Defining Quality Instruction in Glocal Policyscapes: Centers of Quality Education in Namibian Life Science

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by
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Dedication

Jane Martin O’Brien Nolan

Gratitude

First and foremost, I must thank the legendary teachers in my life who have empowered me to be an agent of change in the world. Thank you for all the lessons you have facilitated. Mrs. Eike, I sing my multiplication tables and make sure to talk to the lonely kid at lunch. Mr. Putnam, this dissertation would not be the way it is without your grammar insights. Ms. Moran, you made me teach so I would stop bothering you. Ms. Y., you helped me celebrate wins with students. Ms. Barnabas, you showed me how to be an authentic community advocate. Mr. Baier, Ms. Klein, Ms. Wahl, Dr. Enck, you ignited my passion for science. You are the people I have planted my teaching roots in, and whenever I am lost, I turn toward your examples for guidance.

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Defining Quality Instruction in Glocal Policyscapes: Centers of Quality Education in Namibian Life Science

"The dialogical man is critical and knows that although it is within the power of humans to create and transform, in a concrete situation of alienation, individuals may be impaired in the use of that power. … This possibility strikes him as a challenge to which he must respond, … for the power to create and transform… tends to be reborn."

--(Freire, 1970, p. 91)

Education systems in formerly colonized African countries are built on the frameworks left behind by colonizers (Le Grange, 2007). These systems were expressly developed to oppress Black African lives, and they are still successful at that today; these systems are powerful in maintaining the status quo (Le Grange, 2020). Researchers can reimagine systems to counteract the oppression of generations by colonial and neo-colonial structures in Africa (Nudzor, 2015; Weber, 2007). This includes studying the impacts of policy on instruction and the values that underlie these policies. This dissertation is intended to foster a dialogue among educational actors in international institutions and in local contexts in Namibia to generate critical thinking about an alternative to colonizing education with a liberatory definition of quality instruction.

Educators and researchers should promote dialogue to "generate critical thinking" (Freire, 1970, p. 92). Teaching for critical thinking involves supporting learners' understanding of "the injustices inflicted upon their societies" and empowering them to act to remedy these injustices (Vavrus, Thomas, & Bartlett, 2011, p. 30). In a research context, critical research paradigms are designed to generate a dialogue about injustice built into systems, factors that sustain injustice, and mechanisms to transform systems to support equity and justice (Young & Diem, 2017). Paradigms that lack criticality ignore power dynamics and oppression by those

with power of those without; research studies conducted using such paradigms in Africa "hold fast to this guaranteed space [for oppression]" (Freire, 1970, p. 92). New paradigms are needed to transform education to meet actual needs of communities and overcome injustice (Nudzor, 2015; Weber, 2007). The role of values and power in defining quality teaching in the Namibian life science teaching landscape will be examined using a critical framework in this dissertation.

Namibia provides a unique context for critical study of quality teaching, as the government has set learner-centered pedagogy as the national approach to teaching. This teaching strategy for democratizing the new country's classrooms and providing learners with access to the global economy has been part of the dominant narrative of the Ministry of Education (MOE; now Ministry of Education, Arts, and Culture) since Independence in 1990 (Aloovi, 2016). Learner-centered pedagogy is a guiding principle for teaching and learning to include relevant content connected to learners' lived experiences in ways that promote critical thinking, inquiry, and problem-solving (Vavrus, Thomas, & Bartlett, 2011). Learner-centered pedagogy involves a deep knowledge of the learners in the classroom and their backgrounds, needs, interests, and goals; it also involves designing learning experiences that connect learners to the content through dialogue, application, inquiry, and community engagement. It is important to note that learner-centered pedagogy does not mean that direct instruction or any specific teaching method is excluded from the classroom; instead, this approach requires teachers to design instruction based on the learners' needs to connect to content most directly. Sometimes, this is direct instruction; other times, it is through learner-directed inquiry related to community-defined problems; yet other times, methods of discussion are learner-centered.

Many teachers in the Southern African Development Community (SADC) believe in the value of learner-centered pedagogy, as this strategy has been employed in many countries.

Teachers in Botswana, South Africa, Zambia, and Zimbabwe have expressed a desire to teach ambitiously, especially to integrate inquiry, and a belief that learner-centered pedagogy will better meet their learners' needs (Tabulawa, 2009; du Toit & Gaotlhobogwe, 2018; Le Grange, 2007; Phaeton & Stears, 2016; Chabalengula & Mumba, 2012; Ramnarain & Hlatswayo, 2018;). While many teachers believe in learner-centered pedagogy, the full potential of this approach to liberate communities through inquiry, application, love, and dialogue has not been met.

Difficulties in implementing learner-centered pedagogy are as much a problem of values within the system of education as they are a problem of logistics for teachers. Barriers to learner-centered pedagogy identified through traditional research paradigms include large class sizes, a lack of resources, teachers' lack of experience with this approach, and shortcomings in teacher preparation. However, additional barriers include the values underlying learner-centered pedagogy itself (Tabulawa, 2003), systems of assessment (Le Grange, 2007; Phaeton & Stears, 2016; Tabulawa, 2009; Vavrus, Thomas, & Bartlett, 2011), and a capitalistic view of learners as workers (Tabulawa, 2009). These assessment-driven systems have failed to liberate communities from the harsh oppression of colonization; instead, they have often dehumanized communities across the neo-colonized world. Each of these issues is relevant in Namibian education, in particular the assessment structures, and deserve exploration to move Namibian classrooms toward empowering communities.

An alternative research framework for analyzing the definitions of quality instruction is required to better understand the values and power interactions preventing schools from being sites of liberation. Previous researchers have used externally-derived definitions of success for neo-liberal education, while denying the validity of other definitions of quality education. These research approaches have failed to reveal ways in which liberatory education could be

fundamentally supported by policy and practice (Weber, 2007). Education research in Africa should define its mission based on local ways of knowing, because foreign ways of knowing embodied in systems of power often cause harm. Furthermore, this alternative framework must be future-oriented, prioritizing liberation for African communities.

International trends have directly impacted Namibian educational policy in the young country's life. I explored the values underlying trends that are relevant to Namibia. Chisholm and Leyendecker (2008) conducted a thorough review of curricular reforms in the region, but an update must include the most recent iteration of educational frameworks from the United Nations Educational, Scientific and Cultural Organization's *Incheon Declaration and Framework for Action* (UNESCO, 2015) and it must focus on the local context of teaching and learning.

Life science and biology are subjects that center quality of life and environmental sustainability. Teaching and learning science through practical and applied pedagogies is vital, due to the direct relationship between elements of the nature of science and ambitious learner-centered instructional practices built on constructivism (Le Grange, 2018; Maienschein, 2000; Newmann, 1992; Ramnarain et al., 2021; Vavrus, Thomas, & Bartlett, 2011). I utilized Newmann's (1992) definition of ambitious instruction and Vavrus, Thomas, and Bartlett's (2011) definitions of learner-centered pedagogy as a starting point for integrating empowerment into a science classroom context. These pedagogical approaches are part of the same constructivist and humanizing family of practices. Both ambitious instruction and learner-centered pedagogy involve disciplined inquiry, learners' construction of content knowledge, relevancy to life outside the classroom, and community building and belonging. In these definitions of quality instruction, the teacher plays the role of a guide and facilitates learning through the experiences they cultivate in the classroom (Le Grange, 2007). Life science teachers

operate in a subject steeped in a learner's lived experience, defined by inquiry and exploration, and focused on scientific skills. It is a helpful subject for examining current expectations for quality instruction and how teachers might better guide their learners through the mountain passes, deserts, and rivers of human knowledge and their experiences.

Teachers are at the center of policy implementation; their understanding of policy shapes the success of enactment (Spillane, Reiser, & Reimer, 2002). However, policy exists in many forms, and when diverse sources of policy at the global and national levels send mixed messages to teachers about their expected behaviors, there is a tendency toward maintaining traditional practices (ibid.). Ramnarain and colleagues (2021) have expressed a need to contextualize science education policy in Sub-Saharan Africa to better advocate for practical science education that meets needs and solves problems in ways that resonate with local communities.

Teachers in Namibia have generally struggled to implement practices that are liberatory (Nyambe, 2008; Nyambe & Wilmot, 2012). This trend occurs across the SADC region in Botswana (Tabulawa, 2003; 2009), Lesotho (Raselimo & Mahao, 2015), South Africa (McKenzie & Dalton, 2020), and Tanzania (Vavrus, Thomas, & Bartlett, 2011). While public policies in these countries espouse learner-centered pedagogy, this is not the only message teachers receive about how they should teach. Assessment structures often promote an authoritarian structure in education and define knowledge and learning very narrowly (Phaeton & Stears, 2016). Year-end exams account for at least 60% or more of a learner's final grade in junior and senior secondary school subjects in each of these countries and they count for 65% in Namibia. In addition, even practical activities across the region are subject to rote learning that accompanies exam-centric assessment policies (Maruvu & Dudu, 2021; Phaeton & Stears, 2016; Ramnarain & Hlatswayo, 2018). Empirical study of the mixed messages Namibian teachers

receive about teaching and learning is necessary to explore ways to align these messages with local value systems.

Namibian policies on pedagogy have set mixed expectations since Independence. The national pedagogy for the country has been learner-centered since 1993, and syllabi for life science and other subjects have made clear recommendations to integrate cross-curricular themes which are relevant to Namibian learners. On the other hand, the compartmentalized nature of the curriculum and the assessment structures are held over from pre-Independence. Namibian science educators must balance these conflicting pressures from policy.

Over the past 30 years, science education has been a beacon of hope for alleviating poverty for Namibians. The Ministry of Education, Arts, and Culture (MOE) in Namibia has identified the natural sciences as being "main drivers" of societal transformation (MOE, 2014, p. 2). Policy related to Namibian (J.S.) Life Science was reformed in 2016 (MOE, 2015). However, applications of neo-liberal reform frameworks have had a mix of underlying values that are in tension with one another, and different definitions of quality education have encumbered teachers with the job of deciphering what is expected of them. Neo-colonial approaches to economic participation and local approaches to economic empowerment have been at odds, and inertia has supported the continued "delivery" of instruction through exam-centered pedagogy (Smit, 2011, para 1). Further exploration of the values underlying teachers' interpretations of their expectations, as well as the policies themselves, is necessary to alleviate that tension.

To define quality instruction in Namibia, it is vital to examine messages about teachers' behavior from a wide range of agencies, actors, and policies at the international, national, and local levels, as well as teachers' sensemaking about their role as educators in their communities. I combined the concepts of *glocalization* and *policyscapes* to generate a Comparative Case Study

(CCS). CCS provides three axes across space, time, and scale to compare data points (Vavrus & Bartlett, 2023). I used a critical lens to explore the power dynamics and sensemaking that determines what quality instruction could look like, and the constraints placed on educators in enacting their definitions of quality instruction.

Glocal is a heuristic that allows researchers to conceptualize the interactions between local and global factors that influence the way that policy is developed and implemented (Weber, 2007). International trends in education shape the enactment of teaching and learning in Namibia; the local context is also important in shaping instruction. Weber (2007) argues that glocal development is "an abstraction, useful to understand and explain social change … [to] highlight the patterns and contradictoriness" across the global and local scales (p. 280). I focused on how global and local forces interact in Namibian life science. This dissertation explored tensions among glocal forces and their impacts on policy through a critical lens which potentially empowers local actors in the formation and implementation of policy.

Glocal forces interact in a *policyscape*, the tapestry of documents, actors, and explicit messages of policy enactment (Bartlett & Vavrus, 2014). A policyscape stretches beyond a national border to "capture essential elements of globalization… and provide a tool with which to explore the spread of policy ideas and pedagogical practices" (Carney, 2009, p. 68). The concept of a policyscape allows researchers to connect educational practices and policy across space and time and consider the values shaping policy decisions. In a policyscape, data points are represented by people, actions, official policy, media reports, and the meaning people derive from the policyscape itself. The connective tissue between these data points are the implicit policies at play, as well as the values undergirding decision and meaning making. The explicit data points can be teased apart to explore their relationships to one another, the values underlying

meaning, and how these values can be made explicit. In this way, the policyscape allows a researcher to embed a problem related to values within a context for study (Penuel et al., 2020).

I investigated the expectations for teachers' behavior from global and national policy and national policy makers and considered how tensions in these expectations shape teachers' understanding of how they should teach in the Namibian J.S. Life Science classroom. Further, I connected my analysis of teachers' sensemaking in Namibia to similar research in the SADC region to provide a larger context for potential policy solutions which can support teachers in meeting the needs of their learners through quality instruction. My findings potentially support an effort to move Namibian science education toward a shared pedagogical language grounded in local ways of knowing and the nature of science as a lived experience.

The purpose of this dissertation is to understand and explain how definitions of quality science instruction combine to potentially oppress or liberate educators and learners. The problem at the heart of this dissertation is the inability of the policyscape to help teachers enact quality instruction (Nyambe & Wilmot, 2012; van Aswegen et al., 2022). I applied sensemaking theory to critically analyze my local, national, regional, and global data and synthesize a picture of the policyscape. Then, I explored how tensions between global and local understandings of quality education might be addressed, and policies might be leveraged to achieve a balanced national agenda that reflects a unified glocal path forward. My goals for this dissertation were to make the mechanisms by which values drive instruction explicit, to examine tensions between oppressive and liberatory pedagogies, and to explore potential for humanizing communities through education.

This dissertation explored how teachers and national-level policymakers respond to national and international policy documents to carry out their roles as they make sense of them. My research was guided by two key questions:

(1) What is the nature of quality instruction in the Namibian JS life science policyscape?

(2) What are possible tensions between different centers and definitions of quality instruction embedded in national policies and the global education reform movement?

The remainder of this chapter will outline my positionality as a researcher and the current state of the Namibian life science policyscape. In Chapter 2, I outline my conceptual framework for a critical glocal policyscape analysis. Chapter 3 reviews the current state of research on science pedagogy in SADC. In Chapter 4, I describe my CCS approach and the specific protocols and analytic strategies I intend to use. Chapter 5 features my findings on defining quality content and learning at the national and international levels. In Chapter 6, I present my findings regarding participants' sensemaking of policy. Finally, Chapter 7 summarizes my findings about sources of and solutions for tensions in the enactment of quality teaching.

Researcher Positionality

In 2012, I left the United States (US) on what was intended to be a four-month adventure before I settled down into the "real world" of teaching middle school science in small-town USA. This adventure brought me to a rural school in Divundu, Namibia, where the MOE was beginning a grand project to provide a top-quality education for 600 of the country's orphans and vulnerable children through the Vision School Program. The newness of the school meant that every learner, faculty, and staff member, from Namibia, sub-Saharan Africa (SSA), and the world, was new to the environment of rural Divundu, a crossroads between Namibia, Angola, and Botswana surrounded by national wildlife refuges and farming villages.

Quickly and wholly, I recognized the “real-world-ness” of the Vision School, and the impact of the community of which I was a part. I was bit by the Africa bug that many Western immigrants and expatriates speak of, inspired by people taking direct action to improve the lives of Namibian learners. As a faculty, we encouraged each other to engage our learners in critical thinking and application of the content we were delivering, and co-teaching was explicitly supported by class scheduling and the administration. We were also expected to administer loathed bi-weekly tests that led to full-blown panic in learners yet did not contribute to their final grades. It was unmistakable that the efforts we were undertaking at the Vision School were part of a system filled with pedagogical tensions far bigger than me, the school, and the country, one that extends into a deep history of oppression and community responsibility.

When I started my PhD, I wanted to make school as much like summer camp as I could. As a 22-year-old with biology and health teaching certificates, I found many ways to embrace and be embraced by the Rukonga Vision School (RVS) family. Everyone was accountable for meeting our mandate to educate and care for the children in our care. I could not imagine leaving this community after four short months, and I took on the roles of life skills, biology, life science, physical education, art, and agriculture teacher over the next two years at the school.

From the first weeks in the country, two things were clear to me. First, the structures of schooling were not in place to empower learners or meet their needs. I made value judgements and decisions as a teacher when I chose how to teach in a system of schooling that was antithetical to what I believed about education. I refused to operate well in an oppressive system as an instrument of oppression, along with so many teachers in my communities. I prioritized instruction in the non-promotional subjects of art, physical education, and life skills, to provide

additional outlets for our learners' creativity and exploration of their worlds, leaving a bulk of life science and biology instruction to my co-teachers.

Second, the culture of community was a powerful force, even though demonstrations of caring and compassion were initially too foreign for me to recognize. In researching Ubuntu and reflecting on my experiences as I write this proposal, I recall distinct enactments of the values underlying Ubuntu (Ali & Shishigu, 2020). There were many elements of life at the RVS that echoed the summer camps I grew up loving.

I approach my research with a bias for implementing education that empowers learners and people. In the context of Namibian J.S. Life Science, I have dynamic insider and outsider roles in the policyscape. Merriam and colleagues discuss the importance of recognizing one's outsider status as a researcher (2001). I have been an outsider for much of my professional career in Namibia, Ethiopia, and Virginia, and in these roles, I have been empowered to see the foreign in the familiar of schooling culture in Namibia. I intend to leverage my "slippage" between insider and outsider in this dissertation (Merriam et al., 2001, p. 405).

I cannot and should not strive to be objective in my pursuit of knowledge. Rather, I have, as researchers before me, been taught that my research must be framed by theory, and theories are value-determined (Lincoln & Guba, 1985). When research is built upon value-laden theories, then the facts derived from such research cannot be objective or neutral. Instead, research-derived facts (or normative statements or predictions) are imbued with as much value as the theories which made them. This calls into question many elements of research, facts, and values. CCS is a methodological framework deeply integrated with my own positionality and identity as a researcher because it provides an avenue for interrogating the values underlying research and policy paradigms (Bartlett & Vavrus, 2017). This brings concrete value to this dissertation,

according to Lincoln and Guba, because alignment prevents dissonance between myself and my methods from "bleeding" into my findings (1985, p. 178). It is my duty as a researcher to explicate and interrogate the values I hold as the inquirer, the values undergirding my methods and theories, and the values held in the context of my study.

I subscribe to a situated model of cognition and deny a wholly rationalist approach to sensemaking (Spillane, Reiser, & Reimer, 2002). This is reflected in my selection of critical policy analysis for my conceptual framework, because "as intellectuals, humanists, and secular critics [we should] understand the world of nations and power from within the actuality, as participants in it, not detached outside observers" (Said, 1993 p 55-56, in Weber, 2007, p. 295). My own sensemaking is the instrument of this study, so I must consistently challenge my own thoughts through input from others, as well as directly searching for alternative explanations for the sensemaking of my participants and interpretations of policies.

My dissertation is designed to accomplish two personal goals. First, I hold "critical hope" that this dissertation can serve Namibians as an alternative framework to neo-colonial structures that currently direct teaching and learning (Freire, 2021, p. 2). "Critical hope demands a committed and active struggle" to identify the material cracks in systems of inequality, to push through pain to arrive at justice, and audaciously believe that justice can be achieved (Duncan-Andrade, 2009, p. 185). In a practical sense, I hope my critical analysis of the policyscape is useful to the Namibian government, and to other institutions who see themselves in the rich descriptions I have generated. This dissertation describes the "cracks in the concrete" from which roses might grow (Duncan-Andrade, 2009, p. 186). Inclusion of critical theory in discussion of pedagogy can bring about liberation when theory and action are two sides of the liberation coin, not antagonistic to one another (hooks, 1994). This critical hope is not hokey, mythical, or

deferred (Duncan-Andrade, 2009). It is the fire beneath my "incessant pursuit of humanity denied by injustice" (Freire, 1970, pp. 91-92). This dissertation is a first step in my enactment of critical hope.

Second, this dissertation is as a love letter to a "fractal-like array" of African educators (Meisner, 2023, p. 120). My love comes from experiences with teachers, ministry officials, cooks, drivers, principals, caregivers, and counselors who work tirelessly for the well-being of children in our communities. This dissertation is my attempt to generate dialogue that centers those closest to communities and learners. "Dialogue cannot exist, however, in the absence of a profound love for the world and for people" (Freire, 1970, p. 89). This love is not hokey, mythical, or deferred. It is "an act of courage, not of fear; love is commitment to others. No matter where the oppressed are found, the act of love is commitment to their cause—the cause of liberation. … It must generate other acts of freedom; otherwise, it is not love" (Freire, 1970, p. 89). This love letter is a call to action as much as a deep expression of my admiration.

The Namibian Life Science Policyscape

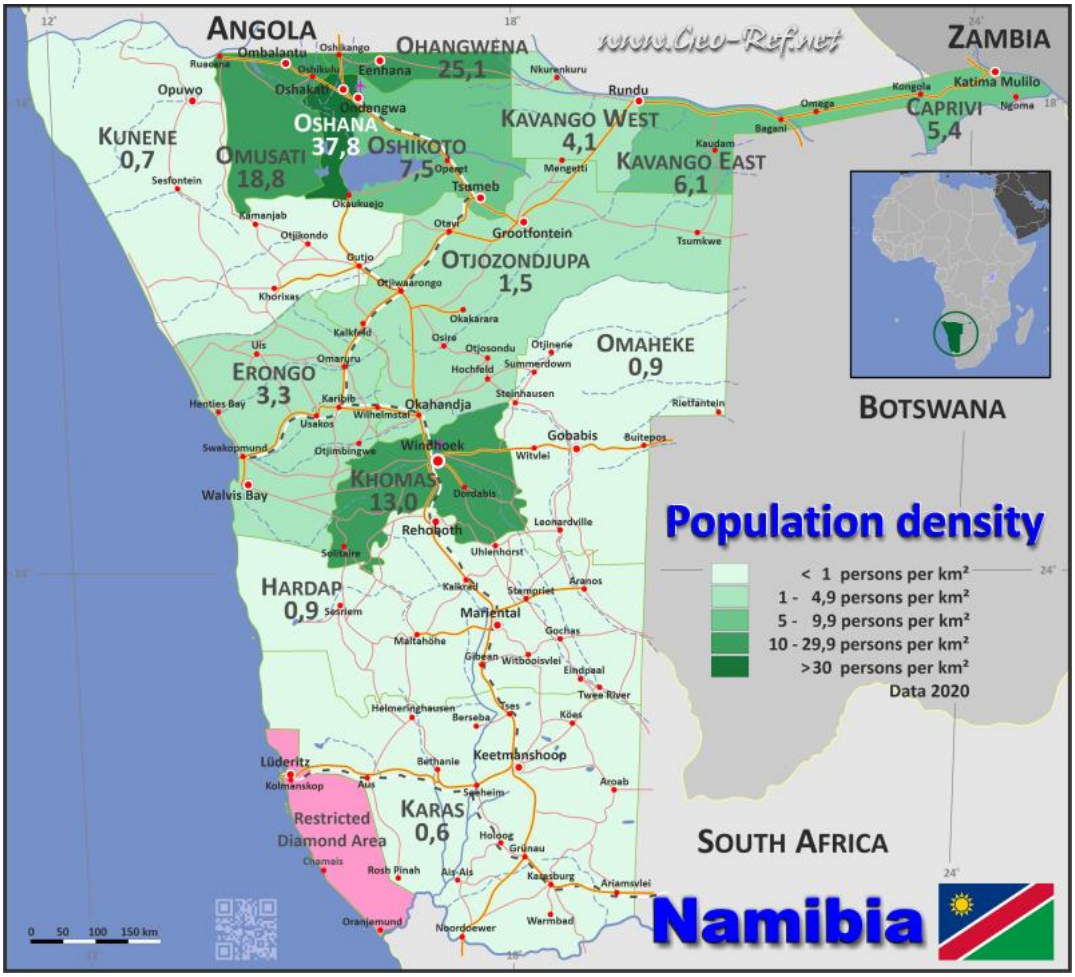
What follows here is an overview of Namibian life science, beginning in Junior Secondary (J.S.) school in grade 8 as a compulsory subject for this phase of schooling. JS schools are found throughout Namibia, with 88% of learners who fall into that age range attending school (UNICEF, 2022). School facilities can serve only JS learners, or be a combined school, serving a range of learners from lower primary to senior secondary (S.S.) phases, depending on the community. Approximately 56% of learners complete their JS phase, with advantages to female learners and learners from urban areas. Only 48% of boys and 32% of rural learners complete their JS phase within three years of their expected completion. Since there are many Namibian learners who only complete their JS phase, it is imperative that this phase

empower learners for their lives outside of school, for the many who do not continue to Senior Secondary schooling.

Figure 1 is a map of Namibia indicating the population densities across the country, and illustrates the global positioning of the country, north of South Africa on the Atlantic coastline of Africa in the inlaid image.

Figure 1

Map of Namibia with regional borders and population density



Note. Reprinted from "Country map-Administrative structure-Population density of Namibia." Geo-ref.net, 2020.

Namibian learners live in a very sparsely populated country, with centralized population centers established by the colonial Apartheid government north of the Red Line, which now operates as an agricultural barrier between the restricted farming and mining lands in the south and the communal farmlands of the north. A large majority of the country's population lives in the northern portion of the country, where dirt roads to rural villages branch off from the three main two-lane highways. Tribal affiliations include the Ovambo, Kavango, Damara-Nama, Herero, White, and Koi-San Bushmen (Pariona, 2019). The Ovambo, Kavango, Caprivian, and Tswana tribes make up 64% of the total population and have Bantu roots. These tribes are spread across the northern border with Angola, with major population centers in the Oshana, Omusati, Oshikoto, and Ohangwena regions, as well as Kavango West, Kavango East, and Zambezi. Kunene region is the ancestral and colonial area for Himba groups and is a very remote region. Erongo and Otjozondjupa regions, west and north of the capital region, Khomas, have multiple towns, and Erongo has two coastal cities including the port of Walvisbaai. Participants in my study hail from the Ohangwena, Kavango East, Kunene, Otjozondjupa, and Khomas regions, representing a range of rural, semi-rural, and non-rural communities.

Over 45% of the total population of Namibia is school age (UNESCO Office in Windhoek, 2021). There are nearly 2,000 schools across Namibia serving nearly 823,000 learners (Petersen, 2022). With so many learners coming through the schooling system from diverse backgrounds, more intricate exploration of what localized education could look like in Namibia is needed. Regional government is responsible for overseeing the implementation of national education policies. Language policy for education includes 14 school languages as the medium of instruction until grade 3, and then the language of schooling is English from senior primary to senior secondary school; English is also the national language of policy and business

(Norro, 2021). Teachers across SADC have expressed that the medium of instruction and English-Only policies are detrimental to learning outcomes for their learners.

At Independence, teacher preparation was managed through a partnership between the Swedish International Development Agency (SIDA) and the National Institute for Educational Development (NIED) and emphasized learner-centered pedagogy which was intended to democratize the classroom. In reflective interviews on the post-Independence teacher preparation, teachers and educational leaders who had undergone teacher preparation during the 1990s indicated that their experiences with learning to teach in learner-centered ways transformed their thinking about knowledge and learning (Erixon Arreman, Erixon, & Rehn, 2016). However, the integration of pedagogical and content knowledge has not been remarkably successful in Namibian teacher education settings (Nyambe, 2008).

Teachers in Namibia are now trained through the University of Namibia (UNam) and complete a bachelor's degree in education over a four-year course, followed by a two-year induction program from NIED (van Aswegen, Elmore, & Youngs, 2022). The responsibilities for teacher preparation were moved to UNam from the progressive *Teacher Education Reform Project* at NIED in the 2010s as part of the World Bank and Millennium Challenge Corporation's partnership with the Namibian government (van Aswegen, Elmore, & Youngs, 2022). This partnership resulted in the *Education and Training Sector Improvement Programme*, which maintained decision-making power about curriculum, instruction, and evaluation outside of the classroom and school, disempowering teachers to liberate their learners through learner-centered pedagogy (Nyambe, Kasanda, & Iipinge, 2018).

Life science instruction is directed by four main documents from the MOE and its constituents. First, the *National Curriculum for Basic Education* identifies the phases and

subjects learners will enroll in during each phase of their schooling. Second, the *National Syllabus for Life Science* provides general and specific learning objectives that outline the knowledge and skills learners should master in the course. Each topic in the syllabus also includes practical activities to meet the minimum requirements of learner engagement. The syllabus also outlines the expectations for continuous assessments which will make up 35% of a learner's course grade; they are not included in decisions about learners' promotion from grade to grade. These assessments are intended to capture learners' knowledge with understanding, handling of information to solve problems, and practical skills through investigations, tasks, projects, and tests. Third, the *National Textbook for Life Science* is aligned with the syllabus and includes in-depth explanations of the content of life science and embedded practical recommendations. Finally, the *Exams for Life Science* consist of two parts, the first consisting of 35 multiple-choice questions, and the second consisting of short-answer questions totaling 130 marks. In terms of learners' grades, 65% of their grades are determined by their mid-term and final exam grades (in all subjects and grade levels), and continuous assessments (in the forms of quizzes, tests, and projects) make up the other 35% (MOE, 2016b).

Global Forces in Namibia

While "the cradle of *education for all* is, in fact, [a Namibian] aspiration to establish an egalitarian society" (Kamupingene, 2002, p. 19, emphasis added), the neo-liberal purposes of Education for All initiatives impede the liberation of Namibian people from neo-colonial oppression. The Education for All framework created by the United Nations Educational, Scientific and Cultural Organization (UNESCO) arose first in 1990 at the Jomtien, Thailand conference, updated in the *Dakar Framework for Action*, and was most recently revisited in the *Incheon Declaration and Framework for Action* in 2015. Namibia participated as an independent

country in the first Education for All meeting (Amukugo, Likando, & Mushaandja, 2010). Education for All has been central to education in Namibia, since 1993, when President Sam Nujoma established *Toward Education for All*, which "served as the centerpiece in the advocacy and explication of learner-centered pedagogy" (Nyambe, 2008, p. 21). In the early years of the country, Namibian education reform focused on increasing access, equity, and democracy in education. However, providing quality education has remained elusive.

Similar attention to equity, access, and quality has, in part, gained momentum as the international community began implementing a development paradigm presenting neoliberal and capitalist values of democracy, individualism, and problem solving as tools to "develop the skills necessary for [a] new economy" (Vavrus, Thomas, & Bartlett, 2011, p. 54). These tools have, in part, contributed to Namibia's reputation for great policy (aligned to Western capitalist ideology) and poor performance (on standardized Western exams). Namibian education is subject to the reality that global capitalism is built off the exploitation and disempowerment of the periphery (Tabulawa, 2003).

This is echoed in realities of Namibian learners' lives that the benefits of Western capitalism have not directly led to an enhancement of their quality of life. Instead, social welfare programs have been what has driven most of the progress in lifting Namibian people out of poverty (Geingob, 2015). Sustainable development as a goal has close ties to the neoliberal development paradigm from the 1980s, still undeniably couched in the foundational principles of modernization and participation in the global economy (Tabulawa, 2003).

The UN has been integral in setting the Millennium Development Goals (from which the US government's Millennium Challenge Corporation is derived) and transforming them into the Sustainable Development Goals (SDGs) that guide policy in developing nations, including

Namibia. SDG 4 reads, “Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” (UN, 2022, para. 1). This goal has been the most comprehensive guiding statement for Namibian education overall, used to design policy and evaluate education (Nyambe, Kasanda, & Iipinge, 2018). The UN, through UNESCO and UNICEF, has had direct involvement in policy and evaluation. One example is the lead role of UNICEF in compiling the *Review of the Namibian Examination and Assessment System*, highlighting the challenges Namibian learners face in completing their education without dropping or failing out (Ngatjiheue, 2021). It is unclear whether or how the involvement of these global-scale actors has been integrated with local knowledge, expertise, and values.

President Nujoma highlighted America’s role in Namibian education in his 2004 address to the UN. He gave specific credit to the Africa-America Institute (AAI) in his discussion of the curricular reforms undertaken that year. However, there is little-to-no information about the specific activities or underlying values of the partnership campaign on the AAI website nor in Google searches. Thus, the nature of this early relationship between the US and Namibia is unclear. It is clear what role American financing has played in the enactment of the *Education for All* framework in Namibia. To facilitate achieving the goal of quality education for all, the national government has turned to the Millennium Challenge Corporation (MCC; Nyambe, Kasanda, & Iipinge, 2018). The MCC is an independent US-government-funded agency whose goal is to “lead the fight against global poverty… with cost-effective projects, a lean staff, and an evidence-based approach. … MCC is a good investment for the American people” (MCC, 2022, para 1). Immediately, the principal place of the economy for the MCC is obvious. Namibian and international education policies indicate that there was frequent cross-pollination and

intermingling between Namibian policymakers and international agencies. This dissertation explored these dynamics.

National-Level Education Policy

Education is a powerful tool for addressing poverty in Namibia given that 37% of the population is under the age of 14 (World Bank, n.d.). National plans to address the poverty crisis from President Geingob in the State of the Nation 2021 Address included regulating teacher training with minimum standards, allocating funding to the Human Development Strategy and Implementation Plan, installing ablution and water facilities in schools, and establishing "Industry Skills Committees to enable Private Sector contributions towards curriculum reform and demand-driven education at our universities" (Geingob, 2021, p. 15). National-level discussions of education connect education and economic prosperity; this has major implications for the humanity afforded Namibians, and the ability of educators to promote liberation through access, equity, quality, democracy, and curriculum (Kamupingene, 2002). However, the balance of values underlying education policy requires further exploration to disentangle the power dynamics and regimes dictating educational experiences in Namibia.

The policyscape of Namibian life science has had multiple and complex expectations for teaching and learning since Independence from South Africa in 1990. While national policy has prioritized learner-centered pedagogy as the constructivist basis for instruction in Namibian classrooms, assessment structures and isolating curricular structures have supported more didactic practices, and powerful rhetoric centers the role of people in supporting the economy as capital while striving to meet their needs as humans. A review of presidential discourse related to the role of education in Namibia has helped illustrate this complicated policyscape that encompasses life science teaching and learning.

The MOE in Namibia traced liberatory goals for education to the *Kwanza-Sul* refugee camp in Angola during wars for independence in the 1980s and the support of Swedish technical experts (Nyambe, 2008). With Swedish financial and pedagogical support, the Southwest Africa People's Organization (SWAPO) trained and supported teachers in explicitly liberatory learner-centered pedagogy. However, organizational cultures and colonial discourses were still driving forces in determining the Independence structures of Namibian education because of inertia (Karikari, 2021). This led to a continuation of educational practices that approached learners as workers for the broader economy, rather than as humans empowered to shape the economy.

In the national *Vision 2030*, President Nujoma (2004) set a national goal of developing a knowledge-based society, which he said required that teachers help learners process current knowledge into new knowledge through learner-centered pedagogy. Teachers were expected to "deliver" education to learners, according to the first and highly influential former Minister of Education, Abraham Iyambo (Smit, 2011, para 1). Iyambo also issued harsh rebukes of educators who were not living up to their promise to deliver, highlighting that collaboration is at the heart of successful education.

The second president, Hifikepunye Pohamba, addressed the UN during the development of the Sustainable Development Goals (SDGs; UN, 2013). President Pohamba centered humanizing provisions within education policy. Constructivist principles of learner-centered pedagogy underpinned educational goals of democracy, inclusion, and relevancy (Nyambe, 2008; Tabulawa, 2003; van Aswegen, Elmore, & Youngs, 2022). Since his presidency, however, Namibian education has moved more towards a centering of the economy, and this shift in focus has unclear implications for the enactment of learner-centered pedagogy.

The current president, Hage Geingob, has framed education as a tool to "empower our people to become economically emancipated and break free from the poverty trap" (Geingob, 2017, p. 31). He and other presidents have indicated that the nation expects a lot of education. In 2017, and again in 2020 and 2021, President Geingob connected education to the eradication of poverty and inequality in Namibia. In 2017, he celebrated an increase in enrollment in preprimary to secondary education and attributed this to policy initiatives to remove costs to education. He described a plan to invest in school and sport infrastructure. A decline in poverty was attributed to targeted policy frameworks in the social sector (Geingob, 2020).

Education in Namibia receives more money than in other countries as a proportion of the national budget, and it has seen major improvements on some metrics. Namibia has invested heavily in education and its people in terms of the share of the national budget dedicated to social sectors. Education receives the top percentage of the national budget nearly every year. While the Namibian government clearly invests a high proportion of its income in education, President Geingob acknowledged that the Namibian "economy has not been growing at the level required to absorb the cohort of new market entrants every year. This could weaken our country's ability to reap a dividend from the sustained demographic investment" (2021, p. 15). Connections between education and economic participation were not realized in concrete ways that give Namibian youth access to participation in the global economy, despite lofty goals.

Sources of Tension: Learner-Centered Pedagogy

Namibian teacher preparation programs and curricular documents have consistently emphasized the importance of learner-centered pedagogy in democratizing education since the first national curriculum was enacted in 1990 (van Aswegen et al., 2022). The promise of learner-centered pedagogy seems to align well with ambitious instructional practices of

disciplined inquiry, learners' construction of knowledge, community belonging as central to learning, and relevant connections between content and real-world applications (Newmann et al., 1996; Vavrus, Thomas, & Bartlett, 2011). Learner-centered education is constructivist in nature, asserting that "people learn best by actively constructing and assimilating knowledge, rather than through the passive addition of discrete facts" (Mtika & Gates, 2010, p. 396 in Vavrus, Thomas, & Bartlett, 2011, p. 27). Many African countries between the 1960s and the 1990s introduced learner-centered frameworks to support democratic practices in their country's classrooms.

Namibian teachers have been encouraged to promote learner voice, choice, and action in the classroom (Zeichner & Ndimande, 2008). Preservice teachers are encouraged to take on the role of critical practitioner in their classrooms, which is markedly different from the role that many of their own teachers enacted (Dahlström, Swarts & Zeichner, 1999). Learner-centered pedagogy is explicitly identified in the Namibian policyscape to support learners' participation in their own education and their communities.

Learner-centered pedagogy, elsewhere in sub-Saharan African policy contexts, has been defined based on a technical-rational paradigm which ignores the underlying values and cultural implications for shifting the center of education to the learner. There are deep constructivist arguments that define quality learning from the learner's perspective on learning experiences, but these are not captured in the cognitive, political, and economic rationales underlying advocacy for learner-centered education (Vavrus, Thomas, & Bartlett, 2011). Advocates from the field of cognitive education research are echoed by the World Bank, with general agreement that "active learning using real-life situations promotes students' ability to use their knowledge in a variety of contexts" (ibid., p. 49). This agreement has not developed into "a theory of instruction as fully as behaviorism has over the years" (ibid., p. 49). Instead, the phrase remains poorly defined, with

abstract depictions that are used to promote democracy and economic participation without necessarily facilitating learners' empowerment to build their understanding of their worlds.

Learner-centered education is also politically motivated by the rationale that learner-centered instruction would empower learners to "practice democratic behavior" in their schooling (Vavrus, Thomas, & Bartlett, 2011). Learner-centered pedagogy "demands a relationship between teachers and students in which dialogue is an important means of learning" (Tabulawa, 2003, p. 9). This egalitarian relationship requires educators to completely turn away from teacher-centered classroom practices oriented to a banking model of education (Freire, 1970). In this dissertation, I examined the status of this shift in definitions of quality teaching. Furthermore, I explored the status of the tensions between learner-centered teaching, empowerment, economics, education, and quality.

Learner-centered pedagogy in practice often includes surface-level applications of constructivist approaches, such as putting learners in groups to take notes together or engaging in a practical activity that is structured like a recipe, with little opportunity for learner inquiry or agency embedded (Nyambe & Wilmot, 2012). While learners benefit from the opportunity to collaborate and engage, this approach to learner-centered pedagogy does not necessarily include facilitated opportunity for knowledge production or peer collaboration in inquiry, knowledge construction or problem-solving.

There have been challenges in implementing learner-centered pedagogy due to a shortage of teachers and resources, an emphasis on teacher-centered pedagogy during teacher preparation, a lack of mentoring and modeling during teacher preparation, and an emphasis on breadth in the teacher preparation curriculum (Nyambe, 2008; Nyambe & Wilmot, 2012; van Aswegen et al., 2022). Without effective modeling and opportunities to develop their own learner-centered

methods, many teachers continue to struggle to implement learner-centered pedagogy as recommended by the curriculum. In addition, reforms that oriented teaching and learning toward summative learner assessment weakened incentives for teachers to employ these strategies.

Implicit and explicit policy expectations greatly impact pedagogy in Namibia. Hierarchies based on assessment, power, and control were at the heart of Apartheid education, and many of these control apparatuses are still in place (Nyambe, 2008). Content, sequencing, pacing, and assessment are determined by policy makers at the MOE for all grade areas and subjects (MOE, 2016a; 2016b). Examination protocols still drive much of the daily life in Namibian schools and are the public basis for determining quality of schools (Ngatjiheue, 2022). These authors do not go far enough in explaining how systemic structures in Namibia failed to promote liberation, and instead support oppressive instructional methods of depositing knowledge that place the full authority to dispense knowledge in the hands of the teacher.

External control over education has left educators with no incentives to integrate constructivist pedagogical practices that provide some control to the learner (Nyambe & Wilmot, 2012). There has been little space for creativity and flexibility in schooling to implement the "political imperatives of democracy, empowerment, social justice, and equity underpinning learner-centered pedagogy" (Nyambe, 2008). One cannot be free to make decisions when so many structures of society are designed to support the market over human well-being.

There is little evidence in Namibian classrooms of instruction that aligns with the liberatory and democratic practices that learner-centered pedagogy was intended to promote (Kamupingene, 2002; Nyambe & Wilmot, 2012). Nyambe and Wilmot examined Namibian teacher educators' experiences through interviews, observation, and document analysis; they highlight a "fork-tongued discourse" regarding reform for pedagogy in Namibia (2012, p. 57).

Teacher educators in their study highlighted “contradictions [in] an official double-speak or fork-tongued discourse that transmit … contradictory messages” (Nyambe & Wilmot, 2012, p. 76).

Educators struggled to balance their role as facilitators of learning with expectations that they be strong authoritative figures in the classroom. “The call to transform to a learner-centered pedagogy has not included changes in the broader systemic factors” that existed during colonization and continue to influence the policyscape (Nyambe & Wilmot, 2012, p. 76). Contradictions exist because learner-centered pedagogy is viewed from a technical-rational perspective, rather than from a humanizing perspective as a tool for liberating learners through their construction of knowledge and participation in their communities.

Chapter 2

Conceptual Framework

Traditional research methods applied in Sub-Saharan Africa often miss the authentic, caring, and hard work of educators. Research outcomes are too often prescriptive because the theories shaping research are built on external value systems (Lincoln & Guba, 1985; Nudzor, 2015; Weber, 2007). Knowledge derived from the research applications of theory from Western traditions is incomplete at best, because personal and community culture and history are often considered as secondary factors impacting policy implementation. At worst, these applications of theory function to perpetuate dehumanizing educational practices (Freire, 1970; Murove, 2014). In a time of globalization, defined as a "process of increasing interdependence between people… in the economic, political, and cultural domains," global and local contexts must be explored within a united framework (Verger, Novelli, & Altinyelken, 2012, p. 5). An integrated and multidirectional study of policy implementation is necessary to understand the forces at play across international, national, and local contexts.

This dissertation brings together three bodies of literature to frame a critical, glocal policy analysis of quality instruction in Namibian life science. First, I will explain the construct *policyscape* to describe the fabric of implicit policies and values that guide explicit expectations for teaching and learning in Namibia, and teachers' role in making sense of this tapestry. Second, I will explain the *glocal* perspective on policy analysis. These two concepts support multi-directional and multi-scalar study of the power and values that influence policy. The final layer is that of *critical policy analysis*, which involves comparison of power, knowledge, rhetoric, and practice across the policyscape that influence learner-centered pedagogy (Young & Diem, 2017, p. 4; Levinson & Sutton, 2001; Murove, 2014). With these three frameworks, I constructed a

picture of quality teaching in Namibia and make recommendations on how to bring a sense of balance to the policyscape.

Conceptualizing a Policyscape

A policyscape is a helpful conceptual tool for imagining the connections among actors, ideas, and policies in an ever-more connected world (Bartlett & Vavrus, 2014). Researchers can use this concept to explore the global and local contexts, actors, and values that interact to impact implementation. The people and messages in a policyscape produce and respond to implicit or explicit directions for educational enactment based on underlying values in the policyscape. These values represent patterns in the policyscape and can lead to clashes between different actors and powers in an educational context.

Curriculum is an instantiation of policy in an educational policyscape. Curriculum exists when teaching and learning are discussed, where they occur, and when teaching and learning are shaped by global forces. Curriculum as defined by Remillard and Heck (2014) captures the policies that overarch education, implicit and explicit. In this definition, the "designated curriculum" refers to the syllabi, exams, and other documents created by national actors in response to international messages (Remillard & Heck, 2014, p. 708). Curriculum is also present in the ways teachers use designated curriculum to plan for their instruction, and during teachers' enactment of their plans.

A diagnostic understanding of curriculum has allowed scholars to study the movement of policies from broad to local levels and explore possible explanations for phenomena (Remillard, 2005; van den Akker, 2010). This line of inquiry is useful in systems in which "diagnosis" between policy and practice is clear, but the practical remedies provided by these authors are often redundant (Weber, 2007, p. 285). This medicinal perspective on relations between policy

and practice often relegates cultural and historical practices to secondary factors when applied to international contexts of globalized education.

I prefer the metaphor of a policyscape tapestry to that of policy diagnosis in comparative and international education, particularly because threads can begin and end in a multitude of places and formats (for more on the power of metaphor, see Kliebard, 1982). The tapestry allows policy to exist as a "complex social practice" with an outcome of an "authoritative allocation of values by a decision-making body" (Levinson & Sutton, 2001, pp. 1-5) while acknowledging acts of human meaning-making as integral to determining the design of the tapestry.

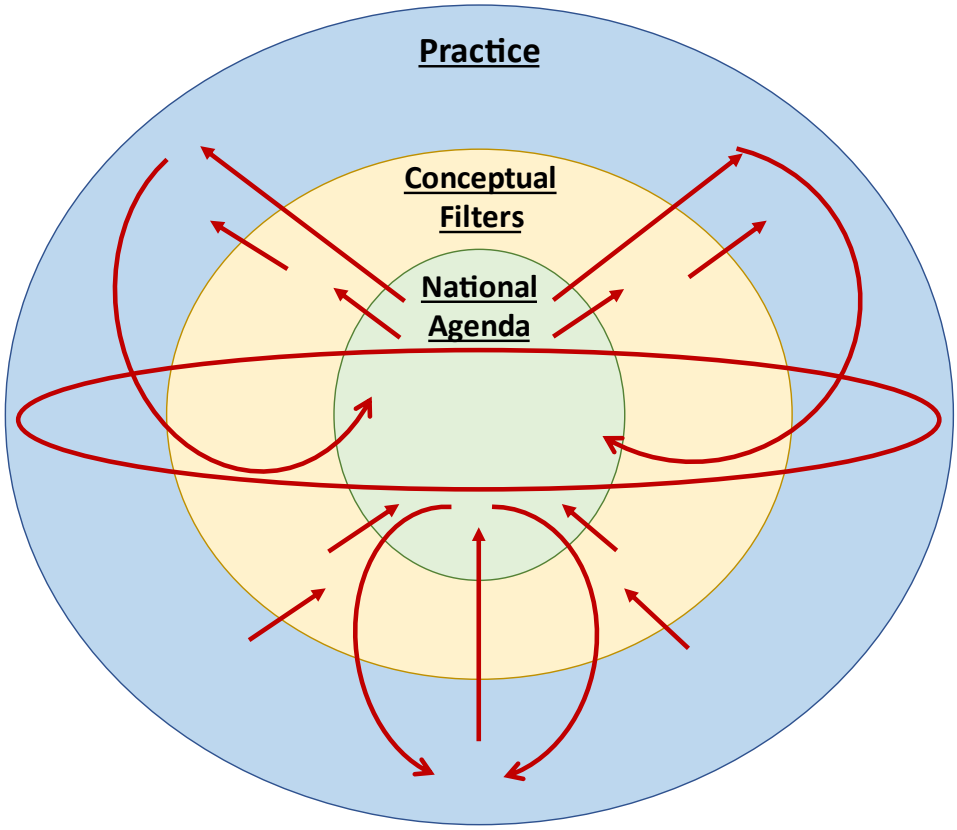
In a decentralized model of education, a national agenda for education is created by drawing from a wide range of practices (Dahlström, 1999). These local and international practices are filtered through salient conceptual filters to produce a national agenda. Because the national agenda is derived from national and international practices, there are likely to be multiple areas of focus that are important in defining quality education. Each of these areas of focus is a "center" in the educational policyscape.

Once these centers are established at the national level, the agenda is then filtered back through new and old salient conceptual filters to lead to policy practice. These enactments may or may not reflect intent because of the conceptual filters, including policymaker and educators' meaning-making (Spillane, Reiser, and Reimer, 2002). Therefore, analysis of policy implementation should explore the practices and filters in the policyscape to identify which aspects are central to policy. The meaning of policy can be harmoniously filtered and enacted when the policyscape contains threads that are woven to complement and support each other in feedback loops around compatible centers of education.

Dahlström developed a "multi-dimensional generic view on educational transformation" (1999, p. 148). In this visual tool, he lays out the ways in which the Namibian education system is intended to build policy in a decentralized manner. He illustrated the pathways information flows from the international community to local communities, while indicating that a national agenda should also include local practice and conceptual filters. By including both international and local practice inputs, my representation of Namibia's decentralized policyscape is intended to be glocal (Weber, 2007). Figure 1 is adapted from Dahlström's diagram to illustrate how information and policy move through the policyscape and interact with the national agenda.

Figure 1

Reproduction of Dahlström's decentralized model to set a Namibian National Agenda for education.



Note. Adapted from "Transforming teacher education for a democratic society: The case of Namibia," by L. Dahlström, 1999, Teaching and Teacher Education 15. p. 148. Copyright Elsevier Science Ltd.

Success in a policyscape should be defined by the people in it, and preconditions for success are defined by the ideological threads in the policyscape (Dahlström, 1999). While definitions of success may or may not be clear, it is certainly subject to change as forces shift the ideology of a policyscape. I explored the definitions of successful, quality teaching and learning, and attempted to develop a logic which recognizes the "human aspect" of complex systems

(ibid., p. 147). Establishing the current preconditions for success, and definitions of quality education will allow me to explore alternative, humanizing threads that could become more dominant in the tapestry of Namibian education.

The tapestry metaphor for policyscape is further strengthened when considering differential influence and power that some actors are capable of exerting. People are the fundamental agentic unit in a policyscape, and the meaning and actions they take interact with messages, values, and power dynamics in intricate ways, like a thematic thread on a tapestry determines the colors and locations of other threads. Agency can be impacted by international and national power exerting control and influence in the policyscape (Verger, Novelli, & Altinyelken, 2012). Curriculum writers and teachers take on agentic roles through their conscious and unconscious decisions about the meaning of policy, and these interactions operate in ways that are poorly understood (Bartlett & Vavrus, 2014; Spillane, Reiser, & Reimer, 2002). As fibers in a thread are twisted together to make them stronger, so too are people and documents enmeshed through interaction. This interactive discourse is the twisting that holds these people and documents together. The construct of curriculum is created in the context of this fibrous discourse, woven into a tapestry that is the policyscape.

Glocal Research: Multiscalar, Multidirectional, Multidisciplinary

"Glocal" contextualization of research accounts for the "simultaneous occurrence of both universalizing and particularizing tendencies in contemporary social, political, and economic systems" (Blatter, 2013, para. 1). A glocal lens allows researchers to overcome the dichotomy and directionality between the global and the local. Instead, one can stretch the tapestry of a policyscape across myriad stakeholders in education (Mampane, Omidire, & Aluko, 2018; Weber, 2007). Threads may directly connect some stakeholders while bypassing others;

curricular policy ideas can emerge from anywhere on the tapestry; lines of communication may be unpredictable; multiple points in the tapestry may unexpectedly connect to the same threads. Historical context, hegemonic power, and individual interpretation direct the interplay between the local and global. Glocal is a tool that accounts for the influences of globalization on the mechanisms by which information and values are instantiated in a policyscape.

Globalization and colonization have created disharmony between communities and the values bolstering systems for too long (Ali & Shishigu, 2020). Weber (2007) uses *glocalization* to "problematize the local realities with which teachers engage on a daily basis, in the context of national and global change" (p. 289). His main goal was to apply such a lens to "deepen and enrich our understanding of the similarities, diversity, and complexities of" educational policy, development, and change (Weber, 2007, p. 300). Glocalization allows for a "humanistic response to the challenges of globalism" by "regrouping ideological and political forces" (Dahlström, 1999, p. 150). A renewed perspective on policy that accounts for the global and local ideologies impacting policyscapes could expand on the implications for policy reform in meaningful ways.

The framework of glocalization has immediate implications when applied to research settings. Methods employed using this framework are necessarily multi-scalar and multi-directional. This multiplicity allows researchers to consider the policy-as-written, policy-as-intended, and policy-as-enacted as these policy forms interact (Levinson, Winstead, & Sutton, 2017). At each of these sites of interaction along the policyscape, comparisons can be made about contextualizing factors that impact the levels of agency different actors have over their decisions. This is particularly relevant as supranational trends have "defined new problems that education policy needs to address" and subsumed the responsibility of policy, taking power away

from national governments (Verger, Novelli, & Altinyelken, 2012, p. 5). Glocalization allows stakeholders to develop solutions to local problems employing local and global expertise.

Critical Glocal Policy Analysis

Namibian educators and researchers and others in Sub-Saharan African have issued a call for a research and policy context where "courageous" discussion of problems go beyond solving gaps in economic production (Amukugo, Likando, & Mushaandja, 2010, p. 102; see also Tabulawa, 2003; Weber 2007). My dissertation is a response to this call, as I made implicit assumptions, underlying impositions, and opportunities to humanize education explicit. My work engaged with research literature grounded in the context of Southern African education, as well as literature examining the power and values embedded in policyscapes.

Some critical African scholars claim that education in the neoliberal, neocolonial world continues to serve the interests of those in power (i.e., the "core zones") by dehumanizing the periphery (Tabulawa, 2003, p. 11). Tabulawa provides evidence that disempowering practices are promoted by learner-centered rhetoric in Botswana's policyscape. Neoliberal education lied about the connections between education and empowerment and used "hegemony, homogenization, … violence, and coercion" to implement neoliberal globalization (Weber, 2007, p. 183). Weber provides evidence from the South African policyscape that a side effect of globalization was the sidelining of teachers' voices in policymaking.

In part, teachers' voices have been silenced because "universalized pedagogy necessarily marginalizes pedagogies based on other epistemologies" (Tabulawa, 2003, p. 22). A standardized, compartmentalized approach to education does not allow alternative definitions of success to be considered or promoted, because they do not fit Western logic or rationality. I have personally experienced that communities of learning in Namibia contain people with strong life

goals that do not include higher education or participating in the global economy. My learners in Namibia were excited to leave school and go back to subsistence farms. It was refreshing and antithetical to neoliberal capitalism. It also meant that schooling meant very little for them practically.

Values lie at the center of my research questions (Hamann & Vandeyar, 2017; Lincoln & Guba, 1985). In this case, values represent what "ought" to be in research. Critical policy analysists identify what is, what could be, and what should be across various contexts of education in the *glocal* policyscape. Each of these states of being are shrouded in value judgements. Critical policy analysis refuses to overlook the heavy-handed perpetuation of inequity conducted in these policyscapes, and instead approaches research with a goal to "engage with systems to leverage change" (Diem & Brooks, 2022, p. 3). Values are embedded in what *is, could* be, and *should* be in policy enactment, and critical policy analysis allows me to explore the role of value systems at the global and local levels in this enactment.

I recognize the explanatory, predictive, and causal narratives in policy discourse at global and local levels (Young & Diem, p. 3, 2017). Thus, critical policy analysis is the most appropriate framing for the research methodology I employed. Comparative Case Study (CCS) is inherently critical, with fundamental guidelines described by Bartlett and Vavrus (2017) for conducting process-oriented research. Their methodology maps onto Young and Diem's (2017) critical policy analysis framework. The research methods and critical framework I applied are inextricably linked.

Critical policy analysis focuses on five main concerns (Young & Diem, 2017). First, critical researchers interrogate "the difference between policy rhetoric and practiced reality" (Young & Diem, 2017, p. 4). These discursive practices can be teased apart in analysis, but never

fully separated. In this teasing apart, comparisons can be traced through time and influence (Bartlett & Vavrus, 2017; Young & Diem, 2017). Critical policy analysis and CCS are built on comparisons of power, privilege, and policy impacts across scale, space, and time, to examine the consequences of policy. This dissertation has traced themes across policy rhetoric and implementation and identified potential ways to increase the liberative outcomes of education systems and remove the oppression of post-colonial education systems in SADC (Chisholm & Leyendecker, 2008; Lincoln & Guba, 1985; Murove 2014; Nudzor, 2015; Tabulawa, 2009).

Second, critical policy analysis studies "the policy, its roots, and its development" which is central to the research questions and design of this dissertation (Young & Diem, 2017, p. 4). Critical policy analysis, from an anthropological perspective, "insists on policy being a kind of link between discursive practices comprising larger-scale structures of law and governance and the discursive practices of normative organizing and control in any local-level site or community" (Levinson, Winstead, & Sutton, 2017, p. 25). I have provided thick description of this policyscape to promote transferability of information to situations in which the values underlying policy creation, implementation, and reform are similar. I have expanded on impactful policy traits for supporting teachers' enactment of quality instruction; situate policy creation and meaning making in critical glocal contexts; and explore value-based patterns in the policyscape across the dimensions of time, and scale.

Third, I explored the nature of the "distribution of power, resources, and knowledge" along the glocal policyscape (Young & Diem, 2017, p. 4). I examined how values underpin glocal power dynamics and determine the centers for feedback loops between policy and practice.

Fourth, critical policy analysis is concerned with the "social stratification and the broader effect a given policy has on relationships of inequality and privilege" (Young & Diem, 2017, p. 4). International and historical institutions are not the only ones in the policyscape, but structures of inequality dominate philosophical approaches to defining quality education. When tensions and contradictions are allowed to implicitly infiltrate unspoken value systems, the powerful are likely to maintain their status over time (Tikly, 2017). Highlighting tensions between value systems can empower actor to advocate for the values they hold. Critical policy analysis and CCS allow me to "facilitate new ways of thinking and acting that are able to counter oppression and domination" (Taylor, 2014, p. 3). With these new ways of thinking, I highlighted contexts where people engage positively with policy to enact more liberating instruction.

Finally, critical policy analysis should show a "concern regarding the nature of resistance or an engagement in policy by members of nondominant groups" (Young & Diem, 2017, p. 4). My dissertation engaged in this fifth concern by focusing on data that are aligned with empowering teaching practices. This branch of research allowed me to explore ways in which educators "practice theorizing" about quality teaching (hooks, 1994, p. 62), and the implications of their theorizing for their instructional praxis. I critically examined what is missing from the broader policyscape, and what is blocking the cycling information to set a decentralized national agenda (Dahlström, 1999; Tabulawa, 2003). I explored the broader policyscape for instances where empowering policy exists and create suggestions for how to navigate the conceptual filters. I hope my practical policy suggestions will facilitate actual harmonization of a decentralized policyscape, rather than the deceptive harmonization that is used as a "mode of influence" that redirects harmony toward a development agenda (Verger, Novelli, & Altinyelken, 2012, p. 16). I brough specificity to a constructivist, empowering theory of instruction to replace

the behaviorist model that is ingrained in examination-centric policyscapes (Vavrus, Thomas, & Bartlett, 2011).

The Oppressive History and Present of African Education

Neo-colonization of African learners has taken place, even in politically independent countries, because the philosophies guiding the structures of education often emanate from colonial powers and neoliberal ideology (Le Grange, 2020). Globalized education in Africa has continued to be a tool for propaganda to maintain the status quo of inequality and disharmony and it has weakened richly educated societies such as the Ethiopian empire through the import of Western educational structures that replaced traditional modes of education and enculturation (Ali & Shishigu, 2020). Neo-colonial schools are places designed to "classify, denigrate and subjugate" and recreate the status quo of oppression (Le Grange, 2020, p. 218). The implicit nature of this oppression makes neo-colonialization of schooling even more difficult to address, and leaves learners with few meaningful opportunities to learn about themselves or their worlds.

The inherent power dynamics and oppression created due to colonial history cannot be ignored in SADC (Hickling-Hudson, 2006). Direct colonization has impacted (as recently as 1990 for Namibia) all aspects of society, and colonizers left behind specific curriculum structures. The curricula of countries in Southern Africa are inherently globalized, given their colonial histories. Local cultures have long been suppressed in favor of a "better, Western way." Post-colonial theorists recommend that researchers examine hidden knowledge and recognize dispossession in the not-so-distant past. Schools dehumanize teachers and learners when they reinforce a pedagogy of oppression and repression introduced by colonizers. The prevalence of modern schools across African countries "has not been related to their level of development and to the expected educational needs, but to how close countries were to Colonial powers and Western influence" (Verger, Novelli, & Altinyelken, 2012, p. 11). Thus, it is not surprising that

tensions exist between local communities' value systems and the values underlying repressive systems of education (Giroux, 2019).

"Education played a key role not as consumption, but as investment … and provided the required skills and attitudes for improved production" (Weber, 2007, p. 282). However, this investment has not paid dividends. "Modernity and progress were synonymous with the quantifiable development of Western capitalism, with its principal and reliable indicator, the GDP" (Weber, 2007, p. 282), but education is not working to increase GDP or human empowerment. If fact, the national GDP demonstrated localized peaks during successful transitions of power, first to the new President Sam Nujoma at Independence in 1990 (World Bank, n.d.). The GDP in 1991 spiked to 8.2%, from 2% in 1990. When President Hifikepunye Pohamba was democratically elected in 2004, GDP increased to 12.3% from 4.2% from 2003. These enactments of democracy were good for the country's economy. Outside these peaks, the GDP has stayed within a few points of its Apartheid era statistics. It is incumbent upon educators and national leaders to seek alternatives to business-as-usual.

Chapter 3

Literature Review

There have been attempts to replace colonial structures of education with African ways of knowing in the policyscape of African liberatory education since the independence movements of the 1960s. Tanzania's first president, Julius Nyerere, called for educational systems to be based on the Swahili philosophy of *ujamaa*, which echoes the interconnectedness and responsibility that are central to the Zulu concept of Ubuntu (Murove, 2014). During his presidency, Nyerere called for Tanzania's newly independent Ministry of Education to construct systems of education based on the value of familyhood (Sakata, Oketch, & Candappa, 2021). To promote "education for self-reliance," when self is defined by one's familyhood, educators were directed toward learner-centered practices that are based on these principles (Sakata, Oketch, & Candappa, 2021, p. 56). In practice, these messages were entangled with those from neoliberal perspectives, where assessment structures and human capital development take the lead in the face of a shortage of qualified and experienced personnel and resources for schools. Despite the practical shortcomings experienced in independent Tanzania, Nyerere's arguments for an education system driven by an African philosophy to counteract the effects of colonizing educators have been taken up by researchers, politicians, and technocrats across the continent (Le Grange, 2020; Nudzor, 2015; Nyambe & Wilmot, 2012).

This chapter explicates how empowering instructional practices have been centered or decentered in global and local contexts. First, I outline how international organizations shape policy in sub-Saharan Africa and highlight the research methodologies used to explore this level of the policyscape over contexts and time. Next, I will describe how science teaching and learning has been researched in the Southern African Development Community (SADC). SADC

is a group of 16 countries[1], all of which were colonized by European powers. Finally, I highlight authors who strive to bring these two branches of research together into a comprehensive picture of a policyscape. Five studies from this literature review chapter were the starting points for my methodological approach (Amukugo, Likando, & Mushaandja, 2010; Chabalengula & Mumba, 2021; Raselimo & Mahao, 2015; Tabulawa, 2009; Vavrus, Thomas, & Bartlett, 2011).

Global Education Discourse

International organizations have a great capacity to set agendas for national education policy (Verger, Novelli, & Altinyelken, 2012). Verger and colleagues (2012) described five ways that international organizations impact policy; these include imposition, harmonization, dissemination, standardization, and installing interdependence (p. 16). These modes of influence are highly reliant on power dynamics in this supranational policyscape and were identified through theorizing and policy analysis. In practice, these methods to exert control are intermingled and complex. Modes of influence deserve more investigation in real-world policy contexts through critical policy analysis.

Global education systems have advocated for Education for All, following the lead of the World Bank and the UN since 1990 (Nudzor, 2015; World Bank, 2014). In a review of research on implementation of Education for All policies, Nudzor (2015) noted that these missions have not translated into "worthwhile economic investments" for families at the low end of the socio-economic continuum (p. 107). Nudzor argued that compulsory legislation often does not result in schooling of quality or value for many children. Instead, "restricted definitions used to monitor progress mask significant exclusion (i.e., children enroll but learn little), and conceal very

[1] Angola, Botswana, Comoros, Democratic Republic of Congo, Eswatini, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, United Republic Tanzania, Zambia, and Zimbabwe

unequal patterns of participation" often tied with high drop-out rates (Nudzor, 2015, p. 107). He concluded his analysis of current Education for All policies by arguing that teachers have a wide range of socio-economic and health reasons for high rates of absenteeism and associated poor job performance. This piece is not without hope, however, as Nudzor described a research agenda to examine the processual, "programmatic, and political dimensions of education policy" to "attend to the diverse multi-cultural contexts and compare knowledge claims among actors" (2015, p. 108). My dissertation is meant to contribute to this research agenda.

There have been tensions in Education for All since the 1980s (Tikly, 2017). Compulsory, institutional, structural, and productive power dynamics in the "global regime of educational governance" mean that control over a community's education has often been politically and geographically removed from the local context. Instead, supranational regimes for aid, human rights, security, trade, and sustainable development have been controlled by those responsible for assessment. For the global education policyscape, this meant that the Program for International Student Assessment (PISA) Development Initiative has had a lead role in assessing learning. Tikly also explained that the World Bank's conditional lending policies played a key role in funding education projects across the Global South. Finally, Tikly argued that the development goals from the UN were formulated by the UNICEF arm and the World Bank, more than by UNESCO, which had implications for power relations, since UNICEF was more singularly focused on girls' education and the World Bank has historically prioritized access to primary school as measures of success. The implications of these foci have echoed through the policyscape. Education for All needs to advance an agenda that emphasizes quality instruction.

International aid agencies promoted a modern structure of education that has often operated to oppress people and prioritize the economy over communities (Ali & Shishigu, 2020;

Tabulawa, 2003; Verger, Novelli, & Altinyelken, 2012). Development-driven education has decultured communities through implicit advocacy for neoliberal democracy, which has always been embedded in a social reproduction model of education that attempts to maintain power differentials in society (Tabulawa, 2003). The true goal of these systems was to orient human capital toward the market, rather than establish innate human potential and experience.

Aid efforts in the 1980s framed education in Africa as in service to the economy, rather than in service to communities. This was not in the best interest of humanity; furthermore, the benefits reaped by human capital have "not really penetrated the developing world in accord with the western model" (Tabulawa, 2003, p. 17). Oppression and subjugation of the colonies continued instead. In his analysis of policy, Tabulawa (2003) described tensions underlying American-supported policies that promote education for neoliberal democracy. For example, engaging in inquiry in the classroom, with the notion of teacher as guide or facilitator of learning, was often in tension with oppressive systems of education, such as a reliance on credentialism and strict hierarchies. Tabulawa sought an alternative framework on which to base African education that could resolve these tensions by prioritizing local values and community-oriented practices in education systems.

The Global Education Reform Movement, focused on neoliberal instantiations of accountability through standardization and technical training, has also impacted rich countries such as the United Kingdom (Woodin, 2019). Through critical historical and sociological analysis, Woodin explored the role of "cooperative schools" in providing an alternative to the neoliberal agenda in education (2019, p. 1169). The success of these schools was reliant upon long-standing community networks of educators and policymakers, and policy restrictions made it more difficult for schools to operate outside the top-down reform movements, even in a

wealthy country. Research integrating local definitions of quality education could embolden African educators to advocate for their communities, even in wealthy countries, to overcome the prevalence of neoliberalism in the globalized policyscape of education.

In Namibia

Amukugo, Likando, and Mushaandja (2010) examined the implications for Namibia's national agenda for education described in *Vision 2030* (Government of the Republic of Namibia, 2004). These goals were based on the Education for All mission of the UN. Namibia's *Toward Education for All* (1993) framework was similarly based on the goals of access, equity, and quality and it added a fourth goal, democracy. This framework defined quality as "good schools… teachers sufficiently prepared for their tasks and moving from examination-centered education to developing skilled learners as well as by developing integrated curricula" (Amukugo, Likando, & Mushaandja, 2010, p. 106).

Amukugo, Likando, and Mushaandja (2010) highlight the political nature of Namibia's educational goals for democracy. In their words, "Learners study how democratic societies operate and what the rights of citizens are… Broad participation in decision-making about education would be facilitated by government. Teaching itself will become democratic by moving from a teacher-centered concept to a student-centered one" (Amukugo, Likando, & Mushaandja, 2010, p. 106). However, Amukugo, Likando, and Mushaandja (2010) used data on public spending, the quality of the teaching profession, measurable learning outcomes, teacher/pupil ratio, and the survival rate in basic education. Thus, it is not surprising that there are tensions inherent in their recommendations. For example, the authors recommend that "the education system of the future should also seek to allow for *multiple exit and entry points* that will facilitate continuous and life-long learning at secondary education level. Each exit point

should have a corresponding list of competencies that will be seen to add value to both an individual and society" (Amukugo, Likando, & Mushaandja, 2010, p. 110). This juxtaposition of the constructivist concept of life-long learning, and the neo-behavioral requirement for competency checklists illustrates multiple values at play in the Namibian policyscape.

Fraught Applications of Quality Instruction

Researchers have examined the enactment of instructional practices in various contexts in SADC. Since gaining independence, each country has made choices about their education systems which have had implications for which instructional practices are encouraged, supported, and possible. Researchers have examined the nature of instruction promoted by national policies (Amukugo, Likando, & Mushaandja, 2010; Bantwini & Letseka, 2016; Chabalengula & Mumba, 2012, 2021; du Toit & Gaotlhobogwe, 2017; McKenzie & Dalton, 2020; Tabulawa, 2009) and enacted in classrooms (Asheela, Ngcoza, & Sewry, 2021; Bartlett & Vavrus, 2016; Maruvu & Dudu, 2021; Ramnarain & Hlatswayo, 2018; Semali, 2021) in several countries including Lesotho, Namibia, South Africa, Tanzania, Zambia, and Zimbabwe. Most schooling in SADC is highly teacher-centered, with lecturing, note-copying, and textbook reading as prevalent practices in the classroom (Ramnarain & Hlatswayo, 2018). While many researchers focus on the agency of local educators, there is little exploration of their potential power to influence policy from the ground up (Imaniriho, 2015; Nudzor, 2015).

Democratizing movements have been inextricably linked to neoliberal promotion of involvement in the global economy. Learner-centered pedagogy (known as outcomes-based education in South Africa, Bantwini & Letseka, 2016) as a policy for national instruction, including Botswana, Lesotho, and Tanzania, has not successfully integrated democracy and liberation into education (Tabulawa, 2009; Raselimo & Mahao, 2015; Vavrus, Thomas, &

Bartlett, 2011). Tabulawa (2009) argued that the classified and regimented orientation of curricular policies of Botswana supported a "model of teaching and learning that is mechanistic, reductionist, and that neglects the examination of inaccessible and unobservable mental events" (p. 100). He outlined paradoxes between the atomized nature of curricula which are designed to be "teacher-proof" and the desire to support learners' construction of knowledge (Tabulawa, 2009, p. 101). This question of paradoxes is highly relevant to the study of tensions underlying the definition of quality instruction in Namibia.

Bantwini and Letseka (2016) described several policies in South Africa that originated in the West. In their mixed methods study, they surveyed 86 teachers and interviewed 14 of them about their experiences with two mandates. Overall, teachers struggled with a mandate that they engage in differentiation. These factors, coupled with increasing demands on teachers' time, led many to experience a distinct feeling of hopelessness and disconnectedness from the profession. In addition, there was a mandate for teachers to employ other international best practices in education, including outcomes-based education and universal pre-primary education. Despite these mandates, the authors argued that learners experience few benefits. Bantwini and Letseka attributed this to demands on teachers' time and a lack of preparation and support for fulfilling the mandates. They also pointed to tensions related to definitions of quality education in the policyscape, but these tensions were left unexplored in this study.

In a mixed methods study, Ramnarain and Hlatswayo (2017) found that South African physical science teachers believed in the value of learner-centered practices. The authors surveyed eleven secondary physical science teachers in a region of South Africa, and followed up with in-depth interviews with some teachers, to assess their desire and ability to "promote inquiry-based learning in mathematics and science education" (Ramnarain & Hlatswayo, 2017, p

4). Teachers did not feel supported in efforts to implement these practices or engage their learners effectively with content. Teachers indicated that they did not practice inquiry in their classrooms, due to a lack of adequate laboratory facilities, teaching materials, time, and class sizes. The authors recommended that teachers use prediction and demonstration activities in their classrooms more frequently (Upahi & Oyelekan, 2021). These methods addressed elements of inquiry and are more ambitious than lecture, while centering the teacher in delivering instruction.

Research on instructional enactment in Zimbabwe has shown that teachers are subject to multiple policy messages from the national government. Phaeton and Stears (2016) reported a mismatch between national A-Level Biology curriculum syllabi and exams. In a content analysis of the curriculum from 2010 to 2013, the authors examined the extent to which the syllabi and exams addressed science process skills. They found that expectations for integrated scientific practices in the examinations did not align with those in the syllabi. The pressures teachers felt clearly impacted their understanding of their role during quality instruction.

Phaeton and Stears (2016) complemented their document analysis with data gathered from five teachers' planning artifacts, questionnaires, and interviews. Teachers indicated that the disconnect between exams and syllabi was central to their lack of focus on integrated science literacy and inquiry skills in their instruction. Instead, teachers allocated their instructional time to basic scientific practices, such as observing, communicating, and classifying, which were the focus of the exams, while not addressing higher-level science process skills more prevalent in the syllabi. This study suggested that the degree of alignment within a designated curriculum has major consequences for teachers' practice. Maruvu and Dudu (2021) affirmed these findings in their analysis of inquiry-based education policy documents and research in Zimbabwe.

In Zambia, Chabalengula and Mumba (2012) found that syllabi for secondary Biology, Chemistry, and Physics courses promoted confirmatory inquiry (fully teacher directed) and structured inquiry (mostly teacher directed with some learner input), while examinations in these subjects focused on almost exclusively confirmatory inquiry skills and disciplinary content. Chabalengula and Mumba examined syllabi, textbooks, and exams using the Inquiry Task Inventory (Tamir & Luneta, 1981) and Levels of Inquiry (Schwab, 1962). Their document analysis showed that expectations for learner-directed inquiry embedded in the exams were lower than expectations within the standards and textbooks. Chabalengula and Mumba's analysis of survey data revealed that Zambian teachers in these subjects valued inquiry-based learning, including the higher-order skills of applying content knowledge and collecting and explaining data. Across this analysis, teachers' conceptions regarding inquiry were still narrow and focused on a "collection of facts" (Chabalengula & Mumba, 2012, p. 325).

In Chabalengula and Mumba's (2012) study, teachers' conceptions of inquiry had implications for science teacher preparation as well as the processes of curriculum writing and oversight. In their assessment of curriculum standards, national textbooks, and national exams, they found a lack of congruence between teachers' conceptions of inquiry and curriculum materials, and that lower levels of inquiry overall were featured in the national documents. Overall, they found poor alignment between teachers' beliefs and different components of the designated curriculum, with teachers placing greater value on inquiry practices than the designated curriculum. This study directly informed the initial analysis in my dissertation, which utilizes interview data and document analysis to explore similar questions.

Chabalengula and Mumba (2021) extended their research on Zambian science curricula to examine how engineering and science practical activities are integrated into the national

syllabus and textbooks for J.S. Life Science and Physical Science. They found that expectations for practical work were "predominantly procedural in nature" instead of "using practical work as a learning context to apply knowledge" (Chabalengula & Mumba, 2021, p. 145). This is problematic when considering that science classes are included in general education in part to facilitate learners' scientific literacy (Chabalengula, Mumba, Lorsbach, & Moore, 2008). Science literacy involves helping learners balance understanding scientific knowledge, performing investigations, understanding science as a way of knowing, and using science, technology, engineering, mathematics, and society as ways of knowing to make decisions.

Chabalengula and Mumba (2021) recommended ways to restructure practical activities to researchers, policymakers, and teachers. Their analysis integrated the forms and substance of scientific thinking and scientific learning into one matrix that "takes into account students' conceptual understanding, … apply science and engineering practices in each activity depending on the objectives, … and clarify the cognitive demand of an activity" (ibid., p. 152). Their tool was fundamental to the development of the matrix for my analysis, found in Chapter 4.

In Namibia

Asheela, Ngcoza, and Sewry (2021) examined intervention models for teaching science using "hands-on and minds-on practical activities" in Namibian life science (p. 15). Their intervention was based on a socio-cultural theory of learning and involved direct engagement with chemistry using traditionally brewed *Oshikundu* with yeast, sugar, limes, eggs, cans, and tea bags, all of which would be easily accessible anywhere in Namibia. Teachers responded positively to the workshop and indicated that localized practical activities addressed constraints commonly cited as reasons for a lack of practical activities in secondary science. These constraints included inaccessibility of resources and a lack of motivation to use practical

activities. The practical activities seemed to increase teachers' beliefs in their self-efficacy to implement practical activities.

Asheela, Ngcoza, and Sewry (2021) explored powerful, accessible practical activity options that strongly resonated with Namibian teachers, but they did not consider this localized application of content in the context of the broader policyscape. While the authors examined "the nature of resistance" and developed solutions to overcome constraints to implementing practical activities, they did not address systemic constraints and potentials for overcoming resistance through policy (Asheela, Ngcoza, & Sewry, 2021, p. 25). In this dissertation, I explored how ideas from communities of practice, like those explored by Asheela, Ngcoza, and Sewry, may have a more direct impact on the entire policyscape through methods such as participatory development and critical professional inquiry (Zeichner & Tabachnick, 1999; Dahlström, 1999). I have proposed policyscape reforms which could allow for sharing and collaborating in Namibian instructional contexts to promote a community among educators and learners who integrate and support liberating education in their practice.

Combining the Global and Local

Work to examine policy documents and teachers' practice is important and should be included in analysis of the glocal policyscape (Dahlström, 1999; Raselimo & Mahao, 2015; Tabulawa, 2003, 2009; Vavrus, Thomas, & Bartlett, 2011). These researchers provided examples of how research paradigms could consider the entire glocal policyscape in a critical analysis of power relations and values. I hope my work will support humanizing education in which quality is communally defined and integrated into the broader context of education.

Raselimo and Mahao's (2015) critical policy analysis of Lesotho's *Curriculum and Assessment Policy 2009* revealed that curriculum organization "mimics the key aspects of

colonial education" (p. 6). This organization deemphasizes the practical subjects and cross-curricular integration that are the expressed foci of the Lesotho Ministry of Education. The curriculum leaves little flexibility for teachers and learners to make connections between subjects or choices about what and how they learn. Raselimo and Mahao also examined the expectations and practical opportunities for learner-centered pedagogy in Lesotho, which is "intended to serve as an enabler of democracy" (ibid. p. 7). The connections between learner-centered pedagogy, liberal democracy, the knowledge economy, and education in service of the market are prevalent in international hegemonic structures. In Lesotho curriculum, these connections are implicitly embedded and are not clear.

Tensions related to power and control between the state, the school, the teacher, and the learner are woven through expectations for policy. Finally, Raselimo and Mahao (2015) reported that the assessment practices in Lesotho included continuous assessment provisions, but that continuous assessment tasks have become an extension of routine summative testing in ways like those in Namibia and Botswana (Tabulawa, 2003). The authors conclude that implementing the Lesotho *Curriculum and Assessment Policy 2009* is impeded by internal contradictions in the document. Many aspects of Namibian schooling are reflected in the authors' vivid descriptions of policy in Lesotho, which points to the potential for using interview data to further examine these tensions in the Namibian policyscape.

Tabulawa (2009) conducted a critical policy analysis of Botswana's education reforms which were designed to produce the "learner equivalent of the self-programmable worker" needed in the new knowledge economy (p. 87). The author found paradoxes in the integration of learner-centered pedagogy, used to promote self-programmable learners, and the "behaviorist model of curriculum development" still prevalent in post-colonial education systems (ibid., p.

100). Democratizing and liberatory reforms were too conservative to counteract the power of inertia underlying a rigidly separated curriculum. In addition, integration between subjects would be necessary to promote truly ambitious learner-centered pedagogy, but Tabulawa concluded that the *Revised National Policy on Education for Botswana* did not do enough to overcome the behaviorist curriculum based on assessments and compartmentalized subjects. Exams are helpful in demonstrating growth to attract foreign direct investment because of their simplicity and clarity, but radically undercut the application of constructivist pedagogy. Tabulawa analyzed global and national policies to examine tensions underlying values in pedagogical expectations. I will apply his approaches in the Namibian case while also integrating teachers' and policymakers' sensemaking with a critical analysis of values.

Vavrus, Thomas, and Bartlett (2011) conducted a policy analysis and interviewed Tanzanian teachers in an early iteration of a CCS to examine learner-centered and inquiry-based pedagogy. They analyzed *Education for Self-Reliance* policies enacted by the first Tanzanian Ministry of Education under President Nyerere. These policies were explicitly based on the concept of *ujamaa*. Quality education was tied to the economy by the government. Teachers were expected to inculcate a sense of intrinsic motivation for work, creativity, and action. The Ministry of Education and Culture introduced seven main strategies that teachers were expected to use to "foster in their students the belief that they will lead to improved economic growth" for the country (Vavrus, Thomas, & Bartlett, 2011, p. 65). The authors reported tensions between assessment and curriculum policies and the substantive goals of quality education.

Vavrus, Thomas, and Bartlett's (2011) study of learner-centered pedagogy in Tanzania extended beyond national-level policy analysis to include qualitative data from Teaching in Action, a "professional development program that aims to provide a supportive and informative

venue for Tanzanian teachers… to learn about and practice ways to implement learner-centered pedagogy in their classrooms" (p. 66). Teachers revealed that they found several experiences to be central to their improved understanding of this approach. This included opportunities to develop and teach model lessons that used learner-centered pedagogy, to collaborate with peers, and to attend classes that demonstrated the pedagogies. Teachers expressed understanding of and belief in the cognitive and practical value of learner-centered pedagogy.

Vavrus, Thomas, and Bartlett (2011) also reported challenges to implementing learner-centered pedagogy in the policyscape. First, teacher educators' lack of experience with learner-centered pedagogy meant that they struggled to help teacher candidates develop pedagogical content knowledge. Second, there was a clash between authoritarian behaviorist models of transmission and egalitarian learner-centered methods, and the behaviorist structures of the curriculum often prevented effective implementation of learner-centered methods. Finally, there were multiple logistical challenges, including large class sizes and the language of instruction.

Vavrus, Thomas, and Bartlett (2011) presented strategies for developing teacher educators' understanding of learner-centered pedagogy and realigning curriculum and implementation processes. In their view, realignment should involve teams of stakeholders from across the educational sector. Teacher education institutions, teachers, and school personnel would need to work in tandem with the Ministry of Education and Culture to implement major changes to assessment systems that would allow learner-centered pedagogy to be possible. The authors' main conclusion was that "the implementation of learner-centered pedagogy complex and requires careful planning across different sectors in the education system" (ibid., p. 95).

Pedagogy Tensions in Namibia

Dahlström (1999) explored the history of value systems that influenced independent education policy in Namibia and outlined tensions underlying education during the late-1990s. Dahlström traced a hijacking of traditional values of respect for a chief's authority by colonists and Christian national education authorities to the present. Now, the traditional value placed on respect and deference in localized tribal settings has been assigned to those who control economic and political power. While at Independence, there was "almost unanimous support for change in Namibia," the path to enacting change "beyond policy rhetoric was less obvious" (ibid, p. 147). This was further complicated by the reality that change processes occur in a complex system in which the implicit "logic of transformation processes" where not discussed with educators (ibid, p. 147). Without authority for communities to determine the structures and goals of their education, the policyscape has been beholden to the implicit pulls toward a neoliberal approach which places authority in examiners and technocrats with a market-oriented agenda.

There has long been tension between democratizing and liberating movements in Namibian education and structures that promote the maintenance of the status quo. In the latter half of the 1990s, as international partners began moving their support out of Namibian institutions, authority for education agenda setting was distributed among four governmental organizations. Some of these organizations "wanted to be involved" and "wanted to be given direction" while others did not (Dahlström, 1999, p. 154). This generated friction between a "national agenda for education and explicit decentralization efforts" (ibid., p. 148). "Namibians who lived in exile due to the liberation struggle developed their knowledge" of pedagogy according to the concepts of transformation based on Freire and other humanizing pedagogues, while those who stayed were forced to continue colonial education structures (ibid, p. 148).

At a time when Sweden was promoting Namibian ownership of the educational sector, there was an absence of "cross-institutional analysis to regroup and join strategic forces" to bridge the national and decentralized efforts to harness the liberatory power of education (Dahlström, 1999, p. 150). This vacuum of authority was filled by longer-standing examination structures. Multiple choice and short-answer examinations at the end of each year determine two-thirds of learners' grades, and whether a learner will be promoted to the next grade during the secondary phase. The other third comes from continuous assessments that are intended to take the form of practical tasks, projects, topic tasks, and topic tests. These continuous assessment activities have been integrated in the form of quizzes and assessments that mirrored final exams, rather than as opportunities for learners to apply their content knowledge and skills in meaningful ways, as continuous assessment policies were intended.

From personal experience in Namibia in 2012, my first introduction to continuous assessment came from an activity during volunteer teacher orientation that covered common shorthand and slang. We learned that *kokie pens* were permanent markers, *rubbers* were erasers, and *cooking marks* meant that teachers were filling in their nationally mandated continuous assessment record forms with made-up data on learners' performance. In my first week as a volunteer teacher in Namibia, before setting foot in a school, I was taught that common practice was to entirely ignore the instructional expectations underlying continuous assessment in favor of focusing on the national exams. Once at school, it was clear that continuous assessment requirements were to be fulfilled through quizzes and tests over the semester that mirrored national final examinations. The Namibian national agenda for education does not seem to be set following a process of decentralization. A new framework is needed to ensure that feedback loops are operating around all the centers in the policyscape.

Swarts, Dahlström, and Zeichner (1999) argued that Namibian ideology underlying learner-centered pedagogy was rooted in liberation, but that this approach was unable to thrive in the policyscape more broadly. At the time, Swarts was the director of NIED and the Undersecretary of Formal Education at the MOE, and was thus in a position of major influence, which she held until 2005. As mentioned, Dahlström worked at NIED as a consultant to integrate transformative practices in Namibian education. Zeichner was an American consultant for the University of Namibia where teacher preparation took place at four campuses across the country. These three scholars described critical practitioner inquiry as a key component in efforts to democratize and restructure Namibian society. However, "the struggle continues" to enact liberating education (Swarts, Dahlström, & Zeichner, 1999, p. 248).

Dahlström (1999) called for a different kind of "imagination and creativity amongst policy makers and administrators" to construct a new policyscape that would actually deliver quality education (p. 144). His 1999 analysis must be revisited now to "regroup ideological and political forces" to support a "humanistic response to the challenges of globalism" (ibid., p. 150). Dahlström (1999) noted that global issues related to enactment of learner-centered pedagogy were also relevant in the Namibian context. Though he was writing at a crossroads in Namibian education development, when international organizations were removing themselves from the MOE offices, the promise of transformation, democracy, and liberation had not been realized.

Amukugo, Likando, and Mushaandja (2010) argue that learner-centered education would "develop skilled learners as well as by develop integrated curricula" (p. 106). This vision for education would be inherently democratic, since "broad participation in decision-making about education would be facilitated by the government" (ibid., p. 106). These authors confirm the explicit connections between a learner-centered pedagogy and participation in decision-making

and argue that these approaches to teaching and learning will enhance democracy. It is unclear, however, whether these approaches are aligned with other definitions of quality teaching and learning in the policyscape.

Education has a role in promoting democracy and equity. Amukugo, Likando, and Mushaandja (2010) blame traditional problems, namely unequal distribution of educational resources and a lack of "learning readiness" of children entering school as if these children have not learned many things about their wide worlds in the first five to six years (ibid., p. 107). Their critical lens also implicates an unchanged Apartheid examination structure and under-commitment to the integration of education for employment that is part of the government's mandate. They argue that quality content and education are needed in Namibia to reflect the aspirations and needs of its people. Callewaert (1999) asked "Which way Namibia?" but this question has not yet been answered in favor of humanizing education practices (p. 222). In the next chapter, I will describe my plan to collect and analyze data from multiple levels of the Namibian life science policyscape, in an attempt to answer the question asked by Callewaert (1999).

Chapter 4

Methodology

The Comparative Case Study (CCS) method enables researchers to examine phenomena in a multi-dimensional, multi-scalar, process-oriented approach (Vavrus & Bartlett, 2022). In Weber's (2007) words, "We need to develop appropriate concepts and describe their interrelationships through qualitative studies that will help redefine our current understandings and misunderstandings about teaching… globalization, and glocalization" (p. 298). Case studies facilitate analysis of concept constructions, explore gaps between policy and practice, facilitate learning about implementation of policy in the real world, and explores how social reality is influenced by globalism (Weber, 2007; Young and Diem, 2017).

CCS facilitates the teasing apart of threads across a glocal policyscape to propose solutions for a *problem* (Bartlett & Vavrus, 2014; Penuel et al., 2020). A given policyscape is painted in three dimensions: (a) the vertical axis across scales of organization, (b) the transversal axis across time, and (c) the horizontal axis across space. The problem to be studied acts as a loose thread in the fabric of the policyscape and CCS requires one to follow threads through the fabric to unknot and integrate. Critical, problem-oriented research must include aspects of history, because the solutions to problems often lie in their sources. Following threads back to the beginning is how untangling works. Ahead of time, I could not be sure where the beginning was. During data analysis creative alternatives to the problems emerged that might provide solutions for problems in synergistic and empowering ways.

Key to the CCS method is the concept of comparison across as many data points as are accessible to clearly articulate processes occurring in the policyscape. In part, CCS is goal-oriented to correct loose threads. As the problem at the center of the process is fixed, systems

harmonize with the values of the people in them. With improvement at its core, this transformative approach to research can potentially help communities provide quality education (Nudzor, 2015). My dissertation study is potentially transformative in that I have suggested ways to align the expectations for teaching with communities' values.

Traditional research methods applied in Sub-Saharan Africa often miss the authentic, caring, and hard work that is being done precisely because theoretical frameworks for this research are built upon values that are not relevant (Lincoln & Guba, 1985; Nudzor, 2015; Weber, 2007). Normative application of findings from research that assumes the overarching powers of logic and reason, or the "universalization of economic theory," have often led researchers to ignore community values (Weber, 2007, p. 283). Instead, these research paradigms result in technocratic and market driven solutions to problems identified through decontextualized frameworks. Power dynamics and hegemonic forces tend to have clear direction from Western, educated, industrialized, rich, and developed regions to the Global South (Weber, 2007); this differential in power and directionality of force is vital to understand in the policyscape. However, linear models miss a core element of complex interactions across multiple directions through space, time, and scale.

Researchers in the United States have provided evidence that strictly linear and directional interpretations of policy implementation miss the highly influential role actors' sensemaking plays in implementing policy. Thirty years ago, Cohen and Spillane (1993) called for research that would examine the relationship between policy and practice by considering the role of individuals and their communities in complex systems. Teachers and local policy implementors often enact agency regarding policy through their own sensemaking; in critical policy analysis, this sensemaking is key in determining the enactment of policies (Young &

Diem, 2017). In my critical analysis, I asked teachers whether or how they believe policy could be used to address problems they face in implementing learner-centered pedagogy (Penuel et al., 2020). Sensemaking reflects their efforts to implement, adapt, and/or subvert the curriculum to meet their own understandings and needs.

CCS examines multiple perspectives on the problem of quality teaching by intentionally collecting multiple sources of data. This method encourages (a) engagement with the limits that have been historically established to bound research and (b) experimentation with going beyond them (hooks, 1994; Taylor, 2014). Rather than striving to approach research from an objective or neutral position, I can and should strive for fairness, "balancing multiple perspectives" (Lincoln & Guba, 1985, p. 173). Data on teachers' and policymakers' sensemaking is juxtaposed with written policy and public policy statements to provide rich descriptions of the contents in which quality teaching is defined and delivered in the Namibian context.

CCS provides *empirical value* by including more voices and perspectives in international education research, *normative value* by challenging the boundaries imposed by traditional frameworks, and *practical policy value* by "deepening understanding of stakeholders' definitions of education policy success and/or failure" (Nudzor, 2015, p. 110). Using this approach, individuals and communities make decisions and set goals for education in ways that are relevant to their lives, based on constraints of place and time. The historical context and geopolitical role of a community have direct implications for the options available to its members, and the goals toward which they strive.

CCS emphasizes the use of processual language to explore threads in a policyscape (Edwards, 2012; Meisner, 2022). A processual approach is called for by Nudzor (2015) and echoed in Bartlett and Vavrus' (2017) revisions of their case study approach. Processual analysis

requires thorough exploration of the local contexts in which education is occurring (Nudzor, 2015, p. 109). Data grounded in local and global processes related to education will potentially provide paths toward quality education for all learners. Through a processual approach to research, stakeholders can identify sources of tension and cooperatively "iterate upon solutions, construct, and use practical knowledge" to reduce the sources of tension (Penuel et al., 2020, pp. 652-653). Stakeholders are potentially empowered to improve their environment by helping define quality instruction and policy success.

CCS enabled me to enact research principles highlighted by Penuel and colleagues (2020) to move beyond accountability and interventionist strategies toward an integrated approach to research that engages stakeholders across a glocal policyscape to solve problems (Vavrus & Bartlett, 2022). Penuel and colleagues point out that "problems are always framed in relation to both aims and values" (2020, p. 649). Thus, a problem may exist as stakeholders explore how to embody their values more fully. My study seeks to address the problem of defining quality teaching in relation to community value systems, so that suggestions for policy will support communities of education to better embody their values. My study provides historical, geopolitical, and cultural context as I teased apart how quality instruction is defined in the glocal policyscape of J.S. Life Science in Namibia.

Study Purpose and Research Questions

The key *problem* at the center of this inquiry is that quality teaching is not explicitly defined, supported, nor enacted in the Namibian life science policyscape (Nyambe & Wilmot, 2012; van Aswegen, Elmore, & Youngs, 2022). I examined the context of Namibian J.S. Life Science across the vertical and transversal axes that comprise the analytic structure of CCS (Bartlett & Vavrus, 2017). To conduct this study, I gathered documents relevant to the global and

local scales of the Namibian context and interview educational policy makers and teachers to understand the discourse, curriculum, and policy implicated in defining quality instruction. I followed threads through documents by coding for values and themes as they arose as well as based on current African science education and policy literature; I traced these threads through the policyscape to build an understanding of the processual elements defining quality instruction.

CCS is built on the analysis of three axes but applying the method in this dissertation involved foregrounding two axes while de-emphasizing others. These decisions were intentionally built into my research design and have consequences for my findings and implications. This dissertation placed less emphasis on the horizontal axis to focus in depth on the axes of scale and time. Scale captured the concept of a glocal policyscape and included actors at multiple levels. The axis of time played a key role in contextualizing Namibian policy for teaching life science, what problems have arisen and been addressed, and what problems remain. The horizontal axis was only addressed as far as participating teachers are working at schools across multiple regions in Namibia and my literature review addresses research from surrounding SADC countries. Thus, my findings are relevant to contexts where readers find connections with the rich descriptions of Namibian education. My research was guided by two key questions.

(1) What is the nature of quality instruction in the Namibian JS life science policyscape?
    a. How is quality instruction defined in this context?
    b. What concepts are central to teaching, learning, and content in Namibia ?
(2) What are possible tensions between different centers of teaching and definitions of quality education embedded in national policies and global education reform?
    a. How can these tensions in the policyscape be leveraged to promote human-centered pedagogy?

Data Sources along the Vertical Axis

The vertical axis of CCS consists of scales of organization that feature relevant pedagogical messages. In this study, the vertical axis included policy document data from global actors. National scale data for Namibian life science was gathered in two main ways: through document analysis of syllabi, examinations, curricula, policy documents, and political rhetoric; and through interview data with national-level policy makers and teacher educators. Local scale data on practices was generated as teachers participated in two interviews and shared artifacts related to their instruction.

Data from Global Actors

Data gathered from global actors in international education provided insight into both research questions. Analysis of global actors' policy documents and public rhetoric about teaching and learning illuminated the values impacting expectations for instruction. Power differentials were examined by highlighting modes of influence being applied by these organizations (Verger, Novelli, & Altinyelken, 2012).

Policy artifacts from UNESCO (United Nations Educational, Scientific and Cultural Organization), UNICEF (United Nations International Children's Fund), MCC (Millennium Challenge Corporation), World Bank, USAID (United States Agency for International Development), the Japanese International Cooperation Agency (JICA), SADC Social and Human Development Directorate, and other organizations provided the bulk of data for this scale of analysis. Following patterns of data collection like those described by Cameron (2022), I used snowball sampling to procure documents referenced in Namibian policy and during interviews to include relevant documents beyond those already identified. I isolated text that referred to learners, students, teachers, teaching, instruction, and education. Coding of relevant text in these

documents was completed using NVivo qualitative analysis software to enhance my audit trail. Codes were generally applied at a paragraph level, and I generated document memos to provide a micro-level and macro-level picture of the documents. Following coding of the relevant content in policy documents, I generated a whole-document memo, which I updated during data analysis to connect each document to other points in the policyscape.

National Level Documents

I examined *Life Science Syllabus Grade 8-9*, the *National Basic Curriculum*, national examinations in life science, and national education monitoring and evaluation to answer my research questions. These policy artifacts communicated expectations for instruction, through recommendations for instructional strategies, and requirements for assessment. Explicit elements of these documents directly guided instruction for teachers. These national documents were analyzed in the same manner as the other policy documents from international actors, and, given their explicit expectations for instruction and assessment, were analyzed in a fine-grained way.

National and Local Sensemaking

I interviewed policy writers and teachers to learn about their perspectives on the nature of quality instruction in Namibian JS life Science. Samples from both populations were drawn using convenience and snowball sampling, based on a given participant's involvement with Namibian life science, either from a policy or teaching position. Teachers participated in two semi-structured interviews at the beginning and end of data collection. Mr. Chiweshe and Ms. Hausiku participated in in-person interviews for their second interviews, and I also visited their school contexts. In between these interviews, teachers reflected on their instructional planning and practice, and provided teaching artifacts to corroborate their reflections. Policy writers

participated in one semi-structured interview each in 2023. Two participants, Ms. Witbooi and Dr. Amadhilla, had their interviews conducted in person. All other interviews were virtual.

Teachers were identified using my professional network in Namibia through other teachers and former volunteers in their schools. The sample of teachers consists of six J.S. school biology and life science teachers, one of whom also worked as a regional trainer. Five of the six teachers came to teaching after an unsuccessful attempt to enter medicine. Mr. Riruako started as a contract teacher for Computer Studies and became qualified to teach J.S. Life Science and Agriculture in addition to information and communication technology. Table 1 shows details about the teachers, including a description of their school setting, their region and the length of time they had been teaching.

Table 1

Teacher participant details

Pseudonym	School Description	Region	Years in Teaching	Subject Specialties	Pathway to Teaching
Mr. Riruako	Rural	Kunene	4 years	Computer Science, Agriculture, Life Science	BS in Computer Science, contract teacher
Ms. Ndumafayo	Semi-Rural	Ohangwena	7 years	Life Science/Biology	Applied for medicine, Selected for education
Ms. Hausiku	Rural	Kavango East	15 years	Life Science, Agriculture	Applied for medicine, Selected for education
Ms. Hamutenya	Rural	Ohangwena	3 years	Life Science/Biology Geography	Applied for medicine, Selected for education
Mr. Chiweshe	Rural	Kavango East	24 Years	Life Science/Biology	Teaching work after studying biology
Ms. Gurigab	Semi-Rural	Otjozondjupa	6 years	Life Science/Biology	Applied for medicine, Selected for education

All teacher participants were actively teaching life sciences and/or biology in different schools across three of the fourteen regions of Namibia in 2022. The regions are a mix of populations and tribal history; two are in higher density areas (Ohangwena and Kavango East), and the third is remote (Kunene). Further diversity of setting was captured by including teachers

in “more or less rural” areas; this framing is more descriptive than the term “more and less urban.” Figure 1 illustrates teachers’ schools’ approximate locations on a map of Namibia.

Figure 1

Namibian map illustrating the locations of participants’ schools using the first letter of their pseudonym to represent their school

I conducted the first round of interviews between September and October 2022 via Zoom or WhatsApp call; the interviews were transcribed using Zoom transcription features and manually cleaned for accuracy. Teachers also submitted artifacts from their instruction (e.g., lesson plans, worksheets, posters, videos) and reflections from their instructional planning and enactment via WhatsApp.

The first interview had two purposes. First, it was helpful in building relationships with them. Second, questions in this interview focused on teachers’ sensemaking related to their planning. Coburn (2005) described several factors that affect sensemaking, and I addressed many of these factors in this interview. Teachers described the depth and specificity of the curriculum,

its effects on learning conditions, and their implementation of the curriculum. Teachers noted ways in which their "sensibilities shape [their] responses" to the curriculum (Coburn, 2015, p. 479). This information helped me integrate document analysis with the interview data.

I interviewed five officials at national and regional institutions to capture national level sensemaking of quality teaching, learning, and content in Namibia. Ms. Witbooi was appointed at the Directorate for National Examinations and Assessments (DNEA). Her responsibilities included administering and marking national examinations, and she worked on the benchmarking partnership with Cambridge International. Previously, she had worked under the Directorate of Programs and Quality Assurance at the MOE. Mr. Ahrens was a professional development coordinator for sciences at the National Institute of Educational Development (NIED). Previously, he taught Biology, Life Science, and Agriculture for 11 years. Now, he was responsible coordinating countrywide workshops for teachers who would bring what they learned back to their schools. He also worked with the Cambridge International team to implement training. Mr. Tuahepa was a senior education officer for NIED and conducted regional school visits to support teachers' instruction. He is also a student studying Change Management at the Namibian University of Science and Technology (NUST). Ms. Gurigab also worked as a regional biology trainer for NIED, in addition to her role as a teacher, so her data represents a bridge between national, regional, and local levels.

The interviews with policy makers at the national level interrogated sensemaking and tracing comparisons (Bartlett & Vavrus, 2017; Coburn, 2005). Questions in this protocol asked participants to trace the curricular reforms and rationales behind their decisions; this helped embed comparison throughout data collection (Bittencourt, 2022). To capture factors that affect sensemaking, I asked policy makers to describe norms associated with defining quality

instruction in Namibian JS Life Science. I asked to explain how they conceptualize, visualize, and realize quality teaching to ascertain the values underlying their understandings of these practices. I asked about their roles in shaping curricular reform, their understanding of professional development opportunities for educators, and the broad contexts for implementing reform. This interview protocol can be found in Appendix A.

The interviews with policy makers and analysis of documents in the policyscape helped me determine questions for the second round of teacher interviews. In this final interview with teachers, I explored threads arising from the initial data analysis. The final version of the both interview protocols for teachers can be found in Appendix B. After coding and iterative analysis at each stage of data collection, I created multiple visual depictions of my data to examine which structures were most representative of the patterns in my data. Dahlström's conceptualization of decentralized national agenda structures was most aligned with the tensions and potential policy shifts that arose from my data. I consistently returned to my coding of interview data analysis to construct multiple visualizations of the policyscape.

The Transversal Axis of Time

The axis of time provided crucial insight into the values involved in defining quality instruction and how curricular policy could be leveraged to support empowering pedagogy. Most data for this axis came from archival data on policy and secondary sources tracing to the centers of teaching. As policies, practices, and values emerge during data collection and analysis of the vertical axis, I traced them back through history, guided by the questions, "Where did this come from and whose values are defining quality instruction?"

Appendix C contains details about each of the documents I included over my rounds of data analysis. In total, my analysis included 35 documents from the United Nations, African

Union, World Bank, World Education Forum, Regional Conferences, Namibian Office of the President, Ministry of Education, Arts, and Culture (MOE), National Institute for Educational Development (NIED), and Directorate of National Examinations and Assessment (DNEA), totaling 2436 pages of policy and monitoring data.

Analytic Strategies

Comparison

As its name suggestions, Comparative Case Study (CCS) involves employing comparison as a mode of inquiry (Bartlett & Vavrus, 2017). Setting their research along the axes of scale, time, and/or space, CCS researchers ask their participants to compare policies they interact with (Bittencourt, 2022, p. 102); researchers compare similarities and differences among data points to categorize. They also compare rhetoric, policy enactment, and counter-rhetoric to dissect power relations; and they make comparisons across time to develop a processual analysis (Cameron, 2022, p. 186). This CCS was complete when I traced the thread through the tapestry, themes were saturated, and next steps toward aligning education with community values were able to be outlined (Nudzor, 2015; Penuel et al., 2020).

Bartlett and Vavrus (2017) outline two main logics underlying the comparative analyses that are at the core of CCS. First, “traditional compare and contrast logic” involves analyzing data points that are broken down into units to separate out variables of interest (Bartlett & Vavrus, 2017, p. 7). As data is categorized throughout coding, traditional comparison between and within categories will illuminate areas of tension and support within the glocal policyscape. Second, the act of comparison can be expanded to include a “tracing logic” to follow processes (ibid. p. 7). Using a tracing logic of comparison, researchers can tease apart connective threads within a policyscape without fully separating them. A tracing comparison seeks to follow

connections and similarities as well as parse out differences, to understand the meaning making and power dynamics at play in a policyscape.

Tracing comparison involves exploring underlying value systems to build a rich description of processes and phenomena based on comparison within the study design, data collection, and analysis. In designing this study, I examined a range of data sources along the scales of analysis to provide a medium through which to trace comparisons. Critical policy analysis and CCS acknowledge the unpredictability of policy implementation and require elements of emergent design (Bartlett & Vavrus, 2017; Lincoln & Guba, 1985). Only with this type of flexibility can a researcher pull threads as a "means of attending to the diverse multi-cultural contexts and comparing knowledge claims among actors with different social locations and orientations in a bounded analysis" (Nudzor, 2015, p. 108).

Holistic Coding Procedures

Iterative coding will follow clear structures to establish threads and categories arising from my data. My initial analysis of data will begin during data collection, as I informally synthesize and gather data. Formally, my initial analysis during data collection will also guide my lines of questioning with participants and guide my search for organizations involved in setting the expectations and values undergirding the policyscape. These decisions were tracked as part of an audit trail. The final definitions of codes I used during analysis can be found in Appendix D.

In the first round of coding, I identified sections of documents (at the grain level of paragraphs) that discussed quality education and tensions surrounding the implementation of quality education as defined. Initially, I also took codes from extant literature and divided them between tensions and definitions of quality as an a priori starting point. This resulted in the lists

in Table 2. I used them to identify themes in quality education, modes of influence, purposes of education, responsibilities, solutions for tensions, sources of tensions, and underlying values.

Table 2

Theoretical constructs guiding Namibian life science education and their underlying values, assumptions, and applications.

	Ubuntu (Ali & Shishigu, 2020)	**Neoliberalism**	**Apartheid Educational Structures**	**Nature of Science and Engineering** (AAAS, 1990)	**Ambitious Learner-Centered Pedagogy** (Dahlström, 1999; Newmann, Marks, & Gamoran, 1996; Vavrus, Thomas, Bartlett, 2011)
Category	Philosophy	Philosophy	Education system	Field of Study	Pedagogical Approach
Source(s) of Purpose	Community survival	Market participation	Oppression and capital generation	Answering questions about the natural world; Solving problems using knowledge and skills	Learner constructed knowledge, developing critical thinking
Recommended Pedagogical Methods	Inquiry Solving local problems	Rote memorization Lecture Guided practice	Rote literacy Job training	Social activity. Blends creativity, logic, and accumulated knowledge. Practice with the engineering cycle and science processes	Inquiry, inductive, interaction with others, self-discovery Knowledge constructed in social environments and lived experience Problem-posing; critical thinking
Assumptions	I am because we are.	I think, therefore I am	Black Africans are less human than White ones	Scientific knowledge is durable and subject to (slow) change Science cannot answer all questions	Dialogue generates critical thinking (Freire, 1970) Learners are empowered to exert agency over their learning and solve their problems
Values	Respect Survival Solidarity Dignity Compassion	Efficiency Production Assessment Credentialism Evaluation Surveillance	Efficiency Production Control	Egalitarianism Ethics defines limits of science	Community identity Application Involvement Egalitarianism

Following data collection, my analysis continued to establish categories and themes within the data. This stage of analysis resulted in a differentiation between representations of quality content, teaching, and learning, and I also recognized that each element of quality

education had abstract and concrete representations in my data. This would have implications for meaning making, so I had six categories across abstract and concrete quality content, teaching, and learning (Spillane, Reiser, & Reimer, 2002). During my second round of analysis, I attempted to populate each theme with examples from my data. In my third round of analysis, I compared examples to categorize them into salient sub-themes and connect them to literature.

Finally, "Western education in periphery states was aimed at eroding traditional modes of thought…" and denying humanity (Tabulawa, 2003, p. 13). Therefore, it is also important to look for what is missing from modern, Western education and schooling in Namibia. What I saw missing after round two of analysis was empowerment. I classified data points as empowering or disempowering, and compared these data points across sources. This form of analysis allowed me to see where there were definitions of quality teaching, learning, and content that are present in the policyscape but are not enacted in the classroom and compare how empowering these definitions are. This revealed tensions in enacting empowering versus disempowering teaching.

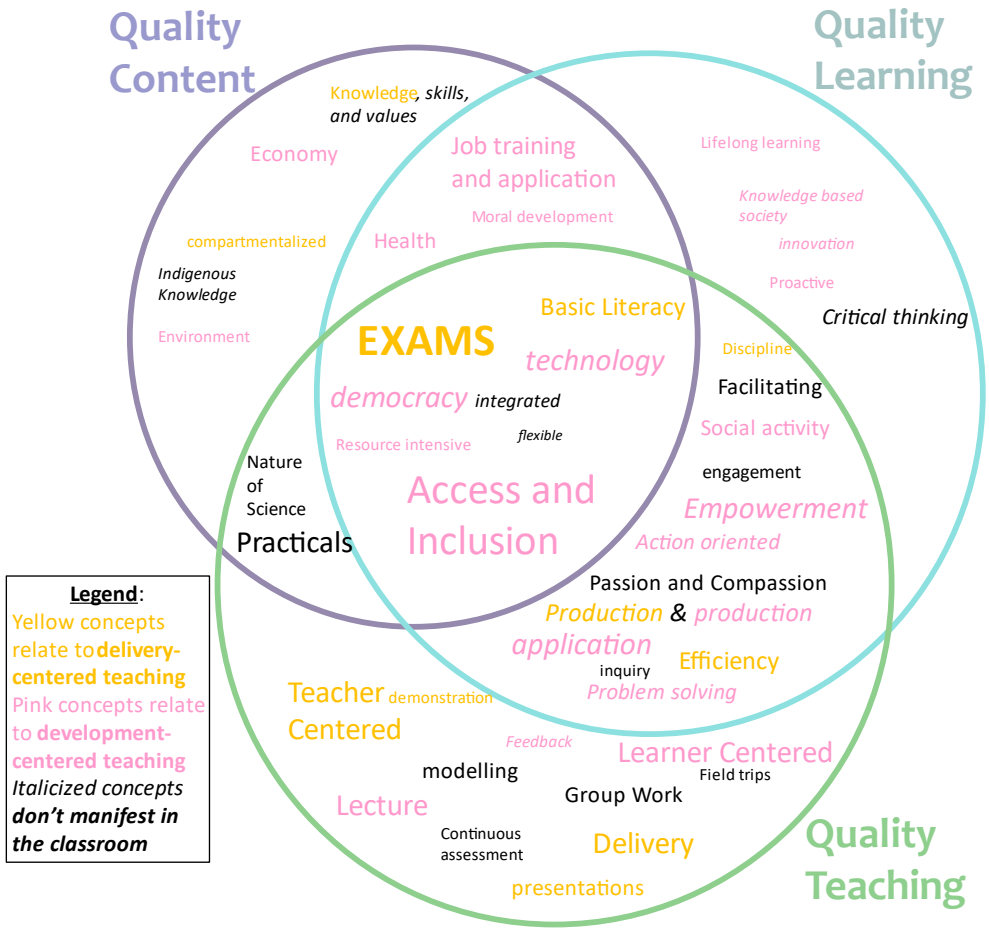
Reflecting on her experience conducting a CCS of English language teacher professionalism in Rwanda, Cameron (2022) acknowledged that multiple forms of visualization are vital for identifying and confirming patterns in the data. Otherwise, flattening along any one axis may hide important pathways, influences, and applications of values. Miles, Huberman, and Saldana (2018) provide multiple frameworks that might support my data analysis, including perspectival flow charts, causal networks, matrices, and context charts, any of which could be used in data analysis depending on the suitability of the data. Furthermore, Edwards (2012, p. 134) outlines a table with ten strategies for analyzing policy documents, including events listing, actor-influence matrices, policy content matrices, logic models, and flow diagrams. I included multiple visuals, including Venn diagrams, matrices, various dichotomies, and continua to view

how themes in my data were related to each other in multiple ways. This was helpful in contextualizing expectations for quality teaching inside the broader context, while identifying holes and themes that do not manifest into teachers' reported classroom practices.

My second round of data analysis revealed that definitions of quality education are often inconsistent or unclear across the Namibian policyscape. While my first research question centers the definition of quality instruction (curricular enactment, implementation, teaching), other aspects of quality education arose during analysis included quality learning and quality content. These two parts of quality education overlap with quality teaching too much to be ignored. The Venn diagram in Figure 1 illustrates definitions of quality. It provides a concise summary of my findings from round two, overlaid with my round three themes. The diagram below shows the most salient codes embedded within the definitions of quality content (purple), quality learning (blue), and quality teaching (green) summarized across the policyscape. Themes are sized based on their emphasis across the glocal policyscape. Later diagrams divided themes based on the levels of the policyscape from international to local centers of standardization and development. This overarching view is helpful in illustrating where there is agreement and disagreement across the quality content, learning, and teaching in the policyscape.

Figure 1

Overlapping codes used to define quality content, learning, and teaching in the glocal policyscape of Namibian life science education



I have included this graphic to illustrate my use of visual tools to help me make sense of my data and the patterns in it. First, there are meaningful overlaps amongst quality content, teaching, and learning that interact to define quality education in the glocal policyscape of Namibian life science. Second, these definitions of quality education are strongest and most aligned regarding the importance of examinations and access in defining quality education. The scope of this dissertation does not encompass access as a definition of quality, and there is a need

for further scholarship building off Amukugo, Likando, and Mushaandja's work in this critical policy area in the post-Incheon era (2010). Third, while standardization and development are often centered in definitions of quality teaching, content, and learning, there are also uncentered definitions of quality (black text in Figure 1) not included in the centers currently enacted that I discuss in Chapter 5.

Fine-Grained Document Coding Procedures

There are major advantages to conducting a compatible matrix-oriented analysis for the syllabi and examinations before and after the reform provide fine-grained analysis of trends in national expectations for teaching in the documents most used by teachers to guide instruction. Matrices allow the data to be consolidated and directly compared across multiple contexts (Yin, 2018). Generating a matrix for analyzing changes in expectations over time within Namibian policy will also be helpful to expand upon the transversal axis of time. I developed a design matrix by crossing the stages of inquiry (Phaeton & Stears, 2016; Tamir & Luneta, 1981) and levels of inquiry (Schwab, 1962). A priori, I populated this with science process skills (Phaeton & Stears, 2016) and skills from the Science Skills Inquiry associated with the different stages of inquiry. Further relevancy and nature of science were dummy coded for each item. Table 3 shows an example of what this matrix could look like in this analysis of examination items. For example, an item might be categorized as "confirmatory-analysis, relevant," if learners are being asked to identify relationships on a graph of driving accidents and time of day. This coding procedure allows for nuanced exploration of items teachers use to plan their lessons.

Table 3

Matrix for examining expectations for different stages of inquiry (Tamir & Luneta, 1981, Phaeton & Stears, 2016) and levels of support expected (Schwab, 1962) with example tasks from science process skills and the inquiry task inventory

Stages of Inquiry	None	Confirmatory (Teacher Directed)	Structured (Mostly Teacher Directed)	Guided (Mostly Learner Directed)	Open (Learner Directed)
Content knowledge					
Planning and Design		Describes a procedure for the experiment	Predicts results Ability to create a testable hypothesis	Ability to design an experiment: identifying variables	Development of proper controls Proper alignment of experiment and hypothesis Designs observations/ measurements Designs experiment
Performance		Manipulates apparatus/specimen Measures/observes Draws/labels diagrams Records results			Learners determine which procedures to use
Analysis and Interpretations		Interpreting data: gels, blots, microarrays, etc., graphs and tables; Infer plausible reasons for failed experiments and determine accuracy of data	Communicates conclusion, generalization Create the appropriate graph from data Explains relationships	Problem solving/ critical thinking Communicating results, limits, assumptions	Constructing an argument
Application			• Predicts on basis of obtained results • Predicts beyond the data/uses given data	Defining Operationality	Applies technique to new problem
Ambitious Instruction: Possibility/Encouragement to build in Value Beyond School through magnitude coding — "Relevant outside the classroom" scored as a dummy code • Science ideas are connected and applied to a number of different phenomena • Relevance of science concepts to our lives --"Nature of Science" as a dummy code • Items that directly address the nature of science (specific components in table 2)					

This study analytically explored the extent to which learner-centered aspects of science instruction are expected by policy makers, and how teachers make sense of these expectations. I analyzed the values underlying these expectations from the policy-as-written and policy makers perspective, as well as the values underlying teachers' sensemaking of pedagogical expectations. I provided evidence of whether these expectations are changing over time. Alone, that

information is highly relevant to curriculum design; furthermore, it supported the development of interview questions for my second round of interviews with teachers and the interviews with policymakers at the national level.

Tracing through History

I explored the historical context for the current state of K-12 curriculum and instruction policy in Namibia and the region given that "education was seen as a key to nation building in sub-Saharan Africa" since independence movements began to yield liberty (Nudzor, 2015, p. 109). Analysis of the vertical axis required the tracing of threads back to at least the African independence movements of the 1960s, 1970s, and 1980s, when themes of democratic nation building and African empowerment through education emerged. These threads of historical analysis pulled mostly from academic, policy, and news sources that analyzed the glocal policyscape of quality education in Namibia, to efficiently include multiple perspectives in my analysis. Further, the foundational document from the MOE, *Toward Education for All* (1993) was a central point of comparison for later documents, to provide context from the time around Namibian Independence.

Tracing into the Future

There are clear parallels between the Namibian life science policyscape and policyscapes in other countries in Sub-Saharan Africa. This analysis of present-day Namibian life science education provides important context for policy decisions regarding current reform efforts, underway since 2016 in the J.S. phase and rolled out in S.S. for the first time in 2022. The content and implementation of the reforms indicated there were multiple centers in the Namibian policyscape. My critical policy analysis explored what was missing from these centers, and how

these gaps might be filled in ways that promote justice and decolonize the education system (Tabulawa, 2003).

This research on the past and present is meant to address the problem of better enacting a community's values by supporting them with relevant policy. Studying the past and present will reveal values currently embedded in policy and instruction in this policyscape. It will also likely reveal how policy can be leveraged to move the system of education in Namibia toward closer alignment with the values of the country. To identify possible policy recommendations for Namibia, this analysis contextualized potential practices and policy solutions.

Trustworthiness and Validity

Trustworthiness in this CCS approach comes from the credibility, dependability, confirmability, and transferability that I generated as the tool of analysis (Nowell et al., 2017). As recommended for all naturalistic inquiry, I maintained an audit trail through memos, digital records of codes assigned to specific data points, and detailed descriptions of the threads and implications using examples and non-examples from the data. I also developed visual representations of connections in the policyscape in multiple formats to illustrate findings to explore disconfirming evidence and alternative ways of organizing my data (Cameron, 2022). Continuous application of tracing comparison was well documented in memos and codes in NVivo.

Fine grained syllabus and examination analysis was coded with another expert for 15% of items. We achieved over 90% overlap in the ways we were applying codes for the quantitative analyses. For the qualitative coding, another researcher and I conducted consensus coding on representative documents from the national and international levels of the policyscape (Creswell & Creswell, 2018). We were able to agree on the codes applied to identify content discussing

tensions, quality content, teaching or learning. I discussed multiple visual tools with experts in the field of southern African science curriculum as well.

Limitations

I did not include learner voice in this attempt to define quality learning. Logistical constraints from Covid-19 made data collection in Namibian schools and communities impossible between 2020 and 2022. This key limitation means that I am not claiming to conduct an ethnographic study to examine learners' culture or experiences in the education systems. Future research should include the emic perspective of the learners who experience the Namibian life science policyscape, to give them a voice in policy formation (Klapperich, 2022). However, emic perspectives of teachers and policy makers provided important insights into the values in the policyscape that potentially shape teachers and instruction.

Limits of Control

The CCS approach was built to be flexible specifically because different contexts and different questions require different tools for data collection and analysis. Researchers cannot and should not attempt to remove this context, but instead should embrace it (Bartlett & Vavrus, 2017). Instead of trying to control for what makes each situation unique, I have compared contexts to see what can be learned across and within them.

Significance

As a *problem*, the humanization of education through learner-centered pedagogy will never be completely solved (Penuel et al., 2020). There will always be opportunities to embody this value more fully. This problem is in constant flux because society/ies are in constant flux. This research serves to contextualize the problem in the current glocal context, to provide insight into the connections between and within contexts of learning.

There are dangers in critique without action and work. To truly employ a critical policy analysis approach, the outputs of this dissertation must be actionable for people in the Namibian policyscape, because critical analysis is meant to be transformative in orientation. My data has yielded policy recommendations to more powerfully center empowerment and people in the Namibian policyscape. Using critical policy analysis, I positioned myself to synthesize suggestions that could address challenges and tensions in the Namibian life science policyscape and promote a locally derived definition of quality instruction.

I strove for rich descriptions of my data that achieved transferability for readers from related contexts, even if these relationships are unexpected (Sikenyi, 2022). These rich descriptions have allowed me to "draw broader conclusions from rich sources of data without overstating the findings or homogenizing the identity of research participants" (ibid, p. 82). Readers from outside the Namibian policyscape should be able to use my descriptions to determine if the conclusions I arrived at are applicable in their context. All 16 countries in SADC work together as a development community to improve education in the region (du Toit & Gaotlhobogwe, 2017). If science educators or education policy experts in the region see my conclusions or policy suggestions as applicable, I hope that this will spark collaboration.

Critical policy analysis conducted through a CCS compels researcher to "fight hard to expose [inequity] and offer an alternative grounded in justice" (Diem & Brooks, 2022, p. 5). The interrogation of the Namibian life science policyscape contextualizes teaching practices and expectations in the global and local contexts that maintain and subvert dehumanizing practices in schools. By breaking with traditional frameworks of research, researchers using critical perspectives "question the very nature of policy, its formation, and assumptions about its impact"

(Young & Diem, 2017, p. 2). I feel I have identified plausible alternative frameworks that can guide reforms toward local values and humanizing, empowering pedagogy.

The dissertation is part of a new research paradigm in African educational scholarship (Nudzor, 2015). My research design interrogated value systems underlying policy to "thoroughly discuss… reasons for [policy's] failure to fulfil their pledge" to provide quality education (ibid., p. 109). Empirical analysis of the underlying values of policy also promotes deeper normative understanding of the "socio-cultural, economic, geopolitical, and discursive contexts" of quality instruction in Africa and beyond (ibid., pp. 109-110). Integrating the glocal policyscape of Namibian life science education in one analysis creates opportunities to promote an alternative policy environment built on local values that empower learners.

For broader implications of this dissertation, this case study entails a unique context for examining policyscapes and fostering solutions to problems existing at more existential levels of discourse. "The Namibian experience of the dynamics between the initially existing, extremely conservative context and its educational practices and the commonly accepted need for transformation creates a unique example for the study of how forces affecting [change] processes operate" (Dahlström, 1999, p. 148). To bring a humanistic response to the challenges of globalism, I hope that Namibian educators will be invited to the policy development table. This integration of Namibian teachers' sensemaking about what it means to be a good teacher into national policies exist could hopefully cause tapestry threads to shift Namibia toward a policyscape harmonized with the people's values.

Chapter 5

Development- and Standards-Centered Policy

This chapter examines the interplay between national and international level policies in the J.S. Life Science policyscape in Namibia. Over the first 30 years of independence, national policy, actors, and organizations emphasized democracy, development, and standardization, and advocated for learner-centered pedagogy to democratize the classroom. In addition, the national level of the policyscape has closely reflected the development principles and values as those emerging in the international Education for All movement. In both Namibian and UNESCO policy since Independence, education centering development have overridden calls for democratized, learner-centered teaching as it has in, Botswana (Tabulawa, 2003).

There was a thread of standardized content and learning that do not support learner-centered, democratic education. Since the *Dakar Framework* in 2000, the World Bank has taken a more central role in funding subsidiaries of UNESCO, specifically, the UNESCO Institute for Statistics (UIS; Elfert, 2023; Tikly, 2017). These institutions have pushed for measuring learning according to external standards, and Namibian education policy has followed suit.

The national curriculum was reformed in 2016 to benchmark the grade 11 and 12 examinations to Cambridge International Standards. These shifts toward external content impacted lower grades' syllabi as well. In the *J.S. Life Science Syllabus* for grades eight and nine and examinations in grade nine, there was a significant ($p<0.005$) drop in the number of relevant basic competencies, required practical activities, and examination questions. This was accompanied by a significant drop in expectations for inquiry overall across the national policy documents. Expectations for application, a stage of inquiry that is particularly discussed in the Namibian policyscape, dropped significantly in the syllabus and insignificantly in the

examinations. In the examinations, there was a significant increase in questions addressing analysis as a stage of inquiry. This was accompanied by a drop in analysis items in the syllabus.

Education for employment is a major thread in the Namibian policyscape. There is agreement in the policyscape that the government is responsible for ensuring that their young people will have the skills in employable areas. This is clear in *Vision 2030*, published in 2004 by the inaugural President Sam Nujoma, and reiterated in *Harambee Prosperity Plan II*, by current President Hage Geingob in 2022. However, the new national curriculum moves further away from empowering education for young people for the fields that are available and needed in their communities, like healthcare, education, agriculture, fishing, construction and infrastructure development, and other relevant industries.

Another Independence-era promise from the Ministry of Education, Arts, and Culture (MOE) was that the national curriculum would be taught using learner-centered methods (*Toward Education for All*, 1993). This is a thread that breaks and frays throughout the policyscape. Learner-centered education is described as:

> Learner-centred education presupposes that teachers have a holistic view of the learner, valuing the learner's life experience as a starting point for their studies. Teachers must therefore have sufficient knowledge and skills to be able to interpret syllabi and subject content in terms of the aims and objectives of Basic Education and to relate these to the learner… A learner-centred approach demands a high degree of learner participation, contribution, and production. Teachers are key to the development of our country and are important resources to their communities. It is therefore essential that teachers maintain close contact with their communities and assist learners in integrating school and life outside the school." *Toward Education for All* (1993, p. 59)

The current *National Curriculum for Basic Education* (2015) in Namibia makes the connection between developing a knowledge-based society and a learner-centered approach to education explicit. The thread of learner-centered education has deep ties to a development-centered definition of quality. These ties are somewhat obscured by the technical-rational language used to describe learner-centered education that glosses over the deep differences in epistemology upon which it is based. In the new *National Curriculum,* learners are expected to "develop the competencies, attitudes and values needed for full participation in society… and in a knowledge-based society, this extends to lifelong learning" (p. 2). The curriculum also merges learner-centered teaching with a goal of competency, described as learners developing "a combination of knowledge with understanding, specific objectives and skills, and the will to use them appropriately" (p. 36).

These broad expectations for learners and teachers are easy to integrate into practice without accommodating, or even considering, the epistemological underpinnings of constructivism. This has drastic implications for implementation (Spillane, Reiser, & Reimer, 2002). "A holistic view of the learner" is also not supported by the standardization-centered definitions of quality teaching that deny agency for teachers and learners to decide what content is included in a quality education (*Toward Education for All*, 1993, p. 56).

The content for J.S. Life Science has moved away from learners' lived experiences, a trend consistent with the thread of standardization. While there was a clear emphasis on practices to maintain ones' health and the health of their families in the pre- and post-reform syllabus, there was only one mention of the economy in the basic competencies, and nothing about employment using the content of life science. Content was externally set to prepare learners to participate in a global education system to which most Namibian children will never have access.

Expanding access to this system is vital to Namibian development, without a doubt; that is not the extent of the nation's mandate for education.

There are some signs that the international community can be swayed by inputs from countries like Namibia, and this will be explored later in the section discussing a rhetoric of "learner-centered education," "knowledge-based economy," and a "knowledge-based society." A "knowledge-based society" was introduced in this policyscape by President Nujoma in 2004's *Vision 2030*, and repeated in the *Incheon Declaration and Framework for Action on the Implementation of SDG* 4 that UNESCO, the World Bank Group, UNICEF, UNDP, UNFPA, UNHCR, UN Women, and the ILO[2] published in 2016. In it, they replaced the economy-centered term used in documents as recently as the *Global Education for All Meeting Muscat Agreement* in 2014 from UNESCO and in the preceding *Dakar Framework for Action* published by the Global Education for All Forum and UNESCO in 2000.

Bidirectionality of at least some instances of policy is reflected in Figure 1. The decentralization model in Chapter 2 calls for feedback loops between different stakeholders in policy to continuously address and reflect the needs of communities and the global system (Dahlström, 1999). Rhetoric shifts support the concept of feedback loops fuel to prioritize the economy to prioritizing people at the international level, overtaking previous shifts in regional and national rhetoric toward emphasizing people.

The application of language has also been redirected to reflect global priorities rather than local ones. For example, learner-centered language was used frequently in national and regional documents from the African Union and the Sub-Saharan Conference of Education for

[2] United Nations Educational, Scientific, and Cultural Organization, the World Bank Group, United Nations Children's Fund, UN Development Programme, UN Population Fund, UN Refugee Agency, UN Women, and the International Labor Organization

All to integrate democratic action into the fabric of African schools. This was reflected in the *Dakar Framework* (2000) from UNESCO in the sections for regional frameworks from Asia and the Pacific (centering the child), Latin America (centering the family[3]), and Africa (centering the learner). The European framework includes strong references to the role of democracy in schools to promote learning and peace. The *Incheon Declaration and Framework for Action* (2016) from UNESCO did not include regional frameworks. There is also a drastic reduction in references to democracy and child-, learner-, or community-centered education.

One crucial difference between the Namibian policies and international policies has been the interest, beginning at *Vision 2030* (2004), in developing a knowledge-based *society*. President Nujoma recognized the connection between knowledge-based economies and the "industrial nation, enjoying abundant prosperity, interpersonal harmony, peace and political stability" that *Vision 2030* lays out (2004, p. 1). However, he quickly pivots to refer to Namibia as a knowledge-based *society*.

While the economic underpinnings of the knowledge-based society are clear in *Vision 2030*, it encompasses goals for non-economic transformations being undertaken to support health, equity across many spectra, infrastructure growth, peace, and stability. Immediately in laying out the goals for a knowledge-based society, President Nujoma identified that "a totally integrated… high-quality education and training system" was necessary to achieve the wide range of goals (2004, p. 30). This program needed to be unified and flexible to meet development goals and prepare learners for "prosperity, harmony, peace, and political stability" in a "knowledge-based society" (ibid., pp. 1, 9). Nujoma also described the importance of

[3] The Latin American focus on family is reminiscent of ujamaa, the concept of familyhood and responsibility that guided independent Tanzanian education and social policy under President Nyerere (Sakata, Oketch, & Candappa, 2021).

qualifications required by teachers to perform to an international standard. The policyscape is not able to balance following a rigid protocol for credentials with integrated flexibility as it is currently structured. Rather the emphasis on standards is more implemented in practice.

Namibia recognized the importance of a knowledge-based society in attending to human well-being beyond what is achieved through engagement with the global economy. Namibian development is still based on the "keystone" of social progression, "to deliver on the promise of prosperity for all, the social progression outcomes demand a social compact and enduring partnerships between Government, development partners, business, academia and civil society including the youth" (*Harambee Prosperity Plan II*, 2021, p. 12). Prosperity for all in the *Harambee Prosperity Plan II*, the descendent of *Vision 2030*, integrates a democratic participation in neoliberal capitalism with a "people-centred approach to development that aims to ensure improved quality of life for all Namibians, especially the most vulnerable members of our society" (p. 47).

Meanwhile, the international community shifted to language highlighting a knowledge-based society in the *Incheon Declaration* (2016) from the knowledge-based *economy* in documents from the *Dakar Framework for Action* in 2000 to the *Global Education for All Meeting* in 2014. This indicates that there is some bi-directionality in policy discourse sharing, but neither *Vision 2030* nor the *Incheon Declaration* outline differences between a knowledge-based economy and knowledge-based society. However, I found specific descriptions of a knowledge economy from the World Bank: This economy would be "built on four pillars: an educated and well-trained population; a dynamic innovation system; an established information and communications infrastructure; and an economic and institutional regime that is conducive to the creation and application of knowledge to promote development" (World Bank, 2005, p.

ix.). The emphasis on the economy as central to development illustrates the capitalistic nature of democratic development from a modernization lens (Tabulawa, 2003).

Instead of providing specific descriptions of quality education, *Vision 2030* lays out the broad national goals for society and echoes international development discourse. There is some conflation of economy and society, where the differences between the needs of the two are not clear, and this allows policy makers to adopt new ideas in way that are superficial or even directly antithetical to one another (Spillane, Reiser, & Reimer, 2002). This lack of clarity seems to have left ambiguity about how new ideas tied to development are different from the systems which existed before; the intentionality of this ambiguity is contested, as it allows implementors to enact bias toward their prior beliefs (Spillane, Reiser, & Reimer, 2002; Tabulawa, 2003).

The implementation of society and wellbeing into national policy discourse has not brought about demonstrable changes to support wellbeing through education policy during this reform period. To join the developed, knowledge-based societies abroad, Namibian policy very closely follows a pattern of prioritizing content knowledge from the developed West and attempts to drop in learner-centered education as a means of encouraging participation in neoliberal development paradigms. This reform cycle, as relate to quality teaching, learning, and content, have prioritized schooling for continued schooling, rather relevancy or applicability.

The World Bank acknowledged the nation's goal to "rapidly transform into a high-income, and a more equitable, Knowledge Economy… motivated by the dual need to improve the local investment climate and accelerate growth" (p. xiii). The knowledge economy is the medium in which these educated individuals should be applying their skills. However, the World Bank concluded that the government was "too weak to effectively play its expected role" to transition to a Knowledge Economy (p. xiv). The World Bank points to low school readiness,

unqualified teachers, ineffective professional development for teachers also "limit the teachers' effectiveness in implementing the official curriculum", too few textbooks, and "overloaded curricula" as barriers to enacting quality education (World Bank, 2005, p. xv). Those are good, technical explanations for a lack of quality, but we must also consider value-oriented tensions among definitions of quality and goals for education.

Figure 1 shows the international and national conditions for policy making and setting the national agenda (Dahlström, 1999, p. 148). Dahlström argued that professional practitioner theories operated in an environment that is intended to be cyclical, with practice at all levels that pass through conceptual filters to become a national agenda, and then the national agenda is disseminated back through conceptual filters into the practices. This same theory seems to be what is occurring with defining quality education in Namibia.

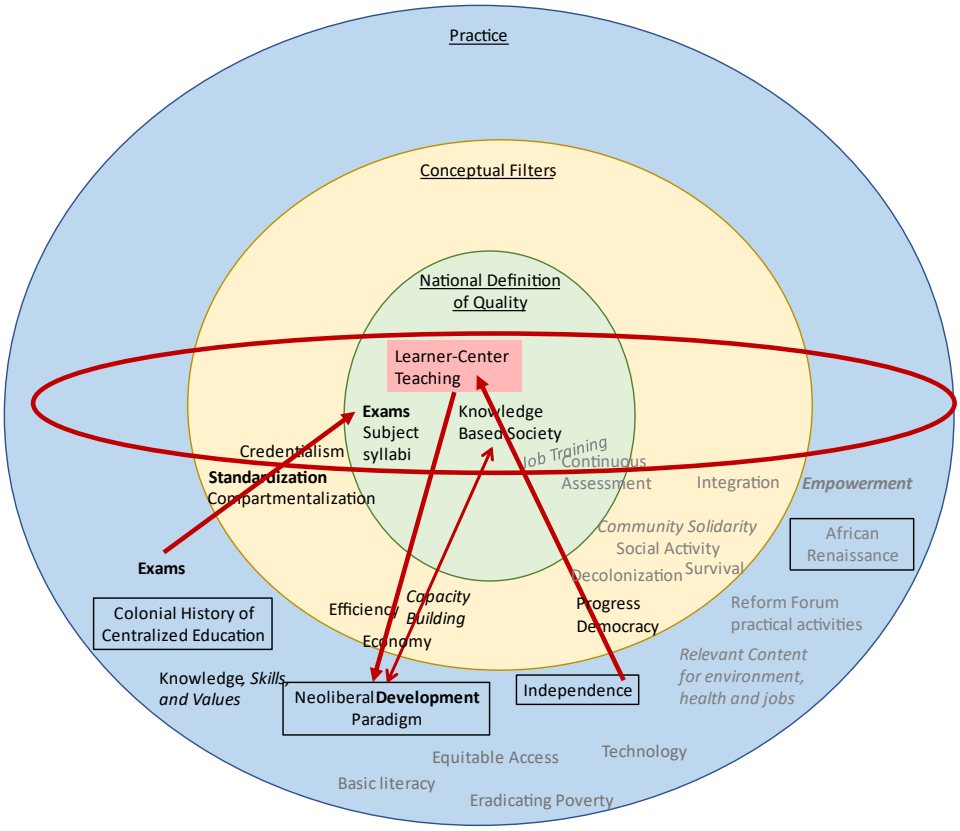
Using Dahlström's decentralization model of policyscapes, the international and national levels are intricately connected to one another bidirectionally. Language from Namibian Independence to promote learner-centered teaching was taken up in international practice, redirected toward the global development paradigm, and removed from policy. Salient conceptual filters at the international level are capacity building, economic priority, standardization, efficiency, credentialism, and progress. Many definitions of quality, especially from the regional and national levels (e.g., Sub-Saharan Conference on the 21st Century African Renaissance supported by UNESCO, *Reform Forum* from NIED, and decolonization scholarship), are not enacted in the Namibian policyscape, though they are present in policy.

Democracy is also a conceptual filter and a salient thematic thread, rather than a practice in this policyscape. The policyscape heavily emphasizes the importance of examinations, standardization, and national development. These messages have been consistent, with current

trends in the national policyscape echoing the increased emphasis on standardization in the definitions of quality education put forward by the current leadership of the Global Education for All Forum at UNESCO and the World Bank Group (Elfert, 2023; Tikly, 2017).

Figure 1

Decentralization model of international policy interactions with the national agenda



Note. The arrows represent direct flows from international and national practice to the national agenda defining quality education, and from the Namibian national agenda to international practice. Independence was a key event that led to an emphasis on participation in a neoliberal development paradigm that emerged in the 1990s. Gray concepts are discussed in policy and practice, but do not get emphasis in the national education agenda. Adapted from "Transforming teacher education for a democratic society: The case of Namibia," by L. Dahlström, 1999, *Teaching and Teacher Education* 15. p. 148. Copyright Elsevier Science Ltd.

National-level actors have provided their perspectives on the purposes of education, teaching, and the current reforms in curriculum. Their meaning-making is helpful in contextualizing the purposes attributed to policy by their constructors. Interestingly, none of the policymakers in my analysis considered wielding their power to change any of the policies that prioritize examinations over empowerment. While my analysis will not cover this interesting pattern in my data, I found it worth noting, because it could indicate that these national actors do not feel a sense of agency over policies. This condition is unlikely to support deep reform because there is no shift in ownership over reform from the national government to educators in communities (Coburn, 2003). I will go into deeper detail about how teachers take ownership over their role in Chapter 6.

The rest of this chapter will explore how the international and national policyscapes interact to define quality education in Namibian J.S. Life Science. First, these levels of the policyscape center the development agenda set out by the United Nations and mirrored in national policy. The next section includes the evidence for this definition of quality that centers development. Then, I argue that standardization is a center for defining quality that overlaps with the development-center in many ways. I conclude the chapter by outlining the tensions involved in maintaining these centers of educational quality.

Development-Centered Policy for Teaching

"Sustainable Development Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all."

-*Incheon Declaration*, 2016, Cover

Independent Namibia developed its policy for education in ways that resembled the *Jomtien Declaration* that started the UNESCO Education for All movement in 1990 (Amukugo, Likando, & Mushaandja, 2010). From the beginning of the nation, the education system was built upon the four goals of access, equity, quality, and democracy.

All the agencies and a few of my participants directly linked Namibian education to SDG4 from the UN. The intimate overlap between the national and international discourse is highlighted by the poster in Figure 2, hung in the foyer of a school in rural Namibia. The Ministry of Education, Arts, and Culture hung this poster to explicitly connect schools to the other 16 Sustainable Development Goals, with SDG 4 at the center of the model. The explicit message is that a major purpose of education is the development of the whole nation.

Figure 2

Sustainable Development Goal 4 Targets hung at by the Ministry of Education, Arts, and Culture at a Namibian Secondary School

The African Union's *Continental Education Strategy for Africa 2016-2025* also emphasizes sustainable development in its mission to "reorient Africa's education and training systems… to nurture African core values and promote sustainable development" (p. 7). Development-centered definitions of quality education are laudable for myriad reasons, including fueling the expansion of access to schooling. Schools have become vital community resources in supporting access to electricity, internet, food, clean water, and healthcare, and quality education following a delivery-centered definition involves the extension of peace and democracy across oppressive regions. This section will attempt to describe the policy context for and ramifications of the development-centered education that are most salient in the international and national levels of the Namibian J.S. Life Science policyscape.

Control over the Learner- vs Development-Centered Balance

Namibian policy since Independence has been to use education to spread democracy and to use learner-centered pedagogy as a democratic instrument. Learner-centered education[4] has been central to the national pedagogy paradigm. In 1993, the Ministry of Education (MOE) stated that "basic education is learner-centered education, which requires interactive teaching and learning" (p. 59). This early document, *Toward Education for All*, set out an expectation that teachers should "begin with learners' interests and experiences and use them to lead learners toward what is less familiar and not yet understood" (p. 45). This was paired with a recognition that for learner-centered teaching to be successfully enacted, assessment and examination structures would need to adapt to include "several tools for assessing and evaluating progress. It will be difficult, however, to dislodge examinations from their dominating role" (p.86).

[4] The phrase learner-centered is followed by many words in the policyscape, including approaches, classrooms, settings, curriculum, strategies, and education. I will use learner-centered education to refer to general systems and settings, and learner-centered teaching to refer to the enactment of empowering constructivist practices

In *Toward Education for All* (1993), the MOE recognized that democracy and agency over education were connected and needed to be protected. The fight for independence from the Apartheid regime meant that there was no generational knowledge on how "democratic societies operate and the obligations and rights of their citizens" (p.29). The MOE recognized their responsibility to teach learners that "democracy means more than voting. Malnutrition, economic inequality, and illiteracy can be obstacles to democracy that are far more powerful than barriers to participating in elections" (p. 29). Learner-centered education structures were intended to overcome these barriers so that learners could "build, nurture, and protect [democracy]. And they must learn they can never take it for granted" (p. 29). The utility of learner-centered definitions of quality education to empower civic engagement was explicit starting at Independence.

Learner-centered instruction was described at Independence as a tool for integrating more community and learner involvement in setting the curriculum, and a wider range of assessment strategies to determine if effective learning was occurring in Namibian classrooms and "whether or not they provide to all learners a fair opportunity to be selected for additional education opportunities" (*Toward Education for All,* 1993, p. 100). Participation in higher education for all learners was clearly a central part of the Ministry's mission to move from an education system that only worked well to allow elite participation in global education to one that served all Namibians. This emphasis on performance on global and international learning standards has been revived and expanded, and the current reform has included an intentional turn to external determinants of quality content. I will present the evidence for this shift in the next section of this chapter in which I discuss standards-centered education.

The term learner-centered education was not in the initial Education for All policy agenda in Jomtien in 1990. Instead, this phrase emerged in international policy in the 2000

Dakar Framework for Implementation. The Sub-Saharan Regional Framework for Action included in the *Dakar Framework* established the connection between learner-centered approaches to education and democratic values. The regional consortium claimed that learner-centered approaches are vital to "improvement of the teaching and learning environment" (p. 30). The Americas' Framework referred to practices that center families and children, and similar language to center children was present in the Asia and Pacific Frameworks. These regions argued that content and processes for education should be learner and community driven, pulling language, it seems, from countries in their regions to drive their international policy.

"Learner-centered" only appeared once in the *Incheon Declaration and Framework for Action* in 2016. While the *Dakar Framework* mentioned democracy 19 times, mostly in the regional frameworks for all regions, the next iteration from Incheon only has three mentions of democracy. Instead, there was an increased emphasis on monitoring and evaluation "measures to improve the quality and relevance of education and learning" (p. 33). This shift in language from UNESCO does not represent an policy process that reflects a global view on the needs, wants, and goals for education that have been follow up from the late 1990s and early 2000s to now.

The example of learner-centered connections to democracy in the Namibian policyscape are far more complex than a simple international to national flow of policy. The connection between learner-centered pedagogy and a neoliberal development agenda did not start as part of a "broader pattern of mimicry adopted by… policy makers in their attempts to make… education 'look modern'" (Mattson & Harley, 2003 in Weber, 2007, p. 288). Instead, language emphasizing empowering learner-centered education was first taken up by the international community from regional leadership, particularly from Africa, Asia and the Pacific. Regional representatives in the developing world presented learner-centered education as a way to

democratize and expand human agency over their education content, teaching, and learning. Then, in the *Incheon Declaration*, learner-centered, democratic education was replaced by language emphasizing monitoring and evaluating learning based on external standards. This shift in language was accompanied by dropping regional frameworks for education, centralizing control over the agenda at UNESCO at the UNESCO Institute for Statistics (UIS) and the World Bank Group (Elfert, 2023; Tikly, 2017). International policy rhetoric does not include the whole global context. Instead, it is centralized around a standardized global development agenda. When the people being educated and doing the educating have no say in what is being taught or how, they are disempowered from democratically engaging in the education system (Tabulawa, 2003).

Challenges to Implementation of Learner-Centered Instruction

The *National Curriculum* (2015, p. 36) somewhat systematizes learner-centered education for teachers, by laying out steps for planning lessons:

> … The point of departure is always what the learners already know and can do. The next step is for them to acquire new knowledge through ways of working and learning which are relevant and meaningful for them, and finally they need to learn how to apply their knowledge creatively and innovatively. Knowledge is not learnt for its own sake, but must always lead to new understanding and new skills and the creation of new knowledge. At each step of the way, learners must show how competent they are in what they understand and can do… The curriculum and syllabuses describe the competencies which learners should attain, so that teachers know exactly what to assess to ascertain if the learners are progressing and achieving. Learner-centred teaching emphasises the varied processes and learning experiences needed for the creation of knowledge, rather than relying predominantly on the transmission of knowledge by the teacher.

However, the expectations in the syllabus do not support teachers beginning where learners are. Over 65% of the items in the syllabus, between the basic competencies and practical activities, are not explicitly connected to learners' environments. This mismatch between a compartmentalized and standardized syllabus and learner-centered teaching puts a large burden on the teacher to force connections between irrelevant content and learners' lives. Instead, teachers follow the curriculum's steps to occasionally make superficial connections between content and learners' lives, without taking a holistic view of the learner originally called for in *Toward Education for All* (1993).

The *National Curriculum* relies on a definition of learner-centered teaching that would be better called learn*ing*-centered. There is a heavy emphasis on a "broad range of knowledge and skills which are relevant to the knowledge-based society" (p. 41), though the relevancy of examinations and standards is highly questionable, considering my quantitative analysis. These skills are identified in basic competencies in the syllabus, 75% of which do not integrate scientific inquiry skills, and 67% of which do not relate to learners' lives outside the life science classroom. Their purpose is to dictate exactly what teachers should assess. "The curriculum and syllabuses prescribe the competencies which learners should attain, so that teachers know exactly what to assess to ascertain if the learners are progressing and achieving… However, it is intended that the curriculum be learning driven" (pp. 37-41). Namibian J.S. Life Science teachers do not have the agency or flexibility that is recognized in *Vision 2030* as necessary to integrate quality education successfully. The basic competencies do not "emphasize the varied processes and learning experiences needed for the creation of knowledge;" instead, these memorize-able pieces of knowledge support teaching that "relies predominantly on the transmission of knowledge by the teacher" (*National Curriculum*, 2015, p. 37).

Learner-centered teaching has been defined since Independence in highly abstract ways and is not supported in the syllabus and exams, as I will describe in more detail later in the chapter. The current national understanding of learner-centered teaching centers education on national development, and teachers are intended to take on that burden with their learners. However, the goals for democratic participation described in early policy documents, including *Toward Education for All* in 1993, have not yet been achieved, and are made more difficult by the development model now underlying calls for learner-centered teaching while promoting standardization-centered teaching (Tabulawa, 2003).

In national documents, learner-centered teaching has been defined in technical-rational language. This has made it easier to miss the intended democratizing and empowering purposes underlying these practices (Tabulawa, 2003). Authentic learner-centered teaching would "draw on constructivism… [and] assumes knowledge emerges through interactions, experiences, and reflection… knowledge 'is created through a process of new information interacting with the prior knowledge and experiences of learners' (du Plessis and Muzaffar, 2010, p. 45)" (Vavrus, Thomas, and Bartlett, 2011, p. 26). This definition was pulled from a regional UNESCO publication from the International Institute for Capacity Building in Africa booklet on learner-centered pedagogy and reflects a technical-rational approach to defining quality pedagogy. These authors acknowledge that there is dissonance between cognitive, economic, and political rationales for learner-centered teaching within African education policyscapes.

A lack of consistency between depictions of and rationality for learner-centered education across the policyscape allow implementors (teachers and policymakers) to understand it by superficial features that can easily be integrated into colonial and neoliberal structures to support a development paradigm. Learners themselves get left out of the teaching and learning

that is voiced as empowering them. The conflicting messages regarding implementing learner-centered teaching, and how these expectations for teaching are at odds with expectations for development- and standards-centered expectations elsewhere in the policyscape at the national level will be explained in the curriculum validity section at the end of the next chapter.

Trending Toward Development-Centered Education

One consistent message across the international policyscape is the value placed upon participating in global development (Tabulawa, 2003; Weber 2007). This message for development-centered education is echoed in the policies from the UN, the World Bank, and the African Union in the policyscape of Namibian life science. At the national level, developmental models for education in Namibia have also emphasizes the goals of active participation in the global economy and the development of human capital through education since Independence.

The national goals for education are: access, equality, quality, and democracy in all national documents, unchanged since Independence. *Toward Education for All* (1993) made direct references to participation in globalization made a priority at the UN in the *World Declaration on Education for All* (Jomtien, 1990). Namibian education policy has followed a path like the one described in Botswana, in which the national agenda for education emphasized the "learner equivalent of a self-programmable worker" through initiatives for life-long learning (Tabulawa, 2009, p. 39). National policy has continued to reflect international policy emphasis on development in the *Dakar Framework* (2000) and the *Incheon Declaration* (2016), including reducing emphasis on learner-centered or democratic practices as tools for empowerment.

There is evidence that the approaches and values of learner-centered education and economic participation reflected in the Namibian policyscape are in support of liberty, with explicit references to counteracting the history of colonialism to empower its people in the

introduction of *Toward Education for All* written in 1993. As the country has aged, participation in global capitalism in support of the "core zone" deemphasized educational practices that might more fully empower its people (Tabulawa, 2003, p. 11). World systems approaches to development rely on schools to disseminate controlling values and disempower people in the periphery (Tabulawa, 2003). Teachers in Namibia deliver content they have learned from curricula and resources benchmarked to the "core zone" values through Cambridge International.

The dominance of a development-centered educational agenda that has subsumed a human-centered one has fed into standards-centered implementation. This has had major implications especially for the content covered in Namibian schools. A significant drop in relevant content in life science, and pushback from community members on the national reforms, indicate that there are key definitions of quality education missing from a standards-centered approach to defining quality teaching, learning, and content. In the next section, I will explore the ramifications of centering standards in the Namibian policyscape.

Standards-Centered Implementation

The Namibian Ministry of Education, Arts, and Culture (MOE) introduced learner-centered education in 1993 with the rationale that learner-centered education would move the country from educating only the elite to educating everyone in the country. Instead of expanding relevant content and the role of schooling to prepare learners for a wide variety of agentic roles, the expansion of schooling in Namibia has focused on the expansion of schooling to prepare learners only for continued education in the national and global higher education ecosystem. This has had severe implications for the content covered in secondary education in Namibia. Syllabi and examinations have been taken back to external benchmarking evaluators, content facts are still the dominant content of these documents, and teachers are encouraged to continue to *deliver*

content the banking model of teaching and learning (Freire, 1970). Emphasis on standardized knowledge and content has continued to support oppressive instructional practice and subsumed deeper intentions for policy to encourage constructivist, democratic, or empowering education.

At the International Level

Between 2000 and 2015, there was a shift in international focus from accessing schooling to accessing quality education that has coincided with an increased emphasis on data gathering and analysis. This coincides with the increased role of the UNESCO Institute for Statistics (UIS) formed in 1999 and World Bank Group in the Global Education for All monitoring and implementation (Tikly, 2017). These shifts in control over the Education for All movement somewhat sidelined the International Institute for Educational Planning (IIEP), which was created in 1963 to support capacity building through dissemination and the International Bureau of Education, which was independently created in 1925 to promote international cooperation and was led by Jean Piaget for 40 years (IBE, n.d.).

Given Piaget's emphasis on developmental stages in personal learning, it is perhaps not surprising that a similar model for development, with industrialized capitalism at the peak of the trajectory, was adopted by the international community at large until the 1980s and 1990s. In 1999, however, there was a distinct shift toward standardizing the processes of development, with the international community exerting increasing control in defining the parameters for which quality education would be defined and measured (Tikly, 2017). This reduced the agency teachers and communities had to exert over the content and learning experiences they teach.

The international level of the policyscape is demonstrating a shift toward emphasizing the importance of schooling that is needed for further schooling and training. Between the *Dakar Framework for Action* (2000) and the *Incheon Declaration and Framework for Action* (2016),

UNESCO added an emphasis on school readiness. This emphasis was upheld by the World Bank in their report on "Namibia Human Capital and Knowledge Development" from 2005, where school readiness was identified as needed for "adequate provision of inputs" into the learning system (2005, p. xvi).

While early childhood education is outside the scope of this dissertation, I must also ask "what is missing?" from this definition of quality, where four-to-six-year-olds are being identified as unready for schooling. In searching for an answer in my data, I found that between the *Dakar Framework* and *Incheon Declaration*, UNESCO dropped their call to explore ways to "validate and apply home-based, traditional approaches to childcare in parental guidance and teacher training, reenforcing the principle that learning starts at birth" to support "a synergy between technological modernity and traditional values" (Dakar Framework, 2000, pp. 28, 72). The *Incheon Declaration*, on the other hand, does not refer to traditional practices or values at all, and only refers to indigeneity in deficit-oriented terms (e.g., "ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations," 2016, p. 21).

At the regional level, the *Regional Framework for Sub-Saharan Africa* states that "African indigenous knowledge systems, languages and values should be the foundation for the development of African education systems" to "eliminate the dependency on aid in the long term, [by] putting more emphasis on local capacity-building and reliance on indigenous solutions" (pp. 27, 29). This way, schools could be ready for their learners. While expanding access to education is of course a laudable goal for education systems, there is a notable lack of attention given to any other education structures that do not promote participation in the global

formal schooling system. This standardization of childhood is outside the scope here but is a rich concept to be explored in critical policy research.

The World Bank explicitly called for Namibian education to "build a base of trainable workers who can adapt to labor market changes and to demands of KE… [in] a self-educable knowledge society" (2005, p. xv). The self-educable knowledge society is very similar to the concept of a self-programmable learner which Tabulawa (2003) argues is a tool of an oppressive development agenda. The World Bank argued, Namibian learners must improve on their Southern African Consortium for Monitoring Education Quality (SACMEQ) examination results and overcome the high proportion of J.S. learners who do not qualify for S.S. (World Bank, 2005, p. xv). One way that Namibia has overcome that criticism through this cycle of curriculum reform, intended or not, was to combine junior and senior secondary school, so that learners do not need to pass a national exam to continue to senior secondary school (*Structure of Basic Education*, 2016).

National Level External Benchmarking

At the national level, there was an intentional move during reform in 2016 toward benchmarking grade 12 examinations to international standards using Cambridge International consulting services to ensure that learners represent Namibia in international schooling contexts with pride (Witbooi interview, DNEA, 2023; *National Curriculum for Basic Education*, 2016). This benchmarking trickled down to the preceding courses in the biology track, including J.S. Life Science for Grades 8 and 9.

Ms. Witbooi shared that this reform has not been received well by many in the Namibian public, who she claims voice discontent through national media channels like *The Namibian* national newspaper and National Broadcast Corporation's radio and television news. Growing

discontent with the direction of education reform was corroborated by articles and SMS community pages in *the Namibian*, the national newspaper. Her sense is that communities do not understand the importance of maintaining international standards in their schools. Instead, she was disappointed that people called for examinations to be easier or more relevant because they are "missing the bigger picture."

Mr. Tuahepa also spoke to a need to convince the public that the national curriculum reforms are in their best interest. He shared that NIED was also using the national media channels to share the rationale that this new curriculum will make Namibian education "globally fit." These two policymakers were convinced that an increase in externally established rigor would promote Namibian learners' participation in global education systems. They did not acknowledge that community members were not included in setting these priorities, nor that less than 10% of Namibians go to university, but the university spaces in faculties are full. There is precedent for explicit reliance on Cambridge International to exert control over national examinations in the region. Zimbabwe's national Advanced Level examinations were administered by Cambridge until 2002 (Musarurwa & Chimhenga, 2011). Like in Namibia, there has been pushback in Zimbabwe from the public, in newspapers and in public forums, against the localized examinations as not keeping up with the Western world's rigorous standards.

Namibian educators desired that their learners be competitive in international settings and have created an "exciting" syllabus to support international standing (Witbooi DNEA Interview). All that is needed from the standpoint of these national decision makers and regional trainers are deeper understanding of marking procedures on standardized exams (Gurigab & Tuahepa, NIED interviews; Witbooi DNEA interview), increased teacher knowledge on standardized content (Ahrens, NIED interview), and increased passion, discipline, and accountability for teachers to

own their results and classrooms (Gurigab, NIED/teacher; Witbooi, DNEA). The expressed goal of professional developments from these institutions is to increase teachers' capacity for content knowledge so that learners' examination scores will "compare with the rest of the world" (Tuahepa, NIED Interview). Personnel responsible for professional development and examinations are in support of policies to enhance Namibia's global competitiveness.

The professional development of teachers also reflects a priority on international standards, content, and examination, rather than on teaching practice. Most professional development, according to participants from NIED and DNEA, focuses on examination performance and examined content knowledge. This leaves teachers outside national examinations grades 11 and 12 with no training on how to integrate learners' lived experiences into the standardized content (Hausiku, Interview 2).

International benchmarking is designed to maintain a high standard for the content of these exams. In the past, "sometimes they are fair, other times they are not" (Tuahepa, NIED), so the benchmarking to Cambridge International is in place to maintain the international standard of the examinations. However, specific emphases on the examinations and results directly interfere with any authentic enactment of learner-centered pedagogy as defined elsewhere in national policy. Meaningful application and relevancy are not emphasized in the syllabus, the examinations, nor in professional development.

Teachers' Thoughts on the Reformed Curriculum

Looking beyond J.S. Life Science to the next stage of education, teachers do not feel that the new Advanced Subsidiary (AS) level of Biology is relevant for their learners. Instead, those teachers also teaching at the S.S. level were overwhelmed with teaching "crammed content" (Chiweshe, Interview 2) now that "most of what we learned in college is what we cover now in

grade 10 and 11 so we have to be prepared for the content" (Ndumafayo, Interview 2). Ms. Ndumafayo continued to say that "our content is not helping. We need more practical subjects to boost our country. We need to make content relevant. Like OK… Snakes. We need to learn how to deal with bites, or traditional ways of getting rid of them." Ms. Hamutenya and Ms. Hausiku also discussed how much new content had been added to the S.S. Biology Syllabus.

Ms. Hausiku pointed out that professional development focus on the new AS level had implications for teachers who did not teach in grade 12. She said "the new curriculum doesn't help. There are no workshops or training for teachers. And the training that happens is focused on AS, not grade 8" (Interview 2). This was supported by the training that Ms. Gurigab (NIED), had given about marking examinations to AS level teachers. Teachers also expressed a deep need for more time to cover the new content, and their need to teach on weekends and during the evenings to deliver it, especially to integrate practical activities and revise examination content.

While teachers may not agree if the examinations are a good way of assessing relevant or important learning, they do agree that they are a defining feature in their teaching. Ms. Hamutenya expressed this sentiment well, "I tell my learners that as much as learning theory is important, so is knowing the questions. I'm hoping that by June, my syllabus marathon is done. Then we will go through testing strategies. First theory, then question strategies.'

Standardization-Centered Content in the National Life Science Syllabus

Teachers to international agencies agree that learners' examination scores are key to reflecting the content they should know, what and how it was taught, and how much learning occurred. The push for standardized examination data at the international level and the new syllabus and examinations benchmarked to Cambridge International at the national level, point to the centrality of examinations in defining quality education. This is problematic when evaluating

the examinations for other definitions of quality content highlighted throughout the policyscape. For one thing, the examinations at the J.S. level have no practical components, so the ability to assess learners' scientific skills is very limited.

Between the examinations and syllabi, there were statistically different ($p< 0.005$) expectations for inquiry, and these differences were most seen in lower expectations for structured planning, confirmatory performance, and open analysis in the examination versus syllabi, and higher expectations for confirmatory analysis and guided application on examinations. There was more inquiry expected overall in the exams than in the syllabus. It is important to note that 63% of basic competencies and 70% of examination items held no expectations for inquiry in the *2016 J.S. Life Science Syllabus*, which illustrates a high value on recall of content knowledge over inquiry. Furthermore, there was no difference in expectations for relevancy ($p=0.601$), with both examinations and syllabi containing items 36% and 35% relevant to learners' lives outside of the life science classroom, respectively. These findings are also reflected in comparing pre- and post-reform data, with significantly less inquiry ($p<0.005$) and no differences in relevancy ($p=0.265$) expected overall following reform.

Application is frequently considered a marker of quality learning in the policyscape and is a stage of the inquiry process as well. I ran chi square analysis to compare expectations for no inquiry and the stages of planning, performance, analysis, and application, to determine if there were differential emphasis across the stages of inquiry, regardless of learner- versus teacher-control. Between syllabi and exams, there were higher expectations for planning and performance in the syllabus, and analysis and application in the examinations ($p<0.000$). This was also consistent before and after the reforms, indicating no major changes in expectations for application in this reform period.

Isolating the stages of inquiry in the examinations revealed that there were significant drops (p=0.016) in the expectations for overall inquiry and increases in expectations for analysis. Application did not change significantly, in examining the adjusted residuals for each cell, as shown in Table 1. None of the examinations contained expectations for planning stages of inquiry, which would involve structuring experiments and identifying variables.

Table 1

Tabulation of observed frequency, expected frequency, and adjust residuals of stages of inquiry used for chi-square analysis between pre- and post-reform examinations

Pre-Post	No Inquiry	Performance	Analysis	Application
Pre-Reform Exams (2011, 2017)	166	17	30	9
	156	17.6	40.9	7.5
	2.4	-0.2	-3.1	0.9
Post-Reform Exam (2020)	82	11	35	3
	92	10.4	24.1	4.5
	-2.4	0.2	3.1	-0.9

Table 2 isolates the syllabi that teachers draw on for their classroom content and shows that there was a significant drop in expectations for relevant content after reform (p=0.025). This has left teachers with content less connected to their learners' lives, with bigger gaps between the content and the applications of it in learners' lives that teachers must overcome.

Table 2

Tabulation of observed frequency, expected frequency, and adjust residuals of relevancy expectations used for chi-square analysis between the 2010 and 2016 Life Science Syllabi

Year	Not relevant	Relevant
2010	240	148
	253.6	134.3
	-2.2	2.2
2016	200	85
	186.3	98.7
	2.2	-2.2

Furthermore, in isolating inquiry in the syllabus, there was a significant overall drop ($p<0.000$) in expectations for no inquiry and application, as seen in the high absolute values of the adjusted residuals for the 2016 syllabus expectations for these categories. There was an increase in expectations for planning and performance, which did not offset the drops in analysis and application expectations. This is illustrated in Table 3.

Table 3

Tabulation of observed frequency, expected frequency, and adjust residuals of stages of inquiry used for chi-square analysis between pre- and post-reform syllabi

Year	No Inquiry	Planning	Performance	Analysis	Application
2010	259	15	67	38	9
	245	24.2	80.1	32.9	5.8
	2.3	-3	-2.5	1.4	2.1
2016	166	27	73	19	1
	180	17.8	58.9	24.1	4.2
	-2.3	3	2.5	-1.4	-2.1

These quantitative differences illustrate that the content in the examinations and syllabus for life science are not aligned with respect to inquiry, with greater expectations for inquiry in exams, and a significant drop in expectations for inquiry and specifically application and analysis in the syllabi. Expectations that content be relevant to learners' lives have dropped in the examinations and the syllabi. While the two documents are aligned with each other in defining quality content as content knowledge and recall, this does not support the application of scientific skills and values or relevancy that are also considered essential for quality education. This reform did not significantly increase support for teachers to enact quality instruction outside of the standardization-centered definition of quality.

Standards-Center Education in Tension with Learner-Centered Approaches

The *J.S. Life Science Syllabus* provides guidance on enacting learner-centered teaching that is not promoted in the rest of the syllabus regarding content and assessment. To enact learner-centered teaching, teachers should "value the learner's life experience as the focal point of learning and teaching. Teachers should therefore *select learning content* and methods on the basis of the learners' needs within their immediate environment and community" (*JS Life Science Syllabus*, 2016, p. 1, emphasis added). However, this is not possible when content is dictated by the same document. Rather than centering the learner, the syllabus expresses an aim to "impart the knowledge, skills and attitudes that contribute to the development of society" (*JS Life Science Syllabus*, 2016, p 4). Again, we see a development-centered expectation behind quality teaching supported by standards-centered implementation.

The lack of clarity over what, who, and how content is included in the classroom is presented as an internal contradiction in the syllabus, with topics broken into objectives and basic competencies, while at the same time recognizing "the learner brings… a wealth of

knowledge and experience gained continually from the family, the community, and through interaction with the environment. Learning in school must involve, build on, extend, and challenge the learner's prior knowledge and experience" (ibid., p 4). This internal contradiction makes bringing any truly democratic or impactful teaching into the classroom very difficult without any explicit support for the teacher to build these bridges.

Instead, teachers can try to "identify the needs of the learners, the nature of the learning to be done, and the means to shape learning experiences accordingly. Teaching strategies must therefore be both varied and flexible within well-structured sequences of lessons" (*National Curriculum*, 2016, p. 32). This document provides a more subtle approach to defining learner-centered education in ways that can work inside the heavily imposed content and assessment environment in which Namibian teachers and learners operate. The *National Curriculum* calls on teachers to:

> take on a wider repertoire of classroom roles. These include being a manager and organiser of learning, a counsellor, a coach and an instructor. A variety of teaching techniques need to be used, such as direct questioning, eliciting, explaining, demonstrating, challenging the learners' ideas, checking for understanding, helping and supporting, and providing opportunities for active practice and problem-solving (p. 32)

The practices listed here are not at direct odds with the imposed structures in place, but they also do not necessarily involve deeply integrating a learner's life outside the classroom into the learning content, experiences, and purpose. The list of practices for learner-centered teaching described in the *National Curriculum* contain many practices that fundamentally involve the teacher imparting knowledge, rather than learners constructing it, as advocated for in other epistemological definitions of learner-centered teaching (Vavrus, Thomas, & Bartlett, 2011).

It is likely that teachers integrated new ideas about learner-centered education in ways that were interpreted as familiar to the examination-driven system. For example, Ms. Ndumafayo interpreted learner-centered education to mean that every learner should pass, though she sees that this is “not possible.” Instead of resulting in teaching learners to set goals for themselves and solve problems in their environment, using constructed understandings of their world, development-centered education sets the goal for learners as participation in national development. However, the standards upon which education is compartmentalized in Namibia do not facilitate relevant application of content knowledge, or other aspects of quality education vital to the Namibian policyscape. The next chapter will explore how policymakers and teachers reconcile the multiple messages they receive about the center of education.

Chapter 6

Delivery-Centered Teaching

"Deliver and deliver and deliver."

-Honorable Dr. Abraham Iyambo, Minister of Education in Namibia, 2010

The word "delivery" has weighty connotations in the Namibian context and is steeped in meanings (positive and negative) for what teachers are expected to do. The impactful Minister of Education, Honorable Dr. Abraham Iyambo, called upon teachers and learners to deliver examination results that would make the country proud and enhance its global economic standing during his tenure. He used the phrase "deliver and deliver and deliver" often enough and impactfully enough that it became the lingua franca describing teachers' work in Namibia.

Therefore, in my second interview, it seemed appropriate to ask each of my participants, "What does it mean to deliver?" Answers provided deep insights into teachers' and administrators' views on the role of the teacher in the learning process. In many ways, "delivery" comes to represent the ways teachers understand their role in the classroom from a standards-centered viewpoint on teaching. When pushed further to explain whether the term captured what they felt quality teachers did and how delivery was carried out, teachers and administrators described what, to whom, and why they were delivering and reflected development-centered views of education.

My participants shared their explanations of this key term in the Namibian lexicon to lend insight into their definition of quality teaching. Their priorities inform who or what they value, as well as whether they are cognitively driven toward change or maintenance of the system of delivery, relating to the depth of change and sensemaking about transforming Namibian education (Coburn, 2003; Spillane, Reiser, & Reimer, 2002). I have divided my participants into

three meaningful groups in this chapter, based on their acceptance of the term delivery. The first group is made up of three teachers and one ministry official who fully agreed that delivery described the work of teaching, though they had different ideas about what was being delivered, to whom, and why. The second group consisted of two teachers and the professor at University of Namibia (UNam), and these participants offered different verbs they felt more accurately described teaching. The participants from the National Institute for Educational Development (NIED), Mr. Ahrens, Mr. Tuahepa, and Ms. Gurigab, demonstrated a mixed acceptance of delivery, highlighting that learning is an "independent learning process" that facilitates learner inquiry, while also identifying quality teachers by their ability to deliver examination results that reflect positively on Namibian schools. Participants from NIED used a balance between conceptual filters in the Namibian policyscape to make sense of quality teaching and learning.

In this chapter, I will tease out teachers' and policymakers' sensemaking of these policy contradictions and centers in their practice. It is my intention to explain how standards-centered and development-centered teaching, learning, and content are taken up by teachers in ways that resolve the dissonance between policy rhetoric and intent. Tensions in the policyscape are resolved by each of my participants in ways that follow specific patterns of sensemaking. First, some teachers integrated learner-centered understanding of pedagogy into their classrooms in meaningful ways, by prioritizing content that learners bring from their lives and content that can be applied in learners' environments with positive impact. For these teachers, examination preparation and content were secondary to their learners' interests and application. Second, other teachers resolved their understanding of learner-centered teaching with the examination-centered policyscape through superficial integration of engaging teaching practices that captured learners' attention through teachers' performative delivery of content.

At the national level, institutions aligned predictably with previous literature, where the Directorate of National Examinations and Assessments (DNEA) participant prioritized engaging delivery of examination content. The participant from the historically more progressive UNam called for constructivist teaching and learning practices in which teachers facilitate learners' application of content. At NIED, the three participants were more conflicted about the term delivery to describe quality teaching. These participants, and their institution, which is responsible for teachers' professional development, offer a hopeful glimpse into how Namibian education might integrate the concepts of delivery and deep constructivist education to empower learners as agents of change in their environments.

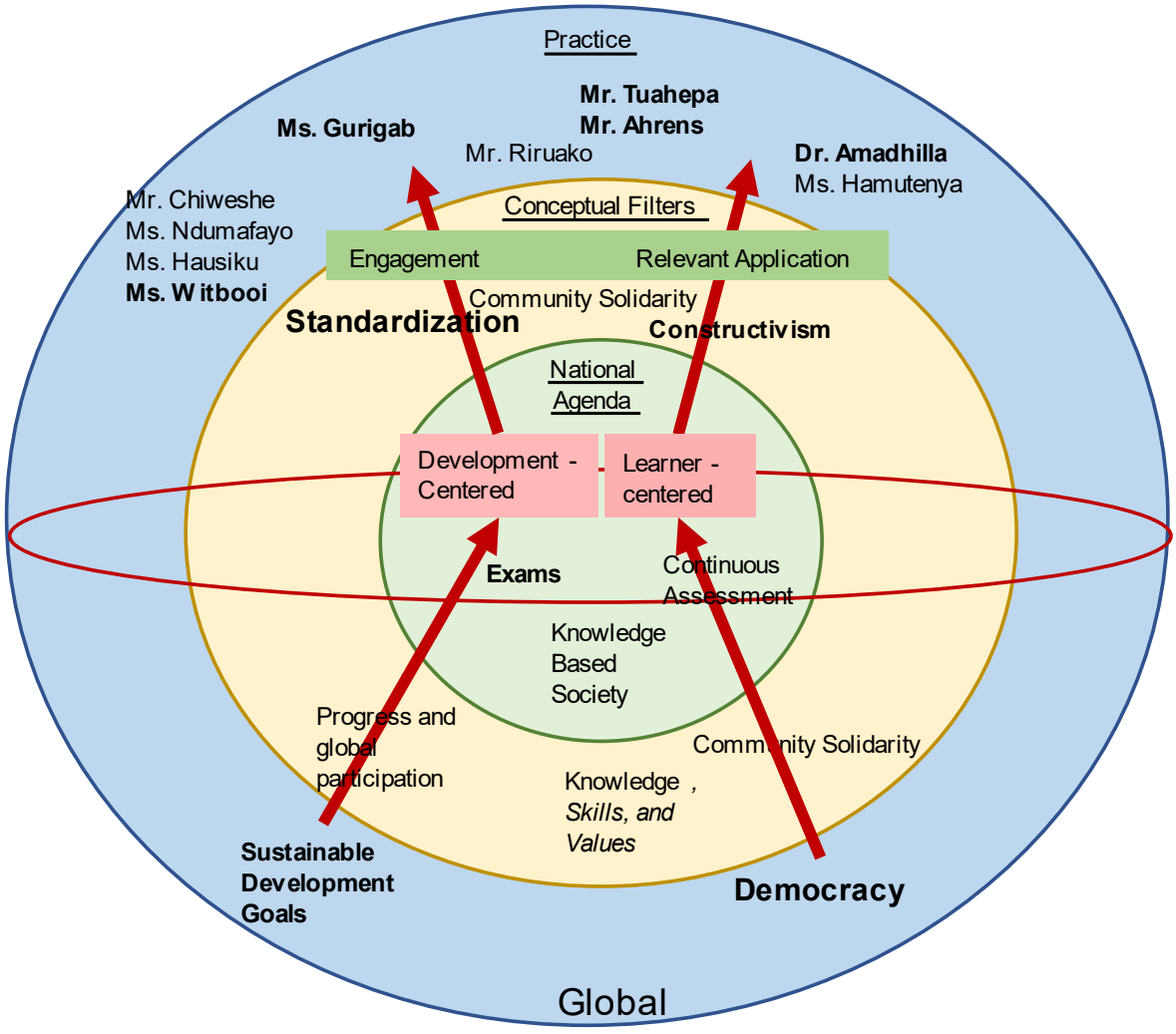
Figure 1 illustrates where each of my participants at the local and national levels made sense of and enacted quality teaching in relation to the broader policyscape. National and regional actors are bolded in the figure, as are the salient conceptual filters and practices influencing the national agenda and local practice highlighted in chapter 5. On the right side of the figure are the participants who practiced quality teaching in ways that aligned with constructivism, empowerment, and a deep understanding of learner-centeredness. On the left side are participants who understood quality teaching in relation to examination content. These two groups reconciled tensions differently, as I will describe in this chapter. There was also a third group, the participants from NIED, who demonstrated a mixed understanding of quality teaching which involved both examination content and constructivist principles of teaching.

There is potential for Namibian science teachers to enact instruction in which their learners are meaningfully applying relevant content, though the examination-centric nature of the policyscape is a strong influence on teachers' and policymakers' sensemaking of what it means to teach with quality. Engagement and application of content were also key conceptual filters

through which participants filtered the national agenda in making instructional decisions. Of importance in this figure are the multiple locations of teachers, the predictable location of policymakers based on their institutions, and the potential of NIED participants to be a bridge between the examination- and learner-centered instructional practices in the policyscape.

Figure 1

Participants' filtering of quality teaching from the national agenda into their practice



In this chapter, I describe how each of these groups of participants was able to conceptualize the national agenda and enact teaching that reconciled tensions between learner-centered and examination-centered approaches to instruction. First, I describe the teacher

participants who described quality teaching to be learner-centered with deep understanding. Next, I explain how engagement was a powerful conceptual filter that allowed teachers to superficially integrate learner-centered teaching practices without the depth of facilitation and application that the term calls for. I conclude the chapter with an exploration of the national-level policy makers' perspectives on delivery and quality teaching and outline the ways in which the participants from NIED in particular provide hope that a bridge can be established between the standardization and constructivist groups in the policyscape.

Teachers' Work: Delivery or Something Else?

Participant teachers in my study were mixed in their affinity for the word delivery to describe their profession. Mr. Chiweshe, Ms. Ndumafayo, and Ms. Hausiku aligned themselves with the term, and, along with Ms. Gurigab and Ms. Witbooi from the national level, focused on engaging their learners during the delivery process. On the other hand, Mr. Riruako and Ms. Hamutenya brought different understandings to the work of teaching. Ms. Hamutenya was also the only teacher whose organizational context and social interaction supported collaboration within and across content areas, and the only teacher who reported that her teaching practice impacted learners' lives (Spillane, Reiser, & Reimer, 2002).

Table 1 presents teachers' definitions of delivery, or quality teaching if it meant something other than delivery, based on what they perceived themselves as delivering and to whom. I also describe their inherent rationale for their delivery deduced from their interviews, and as explicitly outlined. Three teachers agreed that teaching is delivery, and that standardized content from the examinations and syllabus are central to delivery. The other two teachers did not agree that their job was to deliver. Instead, Mr. Riruako and Ms. Hamutenya understood their role as being a role model and integrator of learners' interests and questions in the classroom,

and as a facilitator of learners' application of content knowledge and skills. As I expound on each teachers' approach to teaching throughout the chapter, the social-professional environment and teachers' individual backgrounds seem to be keys in determining how teachers made sense of delivery, constructivism, empowerment, and their role in the classroom.

Table 1

Summarizing points from teacher participants' definitions of delivery

Pseudonym	**Is teaching Delivery?**	**What are you delivering?**	**To whom are you delivering?**	**Why are you delivering?**
Chiweshe	Yes	Syllabus content	Learners	So learners' exams will reflect delivery, learners can apply what they learn
Ndumafayo	Yes	Syllabus content, Spirit of learning, Indigenous knowledge	Learners	So that learners' exams will reflect delivery, learners can apply what they learn
Hausiku	Yes	Exam results	Principal	"… it's been quite hard for me to know if I'm doing well as a teacher. What I learned at varsity is not what's happening in the classroom."
Riruako	No	Teachers model positive social behaviors to develop an appreciation for learning		
Hamutenya	No	Teachers impact and empower learners		

Teachers who agreed with delivery also indicated that engagement was a defining feature of their teaching. These teachers emphasized that they used their teacher-centered approaches to connect content vibrantly and illustratively to their learners' lives, sometimes in creative ways. Mr. Chiweshe, Ms. Ndumafayo, and Ms. Hausiku demonstrated a superficial understanding of learner-centered teaching, describing these practices with language regarding engagement. While their engagement strategies are important in helping learners connect to the content through relevant examples or similes, they did not describe ways in which they allowed learners to meaningfully apply content to their lives or bring in content from outside the syllabus as important additions to their classroom learning. On the other hand, Mr. Riruako and Ms. Hamutenya expressed deep understanding of the importance of integrating content brought in by learners' and applying content in learners' lives in meaningful and impactful ways. The next

section will explore how these two teachers conceptualized quality teaching; then, I will explain how the other three teachers demonstrated their understanding of the value of engaging learners as they delivered content.

Other Conceptualizations to Describe Teaching

Two teachers in my study disagreed with using *delivery* to describe the work of teachers. While aware of the general application of the word in the Namibian context to mean delivering exam results to the school or delivering the syllabus to learners, these teachers did not associate *delivery* with *quality* teaching. Instead, these teachers identified the deep practices of modelling good citizenship, addressing learners' questions as important content, and facilitating learners' relevant application of content to impact their environments as the work of quality teachers. This was different from the other three teachers in my sample, by going deeper than the superficial engagement strategies of my other participants' delivery of syllabus and examination content.

Mr. Riruako came from a non-educator background, with a Bachelor of Science (BS) in computer science, and a professional goal of becoming a professor in computer science in a university setting. He centered himself as a role model for his learners, able to demonstrate to a very rural and forgotten part of the Namibian community that education can improve a learner's quality of life. Ms. Hamutenya preferred the word impacting to the word delivering to describe her job as a teacher. She reflected the definitions of quality teaching presented by Dr. Amadhilla from UNam, who defined quality teaching as facilitating learning experiences. Both teachers had a depth of understanding of the constructivist underpinnings of empowering educational practices (Coburn, 2003). In Ms. Hamutenya's case, this depth of understanding was supported by her school social environment to "consequentially" *impact* her teaching practice (Coburn, 2003, p. 4).

Ms. Hamutenya was the only teacher who did not bring up examinations independently. This different understanding of her job as a teacher was reflected in her conflict with the term delivery being used to describe the work of teachers. Instead, she demonstrated a deeper understanding of what it means to be learner-centered, breaking outside the walls of her compartmentalized classroom to plant orchards of learning, and combine content coverage between subjects. Ms. Hamutenya stood apart from the rest, by implementing peer tutoring as a main form of social learning, working on the weekends with her learners to grow a mango orchard while conducting scientific inquiry investigations about growing rate and environmental factors, and relying on mathematics teachers to help learners and herself learn about graphing and other mathematics concepts in life science. She frequently took her learners on Saturday "fieldtrips" around the school and community to discover biology in their world.

Her context was unique within my participant pool, considering that she has so recently been in courses at UNam, her principal was fostering meaningful social interactions that were harmoniously received by teachers, and her school integrated multiple measures of successful teaching. This thread of multiple measures of success looked like being recognized for effective co-teaching with the life science team and across content areas with mathematics integration. Success also was measured in her interpretation of her job as her learners' successful cultivation of their mango orchard.

Mr. Riruako also did not identify with the phrase delivery, though he acknowledged that he understood how it was used throughout the policyscape to refer to examinations in his definition. Instead, Mr. Riruako explained that he viewed his job as to model what it means to be an educated citizen and demonstrate to learners the "benefits of education." While he demonstrated an affinity for the development-centered definitions of quality education, quality

teaching, for Mr. Riruako, meant putting oneself into a position of high importance in learners' lives. This suggests that he, like Ms. Hamutenya, had alternative definitions of success, as he was looking for signs that his learners were committed to education. He also demonstrated an alternative understanding of the role of content in the classroom, prioritizing learners' questions about non-syllabus content over documented basic competencies and learning objectives. This alternative approach to defining successful teaching and quality content could also be explained by his background as a non-education graduate, having instead completed a bachelor's degree in computer science.

Mr. Riruako: Teaching as Modelling

Mr. Riruako's description of delivery was very focused on expectations for teaching practice, like time-on-task, and formal and informal assessments. This is notably different as a definition, especially since he did not study teaching, and instead is building his definitions of delivery only from his school context as a contract teacher. Overwhelmingly, his definition of good teaching was not centered on the syllabus, though he highlighted these as clearly important activities for his administration. He described his instruction as a mixture of practices, relying often on whole-class conversations and choral responses to questions, while peppering in projects and practicals. Mr. Riruako's definition of himself as a teacher is only tangentially related to delivery, in that he "feels great when he passes on knowledge."

Instead, Mr. Riruako defined quality teaching by his ability to role model successful citizenship and the benefits of education. He put his community at the center of his description of quality teaching. He expressed that he felt a "brain drain happening in the field of teaching. We're losing bright minds to other areas." Mr. Riruako expressed a sense of responsibility for his community, highlighting that he was a top performer from the area in grade 12.

He went into teaching to model how to be a successful learner and illustrate for learners the benefits an education can bring to a community. He recognized the futility in relying too heavily on the motivator "stay in school to be successful." Instead, he noted that learners needed to see the benefits of education from role models in the community. Mr. Riruako explained that the concerns and lives of his learners were important to him, and he created time and space for learners to bring their lives and questions into the classroom. He also stated that it was important to him to model the benefits of getting a good education for his learners, since so many people with higher education leave the rural areas. In some ways, he demonstrated a development-centered mindset that echoes the national discourse of education for development.

Mr. Riruako did not indicate that he felt beholden to the syllabus for content. Instead, he claimed to create a safe learning environment where his learners could bring in taboo topics they are usually unable to talk about. For example, he shared that learners

> "bring their own problems into the classroom, so we can be more learner-centered; Mostly sexuality issues come up a lot and students have a lot of questions about… in our society, as far as gay or homosexuals are concerns, those who feel they may have some of those dreamings in them, they come up when you talk about these issues of.. Then the other ones would be… what else came out last year? Sexuality issues, their backgrounds from growing crops, they'll bring up when we talk in class. But sexuality is important. Teen pregnancy to them most of the time becomes most interesting for them, because you are talking things they are experiencing."

Mr. Riruako recognized the need to focus his class content on learners' fundamental questions about their own lives. He helped his learners form deep and meaningful connections between his community and the content, by modelling critical thinking and application. He noted

that he taught in teacher-centered ways but knew that his choral responses and whole-class discussions were poor representations of learner-centered instruction. On the other hand, he approached content from a learner-centered perspective through his willingness to connect with his learners as individuals and bring their concerns into learning.

Mr. Riruako provides support for the theory that conventional explanations of differences in teachers' understanding of policy do not fully explain policy implementation in the Namibian policyscape (Spillane, Reiser, & Reimer, 2002). Given that he came from a non-educator background, a cognitive framework of implementation would suggest he is primed to "notice, frame, interpret, and construct meaning from policy messages" differently, because he has alternative prior knowledge into which he is assimilating his role as a teacher (ibid., p. 392). This meant he was less beholden to the syllabus for defining quality content for himself and his learners.

Ms. Hamutenya: Teaching as Impacting

Ms. Hamutenya described her role as a teacher as going beyond a narrow definition of delivery. Instead, in her words, "teachers impact; they mold; they don't just deliver, to making an impact on learners' lives." She wanted to spark curiosity about their world, expressing that when learners are asking questions, they are demonstrating learning. She integrated the school's local environment into learning in life science and biology by having her learners germinate mango trees at home and record their germination processes. Then, learners returned the germinated seedlings to the school to provide fruit for the community.

While she also discussed a syllabus marathon and revising content to prepare for exams, these activities were secondary to curiosity and engagement as her main goals for learning. Ms. Hamutenya covered "first theory, then question strategies." During her theory lessons, her learners went on "lots of tours around the school; I want to make things more practical and

change the environment for learners." By being in the environments where biology takes place, learners were empowered to "apply the content to their environment."

In this structure of lessons, Ms. Hamutenya wanted to "provoke their curiosity to get more interested in what is happening around them; to understand the trees and animal behavior, how their body works; to improve their lifestyles—upgrade their knowledge about what is happening around and in themselves." She went beyond engaging learners in a general sense to engaging them in application of content knowledge and skills.

The applicability of content in life science was what appealed to her as a teacher. Ms. Hamutenya enjoyed the diverse range of content in biology, too, explaining that, "These topics can impact the world. Biology is so rich [from the nutrition and safety of breastmilk to caring for and protecting our environment] we can avoid problems and improve the world as individuals." This sense of efficacy carried over into her finding solutions to a lack of resources, even when they were not ideal. She discussed the challenge that biology is such a subject in motion, while textbooks and diagrams are still. She used simulations and videos to introduce students to meiosis and mitosis, and the movement of blood in capillaries, for example. She shared them on WhatsApp and often had many children grouped around her cell phone to see biology in action.

Ms. Hamutenya had the least time teaching of the teachers in my study and worked in a school where her principal encouraged, and her colleagues acted upon, collaborative teaching across and within subjects. She indicated that because she felt weaker with regard to graphing and other aspects of mathematics in life science and biology, a math teacher at her school helped learners hone those skills. She and another biology teacher shared their classes so that each of them taught familiar content. In her school, her learners were "not on mute!"

Ms. Hamutenya's social environment, including UNam Main Campus in Windhoek and her rural school in Eenhana constituency, supported her comprehensive understanding of constructivist educational purposes and her ability to enact meaningfully different instruction than other teachers following a delivery model. This indicates that like in American schools, the social environment provides an important context in the uptake of reform at deeper levels (Coburn, 2003; Spillane Reiser, & Reimer, 2002). Ms. Hamutenya's social experiences illustrate that a social feedback loop to support constructivist teaching practices can empower teachers and learners. Her lecturers, fellow students, principal, and colleagues all reinforced a deep integration of empowering educational practices into her teaching. There is potential to weave these social feedback loops effectively into the broader Namibian policyscape tapestry.

Recentering Learners in Instruction

Data from these two teachers suggest that the scenario for transformation that Dr. Amadhilla presented is taking root in some classrooms. In a hopeful way, when teachers interact with each other and consider instructional epistemologies, their enactment of reform is likely to extend. Mr. Riruako and Ms. Hamutenya highlighted conditions in the policyscape that promote multiple centers of education when defining quality content, learning, and teaching. Both teachers brought learners' humanity into their central definitions of their roles as teachers. Ms. Hamutenya created learning experiences outside the classroom walls to connect to learners' worlds, and Mr. Riruako started his definition of quality content from the content of his learners' questions about the ways their worlds operate. While examinations were still important in their classrooms, social interactions and content applications were also emphasized. Their social contexts and personal sensemaking allowed these teachers to build a balanced understanding of their roles as deliverers, impactors, and models of learning.

Delivering Engaging Teaching

According to my four participating teachers who resonated with the term delivery, quality teaching involved delivering stronger examination results for their learners. In exploring this more fully, I found that the actual practices of quality teaching began to become clearer from the perspective of these three teachers. They indicated that they worked to connect the content to learners' environments and lives and deliver engaging performances to keep their learners' attention, motivation, and interest. Mr. Chiweshe, Ms. Hausiku, Ms. Ndumafayo, and Ms. Gurigab (when discussing her role as a teacher and not as a NEID trainer) all pointed to learner engagement as essential for successful delivery. The practices they reported employing in their teaching include group work in the forms of practice questions and summarizing (memorizing) sections of the textbook or resources for the rest of the class, whole class discussions, demonstrations, verbal explanations of required practicals, and remediation to prepare for examinations.

Each teacher was deeply convinced of the importance of centering learners' interests and questions in their classrooms to engage them in meaningful learning. Overwhelmingly, teachers shared their methods of engaging learners in content while centering themselves in their instructional practice. One notably creative example of this was Ms. Gurigab, who had her learners act out DNA replication and move about the classroom as different molecules. Her learners were able to embody the content, while she narrated (directed) the performance. The meaningful engagement was well integrated, while Ms. Gurigab retained her central authority role.

Teachers prioritized external standardization and examinations in their sensemaking, and this emphasis is supported by the social and policy context which defined quality as examination

performance. Spillane, Reiser, & Reimer (2002) provided a framework to "categorize values, emotions and motivated reasoning in sense-making" based on biases in favor of new information aligned with prior beliefs about teaching as delivery and the "affective costs of self-image which can work against adopting reform" (pp. 401-402). Some teachers developed their identities based on their learners' exam results, and there would be a large "affective cost to self-image" to admitting that their past teaching failed to empower their learners as much as it could (Spillane, Reiser, & Reimer, 2002, p. 402). Furthermore, there were strong cultural elements related to age and authority that also supported a mindset in which "things are working fine as they are," that works against any change in teaching behaviors (ibid., p. 402). Examinations have been used as the main tool to define educational success for teachers and learners. This sole measure of success has not afforded teachers any other perspectives by which to evaluate their and their learners' performance or to change their practice.

Prior knowledge played a big role in these teachers' sensemaking of the expectations they faced from the national and international community. Teachers assimilated messages about standards- and development-centered teaching into their traditional teaching practices, and "misunderstand the new [constructivist frameworks for learning] as familiar" by aligning these reform principles with their already established beliefs about engagement as central to learning (Spillane, Reiser, & Reimer, 2002, p. 396). These teachers and policy makers "missed the unfamiliar and more fundamental transformation" that would be required to enact the policies of democratic and learner-centered education (ibid., p. 399).

Teachers took their role as deliverers of knowledge and examination results very personally. Mr. Chiweshe, Ms. Ndumafayo, and Ms. Hausiku would likely associate a high "affective cost to their self-image" if the reformed teaching did not immediately support high

examination outcomes (Spillane, Reiser, & Reimer, 2002, p. 402). Self-affirmation bias can be very strong when a teacher's teaching methods have developed into exam results, and the self-image cost is high if learners fail their exams, or marks decrease for an individual teacher or at a specific school (Spillane, Reiser, & Reimer, 2002). While also dedicated to their learners, Ms. Hausiku, Ms. Ndumafayo, and Mr. Chiweshe were personally driven to have their learners achieve good marks on their exams to reflect positively on their own teaching. These delivery-centered teachers expressed bias toward their established interpretations of the role of teacher as a deliverer. Mr. Chiweshe even expressed despair over the idea that he would teach without an external syllabus ("Ah, but what would I teach?").

The thread of teachers' role as deliverer was ubiquitous throughout the policyscape tapestry. It heavily influenced the social feedback loops shaping meaning making and implementation of teaching. The organizational context of Namibian teachers has reinforced traditional teaching methods and teachers' sensemaking of their role as delivers (Spillane, Reiser, & Reimer, 2002). National examinations and compartmentalized, knowledge-oriented syllabi have not empowered teachers with the agency they would need to engage in democratic, empowering, and learner-centered teaching. In this policyscape, teachers have not been granted the agency they need to take ownership over reforms to sustain substantial changes in teaching and learning (Coburn, 2003). Instead, formal professional development and informal social contexts in teacher work rooms in Namibian schools have further entrenched the historically situated schooling systems of control established during colonial and Apartheid rule.

Mr. Chiweshe

Mr. Chiweshe demonstrated a reliance on the syllabus in defining his role as a teacher and deliverer. Further, he appeared to believe that the term deliver is appropriate in defining quality teaching. Overall, he described quality teaching as delivery of the syllabus to learners for

them to perform well on exams, reflecting his delivery. Mr. Chiweshe expected himself to "try by all means to complete the objectives of that particular lesson, answer those objectives, and simplify the work for the learners." Mr. Chiweshe pointed to the syllabus as "most important" in dictating the practical activities he integrated into his classroom.

He defined himself as successful when he covered more content in a year than expected. For example, he focused a lot of conversation about his teaching on delivering grade 11 content when learners were still in grade 10. Mr. Chiweshe was upset over times when he did not continue with his learners to grade 11 to receive the credit for their excellent performance, even though he taught "70% of the content for grade 11 before they get there. The teacher in grade 11 gets rewarded at the ceremonies. I won't attend those ceremonies… It's not fair that the grade 11 teacher gets the credit for my work." Mr. Chiweshe invested a lot in his self-image as a teacher, and without any other metrics for defining success, relied heavily on being recognized as the teacher who delivered the content to help learners perform. There is a loose thread of limited sources of success for teachers in this policyscape. In Chapter Seven, I will explore how these loose threads are currently being tucked back into the policyscape and ways to integrate more definitions of success in the sections on Ms. Hamutenya and Mr. Riruako.

Mr. Chiweshe's understanding of learning in a science classroom indicated that he also valued learners' application of relevant content in their lives, like enacting a balanced diet and exercise. Further, he pointed to the role of schooling in preparing learners for careers "based on this information, because [teachers] have to make [content] applicable to their future." Mr. Chiweshe's understanding of quality teaching and quality learning did not overlap with these expectations for application, as he reported his teaching to be very teacher- and exam-oriented. His implementation of learner-centered pedagogy was limited to using similes and metaphors

describing cells as brick walls, for example. He rarely went beyond demonstrating practical activities from the syllabus to his learners.

Mr. Chiweshe demonstrated that teachers can "misunderstand new ideas as familiar, hindering change" (Spillane, Reiser, & Reimer, 2002, p. 397). He glossed over inconsistent ideas and expressed an understanding of learner-centered pedagogy that was consistent with his own definitions of quality education based on very engaging lecture. Rather than fundamental conceptual change, he layered the concepts consistent with traditional teaching (like using relevant examples or asking questions during lecture).

Ms. Ndumafayo

Ms. Ndumafayo's definition of delivery was centered on learners' performance on examinations and getting content to learners. According to her, delivery "is just working hard—in the weekend and afternoons to finish the syllabus." She expressed a deep appreciation for learners' affect impacting learning, and indicated that she felt it was her responsibility to "get them in the mood of learning if learners are not in the mood." Overall, she understood her job as a teacher was to "perform to [her] level ability. [She] wants to produce learners who are better than" she is. This harmonized with the concept of delivery, though she saw herself as also delivering a "spirit of learning" to her learners. Learner-centered teaching, in her mind, meant making content engaging though whole-class discussions and small-group presentations of content (instructional practices also highlighted by Mr. Riruako, Mr. Chiweshe, and Ms. Hausiku). Ms. Ndumafayo, like Mr. Chiweshe, communicated a sense of personal pride in their delivery of examination results. She "revises to help learners pick up what they didn't get the first time. Then [she can] walk with [her] head held high because everyone has come to know [my] school as a good school." For her, delivery was not a problematic way to describe the work of teaching.

Ms. Ndumafayo went beyond examinations in her discussions of what learning looked like, touching on the application of health and human biology concepts to protect themselves. She was also the only teacher who mentioned the benefits of indigenous knowledge to the study of sustainability. She wanted learners to judge between "how the resources were used by our predecessors and compare how we use them now." Ms. Ndumafayo helped learners participate and be active in her classroom. During group work to prepare for presentations of content, for example, she mentioned purposefully selecting at least one outgoing learner to be in each group so that they will help her "pull more out" from their knowledge. She learned these methods from her teacher preparation in Zimbabwe, and when I asked why these methods were the ones they taught she said, "They might just be the best methods. You can't just use one. Learners will get bored. Learners learn in different ways."

To keep her learners in the mood and engaged in the content, Ms. Ndumafayo got their attention using farts as her first example for learning about diffusion, before moving into a class discussion about active transport and drawing diagrams for tonicity. She presented a shallow understanding of learner-centered education which she has integrated into her delivery-centric teaching of syllabus content. Like in Mr. Chiweshe's class, her learners engaged in the receipt of syllabus content from their teachers and textbooks (used to conduct group summaries). Her desire to integrate indigenous knowledge indicated that she might be on the verge of delving deeper into what it means to educate in a learner-centered way, looking beyond the syllabus for content that is important for learners' lives.

Ms. Hausiku

Ms. Hausiku brought up the term delivery independently, using it to describe what is expected of her: "I'm punctual. I follow the syllabus and research on the topics I am expected to deliver." There was a clear focus on her act of delivering the syllabus content that was reflective

of Mr. Chiweshe, Ms. Ndumafayo, and Ms. Gurigab. Ms. Hausiku described her planning for instruction as first consulting the general objectives for the knowledge to be taught; then she "gives real-life examples on the topic, then the specific objectives. I show to reproduce that information." She also acknowledged that learners' backgrounds are at odds with her ability to deliver, because "different learners have different intelligence. [She] tried to accommodate the slow learners. The principal would love if all the learners would pass, but that isn't possible." Instead, she "notices good learners with positive affirmations," and calls on them individually to provide explanations of content to the class. Science content was exciting to Ms. Hausiku, and she emphasized that in science, "we are proving that things work the way they are said to work." She also had her learners complete all the required practicals from the syllabus based on handouts, on which they recorded their observations. While exam-centered delivery according to Ms. Hausiku was not completely possible, she conceptualized her role as teacher as a giver of knowledge, even when "learners are passive." She was the only teacher to refer to learning about learner-centered teaching in UNam as impactful on her teaching.

Bridging Local and National Contexts: Ms. Gurigab

Ms. Gurigab was an interesting case in this study, because she held multiple roles in the Namibian policyscape. As a teacher, she also reflected an understanding of engaging delivery, and as a regional teacher trainer for NIED, she focused her professional development sessions on understanding the content on examinations, so that teachers could "coach" their learners on examination questions. Her approach to engaging delivery was between the two groups of teachers described above, as she worked hard to help her learners embody content through role plays of DNA synthesis, for example. While this engagement is deeper than the similes and

connections that Mr. Chiweshe, Ms. Ndumafayo, and Ms. Hausiku were using, her teaching methods also emphasized the role of teacher as performer and deliverer, as she directed the play.

In her role as a teacher, Ms. Gurigab described delivery as having the qualifications and preparation to "impart knowledge. Make sure the knowledge is received by the learner. What's the point if I am just talking?" She exhibited a strong belief that learners must engage actively with the content to understand it and that it is a teacher's job to "finds ways to creatively deliver a lesson." Ms. Gurigab pointed to her integration of technology through PowerPoints to provide "color, video, and graphics that create motivation." This description clearly illustrates a teacher-directed learning structure, with an emphasis on accessible content. She wanted her lessons to be understood at a deeper level than what was in the syllabus. To do so, she explained that "there first needs to be proper discipline. Rules to ensure there is proper communication."

Ms. Gurigab was quite consistent in her descriptions of her teaching as very engaging, "because as teachers, we have the ability to influence the learners to love the subject." In the video of the role-play she sent, she narrated as her learners embodied the molecules involved in DNA reproduction. In her mind, engagement and understanding were central. She stated, "You can see on their faces whether they are getting it or not. If they are not getting it, then I need to look for other ways and other examples to help them understand." She also integrated checks for understanding in teacher-centric ways. Ms. Gurigab "asks learners at random to try and paraphrase what [she] was saying. [She] can also give them a test to see the result." Her role as a teacher was central to her understanding of delivery, and engagement with subject content was central to learning.

In her role at NIED in providing professional development to teachers in her region, Ms. Gurigab did not discuss the importance of engagement. Instead, she focused on examination

questions and marking practices to help teachers understand effective ways of answering exam questions. She expressed hope that teachers would be able to better coach their learners to perform well on examinations if the teachers understood marking procedures more clearly. Her understanding of instructional practice in her own teaching did not carry forward into her professional development work in her region. She was more aligned with standardization and development-centered education than her other colleagues at NIED. The next section will explore how the national-level policymakers and implementors in my study understood quality education and the unique position of my participants at NIED.

National-Level Delivery Expectations

There were interesting patterns between the national actors at the Directorate of National Examinations and Assessment (DNEA), the National Institute for Educational Development (NIED), and the University of Namibia (UNam). My first national-level participant, Ms. Witbooi, at the DNEA, agreed that delivery was an appropriate term for describing teaching, and expressed pride in the internationally benchmarked examinations and syllabi. In her opinion, good results on examinations would reflect critical thinking and understanding of content that Namibian learners would bring into a global higher education setting. On the other hand, Dr. Amadhilla at UNam disagreed with using the term delivery to describe quality teaching. He urged educators and policymakers to interrogate development-centered paradigms and to facilitate learning as a process, rather than as an outcome of schooling.

The participants from NIED were the most intriguing, as they all demonstrated implicit or explicit conflict over the term delivery and their role in providing standardization-centered professional development focused on helping students perform well on examinations. The perspectives of Mr. Ahrens, Mr. Tuahepa, and Ms. Gurigab indicated that some institutional

actors in the Namibian policyscape were encouraging teachers to take a more balanced approach to defining quality teaching practices based on development, standardization, and a deep understanding of constructivism. A summary of national actors' perspectives on delivery can be found in Table 2.

Table 2

Summarizing points from national- and regional-level participants' definitions of delivery

Pseudonym	**Role**	**Is teaching Delivery?**	**What are you delivering?**	**To whom are you delivering?**	**Why are you delivering?**
Witbooi	DNEA	Yes	Effective instruction that is inviting and interesting; Purpose and value of a subject	Learners	To get good results on examinations to demonstrate critical thinking and understanding **unconfirmed validity
Amadhilla	UNam	No	Teachers facilitate learning as a process		
Gurigab	Teacher/ NIED (Regional)	Yes/No	"Imparting" understanding of exam content	Learners	So learners will develop interest in a subject that has strong job paths (ecological and health)
			Examination coaching	Teachers and learners	To help learners perform correctly in exams through coaching
Ahrens	NIED	Yes/No	Productive Learners	National economy	"move the country forward, make things for our economy"
			Exam results Learners	National education sector	To illustrate quality of teachers
Tuahepa	NIED (Regional)	Yes/No	"Discovery processes"	Learners	So learners "learn independently and inquire"
			Exam results Learners	National education sector	To illustrate quality of sector

Predictable Understandings of Quality Teaching

Dr. Amadhilla at UNam and Ms. Witbooi at DNEA demonstrated understandings of quality teaching and delivery that aligned with the expected approaches of their institutions. The Directorate of National Examinations and Assessments (DNEA) administers and marks the national examinations, with the involvement of subject teachers from across the country. Thus, it

is not surprising that staff at this directorate, such as Ms. Witbooi, would use standardization filters to define quality teaching, learning, and content. On the other hand, Dr. Amadhilla was a pedagogical scholar at UNam, and he applied constructivist principles to his understanding of quality teaching practice. These two participants' perspectives aligned with those of their institutions, though both also acknowledged that there was a strong need for more collaboration across institutions. Both blamed the other for a lack of quality teaching and learning in Namibian science classrooms. Ms. Witbooi asserted that UNam professors were not aligning their teacher preparation with the Ministry of Education along logistical lines (e.g., allowing pre-service teachers to specialize in subjects in different departments), and Dr. Amadhilla blamed a lack of quality on both the standardized expectations for content and teaching, and the global scale emphasis on development and democracy. These two participants also reflected teachers' perspectives from the field, with Ms. Witbooi describing engagement as central to teachers' delivery, and Dr. Amadhilla emphasizing the same constructivist principles of impact and empowerment that Ms. Hamutenya incorporated into her practice.

Engaging Delivery at DNEA: Ms. Witbooi

Ms. Witbooi defined delivery as "effective instruction of the curriculum for the maximum attainment of a learner's potential. It also means the human touch of soft skills in coaching, mentoring, and even babysitting." When pressed, she added that quality teaching requires that a teacher "makes their lessons inviting and interesting. Teachers must build motivation for learning in their learners. You shouldn't be dragging the horse. Make the road to the water attractive and give them biltong[5] to make them thirsty." Ms. Witbooi expressed a belief that "teachers must build in that motivation with their learner… [so that] learners will see the

[5] Salted, dried meat snack

value in the class to get good results." To support teachers' delivery, she had teams develop "guidelines for each subject that more specifically address problematic topics in each subject, and how they might be better taught… [Science] is taught at an unelevated level."

Ms. Witbooi believed that "passion is missing from teaching, and accountability at the regional level is non-existent." Most examples she gave corroborated other literature that cites issues with practical work integration in the classroom, indicating that application of skills is something centrally important to her definition of quality learning. She argued that teacher preparation programs do "not expose students to practicals." Instead, she claimed that professors lecture about the syllabus practicals. When teachers enter their own classrooms, Ms. Witbooi argued, "they don't know how to use the resources they have. Practical resources for science stay in boxes because teachers don't know how to use them." In her view, teachers did not have the pedagogical skills necessary to impart the skills needed for practicals to their learners.

This emphasis on skills as central to quality learning carried over to Ms. Witbooi's interpretation of examination results. She argued that "critical thinking and processing skills are lacking across the board. We see that clearly in the results from examinations that these skills are weak in every subject." However, my analysis of the examinations in Chapter 5 indicated that a deeper interrogation of the examination's assessment of these skills would be necessary, given that it did not emphasize the concepts of relevancy, inquiry, or application. Overall, she implicitly defined delivery as a relationship between teachers and learners, and believed that teachers must deliver motivation for success and the skills they need to reach their potential to learners. As will become clearer when I expound on teachers' meaning making, she was the national-level official who most closely reflected many teachers' understanding of delivery.

Teaching as Facilitating at UNam: Dr. Amadhilla

Dr. Amadhilla expressed a depth of knowledge of constructivist paradigms, as he immediately dismissed the word delivery to describe the work of a teacher (Coburn, 2003). In his words, "(p)eople accept the language and structures of delivery as normal and continue using them at different levels, from politicians to regional directors and inspectors, to principals. 'Delivery' is interrogated only in lecture halls at the university, rather than in public." Instead of delivering, he argued that teachers should "facilitate learning as a process." He explained that teacher candidates at UNam were exposed in courses to different ways of conceiving of learning and teaching; for many, this coursework was the first time they were exposed to teaching beyond a banking method of delivery in Namibian schooling.

Dr. Amadhilla noted that facilitating "experiences that can enrich learning" into novice teachers' classrooms is a challenge. According to him, (s)tudents must fight through the language and structures to overcome tradition and culture of teaching and learning… Established structures can constrain or facilitate transformation of education and the integration of new ideas." Here, he echoed the theory on sensemaking and reform that an "overemphasis on the role of institutional schemata tends to smother attention to human agency" (Spillane, Reiser, & Reimer, 2003, p. 405). Namibian hierarchical structures of control for education were deeply entrenched, and that made them very difficult to overcome.

Dr. Amadhilla lamented that the former structures for continuous development, and a collaboration between the MOE, UNam, NIED, DNEA, and the private sector, were very strong in the 1990s into the early-2000s. However, these "windows of opportunity that could enhance teacher learning" disappeared as donors left the young country. He argued that projects did not continue after external funding and implementation leave, because "either it was not rooted deeply enough in the local needs so there is not the will to carry it on, or there is simply no more

funding." This lack of deep roots suggests that there were few substantial "shifts [in] authority and knowledge of reform from external actors to teachers or schools" (Coburn, 2003, p. 7). While he did not present a solution to this problem, he pointed to a hopeful scenario, in which students will not struggle, because they are not alone. Instead, "with school-based learning structures to advocate for change and support new graduates in their struggle against the structures, change is likely to happen." There is evidence that this hopeful scenario is possible, as I will share in the next section on teachers' sensemaking.

Dr. Amadhilla would have liked to see national structures in place that allowed for "curriculum as process" so that teachers had flexibility to create learning experiences with content relevant to learners. He connected quality to learning outcomes that are set externally, with no space for teachers to "teach learners to problematize their own surroundings and find ways to promote their own welfare." The skills of problematizing are core to science as a way of knowing about and learning about the world and could be logically emphasized in life science through the nature of inquiry and engineering practices. According to him, integrating problematizing skills into teaching is made more difficult when "the mechanisms to force [a given curriculum] are too strong. The Inspectorate and Examination structures in Namibia are built for delivery, and don't allow for the flexibility that would enhance learning."

Dr. Amadhilla made a direct connection between a top-down approach to defining content and quality and the development paradigm at UNESCO and elsewhere (Tabulawa, 2003, Weber, 2007). When I asked him to expand on defining quality in Namibia, he reaffirmed my justification for my research questions: "in terms of defining quality, it's vital to interrogate deeper. It can be used to dominate others and promote the interests of those already in power."

He called out the lack of democracy in the education system for the underlying hypocrisy because democracy is one of the four main aims of the MOE.

Dr. Amadhilla urged me to ask, "Whose democracy? Is our teaching and learning really democratic? In a society like Namibia with such heavy inequality, to argue that education is democratic exacerbates inequality." He labelled learner-centered pedagogy as similarly problematic. He pointed out that learner-centered pedagogy should "create learners as problem solvers, but [he] would ask… Whose problems are they learning to solve? Learners are asked to solve problems identified externally to the learner on a worksheet or quiz." Deeply constructivist paradigms would call on teachers to facilitate learners' problematizing of their own environments instead. "But we don't do that in learner-centered teaching." He expressed deep understanding of constructivist principles and concern about the international community's favoring of development paradigms that serve to reinforce current global power structures.

Bridging Understandings at NIED

These three officials shared views on quality education that reflected a mix of standards-centered, constructivist, and engaging priorities. All three officials expressed a deep understanding of constructivist teaching, but this understanding was not incorporated into exam-centric professional development. Two officials defined delivery based on a teacher's production of examination results. Mr. Ahrens, at the head office for NIED, stated that teachers should increase learners' performance on examinations, from wherever they were starting. He tied delivery to the UN's Sustainable Development Goals and the national goals for education and development. Mr. Tuahepa clearly centered examinations in his definition of delivery initially, while acknowledging that the meaning of this term is "a bit ambiguous." Ms. Gurigab, on the other hand, defined delivery as imparting knowledge to learners through the application of

pedagogical knowledge. For her, delivery was defined as how well she was able to engage her learners in the content she imparted during her teaching.

All three NIED officials implemented professional development programming in their roles. Mr. Tuahepa claimed that consistent trends in poor performance were due to teachers' quality and that professional development should be in place to address it. Professional development activities were seen as helping teachers "make topics connected to their lives and make content helpful… PD should be leading them to produce learners who are able to move the country forward… Our learners must be taught to produce things, especially in science" (Mr. Ahrens). Mr. Tuahepa argued that "every teacher should attend a minimum number of hours in a year" and suggested 150 hours a year, which works out to approximately 10 hours per month of school. He "emphasized that [Namibia] needs a division about assessing accessing quality of teaching… not producing teachers at random."

In her role as a regional teacher-trainer, Ms. Gurigab stated that deeper knowledge of the vocabulary and answers expected on examinations would make teachers more effective at delivering results. She expected that following her trainings, teachers would be able to "go back and coach learners during their teaching… they can take the most correct definitions to their learners to include the most correct answers. Teachers should be doing question paper coaching, using the past exam papers." These data points made it clear that Ms. Gurigab believed that the examinations could motivate teachers cover the content in biology and life science.

Mr. Tuahepa captured the imbalances in Namibian policyscape well when he talked separately about instruction as learner-centered, and this being a particularly appropriate pedagogy for science classrooms. In his words, "(l)earner-centered teaching and science are discovery processes. Learners must learn independently and inquire." While he expressed that

"learners should be creating their own knowledge, and teachers should facilitate," he also acknowledged the systemic barriers to enactment, including tradition and trainer shortcomings.

Mr. Tuahepa demonstrated a depth of knowledge regarding the constructivist nature of learner-centered pedagogy, as well as its designated role in the curriculum as the national pedagogy. He carried this into school visits to help "teachers make sure learner-centered is happening." He seemed to enjoy his applied role as an instructional trainer embedded in schools. He recommended that there be qualifications in place to ensure that teacher trainers were credentialed. It was unclear whether he was recommending nationally defined standards, or whether these standards would be externally derived.

Mr. Tuahepa believed in the importance of learner-centered teaching "to expose learners to different ideas they can discover themselves rather than receive." He connected learner-centered teaching and development through the scientific thinking and independent learning that would be needed for learners to solve tomorrow's problems like more frequent and intense droughts facing Namibia. He argued that learner-centered teaching would help "learners develop technology and processes to integrate drought resistant crops" and other solutions to poorly understood problems of the future. In this sense, he harmonized two meanings of the term delivery, as both delivering examination results, and delivering learners into the world who could fix societal problems.

Sources and Solutions for Tensions in Delivery at the National Level

For national-level educators and policymakers, beliefs about quality education and their behavior were dissonant. At NIED, professional development activities organized by the three participants focused on marking examinations, interpreting examination results, and responding to examination-question specific content. There was also a deep thread of hope that the

partnership with Cambridge International would help teachers to re-learn their content area knowledge through learner-centered methods, and that there could someday be a qualified pool of coaches for in-school support. Mr. Ahrens explained that a recent joint professional development program for AS Level Biology teachers was structured to increase teachers' pedagogical content knowledge. Perhaps it will inspire creativity in broader national professional development structures for non-examination year teachers.

Other structures for professional development could promote teachers' depth of understanding of a constructivist approach to pedagogy, like lesson study, modelling lessons, and peer collaboration. Mr. Ahrens mentioned that lesson study was a powerful tool that impacted his understanding of quality teaching and collaboration during a training he participated in that was provided by the Japanese International Cooperation Agency (JICA). According to these participants, there was little variation in professional development content or format in the Namibian policyscape. Instead, crucial social moments for teachers to come together and learn usually emphasized the importance of examinations. While UNam faculty reported having conversations with their teacher candidates about the role of the teacher as a facilitator, these conversations were whispers compared to the shouts that teachers heard about the relative importance of standardized, compartmentalized examinations.

Rather than a loose thread in the policyscape tapestry, the interplay between examinations and teacher practice was tightly woven. The DNEA was integral in choosing Cambridge International as the entity to define quality content and implement professional development with NIED. DNEA staff were working to publish yearly subject-level data indicating which content was not taught well based on examination results. This information informed NIED issued trainings, though Ms. Witbooi indicated that she did not feel the two

organizations were aligned. This close relationship between examinations and teacher practice illustrates a powerful feedback loop that reinforced standardization-centered education in the policyscape. However, NIED participants demonstrated movement toward balancing standardization forces in the national agenda with more applied and relevant teaching and learning.

Missing Center(s) of Teaching

My analysis revealed that teachers defined delivery based on standards and development centers of education established at the international and national levels, and that there was some resistance in the Namibian policyscape to these centers. This policyscape reflected many others globally when it came to balancing external and internal control over systems of education; for example, Botswana (Tabulawa, 2003); Brazil (Freire, 1970); and South Africa (Weber, 2007). The neoliberal development paradigm and established structures of schooling have dominated this debate.

Teachers' and policy makers' sensemaking related to their role in supporting quality education contextualized the national and international policyscapes. These professionals' insights into application of education in Namibian schools reflected many of the international and national expectations. However, there were underlying contradictions in how these individuals discussed quality teaching and content and how they described quality learning.

Teachers received multiple messages from the policyscape to plan and enact their instruction, and enact teacher-centered methods of instruction, in part because standards- and development-centers of quality supported them implicitly. Professional development and examination remediation in schools were discordant with the syllabus emphasis on learner-

centered instructional methods that incorporate learners' lives into the compartmentalized examinable standards listed.

In the face of direct contradictions, teachers used a variety of mental strategies to integrate expectations that the nation, the international community, and their local communities had for them. Uniformly, teachers reported that most of their resulting practice was teacher-centered and exam-driven. While some teachers demonstrated a deep understanding of the empowering potential of centering their learners in teaching, none reported enacting these practices a majority of the time, instead finding substantial class time for exam preparation.

At UNam, Dr. Amadhilla explained that the 2016 *National Curriculum for Basic Education* left no room for curriculum as a process and encouraged teachers to continue to enact oppressive teaching methods. He wanted to see teachers afforded the agency and means to meet the needs of their learners by integrating the world around the school and learners' deep cares and interests into the classroom. Instead, in his words, Namibian teachers and learners faced a problem, because

> "The Inspectorate and Examination structures in Namibia are built around the idea of delivery, and don't allow for the flexibility that would enhance learning. People accept the language and structures of 'deliver' as normal and continue using them at different levels, from politicians to regional directors and inspectors, to principals. The language of delivery is interrogated only in lecture halls at the university, in private, not in public."

Dr. Amadhilla described the tensions at play between the compartmentalized and standardized nature of the curriculum and the flexibility necessary to teach in learner-centered ways.

At this point, a few loose threads in the policyscape have become clear. While standards- and development-centered definitions of quality teaching, content, and learning dominated the

policyscape, some definitions, concepts, and practices were missing from these centers. Learner-centered pedagogy, flexible curriculum structures, community engagement in policy-setting, democratic decision-making, empowering learning, education for employment, and meaningful application of learning were all salient definitions of quality education with little evidence of their enactment. This list of practices and concepts indicated that centering people and expanded agency over defining quality education were salient loose threads in this tapestry.

Standards-centered education has effectively created a feedback loop related to examinations to ensure they are enacted and integrated into the national agenda, as Dahlström's model from Chapters 2 and 5 would predict. Development-centered education created a feedback loop effectively in relation to a local and national center on *standardized learning*, in that quality learning was to be defined by the standardized tests. The emphases on development and standardization were mutually reinforcing. The power of these centers for defining education could, in part, be attributed to their decentralized feedback loops surrounding examinations and their results. In Chapter 7, I outline how the loose threads in this policyscape have emerged from my data and I propose a third center of education that could become more strongly emphasized in the National Agenda to balance this policyscape and empower Namibian learners.

Chapter 7

Human-Centered Education: Glocalizing Quality Teaching

"*Education should, among other goals, empower those who go through it…*"

-Amukugo, Likando, & Mushaandja, 2010, p. 102

In the first major publication from the Ministry of Education (MOE), *Toward Education for All* (1993), they stated that democracy and international participation in the globalized economy would be empowering to its people. However, the development- and standardization-centered education has continued to be enacted in classrooms through delivery and production, which "smother attention to human agency" (Spillane, Reiser, & Reimer, 2003, p. 405). These tensions were highlighted by my participant from the Faculty of Education at the University of Namibia (UNam). Dr. Amadhilla urged me to ask, "Is our teaching and learning really democratic? In a society like Namibia with such heavy inequality, to argue that education is democratic exacerbates inequality." The tensions between policy in writing and policy in practice are palpable and explicit throughout most of this education policyscape. My data shows that there are centralizations of standardization and development that promote a banking-method definition of quality teaching and learning that further promotes oppression (Freire, 1970).

Dr. Amadhilla recognized this impact in the Namibian context, and reflected that, "In terms of defining quality, it's vital to interrogate deeper because it can be used to dominate others and promote the interests of those already in power." He connects this to external pedagogical recommendations. Rather than identifying and solving problems that would "promote their own welfare," learners develop skills to solve others' problems (on a quiz or in a practical). Dr. Amadhilla's assessment of the state of inquiry in Namibian life science is corroborated by my analysis of the examinations themselves. Only three out of 260 exam items

expected structured inquiry, no exam items involved open inquiry, and 19 out of 703 syllabus items (including basic competencies and practical activities) expected open inquiry.

This data led me to question what is missing from this policyscape, to better understand the values underlying the policyscape. The Namibian J.S. Life Science policyscape reflects neo-colonial structures and values, according to my data (Ali & Shishigu, 2020; Le Grange, 2020). The standardization- and development-centered definitions of quality education are clear examples of this. These definitions highlight that education reform is intended to move Namibian society toward the global economy; to become one that is more "developed." Instead of a policyscape in which Namibian education centers externally derived definitions only, this chapter will propose a harmonized glocal policyscape that combines the global and local definitions of quality education to empower Namibians. In this chapter, I will first explore what is missing from standardization- and development-centered definitions of quality education. Then, I will provide explicit policy recommendations to integrate a third center of education.

What is Missing from Standardization-Centered Education?

Standardization-centered education has ramifications that obstruct the promotion of enacted democracy through schooling. Although Namibia has included democracy in its national mission for education, it is notable that examination structures have not changed since the Apartheid era. Instead, the national agenda for education has shifted over the last 20 years toward increased external involvement in assessments and standard setting. The 2015 reform has re-introduced external moderators for the quality of their national standards and examinations in the form of a contract with Cambridge International to benchmark the National Curriculum and subject syllabi, as well as train teachers on content and the delivery of practical activities.

Teachers, learners, and the public and private sectors more broadly, have little say in what content, teaching, or learning occurs in this system, because external definitions of quality and standards disallow them access to the discussion table. There is no feedback loop through which communities can communicate to their government that they are dissatisfied with the quality of education their children are receiving.

Teachers feel these tensions and express them subtly. Some teachers wanted to leave out key science concepts like identifying independent, dependent, and control variables. Ms. Hausiku shared, almost under her breath, “What are they going to do with a graph in the village?” She admitted that she and many of her colleagues “dodge” these topics, because they are too confusing or hard. This indicates that basic science literacy skills are not being made relevant for teachers or learners. Science processing and literacy skills are intended to be applied across life science. Depth of content understanding and application is not making its way into the standardization-centered policyscape. If teachers do not feel empowered to effectively include science processes and skills in their classrooms, they will not be able to successfully facilitate meaningful and relevant learning experiences for their learners to apply these skills.

Examinations were a salient feature across the three main parts of quality education: content, teaching, and learning. A standardization-centered education misses the flexible and relevant content in life science, the applied nature of learning in science classrooms, and the facilitative nature of constructivist teaching, all of which are also salient themes in defining quality education in the policyscape. Because these other themes are not supported by the standardization feedback loop, that are not reinforced in the national agenda or practice.

Quality Content

Life science is a subject into which many relevant themes are intended to fit, like human health and body, environmental protection, agriculture, and basic science literacy to promote critical thinking and problem solving. The exams for JS Life Science contain 23.8% of questions relating to health or the environment. The syllabus has Topic 2: Health Education and Topic 7 (of 7): Ecosystems in grade eight and Topic 2: The Body's Immune System, Topic 6: Nutrition, Topic 7: Human Body [Systems], and Topic 8 (of 8): Ecology in grade nine. Each of these topics demonstrates a consistency in subject matter with cyclical coverage of content from year to year, as well as an emphasis on relevant aspects of life science needed to support health and the environment, two priorities for content in the glocal policyscape.

Teachers did not report receiving, and trainers did not report giving, training to build life science teachers' pedagogical content knowledge. However, a recent professional development for AS level teachers, a collaboration between NIED and Cambridge International to address "areas of the syllabus where [teachers] are feeling overwhelmed" with content (Mr. Ahrens). Mr. Ahrens also hoped teachers would take assessment tools from professional development to help them ask analysis and production level questions.

Nevertheless, teachers report that they and their colleagues "dodge" content that is not important for examinations (Ms. Hausiku). In the case of Namibian J.S. Life Science, science literacy and indigenous knowledge are not emphasized on examinations. This is a large challenge to overcome in the pursuit of enacting quality education.

None of my participants or documents explicitly mentioned scientific literacy as a goal for quality science education. Defined by Chabalengula, Mumba, Lorsbach, and Moore (2008) as a balance of understanding scientific knowledge, performing scientific investigative skills,

understanding science as a way of knowing, and applying the interactions of science, technology, engineering, and society to make decisions. Learners will not be likely to develop their scientific knowledge without also developing science literacy. However, processing skills, analytic strategies, and application are not heavily included in the curriculum. The syllabus from 2016 emphasizes the knowledge and skills of science, while deemphasizing science as a way of knowing, gathering data, or making decisions. 67% of items (required practical activities and basic competencies) were not relevant to learners' lives nor were the items capturing inquiry.

Indigenous knowledge is a salient element of quality education at the regional level of the policyscape. The Sub-Saharan African Conference on Education for All, associated with UNESCO, and the African Union have included the importance of building locally grounded curricula. In the national syllabus for life science, there are basic competencies related to local medicinal herbs and traditional methods of farming that are sustainable. However, with minimal attention in the exams, some teachers behaved predictably and reported not covering this content in classes (Mr. Chiweshe, Ms. Ndumafayo). The only examination question that addressed indigenous knowledge was in the 2011 examination. One multiple choice question asked, "The leaves of the mopane are traditionally used to cure- A arthritis. B constipation. C coughs. D vomiting" (p. 2). The 2016 Syllabus kept general references to traditional medicines and the transition from hunting and gathering to farming in the area and dropped the references to effective traditional modes of storing grain.

Moral development, environmental stewardship, and technology application are also left out of the examinations' definition of quality, because these are not examined areas. Furthermore, they do not address the economic or employment futures that learners will enter, even though there is a national social contract that schooling will deliver employment. The

broader S.S. curriculum is designed to support schooling for the sake of schooling, rather than schooling for empowerment+. This will be explored in more depth in the section of this chapter on what is missing from development-centered education.

Quality Learning

Defining quality learning also goes beyond exam performance for stakeholders across the policyscape in various ways. Local, national, regional, and international data contend that learners should be able to apply content and skills, live in peaceful democracy, and critically think about how to address their own needs. Learners are expected to apply what they have learned in school to novel settings and learn skills to help them continue learning across their lifespan. Teachers and national leaders in education identify that quality learning must be proactive, apply critical thinking, and increase learners' agency.

When combining that with the salience of health, basic literacy, job training, and care for the environment across definitions of quality content, quality learning should be integrated across content areas to solve problems in their communities and their countrywide community. Especially at the regional level, which includes the African Union and the *Sub-Saharan Conference on Education for All: Education for the African Renaissance in the 21st century*, indigenous knowledge of language, culture, and the environment are key drivers of quality learning. Teachers seem to agree that quality learning in Biology should combine indigenous knowledge about health, agriculture, and language to empower learners to address the problems in and needs of their communities and their future selves.

Teachers did not talk much about quality learning beyond exam performance, but highlighted their expectations that quality learners are disciplined in the classroom, and proactive in their learning outside the classroom. They expressed high expectations of the moral

development and critical thinking of their learners. Teachers uniformly wanted their learners to apply knowledge and skills to better understand and improve themselves and their communities.

Quality Teaching

Quality teaching was defined in the policyscape by the striking local and national expectations to deliver the syllabus and produce examination results. A definition of quality teaching that leans on the delivery of standards so that learners will perform has been easy to integrate with teacher-centered practices of practical demonstrations, lecturing, modelling, and discipline in the classroom. These colonial-era teaching practices are still relied on in many of my participants' classrooms and are instantiations of oppressive education structures (Ali & Shishigu, 2020; Freire, 1970; Le Grange, 2020; Tabulawa, 2003). While my participants rely on learners' backgrounds to engage them during these teacher-centered methods through simile, local reference, or graphics, delivery is still at the core of the work of a teacher in their classrooms. They do not have the agency to choose or give their learners any control over what content is being covered in their schools, nor in how learning is assessed.

Policy impacts teachers' work directly. However, teachers' work is ignored in policymaking, and policy does not meet local needs where change is desired. Teachers work toward the most salient messages for them (Weber, 2007). That message is that *exams are everything*. This message represses other policies that support empowering practices of facilitation, application, problem solving, constructive feedback, and continuous assessment that are also called for at all levels of the policyscape. Quality teaching, as described in *Toward Education for All* in 1993, should be integrated and flexible to promote relevant application of learning content to empower learners. However, the compartmentalized and standardized nature of examinations and subjects described in the national curriculum are at odds with empowering

teaching practices. I will explain these salient themes of teaching for empowerment and development in the next section, including how development-centered education fails to deliver on the mandate of education for employment.

What is Missing from Development-Centered Education?

Development-centered education does not include human empowerment in the definition of quality education. Quality learning is defined as application of knowledge, skills, (and sometimes values) in the international, national, and local levels. In practice in the Namibian policyscape, development-centered education does not provide learners the necessary knowledge and skills for meaningful work to sustain themselves following schooling. A development-centered definition of quality education fails to support learners' agency to define and promote their own well-being, by prioritizing external definitions of quality and success. Instead, today's schools look very similar to the schools created by colonial powers that are built on oppressive systems, and teaching practices are complicit in that oppression. Learner-centered teaching constructs have been superficially assimilated into a system that promotes delivery, development, and standardization. This unbalanced amalgamation does not empower learners to think critically about their own circumstances and needs.

Application is not supported by meaningful policy to a degree that would encourage accommodation of practice instead of assimilation of superficial features into delivery (Spillane, Reiser, & Reimer, 2002). What is unclear about this policyscape is how schooling is supposed to lead to a better life for these learners. The African Union reported that youth empowerment was declining as child labor rates increased across the continent between 2013-2021. This section of the report did not expound upon schools' responsibility to empower youth to have agency, which is a meaningful oversight. Education should be cultivated to be a tool to advance learners' agency

and empowerment. Mr. Chiweshe and Ms. Hausiku agreed that it certainly was not going to be helpful for many of their learners.

Empowering education must reflect and prepare learners for their lives after schooling. The national level of the policyscape has acknowledged since Independence that a mandate for education is to empower learners to meet their own needs through employment. The development paradigm advanced by the Education for All movement that started in tandem with Namibian Independence in the 1990s made promises of democratic involvement and empowerment. In *Vision 2030,* 14 years later, President Nujoma made a promise that "equity ownership of the economy will be extended so that people from all sectors of the population have a stake in the economy, and power to influence economic decisions" (p. 1). Subsequently, the education sector has failed to deliver on that promise.

Instead, the global economy continued to create a situation where political and economic power are concentrated in the hands of the few at the expense of the many (Tabulawa, 2003). In the case of Namibian education, children came to be viewed as investments for the glocal policyscape to exploit, as they were invested in as producers without their consent (Weber, 2007). Some language used by the World Bank and the office of the Namibian President reflected this outlook explicitly. For example, President Geingob said in his 2021 State of the Nation Address (SONA) that, "The School Feeding Programme… will be extended in coverage… to secure a daily nutritional meal for the Namibian Child. Improving nutritional content and education for malnourished children and lactating mothers is a long-term investment in human capital" (p. 13). While I am of course not arguing against ensuring nutritional meals for Namibian children, this quote illustrates a centering of national development, with well-fed children as a necessary catalyst, as means to an end, rather than as independent human agents.

This rhetoric denies the sense of the children, mothers, and babies as human beings with thoughts, experiences, and feelings when he reduced them to tools for development.

Education has failed to deliver on the promise of employment made by international and national advocates and policies. In the SONA 2015-2021, President Geingob emphasized that quality learning must involve the development of employable and marketable skills so that learners can support sustainable development of the Namibian economy. The presidential plans for national development (*Vision 2030* under President Nujoma, and *Harambee Prosperity Plan II* under Geingob), also reflect this definition of quality learning.

National politicians and international organizations emphasize the development of a knowledge-based society. This has heavy implications for what should be included in the definitions of quality content in public education. Geingob's national agenda, the *Harambee Prosperity Plan II* also emphasizes the empowering nature of economic participation and increasing production through capacity building by private companies and public education.

Policy at the regional and national level supports the idea that quality learning involves vocational training. The *National Curriculum for Basic Education* highlights this belief by issuing examinations in two pre-vocational subjects in grade nine. At the end of the J.S. phase, learners take two pre-vocational subjects from tracks in agriculture, office management, design and technology (wood shop), and textiles and fabrics.

However, in J.S. Life Science, there is no integration of vocational applications despite the policyscape emphasis on application as well as being a stage of inquiry. Expectations for application were distinctly lacking in the syllabus and on examinations. For life science, the employment applications of content were seldom integrated, with only one reference to learning the economic importance of trout and tilapia for Namibia; there were no basic competencies

around career options or employment applications of content. There is a distinct chasm between prevocational subjects and content theory subjects; if it were bridged, schools could integrate a wider range of community-driven content applications.

The global development paradigm explicitly defines progress as movement toward Western democracy and modern capitalism. The *Incheon Declaration* (2016) explains that a main aim of global education for all movement is to "transform the lives of individuals, communities and societies, leaving no one behind" (p. 24). While subtle, this statement implies that traditional ways of being are backward or less than, needing to catch up. UNESCO expresses, intentionally or unintentionally, a view of modernity as "a process by which individuals [teachers and learners] supposedly change from a traditional way of life to a rapidly changing way of life" (Gottlieb, 2000, p. 161 in Tabulawa, 2003, p. 14). This definition of modernity missed opportunities for learners to immediately apply what they are learning to serve their communities and promote their own wellbeing. Traditional (or non-Western/non-capitalist) ways of life are not counted as legitimate. This view of modernization does not harmonize with the fact that non-Western communities are already modern because they exist now.

The next section will explore opportunities to flexibly educate to meet the needs of local communities to include their goals for their children, their education, and their future. A balance between the global and local priorities for education through a *glocal* approach would redistribute power. To do this, researchers can elevate local voices to explain the world from the local-out instead of global-in to "generate new theories" of quality learning, content, and teaching (Weber, 2007, p. 299).

Filling in the Gaps with Human-Centered Education

There have been glimpses of hope in the policyscape that present ways of striking out the oppressive nature of externally driven development. There has been a mission to "overcome" the legacy of "Namibian schools that were not egalitarian," first described in *Toward Education for All* (1993, p. 26). There are threads in the policyscape emphasizing empowerment, learner-centered teaching, democracy, community engagement, integration, and flexibility. These threads are not integrated into the feedback loops that inform a national agenda and need a center around which to cycle information.

I explored the concepts defined as centers in the policyscape (i.e., learner- and teacher-centered education). Learner-centered education missed the important work that teachers are doing to engage their learners; teacher-centered education missed the agency of a learner in constructing their knowledge. I compared what is the same about learners and teachers. Humanity was a unifying construct, and one which weave together the loose threads listed above. In this section, I will explore the potential for the addition of a human-centered definition of quality education to the policyscape of Namibian J.S. Life Science.

Empowering Harmonization

Harmonization is one mechanism of influence that can be employed in a policyscape to empower communities and countries to strike a balance with international concepts. *Vision 2030* states that by 2030, Namibia shall be "prosperous and industrialized, developed by her human resources, enjoying peace, harmony, and political stability" (2004, p. 15). President Nujoma defined harmony as "sharing common values and aspirations... and enjoying the fruits of unity in diversity" (ibid., p. 15). Harmony implies achieving and maintaining balance between sounds in a musical sense, and a policy application of the term would mean a balance among centers.

In some cases, harmonization is overpowered by the mechanism of imposition by international and national organizations (e.g., Altinyelkin, 2012; Verger, Novelli, & Altinyelken, 2012). In this case, harmonization was often coded along side dissemination of information, standardization, globalization, and imposition in documents from the UN and its subsidiaries, from the *Dakar Framework* in 2000 to the *Incheon Declaration* in 2016. At the regional level for Sub-Saharan Africa, harmonization is mostly referred to in conjunction with standardization and accountability for development goals.

There is also a co-expression of harmonization with hope for African empowerment in the hopefully titled *Education for African Renaissance in the 21st Century* from the Sub-Saharan Conference on Education for All in 1999, where leaders "envision Africa finally integrated in its political, economic and social systems, in pursuit of peace, justice, prosperity and a better life for all" (p. 8). In 2016, the African Union also pointed to "harmonization processes across all levels of national and regional integration… to improved completion rates at all levels" (p.6).

The term harmonization is emerging from the same spaces where learner-centered education and the democratizing power of education in national (*Vision 2030,* 2004) and regional (African Union, 2022) policy discourse. It will be an important term to continuously investigate, as its current use is not yet clear. Harmony could be forced into dissonance if empowerment is not included as a center in the chords of the policyscape.

National Harmony

National level actors talked about "installing interdependence" between NIED, DNEA, and UNam as a way of promoting harmonization between these institutions (Verger, Novelli, & Altinyelken, 2012, p. 16; Mr. Ahrens, Dr. Amadhilla). My participants all recognized that a lack of harmony across their organizations led to teachers not being supported to enact any definitions of quality teaching. Each advocated for a realignment of policy, practice, and professional

development across the three institutions. The *Harambee Prosperity Plan II*, President Geingob's 2022 national development plan, also advocates for harmonious policy alignment between the public and private sectors to support applicable technical and vocational training for national economic development.

Condescension in this policyscape breeds dissonance; organizations present condescending views on non-dominant ideologies and ways of living, knowing, and being. For example, in the *Incheon Declaration,* UNESCO's *World Data Report on Education in Namibia* (2011), UNESCO's report on the *Use of Assessment Data in Namibia* (2021), and the World Bank's report on *Namibian Human Capital and Knowledge Development* (2005), highlight the failures of Namibian teachers and learners to perform, rather than attributing these marks as reflective of a system that is failing Namibian learners and teachers. Failure rhetoric and condescension are also present in the national levels of leadership, evidenced by teachers' concerns over with being labelled failures, and Ms. Witbooi's (DNEA) assertions that Namibian educators "miss the bigger picture" of education in Namibia. Patronizing views on the "quality teacher" and "quality student inputs" were reflected by the World Bank's assertion that learners are not ready for schools by grade one (2011, p. iv.). These condescending opinions block the harmony that could be found in creating schools that are ready for learners who attend them.

There are consistencies in the definition of quality as high examination results; however, when paired with the deeper analysis of the exams, we see that the examinations lack the other defining features of quality espoused at all levels of the policyscape. The systemic force of examinations introduced by colonizing powers, and still benchmarked to Cambridge International standards, have disallowed any meaningful change in the ways learning and the quality of education are measured in the Namibian context.

Community Harmonization

Dr. Amadhilla presented an area of opportunity for harmonization during our interview. His idea of harmonization was more authentic than those described by international and national organizations, because he intentionally included bottom-up input and involvement in deciding who is served by education in Namibia. Dr. Amadhilla suggested that educators *could* "ask learners to problematize their own surroundings and find ways to promote their own welfare."

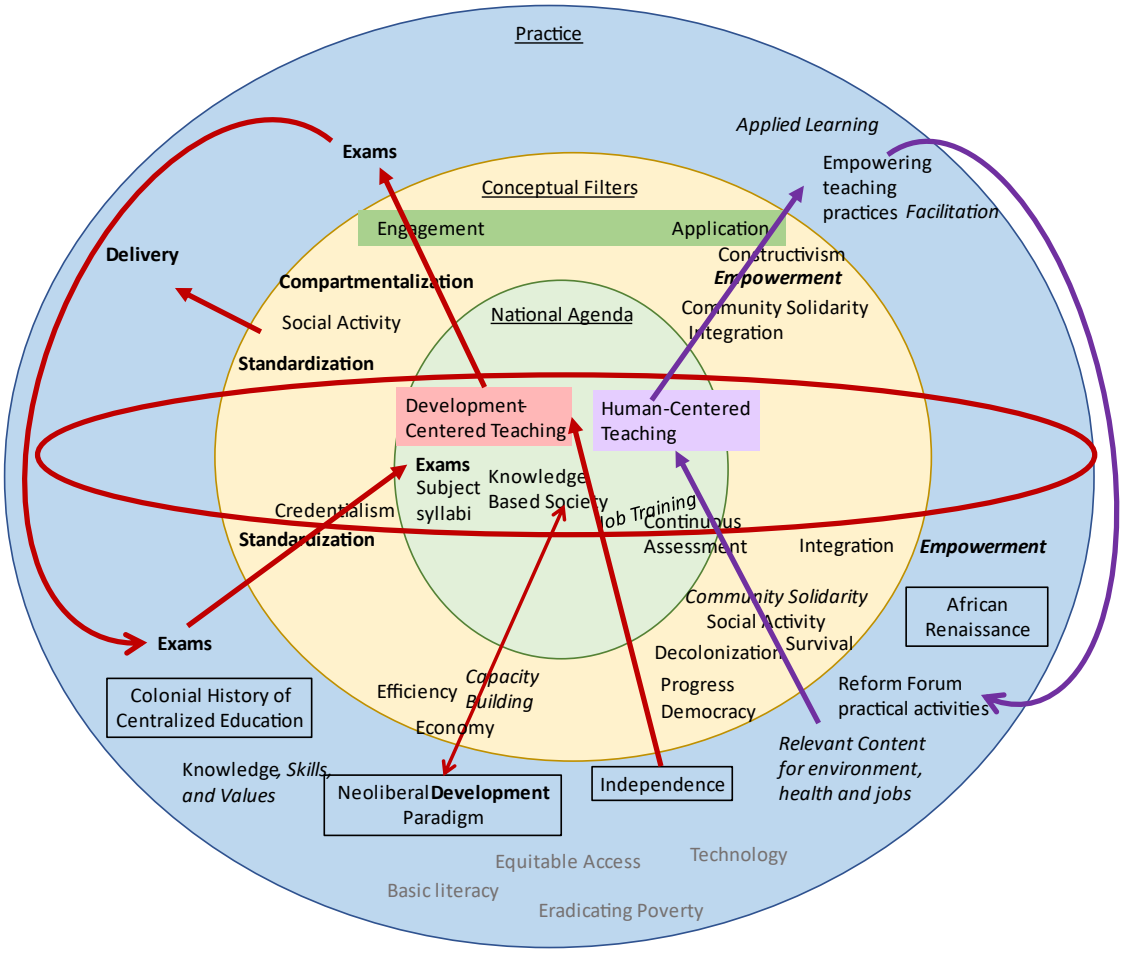
Dr. Amadhilla advocated that there needs to be a shift in ownership of quality education so that learners and communities can enact their own agency in shaping reform implementation to meet their needs (Coburn, 2003). This would require all actors in the policyscape to: a.) set high expectations for learners' application of content knowledge to problems and issues in their own lives; b.) provide high-support, high-leverage policies that emphasize the utility and power of the humanizing policies already in place; c.) allow teachers and learners to enact high levels of agency over the content in their classrooms; and d.) encourage high community involvement in quality teaching, learning, and content. Dr. Amadhilla argues that harmonization would empower communities to achieve democracy and agency over their condition.

In our interview, the deep questions he asked regarding who is served by the current system of education left me with a powerful imaginary. I imagined a system in which standards-, development-, and human-centered content, teaching, and learning are balanced. In a policyscape with a center in standards, literacy and basic content are monitored, and credentialling is a valuable tool to assess someone's predicted skill in an area. A development-centered policyscape would maintain a strong connection between education and employment preparation, as well as heavy involvement in the global economy. A third center I am proposing would be a human center. A human-center of education would define quality education by how flexible, empowering, applied, and grounded in community an education system is.

Figure 1 illustrates the many different themes and elements of quality education highlighted in the policyscape. The red feedback loop for examination standards is currently enacted in the policyscape, while the purple arrows illustrate the potential for a human-centered feedback loop which promotes human empowerment in balance with the promotion of development. The existing feedback loop is fueled by support from global capitalism and teachers' belief that their delivery helped their learners perform on the exams. A new one could be powered through integrated community solidarity and constructivist principles of learning. The Namibian policyscape would benefit from integrating community-driven feedback loops to elevate humans to a central status.

Figure 1

A policyscape with feedback loops involving examinations and empowerment



Human-centered education would be inherently empowering. People should not always be considered a means to an end in policy; the strengths of humanness can be integrated harmoniously with global and national development, and standards for performance. Furthermore, without an added emphasis on human-centered elements of quality education, key features of quality do not make it into the Namibian life science classroom.

Including community engagement, authentic democracy, and African philosophies in a balanced approach to defining quality education could resolve some dissonance. A feedback loop between teachers, parents, learners, and policymakers could enable communities to enact agency over the education of their children. To implement humanizing educational practices, teachers need a policyscape in which empowering education is supported and followed through on, with a feedback loop involving the people served by government schooling.

Harmony is Possible

The theoretical conjecture of this dissertation is that the Namibian policyscape needs an additional feedback loop to define successful education around human empowerment to establish balance and fulfill the national mandate to empower through education. This loop could include community input in steering content, teaching, and learning, and provide additional definitions of successful education that center learners' empowerment. A human center for defining quality would reinforce more of the concepts and practices involved in defining quality.

Scientific subjects are appropriate areas to begin approaching harmonious policy, because of the exploratory nature of science. Learners can learn to problematize their surroundings by applying scientific processing and inquiry abilities in their communities. Teachers could facilitate learners' application of science content to maintain and advance their own well-being.

Community involvement in defining quality content would allow the threads of relevancy and application to be woven into the new feedback loop.

There could also be alternative definitions of quality teaching integrated into teachers' sense of their professional success. Some teachers are already demonstrating a balance between multiple centers of education, which can provide a template upon which to construct a harmonizing policyscape. Mr. Riruako illustrates that there is willingness to go outside the syllabus for important content in learners' lives, and Ms. Hamutenya goes outside the walls of her classroom to collaborate with colleagues and meaningfully involve learners in their environment. As Mr. Tuahepa and Dr. Amadhilla argue, teachers would need a lot of support in integrating these continuous assessment policies. Mr. Ahrens pointed to lesson study and integrated pedagogical content knowledge training with Cambridge International as methods of providing this support. Mr. Tuahepa argued that guidelines for teacher training would empower them to provide more coaching support for teachers.

The addition of a human center has the potential to facilitate balance in the policyscape so that crucial global content, access to employment, opportunities to advocate and act for ones' own wellbeing, and a wide variety of community concerns are included in quality education. A balance between standards-, development-, and human-centered education in defining quality will serve to empower learners, teachers, and communities.

There are plenty of local sources from which to pull and policies in place upon which to lean. Appendix E includes policy recommendations based on my analysis that involve building national support for community feedback loops. For example, national-level policy could integrate Learner Representative Councils and teachers in determining content in schools. Another example is the *Reform Forum*, the education reform research journal from NIED, which

is published yearly, and between 2018 and 2022 published thirteen articles regarding science practical work in primary and secondary schools. Science content creators could lean on the *Reform Forum* and tap into their authors' expertise for appropriate local practical activities for science classrooms. To reflect other forms of learning, national policy could empower teachers to lean into continuous assessment by including them in promotional marks and providing professional development support for integrating rubric-based assessments. It cannot only be incumbent on teachers to change and learn. Systems and policies from the national and international levels must change, too, if education is to be empowering.

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