003) describes how inner-city youth trusted information only when it was interpersonally contextualized, meaning that it came from a friend, family member, etc. If the source was for instance an unknown writer it was less trusted. These knowledge practices certainly played an important part on an island where people interacted primarily on a face-to-face level within their socio-cultural settings.

Choy 2005) – in other words, of Hawai‘i as globalized local – by 'educating the public' on how to 'feed the world' – in the language of a localized global that is Africa or India.

I started this chapter by describing the difficulties, even feasibility of neutral, unbiased education, when the students questioned the co-produced order of education and the policy behind Katie's and my decision to visit the agricultural biotech company Pioneer DuPont. I described how the students (bodily) reacted with dismissal towards the social and natural ordering at the biotech company by “showing no aloha,” napping, refusing to ask questions or coughing. Yet “showing no aloha” was also not a straightforward practice but revealed the students' diverse strategies in dealing with an event they felt coerced to participate in. These were their forms of *learning as land-ing* that in turn shaped their *learnsapes*. By disagreeing with the fact that Filipinos were seed selectors or with the treatment of land with smelly chemicals and other pesticides, they formed strong sensibilities for social and spatial marginalization, which I refer to as their tacit forms of expertise.

As researcher I encountered agricultural biotechnology also through the mandate of education – by initiating the school trip to Pioneer DuPont that allowed me to further interrogate the 'other side.' I found that the industry at large has sought legitimacy as “good neighbours” by conveying to their Kauaian communities that their companies are 'local.' This did not occur without significant financial means. It fostered and indeed redefined funding landscapes in education and small-scale agriculture to the degree that people opposing their operations were simply coerced to play – or refuse to play – according to their rules. Education also functioned as a sociotechnical corrective: in the industry's appeal to “educate the public” on the benefits of biotechnology as solutions to feeding a starving world

population. This recognition speaks to scientists' and politicians' own lessons learned – their *learnsapes* – over the missed opportunities to have conveyed these benefits to the public. Such public education is also a project of gaining the trust of the local population; by “going out there” into the public, and understanding the social, communal dimension of knowing biotechnology. This work entailed faith in the US-national regulatory system, the related notion of 'progress,' and a particular farmer expertise – that of a white, middle American one (see Deiringer 2009: 67). I further showed that the strategies chosen for such public education reflect a typical US-American notion of public education as marketing strategy that gets ontologically separated from education in a K-12 schooling context. Overall, I showed that the biotech industry on Kauaʻi needed to establish an ethos of both *rooted-/localness and universalism* – as globalized local – that was co-produced with the tactic of public education that focused on promoting global altruism to 'feed the world,' or rather the localized global that is Africa or India.

After having described how land and social engagement shaped diverse forms of education at the school and among the movement, the goal of this final chapter was to provide an “epistemological terrain” by portraying the agricultural biotechnology industry that I encountered through one corporation. Acknowledging such ethical plateau as shifting in nature gives way to an understanding of *learning as land-ing* as this *landed*, arrived-at-terrain as a formed one that is anything but neutral. As should be evident by now, how evidence and expertise comes to matter in all three cases was strongly linked to the trust that people gave to their socio-cultural lived-in worlds. In other words, it needs to be reiterated that knowing is *multiply mediated and socially situated* – be it by one's peers in school, teachers, activists, *kūpuna*, politicians, scientists, or the scientific and regulatory process.

These particular knowledge ways have ramifications for a continually reconfigured Hawaiian civic epistemology. Such an attention, I argue, allows better insights into students', farmers', activists', consumers', as well as scientists' understanding of *'āina*, land, and agricultural biotechnology, and thus the different forms of life that education takes on.

Conclusion

Today is Laina's [student] presentation on "Hawaiian sovereignty vs. US occupation." He shows a video "Hawaiian activism- History"²⁶¹ with different activists of the 1970s. In the video it says that while nowadays protests may be less on the streets, now it is in education. Laina asks the students what they think about the Hawaiian sovereignty movement, and how it could be better supported. Some say to go to protests. He himself believes that education is the most crucial tool today, that everybody gets educated about the wrongs that have been done [...]. (FN_171012).

Education – from institutional to non-institutional, from formal to informal, from empowering to disciplining, from deliberate to tacit, from school to public sphere, from marketing-based to curriculum-based – is as diverse as the very contexts in which people refer to it, practice it, and envision it to be. In case of Hawai‘i, education will likely continue to revolve directly or indirectly around land/‘āina due to its central constituency. For many Kānaka Maoli ‘āina is “that which feeds us,” an ancestor and kin, a sovereign assertion of their home, a place from which to learn about (colonial) history, or a place they are forced to leave due to rising living costs. For many new settlers Hawai‘i's land continues to lure with imaginaries of paradise where they come to in order to farm, to learn about agricultural practices or how best to escape mainstream (mainland) society. For wealthy new settlers it is no less a place to own a piece of the paradise-pie where they implement food and other sustainable projects, such as organic farms or food forests. Such sociotechnical imaginary

261 https://www.youtube.com/watch?v=zV18iU3G3_Q [accessed March 16 2016].

(Jasanoff & Kim 2009) of Hawai‘i as vessel of tried out innovations continues into the present and future.²⁶² Facebook CEO Mark Zuckerberg's recent purchase of 740 acres of zoned agricultural land on Kaua‘i's North shore will no doubt serve as grounds for his inventive spirit, and residents will no doubt be watchdogs of his activities. Industries will with some certainty continue to look out for agricultural fields on which to research and develop genetically engineered corn or other crops that are in high global demand.

Just as the student in the above quote refers to education and activism as intrinsic, *‘āina* is no less part of this activism, and with it part of the continuing struggle of the Hawaiian sovereignty movement. The politician that reprimanded the principal at Kanuikapono for the students having testifying against the PLDC (chapter 6) would certainly disagree. His attempt was to keep the 'political' – activism, struggles over *‘āina* – out of education. Both the connecting and divisive ways that people conceive of land and education illustrates how they order the social and natural world accordingly. Such ordering practices bring me back to the etymological roots of *Kanuikapono* – the question of what it means to be *pono* (good, righteous) and to plant in a *pono* way. As I have shown here, these are far from being essentialist, fixed ideas but rather, they get negotiated and renegotiated on shifting physical and ethical plateaus by knowledge-able social experts.

While anthropologists of education and learning have paid increasing attention to non-institutional settings, conceptually, the school has still remained the default category for what counts as education (Lave 1982; Levinson et. al. 1996; see also Strauss 1984). This is evident in framing practices, places and forms of education as either 'formal

262 A most recent example is the owner of the island of Lana‘i, billionaire Larry Ellison, who feels like it is a “really cool 21st-century engineering project” for building the first 100 percent green and economically viable community (cf. Mooallem 2014).

or 'informal' – e.g. in titles like *Learning in Places: The Informal Education Reader* (Bekerman et. al. 2006) – or in separating them into primary, secondary or tertiary forms, suggesting an inherent link to the school. What tends to get lost in such framings is the fact that these are *concepts*, and that people's lived realities often traverse them, thus redefining what education is. As I demonstrated in this dissertation, using the example of a Hawaiian-focused charter school, education has never been confined to school institutions. Indeed, experimental schools such as Kanuikapono show that practicing such a notion of education – in this case with the central concepts of *aloha*, *‘āina* and *‘ohana* – creates frictions within a state education system. Furthermore, education has long moved *out* of institutional settings in a sense that it has long been in people's lives. In calls to “educate yourself,” “do the research” or “educate the public” has populated social, cultural and scientific discourses and practices. I thereby extend Michael Fischer's thesis that “life is outrunning the pedagogies in which we have been trained” (2003: 37) with resulting socio-cultural, institutional, techno-scientific and legal shifts. As I argue, people negotiate these shifts on an ethical plateau of education. Put differently, education in the settings I described were responding to politico-legal, socio-cultural, institutional, and/or technoscientific realities that in turn shaped it into different forms of life. In the following, I will recapitulate how this co-production took shape in the school, the movement and the biotech industry, and end this conclusion with proposals for further work, both for community members and researchers.

At Kanuikapono, education implied that students learn not only outdoors from the *‘āina* but also about Native Hawaiian rights, the problematic history of Hawai‘i's annexation to the United States, and the state's appropriation of land – be it the PLDC or developing unregulated GE crops. In other words, education here is both an indirect and direct response

to the politico-legal normalization of Hawai‘i as part of the United States, and its history of settler colonialism (see Coulthard 2014; Goodyear-Ka‘ōpua 2013; Simpson 2014). Not unrelated to this, education also emerged as experimental system where teachers tried and tested new forms of teaching *‘Ike Hawai‘i* while preparing their students for state- and nationwide standardized tests. 'Experiment' – as the teacher Kapule and students referred to it – as much as failure need to be understood in the context of *kūpuna* having practiced “keen observation, and trial and error and experimentation” (Kapule Torio; IV_170613). Further, it needs to be seen in the context of *a‘o*, of teaching and learning as intrinsic concepts, which implies a constant back-and-forth between providing and receiving information. Indeed, it is to recognize that *a‘o* is “an exchange of expertise and wisdom as a *shared cyclical* experience” (Galla 2014: 200; emphasis added). Hence, experimentation, was what allowed Hawaiian-focused charter schools to conciliate the haunting dichotomous stigma as doing either “academically rigorous” or “culturally-based” education – particularly by practicing education on the *‘āina*. Hence, the school followed epistemological genealogies all the while facilitating shifts to allow something new to emerge (Fortun 2003: 186). In effect, experimental practices formed, as I contended, the school's tacit forms of expertise that were often tucked in between this double bind of accountability to a state and its own understandings of education. These practices constituted shifting ethical plateaus (see Callison 2014; Fischer 2005; Fortun & Fortun 2005) that brought about and continues to bring about an education of care for Kanaka Maoli epistemologies. It remains to be seen whether such experimental education was a provisory reality or constitutes a continual pedagogy of contingency once Kanuikapono is more grounded in its buildings and educational standards.

It is not unrealistic, however, that frictions with the state education system will continue to provoke experimental/open forms of education, and it is upon the state institutions to recognize that. This is since such spaces for experimentation are less acknowledged in a state regime that has increasingly shifted towards emphasizing standards of accountability in the form of standardized tests. In that sense, Kanuikapono's teachers challenged the state's norm of education and its epistemological conceptions of cerebral ways of learning, which ideally take place inside classrooms and in safe distance from 'political' issues. They did so by establishing an educational norm as a “school without walls” that is defined by – and co-produced with – the epistemological foundation in a school *'ohana* and outdoor education, which includes both learning from the *'āina* and an involvement in Hawaiian issues – land issues, thus 'political' issues. In other words, education emerged as means of *self-determination and sovereign right* for indigenous educators, and as *experimental system* to account for contingent, often not yet foreseeable forms of teaching and learning *'Ike Hawai'i*. Following the etymology of education – *educere* as in “moving out” (see Ingold 2014: 388) – these meanings and practices also formed a 'moving-out' of conventional conceptions of education.

In the food sovereignty/anti-GMO movement, concerned citizens' rhetoric and action was expressed in calls to 'educate yourself' and 'do the research' on the harmful effects of genetically engineered crops and pesticides, as well as the overall flawed science of biotechnology. As what I called *knowledge-able social experts*, they were thereby countering the norm of science that was co-produced with (facilitating) policies when pointing out how agricultural biotechnology and local politics were often entangled (e.g., when local politicians accepted checks from the industry, or politicians favoured entrepreneurs for doing

policy work; see chapter 5). To 'get educated' would also often include finding connections to the land and learning about Hawaiian sovereignty, which Kānaka Maoli and advocates did not see as separate from concerns around land use. Hence, education here emerged as assertion of the *democratic right* of concerned citizens, farmers and environmentalists, and as the *sovereign right* of Native Hawaiians to assert independence (though these rights were not so clearly demarcated) in similar ways to educational efforts of the Hawaiian sovereignty movement in the 1970s (Goodyear-Ka'ōpua 2013: 49). Education thereby was also a moral call, a *kahea*, to fellow citizens that was epistemologically embedded in a participatory society and democracy ideally consisting of alert, watchdog citizens.

In the biotech industry, education had a slightly different purpose. As corporations, the number one goal was to produce seeds for (primarily middle-American) farmer customers, who want the most competitive product on the market (Oyama, IV_100913). In a larger sense, and much more advertised was the premise that agricultural biotechnology is the prime tool to “feed the world.” This became a prominent slogan for the industry, and as such was a central part of “educating the public” on the benefits of agricultural biotechnology (see Fleck 1979: 43). As I showed in chapter 7, “public education” was often subsumed under marketing or the business sector of a biotech company. This form of education was thus co-produced with the epistemological foundation in the rhetoric and practice of sales and public relations. 'Educating the public' furthermore emerged as a *corrective effort* to public misconceptions that biotechnology was not safe. In that sense, I argue that the industry recognized that it had for too long neglected to convey to the public the benefits of biotechnology. The common 'lag-behind' narrative (Jasanoff 2005: 37), as expressed, for example, in the words of the Oregon farmer that “it can take time for the general public to

catch up with science” (quoted in HCIA et al. n.a.: 4), was thus a central component of public education in agricultural biotechnology. In other words, education was the glue between a not yet 'understanding' society and an already advanced technoscience with all its politico-legal changes (i.e., the regulation of genetically engineered crops in the United States).

What makes these educational processes more complex (and worthwhile to study) is that their facets – self-empowerment, mobilization, marketing strategy, indoctrination, etc. – were not attributable to one specific area only. For a Hawaiian-focused charter school education also implied marketing: advertising the school to organizations and donors to financially survive as a school, to the community (e.g. selling lettuce from the new garden), or to the food sovereignty movement. This in turn raises the point that it is not education per se that demands marketing but its institutionalized setting (see also Dumit 2012). In the movement, there were likewise overlaps between mobilization and marketing. For instance 'educating the public' was not only a term and practice employed by the industry. “Public Education” was as much a goal of the *Center for Food Safety* (2012) as of *Hawaii SEED* (the umbrella organization of the island-specific *GMO Free*-groups), the latter aiming to “[i]nform and educate the public on food security, genetic engineering and health” (2011). In all of these forms of education, monetary means made up a substantial part, which begs the question where to draw the line between marketing and liberatory education. The strong backlash of concerned citizens supporting Bill 2491 would not have made as much of an impact were it not also for money coming from large non-profit organizations, such as the Center for Food Safety or the Ceres Foundation. As political scientists Dauvergne & LeBaron argue (and caution), global activism increasingly mirrors business management (2014). Finally, the biotech industry likewise engaged in more than merely conveying to its

workers and surrounding communities that all they need to do is believe in feeding the world. The industry funnelled significant amounts of money into local organizations, into establishing farmers markets and similar initiatives on locally sourced food, as well as governmental grants and awards in agriculture. The pooling of professionals on Kaua‘i for teachers as an educational resource, which Sarah Styan mentioned in our interview, is another example that points to the multiple facets of a new industry becoming a “good neighbour.”

In sum, the notion, meaning and practice of education has expanded, both within a school – here, Kanuikapono – and beyond. As *trans-institutional practice*, it has increasingly also become part of people's everyday life, of organizations mobilizing citizens and as a marketing strategy for an industry. In the diverse contexts, it is imperative for citizens of all ages and backgrounds to pay closer attention to what people, NGOs, universities, governmental agencies or industries refer to when they speak of “education.” Further, such attention to education as a multivalent phenomenon offers entry points for anthropologists, other social scientists and STS scholars that are concerned with agency, social order, expertise, public understandings of science, and inevitably entangled power relations. Aligning with Fischer's framing (2003: 37), education has outrun its pedagogy as neutral terrain, term and practice, and it cannot be categorized anymore as either liberatory or indoctrinating. This is the central thesis of this work. It now leads me to highlight what I conceive to be central issues and areas for further research, and what state and other institutions of authority should pay closer attention to.

While it has been repudiated as too simplistic, the rise of standardized assessment and audit culture (see Strathern 2000) continues to resonate with the idea of equating taught with learned content, thus ignoring the socio-cultural habitat that this dissertation interrogates.²⁶³ The Hawaiian education system has produced far too many students – particularly of Kanaka Maoli and other ethnic minority descent – who are assessed according to these, often-arbitrary educational standards. Such selection process has resulted in numerous students having detrimental schooling experiences that HFCS often end up serving without sufficient means to do so. This is a severe disadvantage that puts these schools not only financially at the bottom but also in their academic statistics as defined by the state's standards. The question once again arises who has the authority to ram these benchmark poles into the field of “education” and how people negotiate them according to their own means. In that sense, I pose that it is crucial to interrogate what education is in specific contexts, and how it is defined.

In the midst of enabling and constricting educational politics and students' negative schooling experiences, HFCS foster an emergent site for articulating indigeneity (Clifford 2000), a Hawaiianness of the 21st century. The benchmarks will not dissolve but, as Ipo and Chad Durkin shared, they will need to be made culturally, or rather epistemologically relevant (see Callison 2014). It is imperative for state and other funding agencies to assist charter schools in this endeavour, which is nothing else than executing the Hawaii Statutes for public charter schools: to come up with innovative teaching models (see Dingerson et. al. 2008). Administrative burdens in such work can have unintentional consequences with

263 As we saw, even what seem to be more open and fluid concepts, like “educating yourself/others/the public,” underlie this rather simplistic “copy & paste” model where citizens are thought of as 'getting it' if they only read that one scientific study or watch that one documentary.

detrimental effects. As pointed out by Kū Kahakalau, the moment HFCS experienced a bureaucratization of their work – Kamehameha Schools' one dollar for every four dollars from the state – the community and its vital exchange over teaching strategies started crumbling. In essence, this social exchange was a crucial space where educators were creatively experimenting with and shared new forms of schooling. Hence, the Department of Education, Kamehameha Schools, the Office of Hawaiian Affairs and other funding bodies would be wise to facilitate more space and time – particularly with other Native American/First Nations/Aboriginal schools and learning institutions – for this vital communication to occur. Means for curriculum development (and continuous redevelopment) can facilitate such dialogue, and would help to diminish the constant peril of teachers' burn-out that inevitably leads to the avoidable annual ritual of teacher turn-overs. This is because experimentation requires people to learn from their experiences, and these experiences are by nature unpredictable.

In a larger sense, Indigenous-based curriculum requires an engagement with the histories and contemporary realities of colonialism, or as Callison calls it the long tail/tale of colonialism.²⁶⁴ As I have shown in this dissertation, these contentions may not often be as vocal and explicit as activists who rally against biotech corporations or desecration of *‘āina*. Rather, Hawaiian-focused charter schools like Kanuikapono can be seen as more *tacit interventions* into a deeply colonial context where besides Hawaiian language, chants and algebra, students also learn how to navigate this history and contemporary reality as young *Kānaka Maoli*. This is not to say that more explicit forms of activism through education in

²⁶⁴ Personal conversation.

the public – i.e. giving testimonies to local politicians – is not also part of the school' curriculum. Rather, it is to say that the school itself has to navigate when to show their activist stance, which it has to weigh out as an institution operating within state (colonial) institutions. In that sense, the students learn about what it means to become experts at being Hawaiian, and experts at negotiating identity, *educere* and politics. Just as the school weighs out when to be vocal and when activism is more implicit, i.e. through teaching and learning a hula or *oli* (chant), so do the students cultivate tacit and more articulated forms of expertise. They thus implicitly learn to negotiate a particular moment in time in Hawai‘i where the “New Economy” is 15 years in the making, and remediation both for the ‘*āina* and the people remain pressing issues.

In chapter 4, I showed that the students for their part found themselves between a narrative of having already covered the “cultural stuff” and a boredom over its repetition, which left them having to 'catch up' with academics. In general, their 'odd child' status continues after school where they often find little incentives to *mālama ‘āina* – as they learned it at Kanuikapono – as land is unaffordable. These factors need to be taken into account when analyzing the high school students stigma as trouble makers that are presumably unengaged to learn. Indeed, particularly during my time with the students away from the school and in spheres of friction, I discerned a form of learning, a *learning as land-ing*, where students conciliated the double bind between adults' expectations as young Kānaka Maoli and their own daily experiences, in other words, to “walk in two worlds” (Henze & Vanett 1993): by creating grounding spaces both in a place and oneself, which formed what I call *learnsapes*.

In this regard, it is imperative to look at what teachers, education administrators and community leaders may take from the high school students' tacit forms of expertise, which are often differently interpreted or ignored in their adult lived-in world. As I showed in chapter 4, students' *learnsapes* often also implied a demarcation from the Other, such as from the tourists at Kē'ē Beach. There is a still prevalent white supremacy that rests upon a continuously imagined discovery of Hawai'i as paradise/natural resource/lab to which the high school students reacted with social satire or by taking ownership over such 'whitened' spaces like the beach. Indeed, students' senses of social, environmental and spatial marginalization express repercussions of settler colonial dispossession in such continually exercised white supremacy of their everyday lives. As I proposed, these practices expand the definition of what it means to relate to *'āina, mālama 'āina* and/or to being Hawaiian.

Yet as *tacit* forms of expertise these expressions often remained dormant. Tacit here implies not merely that the students were not asked for those forms of knowing. Not surprisingly, knowing how and when to mock a tourist was simply not a recognized 'skill.' Often such behaviour was read as racist, a teacher being called a “fucking Haole”; as not showing aloha and being disrespectful during the Pioneer visit; or as not practicing *mālama 'āina* by littering the ground. Regardless, they are coping mechanisms through which students created their set of (perhaps provisional) tacit ethics and consequently an expertise that resides between double bind of adults' expectations and their own daily experiences (see Callison 2014: 278, fn. 15). It follows then that out of fidelity the students attempted to conciliate these expectations of hopeful teachers, aunties, uncles, and *kūpuna* and the reality that everyday life – lack of jobs, lack of mobility, lack of training, etc. – presented to them. It is up to the adults of their social lived-in world how to treat these tacit forms of knowing. It

means acknowledging that *mālama ʻāina* and being Hawaiian often entails messy, entangled, and even contradictory facets that go beyond wanting to dig in the dirt, rally at the forefront, or wanting to stay in Hawaiʻi.

It is perhaps telling that I had a glimpse into these forms of knowing by teaching a non-core course (film and research methods) in sites where grades and students' assessments were not the prime concern. These forms of knowing are hard to standardize, or assess. An example from a time after I had finished fieldwork is a case in point, which was also personally moving. About three years after my fieldwork, while scrolling through my Facebook newsfeed, I stumbled upon one of my former student's video. It showed a beautiful landscape outside Hawaiʻi (as I later learned it was Idaho) that was captured skilfully through playful edits and sound mixing with an overall moving imagery. Here it was, I thought: the kind of video that I had envisioned the students producing in our film class at Kanuikapono. That moment I realized two things: first, how obsessed I had been with a notion of Hawaiian ʻāina to which the students were to connect (rather than any place/ʻāina); and second, how such an outcome, the video, and its assessment is often not feasible within one school course. Rather, particularly among youth such productions may take years at which point assessment becomes futile.²⁶⁵

Kānaka Maoli youth, like any group of young people, choose what they want to do and be despite and alongside outside expectations as to what it means to be (in this case) a young Hawaiian. The Kanaka Maoli student, who decided to work as bank clerk in Washington State should know that he is not more or less Hawaiian than his friend, who is

265 Of course I recognize that this student had a particular proclivity to film and photography, and that I did not expect all students to have such a passion.

proud to be a full-blood Hawaiian living on Hawaiian Homesteads. In the year 2000, 40 percent of Native Hawaiians lived on the continental US; in 2010, 45 percent, and by 2020 the number is predicted to climb up to 50 percent.²⁶⁶ What effect will this have on notions of Hawaiianness, particularly in relation to the *'āina*? How these students felt Hawaiian and connected to the land constituted their idiosyncratic *learnscares*: in how they lived and continue to live these identity and place or land connections. Some of it may remain more tacit knowledge (such as the student's short video of the *'āina* of Idaho) while other forms will appear more explicit (such as giving a cultural performance at a foreign university). These are all processes of *learning as land-ing*, and not all of them can or are even meant to be quantified – not for an educational system, and perhaps not for immediate purposes. They are part of growing and becoming, in this case a young Kanaka Maoli in the 21st century.

In regards to the food movement, I want to revisit its diverse socio-cultural make-up, and how a more nuanced approach is also a move away from pigeon-holing people and interest groups according to their socio-cultural backgrounds and value systems. As I showed in chapter 6, people targeting multiple concerns (PLDC, KS, GMOs) does not suggest that people could not decide what morals they had, or that they were compromising their values by joining this or that cause. Rather, as enunciatory communities (Fortun 2001), people formed alliances – across interests and value systems, e.g. the 'right' science on GMO, the significance of *'āina*, etc. – as a way of responding to the paradox of these criss-crossing issues. Kim Fortun's words on toxicologists' role can also be applied to ethnographers, politicians, journalists, activists and other community leaders:

266 Demographics presented at the Kamehameha Schools Strategic Planning meeting in Lihue (FN_230413).

Toxicologists must continue to carefully study the structure and effects of individual chemicals—most of which have never been studied at all. But they also must account for the ways individual chemicals operate in conjunction with other chemicals, with sociohistorical factors, and with specific physiologies (2001: 19).

People experience the increasingly complex social and natural orders in that people, histories and materialities interact with other people, histories and materialities: Hawaiians, new settlers, descendants of plantation workers, settler colonialism, Hawaiian sovereignty, GMOs, pesticides, etc. What may be more conducive than denouncing that one side is being bought out by the other, or holding onto pure, 'authentic' ideas (e.g. of what *mālama 'āina* is) is to acknowledge that a new language is needed which accounts for these paradoxes (see Fortun 2001: 13). How people attend to the paradoxes is what I referred to as *learnsapes*, which also accounted for the double binds that people often found themselves within: be it between fidelity to scientific facts while questioning others (see Callison 2014), between adults' expectations and lived experiences, or running a Hawaiian-focused charter school within a state education system. *Learnsapes* in that sense form around individual and collective ethical plateaus (Fischer 2003) where people negotiate paradoxes and incommensurabilities, often by actively reconciling related double binds.

Paradoxes also got expressed in how people attributed often diverse meanings to specific terms and values. As I showed in chapter 7, the biotech industry's recycling of monetary means into local initiatives is not simply a matter of a foreign element overhauling existing lifestyles, values (*'ohana*), or conceptions of how to sustain a community. I believe that this is the most difficult aspect that Kānaka Maoli and those opposing the industry grappled with: they see the industry invading their islands but often enough find themselves

failing to contest it exactly because it is not so neatly separable from the local values that the industry has co-opted (not to mention that some people working for the companies are from Hawai‘i, such as scientist Ryan Oyama). It may be perhaps this irony that is most telling in regards to the fact that many still consider Kaua‘i to be a 'divided island' and no constructive dialogue has taken place: the moralizing insistence of anti-GMO activists to act *pono* is exactly what workers of the industry turn away from when they counter that they *are* doing *pono* work, and that they would be lunatic if they knew they poisoned their families (due to pesticide exposure). It is thus not merely a matter of “knowing the science” but a contestation over language and values, i.e. over what is *pono*, *mālama ‘āina*, *‘ohana*, etc. Besides the struggle over formulating a new language that attests to people's lived paradoxes and double binds, I predict that the competing meanings over central terms and values will likely continue to shape Hawaiian civic epistemologies.

Language and concepts around science are likewise a contested terrain. Tourists going into nature for pleasure or Hawaiians fishing or otherwise gathering food exemplify that space is not neutral (Lefevbre 1991) but contested, just as these practices are not exclusive to these social groups. Contestations over land are thus also contestations over practice and identity. Further, in case of Hawai‘i, it is likely that the ontological division between 'science' and 'culture' – as in the case of GE and patented taro (chapter 5) – will continue into the near future. Indeed, this differentiation resurfaced in heated debates around the construction of the Thirty Meter Telescope (TMT) on Mauna Kea²⁶⁷ on Hawai‘i Island in spring 2015. Among numerous op-ed commentaries around this time, blogger and scholar

267 This is one of the island's dormant volcanoes that Kānaka Maoli consider the sacred seat of Sky father Wākea.

Bryan Kamaoli Kuwada succinctly captured the resurfacing dual sentiment of culture vs. science whereafter anyone against the TMT must by default be against any science and technology. Particularly, as he details, Hawaiians are

condemned as hypocrites for daring to use smartphones and social media and cars or any kind of technology in our activism, because somehow asserting ourselves as modern, innovative, future-looking native peoples does not jibe with the image of living fossils that the rest of society seems to have of us (2015a).

This framing parallels Indian STS scholar Shish Visvanathan's observation that science is a modernity-as-technocracy project where progress is presented in a temporal logic that renders other (primitive) cultures as pre-modern and always 'behind' (1997; see also Bhabha 1994; Deloria 2004; Latour 1993; Niezen 2009). This, Visvanathan argues, legitimizes a social engineering of this lagging society or community (1997). Related to the TMT debate, Kanaka Maoli anthropologist Lynette Cruz argues that Hawaiians have practiced science for centuries, such as by building and navigating canoes, and by “develop[ing] the mind, to be able to leave the body and roam the universe.” Yet, as she continues, these modes of knowing are always framed as “cultural practices.”²⁶⁸ Hence, what 'science' is, and how and whether to delineate it from 'culture,' remains contentious, and is in need of more critical observations, such as those made by Kuwada and Cruz.

Delineating 'science' from 'culture' is just as much the case for the education/culture dichotomy (Cruikshank 2005), which, as I showed in this dissertation, posits anything Hawaiian to be counter to “rigorous” academics. Yet science, as much as education-academic

268 <https://en-gb.facebook.com/ukhuna/posts/1075113669170719> [accessed June 24 2015]. See also Joseph Salazar's Doctoral dissertation *Multicultural Settler Colonialism And Indigenous Struggle In Hawai'i: The Politics of Astronomy on Mauna A Wākea* (2014).

rigour, live beyond its western conception (see also Nader 1996; Turnbull 2000; Wynne 1996). Furthermore, both concepts share the idea of an applicable scheme as 'out-of-context,' where teaching techniques, standardized testing mechanisms, and/or scientific theories and 'facts' are reproducible regardless of a specific locality. What Nowotny et al. (2001) say about science similarly applies to education:

Reliable knowledge, the totem of scientific objectivity and validity, can be broken down into many different local components. These components defy the image of a 'unified' science, and instead reveal the fascinating processes through which locality is stitched across flexible distances to other localities (ibid: 42).

Consequently, agricultural biotechnology, school education, and the anti-GMO movement all consist of such broken down local components: in the biotech corporations' network of facilities across the globe of which Hawai'i forms one nodal point, GM protesters allying with large out-of-state NGOs, or federal policies like the No Child Left Behind (NCLB) Act that rub against the locality of Hawaiian-focused charter schools.

STS scholar Brian Wynne draws together an important parallel between Indigenous People's experience and that of the 'unknowing public':

It has been recognised only belatedly that past interventions since colonial times into indigenous peoples' ways of life and environments, have been founded on the false premise that their culture was irrational and intellectually vacuous – similar in key respects to the same kinds of false patronisation of developed-world²⁶⁹ publics [...]. That both indigenous peoples and western publics in their different ways seem to recognise complexities beyond the imagination of instrumental science (which is characterized by its commitment to the control, reduction and externalisation of

269 I hold here that the framing of certain countries as 'developed' regardless as problematic (see Escobar 1995).

unknowns) is a deep cultural and ethical difference which science has yet to acknowledge (2007: 294f).

As knowledge-able social experts, these two groups foster coalitions and develop forms of expertise that challenge those of established experts in science, policy or courts. As mentioned earlier, these forms of knowledge making will continue to bear crucial insights into public understandings of science, or what Callison describes more accurately as the communal life of scientific facts (2014). Likewise, just as people make sense of and incorporate science into their lives, so do Indigenous People reformulate what self-empowerment is, primarily through the means of education. In that way, it could be said that analysts would do well to also pay attention to the *communal life of education*.

Returning to the biotech industry, I reiterate Donna Haraway's (1983) and Glenn D. Stone's (2010) call for more research on the co-produced orders of biotechnology and the higher education system, specifically in Hawai'i.²⁷⁰ Social scientists are well advised to pay closer attention to conceptions of knowing and education – and with it governmental and university institutions supportive of biotechnology – that are entangled in far-reaching channels of monetary support. As the *Blueprint for Growth* plan detailed, STEM disciplines in higher education are pressured to align with the biotech industry (PMP 1999). This is also the case when it comes to *excluding* certain content. As the marine biologist at the Kauai Community College (KCC) shared with me, in 2013 CTAHR started planning a plant science degree with a strong focus on biotechnology that would not require any biology courses.

270 See also Gibson (2014) on Hawai'i's constitutional obligation to regulate the GE industry.

When she voiced concerns over this omission, she was overruled.²⁷¹ Another example of the biotech industry's influence on higher education is the case of CTAHR scientist Hector Valenzuela, who had been restricted in his academic freedom over the period of a decade (Koberstein & Murphy 2015).²⁷²

It should also be noted that debates over biotechnology as potential to 'feed the world' will not end in the near future,²⁷³ just as citizens and NGOs in Hawai'i will not cease to push for public disclosure of pesticide use. Indeed, in the wake of Bill 2491, there have been several proposed State and County bills addressing the lack of data on pesticide use and public health data, albeit to no avail. In March 2016, the Joint Fact Finding Study Group, which was commissioned by the Department of Agriculture and the County of Kauai in late 2014 (Adler 2014) released their long awaited report on pesticides used by biotech corporations. According to the *Civil Beat*²⁷⁴ editorial board, the report presents “an overdue effort to inject local data and facts into the red-hot, never-ending debate over commercial pesticide use in Hawaii” (Civil Beat 2016). The report finds that there is no evidence of environmental public health concerns due to pesticide use while it concurrently holds that there is patchy, fragmented, “incomplete and often important but proprietary data” on pesticide use – a circumstance the editorial board put in the catchy subtitle “No Data? No

271 Anonymous (email conversation in December 2014). The plant science degree has been implemented and is available here <https://sites.google.com/a/hawaii.edu/plant-biology-and-tropical-agriculture/home/information-for-the-public> [accessed March 21st 2016].

272 While his story was published, a *New York Times* article investigated the ties between scientists advocating for biotechnology and agrochemical companies, which partly played out in Hawai'i (Lipton 2015).

273 See for instance GRAIN (2013) and the report by the *Union of Concerned Scientists* (Gurian-Sherman 2009). Ponisio et al. (2014) show a bias towards conventional agriculture due to historically underfunded R&D in organic cropping systems (see also Holt-Giménez et al. 2012). This debate also relates to the often-raised point that the worldwide food production already could feed the world population twice (United Nations 2008).

274 *Civil Beat* is a news website that was launched in 2010 by Ebay founder Pierre Omidyar, and produces more investigative and watchdog journalism than such print magazines, as the main *Star Bulletin*.

Problem!” (ibid.). In other words, confidential business information (CBI) is not considered worth collecting because it is proprietary and (hence) not considered a hazardous element. Hence, lack of data and protection of the private industry as inherent to a notion of safe pesticide use gets co-produced with the scientific finding that no risk exists. It remains to be seen how politicians will juggle this narrative without losing even more trust among knowledgeable, critical citizens. The sheer denial of information on the pesticides' harmful effects is yet another example of experimenting on the public and the land that, as I contend, may follow the case of Agent Orange testing in the 1960s or heptachlor in milk in the 1980s.

Lastly, I want to return to the rhetoric of the 'divided island' – between biotech proponents and opponents – that many lamented as a result of Bill 2491, and which will also bring me back to the students and local youth on Kaua‘i. As Brian Wynne (1996) argues, a dualism between pro and counter science is problematic; not least because these are overlapping communities of practice. This is since neither the retreat to one side – either for or against Bill 2491/GMOs/biotechnology – nor to neutralism – as standing 'outside' of the debate – takes into consideration multiperspectival identities and interests, and the constant juggling of competing relationships and concerns (ibid: 380). In other words, how one stands towards the biotech industry on Kaua‘i cannot be divorced from one's ideologies around proper food production, from relations to land (as land or *‘āina*), job security or one's social relationships. Ideology in particular is worth unpacking, as it shows commitments to truth-seeking that allows to see “how evidence comes to matter.”²⁷⁵ As journalist Conrow shared in our

275 Callison argues this in case of evangelicals advocating to act on climate change where academics and scientists

interview, people on Kaua‘i tend to vote those in elections most like themselves (Haole, 'local,' etc.), their cousins, etc., assuming they “like the idea of somebody nice or that's approachable [and] then maybe they can talk to him about something.” To her this leaves people not being “educated” on GMOs (IV_110613) because of the presumably needed critical distance to understanding biotechnology as material technology. Her critique points to a central argument of this dissertation (albeit counter to hers): that understanding GMOs or the biotech industry is often less about biotechnology as material technology than about biotechnology in the form of different discourses (see Jasanoff 2006), which people identify with according to their social lived-in world. I follow here again Brian Wynne, who points to the importance of social assumptions, by “re-exhuming the buried human contingencies underlying knowledge and authority” (1996: 374).

Without rejecting that people did feel a division on the island (that, in my opinion, was also blown up by the media, politicians and biotech proponents) my proposition here is to shift the attention to another, much more concerning division. I contend that the 'divided island' over biotechnology deflects from a discrepancy that young people growing up on Kaua‘i are confronted with. More specifically, I point to the circumstance that these youth have no or limited access to land and opportunities to form their futures and livelihoods, while gentleman farms continue to employ 'mainland' dropouts who work on such farms, or Hollywood stars (Pierce Brosnan, Ben Stiller, etc.) and entrepreneurs (i.e. Mark Zuckerberg) buy up land to live in “paradise.” People's visions to have Hawai‘i become more self-

too easily dismiss “ideology,” and thus overlook people's truth-seeking commitments (2014: 124).

sustainable will continue to be confronted with accessibility to land, and young Kānaka Maoli will feel this disadvantage in a double way.

Yet not all is doom and gloom. Many agricultural land owners have opened their land to schools like Kanuikapono and Hawaiian farming practitioners, such as one of the main donors of Kanuikapono, Kurt Last (who also made possible our school trip to Vancouver), Bill Porter (inventor of the e-market), who provided land for Mālama Kaua'i's Kauai Food Forest and other local initiatives, or Mary Ellen Pearlman's Retro Farm that has opened its field for Kaua'i's schools and community groups. Likewise, there continues to be the Waipā Foundation, Limahuli Botanical Gardens, Mālama Kaua'i's Kauai Agriculture Park of 75 acres, to name a few. Ever since I finished fieldwork in late 2013, Mālama Kaua'i has offered numerous initiatives of community gardening and farming training for youth, both in and outside of schools. The organization also continued the work on the food forest at Kanuikapono that we helped lay grounds for when planting breadfruit trees (chapter 3).

These initiatives, the communal support that emerges from them, and the move into schools to establish gardening and farming plots attempt to reconcile what I see to be the actual division on the island. The youth on the island being stuck between a high school diploma and an hourly 12-dollar job is worrying. If politicians do not engage in conversations with private landowners and continue establishing initiatives like the first community-based fisheries subsistence area in Ha'ena (North shore) (Dennison 2014), people will have little incentive to trust politicians, and youth will be no exception. Adolescents will continue to grow up learning about and accept such lack of opportunities and injustices, and resort to working in tourism, seed companies, the military, or in construction. Particularly for those students having learned about the *'āina* (rather than

merely land), about Hawaiian mythology, stories of the land and overall Hawaiian practices, this will be an even harder awakening once they graduate from school. I agree with Kū Kahakalau when she asserts that colleges and universities will have to adjust to the new generations of students that come out of HFCS, not merely in terms of the content they know but in regards to having acquired strong opinions on cultural, political, or environmental issues. Most recently, this has been evident in the TMT telescope protests, which was pursued primarily by alumni from *Kanu 'o ka 'Āina* Hawaiian-focused charter school. Likewise, as a result of Bill 2491 many people took note of the increase of young faces in the burgeoning anti-GMO movement.

This is the strength of HFCS: the goal and expectation for young generations to be fluent in Hawaiian language and culture are paramount for envisioning new forms of education. Yet what was a much more crucial learning experience among the high school students I was invited to join at Kanuikapono was learning about and living the Kanaka Maoli values of *'ohana*, *aloha*, and *'āina*, and to be a proud Kanaka Maoli, in whatever ways they chose to. Hence, rather than being proficient in the Hawaiian language or protocols, the empowering acts of decolonization came through these core values that students negotiated and renegotiated in their everyday lives, through their *learnsapes*.

I want to stress that it is far from a naive vision that all young Kānaka Maoli will want to work on the land. Yet I am convinced that it is imperative to open up public and private agricultural lands particularly for young generations as one of many *possibilities*. What is needed, I suggest, is a dialogue across and within those camps that are divided over biotechnology aim at offering spaces for young generations from Hawai'i to have their own debates, to try out and experiment with different ways that *'āina* becomes “that which feeds

us.” I thereby also do not suggest a romanticized notion of “listening to the voice of the youth/children,” but rather that it is imperative for them to establish their own ethical plateaus on which they – with guidance from trusted adults – can exchange over what future they want for themselves and *Hawai‘i nei*. Kānaka Maoli youth have already accumulated knowledge and cultural capital to co-lead a worldwide movement against a highly contested telescope on Mauna Kea up to the point where politicians were forced to terminate this \$1.4 billion project. Again, this is far from suggesting an essentializing boundedness to Hawai‘i’s *‘āina* but to offer the option to consider either staying or leaving. Having the means to transplant to 'paradise' is different from having to have the means to leave it.

If there is one thing I learned from my time with the high school students at Kanuikapono, then it is this: ethnographic research is like being a teenager all over again. Not much may make sense to your outer world but there is always someone (or something) to which it does. My hope is that this dissertation opens windows into seemingly contradictory acts and reasonings, and that these stories and findings resonate with people's own sense of identity that is often defined by conflictual paths of learning – about oneself, a place, and how one stands towards *‘āina*, land, and science on this epistemological terrain. Indeed, *‘a‘ohe pau ka ‘ike i ka hālau ho‘okahi* – all knowledge is not taught in one school.

Epilogue

Many people know me as someone that works with visual media as part of my research work. This doctoral research is no exception. However, I was not able to convey most of this work in this dissertation.

As a result of this ethnographic research, I conceptualized an exhibit on the issues of land, food and biotechnology that I named *Hawai‘i beyond the Wave, Hawai‘i beyond the Postcard*. In it, I attempt to convey the content of my research both in a medium beyond written text as well as beyond academia. Further, I aim to show an image of Hawai‘i that goes beyond the picture-postcard image of “paradise” that is often conveyed via postcards. I use the medium of postcards to create a dialogue between my interlocutors in Hawai‘i and the many places I was fortunate to visit after I had completed fieldwork in November 2013

While I was transcribing my interviews in the last months of my stay on Kaua‘i, I started collecting quotes that I found most profoundly spoke to *‘āina* (land), food and/or the agricultural biotech industry in Hawai‘i. Throughout my 15 months on Kaua‘i I had taken numerous photographs of landscapes but also street corners where people publicly expressed their discontent with the biotech industry. After having received funding from the Liu Institute at UBC, I started to produce postcards that depicted these interview quotes, which I then paired to different landscapes and scenes that I found where most suiting. My attempt in this production was also to question what is *text* and what is *image* by printing the words on a glossy side and the image on the matt side. This practice conveys both the attempt to look beyond the postcard image of Hawai‘i as “paradise” (an idea for which I found inspiration in Miriam Kahn's book title “Tahiti beyond the Postcard”, 2011). The second part of the exhibit

are 12 large (24"x20") frames of cardboard that is used in the Kauai Food Forest as mulch and weed growth suppressor. They are idiosyncratic visualizations of boxes (the cardboard) that had in their previous lives shipped in the 85-90% of food that gets imported to Hawai'i. Now, the cardboard helps to grow food locally in the Kauai Food Forest.

Visitors in different parts are invited to reflect on these issues and write their own postcards that I provide and then send to the next location the exhibit is shown via mail. Eventually, all these postcards become part of the exhibit and create a dialogue of different localities (so far, the exhibit has been shown in Chicago, Vienna, Vancouver, Bumthang (Bhutan), Cambridge/MA, Montreal, and Stanford). It could be said that this exercise created a para-site between me, my interlocutors in Hawai'i (who all gave permission to have their quotes as part of the exhibit), and the many visitors that came to see the exhibit. The exhibit can be seen virtually at <https://hawaiiibeyond.wordpress.com/> where most content is visible. The goal is to bring this exhibit back to Kaua'i where I look forward to present the results of this dissertation to the people I engaged with.

My intent with this exhibit has been to show that (ethnographic) research can be done and conveyed in multiple, creative ways that go both beyond text and academia. I hope that it inspires many others that have found the sole avenue of writing a dissertation or publishing articles to be not fulfilling enough in expressing the content of a research project. Perhaps in the future such component will become part of getting a Doctorate Degree. I remain hopeful.

I shall also mention another central visual work that emerged from this research. This is the short film "Ku'u Home Ma Ka 'Āina 'Ē: A Home Away from Home" (Kanuikapono 2013) that I produced for Kanuikapono as a result of the senior students' visit to Vancouver,

BC. The students presented at UBC's First Nation Longhouse at Prof. Candace K. Galla's organized event "Living Our Indigenous Languages in a Multimedia Technology Enhanced World" where they presented what they learned at Kanuikapono. The students also met with descendents of former Hawaiians that had moved to the Pacific Northwest Coast. I would like to close with one student's words, as all of the students had to write feedbacks upon our return to Kaua'i:

This trip has taught me a lot about my people and why they moved to Vancouver before our land was taken. It has also opened my eye[s] that where I come from is important, who I am is important and ancestors rely on me to make US important (18-year-old, male Kanaka Maoli student, pers. possession).

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