RESTORING LOCAL SPIRITUAL AND CULTURAL VALUES IN SCIENCE EDUCATION: 
THE CASE OF ETHIOPIA

by

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A thesis submitted in conformity with the requirements 
for the degree of Doctor of Philosophy 
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Abstract 

It has been repeatedly observed that home and local context matter in the education of children. A smooth transition between home and classroom prepares children for enjoyable and meaningful life-long learning. Knowledge building in children is influenced by previous experience, values, beliefs and sociocultural factors associated with community. Against this theoretical background, the thesis examined the integration of local spiritual and cultural values to improve science education in Ethiopia. This autoethnographic research used in-depth interviews, supplementary observations and focus group discussion and my biography to identify the perception and practice of common and unique spiritual and cultural values. The study examined whether these values were included and/or excluded in the school curriculum and explored the possibilities for incorporating values in science education and the anticipated tensions resulting from their inclusion. Students, science teachers, parents, employers, curriculum experts, policymakers, elders, and religious leaders participated in the research, conducted in a randomly selected secondary school in Addis Ababa. The sampling followed a kind of snowball method, with a total of twenty key informants participating in interviews, fifteen classroom observations, and one focus group discussion. The data collection aimed at generating stories, which underlie the auto-ethnography methodology. Findings indicated that belief in and fear of God animated and sustained the Ethiopian way of life. Although spiritual teachings derived from sacred writings were the initial foundation for Ethiopian cultural norms,
the two merged together later, creating a mosaic pervading every aspect of life in Ethiopia. Education was sustained on this merger of spiritual and cultural norms and values. It was also shown that the now century-old system of formal education did not incorporate those local spiritual and cultural values. Current science education also has little relationship to Ethiopian spiritual and cultural norms and is, therefore, in need of restoration. Findings showed that efforts to recapture local spiritual and cultural values in the curriculum may encounter obstacles and tensions. Clearly, the future of a more prosperous Ethiopia depends on the extent to which curriculum stakeholders can overcome these obstacles and put in place a relevant, contextual, and holistic education.
Acknowledgments

Above all, I would like to offer praise to the Supreme Being, Who initiates, sustains and brings to fruition every good endeavour in this universe. I sincerely believe that the writing of this thesis is part of the Creator’s plan for Ethiopia.

When I came as a stranger from the far-off land of Ethiopia to the Ontario Institute for the Studies in Education (OISE) at the University of Toronto, it was Professor Wanja Gitari who provided me with the personal and academic support I needed at the time. Her support continued until the completion of my thesis. Gary Pluim, my first officemate and then very good friend, deserves heartfelt thanks for being my torch-bearer throughout my eventful doctoral studies.

I cannot find the words to express my gratitude to my thesis supervisor, Professor John Wallace, for the way he patiently and wisely guided me through the process of writing my thesis. With all his other professional, family and social commitments, I realize how demanding it must have been for him to help this a non-native speaker of English, moreover one who is dealing with an interdisciplinary subject and who has high ambition and claims with less justified means. As the Ethiopian proverb goes, “for every plate God ordains a proper cover.” I also wish to offer thanks to Professor Erminia Pedretti who, as a member of the thesis committee, offered valuable advice and encouragement throughout my stay in OISE. I also would like to thank Professor Jack Miller as I benefitted a lot from his course and his advice both as a teacher and a thesis committee member.

I offer my sincere gratitude to all my colleagues, to the administrative staff and the faculty members in the Department of Curriculum, Teaching and Learning who made my life easier by extending the support I needed at all times. The people I met in the Comparative, International and Development Education program will remain my life-long friends. Further, I
express appreciation for OISE and the School of Graduate Studies of the University of Toronto, whose members showed their willingness to support me in coming from Ethiopia to conduct my doctoral studies. I am proud to be associated with this great institution, which will bless and enlighten generations to come.

I sing the national anthem “O Canada” in honest tribute to Canada and Canadians for welcoming and offering me such warm hospitality. Though my childhood fantasy of Canada as a heavenly place was challenged in many ways, I continue to love and respect this great country and its people for the principles they stand for. I also thank the Baha’i, Ethiopian and Eritrean communities of Toronto for providing me with a refuge in my loneliness and physical and spiritual nourishment when I needed it. I extend special thanks to Rezene and Akeberet who were with me to the end.

In all sincerity, my greatest admiration must be reserved for my wife Meskerem Wassie Alemayehu, who willingly sacrificed much of the quality time in our young marriage while I pursued my dream. In an effort to balance marriage and family life I learnt the qualities of patience and forbearance. Moreover, I am sure that many others share my feeling that the journey through doctoral studies is tough. Were it not for the fresh smiles and excitement of my son Brook at the end of each day, life would have lacked colour and become tedious indeed. Thank you, my dear son, for you are a true blessing.

I would like to express my gratitude to my sample school¹ in Ethiopia and to all the research participants for their valuable time and insights, which formed the core of this thesis. It is my sincere hope that the thesis will return to serve them, as it represents the fruit of their participation.

¹ In order to protect all the participants in the study, I have used pseudonyms for both the school and the research informants.
Finally, I would like to express deep appreciation and gratitude to all my family and friends in Ethiopia and anywhere in the world who kept praying, encouraging and supporting me in every way possible so that I would be able to bring to an end my “endless” journey of education. If I did not have supportive family and people like Daniel, Martha, Zinash, Nigist, Issac, Genanaw, Max and Gash Adam Melaku I would have reached nowhere. May the Supreme Being bless every people and every nation.
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To my mother Bezawork Tsega who, by God’s will,
gave me the gift of life and continued, with devotion and meekness, to nurture me
and provide the love and comfort I needed at all times and to my aunt Emahoy Tesfaye
Tsega who set me on a path of spirituality.
CHAPTER I

COMMUNAL

They say, you have a dream
Impregnated with a vision.
Your heaven,
Full of prophetic stars.
Tell me your dream,
Let me see your astrological forecast,
Let me know my beginning and my end,
And take solace in it
As I have a stake in your fate.

—Bewketu Seyoum¹ (2006, p. 45)

During a flight back to Ethiopia from Canada to engage with my research participants about local spiritual and cultural values and science education, I reflected on how I arrived at this research topic. Only two years earlier, I had set out from Ethiopia to Canada with the goal of identifying the secret behind the development of Canada. It was a fact-finding mission. It did not occur to me that I might discover that much of Canada’s development could be material rather than spiritual, a development that aggravated individualism and a culture of consumption.

In contrast, in Ethiopia, even though people are not materially rich and may not be able to offer much choice on the table, they are known for their hospitality and sense of community. The ideals of sharing, generosity and sacrifice are not strange to the Ethiopian way of life. The problem, however, is that these ideals and values are not carried into our system of education or the work of civic organizations. Despite the major roles played by cultural and spiritual traditions, such as family values, respect for authority, reverence for the sacred, a sense of connectedness to a Higher Being,² these attributes seem to be absent from the lives and thinking

¹ An Ethiopian poet.
² Throughout this thesis, regardless of current academic rules and practice, I have capitalized the first letter of all the nouns and pronouns referring to the Higher Being, that is, to God and to His Messengers and Prophets. This shows respect for the Ethiopian research subjects and readers. It is also part of the argument of this research that religious beliefs and texts represent systems of knowledge with their own intrinsic value and rules.
of the elite politicians and scholars who set the school curriculum and determine the fate of the common people.

One often hears it said that colonialism is to blame for the destruction of the core values of African people. Yet Ethiopia has never been physically colonized. How and when did educated Ethiopians lose both the local spiritual capital and material knowledge needed to develop their country? Why did they not carry with them into these tasks the spiritual and cultural values of the ancestors they so proudly speak about? Where did all those qualities of sacrificing for others and trustworthiness go? How did the grandchildren of those who built the most amazing sacred edifices, such as the Lalibela churches, who fought and defeated Western colonial powers, find themselves craving the fruits of the civilization of those same powers? Arguably, there is a disconnect here: between the past and the present, between what is and what ought to be.

Living in Ethiopia and drawing on my educational and professional knowledge and experience, I suspected that there was something fundamentally wrong in the country: that there is nothing so fundamental and deep as spiritual and cultural values (Asgedom, 2009). I felt strongly motivated to go abroad to study Western spiritual and cultural values, which I presumed had supported their development. Soon after arriving in Canada, I became aware of the tremendous physical, psychological, cultural, and linguistic challenges involved in crossing borders.

I continued to reflect on how confused and impoverished the Ethiopian people remained when, as a result of “formal education,” they were forced to cross the psychological, cultural, and linguistic borders of the Western world. The Ethiopian educational system was an imposition of Western values that stunted the potential for growth. Above all, as an experienced science
teacher in Ethiopia, I was also convinced that the so called “science” curriculum and its associated pedagogy served merely as tools to enable the learner to regurgitate information void of transformative power. In my view, because of this irrelevance of science education, the more medical doctors and engineers, agronomist and science teachers graduate from the Ethiopian school system, the more the country slides into poverty. One reason for this, I argue, is that graduates take away from the system without offering anything in return. With all these thoughts reverberating in my mind, and reflecting on both my Ethiopian and Canadian experience, I returned to Ethiopia determined to ask the following questions:

1. How do Ethiopians perceive and practice spiritual and cultural values?
2. Which of these values do Ethiopians consider to be unique to Ethiopia?
3. How are these spiritual and cultural values included in or excluded from Ethiopian science classrooms?
4. What tensions might surface if Ethiopians were to deliberately incorporate local spiritual and cultural values in science education?

I felt that the answers to the research questions did not matter, as long as I tasked them with humility. I kept reminding myself that there may never be perfect questions and that the findings might not present complete answers. But I had launched myself into a journey that I now believe I will pursue for the rest of my life. Of course, the effort to discover Ethiopian spiritual and cultural values and to restore them into the educational system is the work of a

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3 The word “restoring” as it appears in the main title of this thesis, is a deliberate choice in my part. It is my understanding and conviction that the values discussed here existed in the past and served an important purpose. Thus, my intention in doing this research is to bring the past with us into the present, while generating and applying a form of knowledge that applies to the 21st century. It is an effort to hold a mirror up to the current generation which will enable them to see the important values of the past reflected in the future.
lifetime. This research is one part of that effort and the following pages provide the context and the challenges of the research.

In the next chapters, I will present the literature that I tapped into, the methods I used, the findings I discovered, the analysis I arrived at, and the future I envision for the course of this journey.

**Setting the Context of the Research**

**Research Method**

I presented this thesis to a group of PhD and Master of Science Education students at Addis Ababa University. I realized that most of the questions asked after my presentation concerned the research protocols I had used. So at the outset, and for the sake of clarity, I would like to inform the reader that the research was qualitative in nature. Thus, questions about such things as the number of samples or the criteria of validity might be better answered by discussing the difference between qualitative and quantitative research.

**Dominant Views**

In research where all or most of the samples are chosen randomly, it is possible that dominant views might be heard more loudly than others. One such view concerns the hegemonic view of “national” cultural and spiritual values as created and sustained by Orthodox Christianity. There seems to be an implicit assumption that being a citizen and having an Ethiopian culture means living and thinking as an Orthodox Christian—not without some historical validity.

Christianity came through Northern Ethiopia which at the time was significantly exposed to the foreign world. As a result, the Orthodox Christians in Ethiopia were more

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4 According to Milkias (2011, p. 180), there is a reference in the Bible (Acts 8:26–40) about a eunuch and the treasures of Queen Candace of Ethiopia (an area then covering ancient Nubia and parts of the Axumite Empire).
“educated” and widely travelled. Though there were regional kings and administrations in the rest of Ethiopia, those in Northern Ethiopia considered themselves as representing the whole of Ethiopia. Therefore, I felt the need to go beyond the location of the main research and its participants to meet Muslims and their institutions. Although Islam entered and developed in Ethiopia peacefully, it did not influence the administration and the way things were managed in Ethiopia. Historically, Muslims had focused on business, which did not have much influence in the political life of the country. Thus, while collecting data, I went to the Islamic Affairs Council, the highest governing body of the Muslims in Ethiopia. I talked to some learned Muslims in the Haji and Umra office. I also went to the Awulia School in Asko, on the outskirts of Addis Ababa, in order to talk to the teachers and students and get a sense of what Islam and Muslims represent in Ethiopian culture, and also to see if they shared the insights given by other participants. Though I felt reasonably confident that Muslims share most spiritual and cultural values with Christian Ethiopians, I also felt that any future curriculum improvement programs needed to directly engage them. I suggest that future researchers follow up on this and study specifically the spiritual and cultural values of Muslims to see what their tradition can contribute to the educational system.

**Breadth Versus Depth**

Due to the many problems of doing research involving government institutions, it has been difficult to create a balance between breadth and depth in the research. Bureaucracy and inefficiency in government offices in Ethiopia were frustrating. Ethical procedures such as securing permission for the research as a whole from the Ministry of Education (MoE) and...
getting ethical clearance from the Ministry of Science and Technology (MST) were cumbersome. Consequently the actual data collection took much more time than originally planned. There were few responsible officials who could make decisions about questions of permission; there was not sufficient information on how to proceed; committees were unable to meet to make decisions—only some of the major problems dealing with those in government circles. Moreover, government officials and civil servants lacked confidence to speak on curricular issues, either out of fear of being labelled politically, or for reasons of political correctness, or for lack of information about the issues at hand. Several research participants overtly or covertly kept away from deeper engagement on the research questions. For example, I met a number of curriculum experts in the MoE who asked me what “science education” is all about. Most Science Curriculum experts in the MoE had no special training or even a graduate degree in curriculum. Yet they are the ones responsible for the preparation of the framework (syllabus) for all primary schools and the preparation of both syllabus and text books for secondary schools. Unfortunately, the MoE, its agencies, and experts seemed to exist more to create challenges than to facilitate change in the educational system; as a result, there were many setbacks in the course of my research.

Although the focus of the research was Ethiopia, questions of values could, of course, be generalized from one country to the other despite differences of context even within a country. When I describe a situation or present a story in the Ethiopian context, it is also possible that others may identify with the incident. Nevertheless, this research is not a comparative study. Rather, the aim is to explore and understand what Ethiopians think about their spiritual and cultural values and how these values can be integrated into the Ethiopian educational system. There may be some similarities and differences with other nations and peoples. The positive
statements about the Ethiopian people in no way diminish or downplay the presence or absence of spiritual and cultural values in other nations.

Even in the section on uniquely Ethiopian values, it has to be clear that these are things most Ethiopians consider to be unique from their perspective. This does not necessarily mean that they are unique in the global context. But whether the values are unique or not, one cannot discount the fact that the Ethiopian people consider them unique and their sole owners. Some of these considerations could be due to lack of information about other countries or lack of international travel experience. In any case, the participants in the research felt those unique values are the ones that define and shape them as Ethiopians.

Ultimately, I am also concerned about the renaissance of the Ethiopian curriculum—that is, the development of a curriculum belonging to the Ethiopians themselves—and the values discussed are significant primarily in this context, not in that of any other people or nation. But it is my conviction, as I discuss later, that the concept of spirit and spirituality exists in all people, as a common thread of humanity, the difference being only in how people recognize and practice their spirituality as part of their culture.

**Definitional Issues**

Before proceeding with a discussion of different concepts, it is important to provide definitions of some of the terms that recur in my research.

**Curriculum.** The definition of curriculum is, in its true sense, as wide as education itself. Lunenburg (2011) for example, citing different scholars, discussed the meaning of curriculum in five pages as: content, learning experiences, objectives, a plan for instruction, and as a nontechnical approach. Careful perusal of this article and other texts helps us to understand that curriculum is far more than a technical term referring exclusively to text books or training
manuals. A closer examination of the theory and practice of curriculum shows that it goes beyond the narrow meaning ascribed to it by some laypeople. Moreover, curriculum is more powerful than any ideology, because it takes place within the minds of the young, whose influence will persist both well on into the future. Finally, curriculum is a powerful instrument to either oppress or liberate a given people.

For those of us who had the opportunity to look more closely at what curriculum is, it is clear that the philosophy of education, the setting of educational policies, the preparation of teachers, and the ultimate learning experience within the classroom are all part of the curriculum; and we are keenly aware how much these factors influence curriculum theories and practice. But for the bulk of the participants involved in this research, curriculum means text books and other educational documents. More importantly, the word refers to the documents developed by the national and regional curriculum offices, that is: the text book, the teachers’ guide, content of Plasma TV\(^5\) and its guide, some guidelines sent to schools piece by piece without any policy framework. The guidelines are usually products of a particular official at the national or regional level who has been charged with the task of stopping or initiating some practice—usually without any motive to improve the curriculum. This narrow view of curriculum is sometimes shared by policymakers and ordinary people on the street: curriculum refers to the nationally (centrally) prepared text books.

As curriculum implementers, teachers are responsible for the direct implementation of what the text books dictate, while the text books state the objectives, the content, and the method of presentation, in addition to providing assessment questions. These text books do not allow much space for personal input. Before Plasma TV took the place of actual teachers, it was

\(^5\) A teaching technology used in Ethiopian secondary schools, details of which follow later.
customary for teachers to come to the class with the text book in hand and lecture page by page. The teacher’s role consisted mostly in passing on what was in the text book to the students’ note books.

In this thesis, therefore, the term curriculum in most cases refers to the text books and written guidelines used by students and teachers. Hopefully, this thesis and other researches will show alternative ways of looking at curriculum beyond the written text.

**Religion.** As will be clear later in the discussion of Spirituality in Epistemological Discourse section, I argue that religion represents a knowledge system. It is like any knowledge system, similar to how Kuhn ((1962/1970) described the growth of science, in which there is a time for fresh birth, growth to climax and decline. In my book *Addis zemen addis giltset [New Age New Revelation]* (Faris, 2007) I explained these three stages as the birth, growth, and death of a religion. When a religion first appears, most people oppose its new teachings. It is only a few innovators, the most open-minded, who eagerly accept and practice the teachings. Through time and effort, the religion grows and the majority of a population become followers and take pride in their faith. Over time, gradually, the religion stops responding to the questions of the time; some people exploit it to selfish ends while the majority recede into darkness praying for another religion to come, or attached to rituals and dogmas human beings have added to their tradition. At this point in its evolution, corruption of the religion contributed to a decline of understanding and frustration with religion and with one another on the part of the followers.

Just as science can be exploited for harmful ends, so too can religion. There may be a tendency to liken the word “spiritual” with corrupted forms of religion and, as a result, resistance to the very idea of bringing religion into the classroom. It is also possible to consider the
corrupted form of religion as the antithesis of a freshly growing science and to view bringing the two together in a classroom as impossible.

In Ethiopia, I must admit that there are harmful practices that have kept people in ignorance concerning religion. The so called religious intellectuals and religious leaders insinuated various thoughts of their own as religion, making their way into the daily practices of the followers and serving as obstacles to development.

At the same time, the religious and the elite class stigmatized people in the trades, such the *ketekach* (blacksmith), the *antari* (goldsmith), the *faki* (tanners), the *tenkuay* (witches/wizards), and so on. Although these highly skilled people were creative and hardworking, the stigma attached to their work made them reluctant to practice their trades. Intermarriage with them was officially barred. If someone fell in love and married a person from this class, it was considered taboo and kept secret. Some of these harmful practices arose in the very place from which civilization sprang, such as Axum. Interestingly, Axum was a source of civilization to which the blacksmith (*ketekach*) made a significant contribution, although they were despised and misunderstood.

Milkias (2011) generally wrote about “heavy persecution” of the Jewish community by Axumite Christians (p. 173). The Jews rejected Christianity, and, in turn, the Christians began to shun them. The Jews (Beit Israel) were considered heretics, who refused to accept Christ. It is ironic that subsequent Christians rejected Mohammed and Baha’u’llah as Messengers of God.

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6 **Axum** or **Aksum** is a city in northern Ethiopia which was the original capital of the eponymous kingdom of Axum, a naval and trading metropolis that ruled the region from ca. 400 BC until the 10th century. The kingdom was also arbitrarily identified as Abyssinia, Ethiopia, and India in medieval writings.

7 Beit Israel [House of Israel], sometimes referred as the Falashas, is the name given to the Ethiopian Jewish community, most of whom have emigrated to Israel.
while they denounced the Jews for rejecting Christ. As a result, the Ethiopian Orthodox church tradition and worldview remained the dominant discourse in the Ethiopian educational system.

**Research Subjectivity**

Not only by virtue of my birth, upbringing, education and work, but also by conscious choice, the subject of Ethiopia has interested me more than anything else. In the research methodology section of the thesis I will discuss at length, based on the literature, how personal context influences one’s research (Covington, 1995; Ellis, Adams & Bochner, 2010). For now, it suffices to say that, despite my philosophy and belief that we all belong in the same world and must work for the well-being of the whole of humanity, I feel that Ethiopia and Ethiopians must be my first priority. Of course, through them, I try to reflect how I can best be of service to all of humanity and how my life can be of benefit to others. But it is clear that my physical and spiritual being are so closely associated with the country of my birth, that I have chosen it as the subject of my research; as a result, I fully acknowledge that this work is, in part, autobiographical which, when synthesized with ethnography, gives autoethnography (For further discussion on this synthesis please see Chapter III Methodology section).

As the readers will realize later in the dissertation, it has indeed been difficult for me to disentangle my subjective feelings about Ethiopia and Ethiopians, and to see the country and its people objectively, as it were in the “third person.” Immediately the feeling of being an Ethiopian weighs on me and I start to speak in the first person, seeing myself as Ethiopian and seeing this story as my own. I am at one and the same time the researcher and the topic of the research itself. Thus, the reader may notice the simultaneous merger and separation between the researcher and the researched, owing to the deep relationship between myself as the “researcher”
and Ethiopia and Ethiopians (to whom I sometimes refer as “we”) as the subject of research. In the next paragraphs, I will try to explain how the topic of Ethiopia and my own Ethiopianness crisscross and shape the dissertation.

“Ethiopia shall soon stretch out her hands unto God.” Why Not Unto Science Too?!

Ethiopia: The Country

Ethiopia has been a relatively secluded country. The outside world knows little about it. Located in East Africa, it has a population of 80 million with 100 distinguishable ethnolinguistic entities spread across one million square kilometres (World Bank, 2005). Whether in terms of the discovery of Lucy and Ardi, the 3- to 4-million-year-old human-like fossils, or DNA traces from the Omo tribes, Ethiopia is known as the original home of human beings. The history of human government in Ethiopia goes as far back as 1000 BC and the thousand-year-old obelisks and rock-hewn churches show that it is one of the most ancient countries in the world. It is a country that claims not only to possess the lost Ark of the Covenant and part of the true Cross of Jesus, but which also offered home to the first refugees of Islam. Several rivers crisscross the country, including the Blue Nile, on whose delta the civilization of Egypt thrived. Ethiopia fought back colonialism and remained the only independent country in Africa where religions and traditional beliefs played a major role in shaping its social and economic life. The great diversity of the fauna and flora in the country seems to be the direct result of the diversity (and uniqueness) in its landscape which ranges from the Dallol depression, 110m below sea level, with record high temperatures, to the 4,620 m heights at Dashen.

The Ethiopian Orthodox Christian churches and Islamic mosques established a good network of traditional education between the 4th and 7th centuries. These institutions played an important role in creating and sustaining a literate elite in the country. Beyond moulding the
economic and social life of the people, the Orthodox Christian churches also developed the
Ethiopian alphabet (Ge’ez),\(^9\) documenting the country’s ancient history, and providing the early
basis for education (Pankhurst, 2001; Wubie, 2001). It is interesting to note that by the end of the
19th century, Ethiopia had been enjoying an extensive network of traditional education with
Orthodox Christians and Islam dominating the scene (Wagaw, 1979).

The literature on the history of education in Ethiopia indicates that so-called modern\(^{10}\)
education began precisely 100 years ago (1908), when the then Emperor Menelik opened the
first formal school, called the Menelik school, upon the demise of the elaborate and indigenous
religious schooling system (Negash, 1996; Wagaw, 1979). The Emperor opened this school with
the goal of raising foreign language translators and bureaucrats to fill posts in newly opened
government structures such as the Postal and Railway Authorities. At the time, these structures
were so simple that they required a staff with only basic literacy. Unfortunately, while the needs
of the country grew in complexity, the education remained at this basic level. Over the course of
the 20th century, the foreign forces which dominated education in Ethiopia—France (1910 to the
1920s), Italy (1930s), Britain (1940–1950s), United States of America (1960s), Russia and
Germany (then East Germany) (1970–1980s), and currently (1990–2000s), along with a mix of
USAID, World Bank and EU member countries—did not seem concerned that formal education
went beyond literacy, rendering it virtually irrelevant for the modernization of the country.

The Researcher

I received my undergraduate degree in biology and then taught the same subject in
secondary schools for more than a decade. I remember the many eureka moments I had while

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\(^9\) Ge’ez is the best known African script used for writing the two principle Ethiopian languages. Amharic
and Tigrigna.

\(^{10}\) The word “modern” here refers only to the time period when the Western model of formal education
entered the country, and not with the relevance or quality of that education.
explaining to students one of the systems of the body. I had to contain my amusement while I meditated silently on the wonder of how these systems function and how and where they originated and evolved. Given my religious background, I tended to attribute these wonders to an almighty Creator and Designer who designed nature to evolve throughout eternity. Moreover, I was overjoyed to be able to help students appreciate the wonders of nature and the marvel of its design. For another five years, I worked as a trainer and development facilitator in non-governmental organizations. Taking advantage of my experience as a teacher and development facilitator, I took an MA program in Curriculum and Instruction. After I finished my degree and one semester of teaching in Addis Ababa University, I joined Jimma University as a lecturer, where I offered courses such as Principles of Curriculum Inquiry and Subject Teaching Methods for science candidate teachers. As part of my administrative responsibilities at the university, I served as coordinator of the unique, university-wide Community-Based Education (CBE) program which engages all the students in continuous formal study, action, and reflection with the local community.

During this period, my actions were inspired and guided by the community development programs in which I have been involved for more than two decades as a member of the Baha’i community. As a Baha’i, I believe that each human being is a “mine rich in gems of inestimable value” and that “education can, alone, cause it to reveal its treasures” (Bahá’u’lláh, 1990, p. 259). For Baha’is, proper education is the means of revealing the capacities which human beings inherently possess. The Baha’i Faith also teaches that the human family is

11 Community-Based Education is a program consisting of a Community-Based Training Program, a Team Training Program and a Student Research Program with formal courses that require every student to engage in study action and reflection with the local community both independently and in teams.

12 The Baha’i community is a religious community that views social and economic development as an integral part of a spiritualizing process.
essentially one. Given the opportunity of proper education, all peoples of the world have the potential to reveal the “gems” in their own being. For a Baha’i, it is totally unacceptable and unjust to see that education has fostered the potential of some people in the world, but has done nothing for others in different contexts.

These principles and experiences, related directly to education and development, convinced me that science education was not contributing anything of significance to the development of Ethiopia. Given the great potential of proper science education, I assume and hope that its enhanced implementation will help tap all kinds of resources within the people of Ethiopia. The question, then, becomes one of strategy and method for achieving such an objective. As a conscious pedagogue, I have assumed the modest mission of assisting the disengagement of Ethiopian education, particularly science education, from the clutches of imposed formulae and irrelevance, in order to make it a source of transformation. Therefore, I have arrived at certain assumptions and theories about the issue, and have proceeded with research to address and either confirm or reject them.

In order to initiate a viable educational praxis, it is important to clarify those existing assumptions or themes, which are central to both my personal location and to this research. The first regards the existence of indigenous spiritual and cultural values which the Ethiopian people hold dear. The history of modern education in Ethiopia has not concerned itself with either the transmission or transformation of these values. By extension, we know that Ethiopian science education did not concern itself with these spiritual and cultural values. Consequently, assuming that these values do exist, the second theme relates to how these same values can be identified with pedagogical utility in mind. The third theme deals with the exploration of ways to include
these values into science education. These assumptions and themes can be summarized in three basic statements which will serve as a framework for my research:

1. As a result of their long years of religious, political, and social life, Ethiopians possess positive, indigenous spiritual and cultural knowledge and values which helped them achieve great moments in their history;

2. These spiritual and cultural values can be identified as having pedagogical utility;

3. These values can then be incorporated technically into the curriculum and to the instruction of science so as to create a culturally competent model of science education.

The objective of this research is to find out, through appropriate methods, how far the assumptions hold true by asking the research questions mentioned earlier.
CHAPTER II

LITERATURE REVIEW

While pursuing this research I learned the importance and the challenge of giving a succinct answer to the question: What is spirituality? The question often arises when I tell people about my research topic. Basically, that is my first research question and I wanted the answer to come from the participants themselves. I wanted to know what spirituality means to the Ethiopian people. But I still believe that the local definition (the perception) has to be compared with others, mainly with perceptions in North America. Moreover, the second step, that of taking the understanding and practice of spirituality to the science classroom has been another level of the research question which most of the time aroused the interest of my listeners. The responses from people were mixed: from those who ridiculed the very idea of spirituality in the science classroom as futile to those who thought “fantastic.”

I tried to emphasize in all the discussions that too much theoretical discussions and the inability to define and untangle complex concepts should in no way distract us from the immediate necessity of dealing with them at the classroom level. In another sense, we do not have to stop trying to create a balance between the extremes of bringing the matter of daily lives to the curriculum and finding the intersection between science and spirituality. Therefore, even within this literature review section, when it comes to spirituality, I took the stance that it does not matter whether we get a complete answer to some of the questions that surround it, but as West-Burnham and Jones (2007) suggest, the point is developing the “capacity and resilience to engage with the questions” (p. 19).
Defining Spiritual and Cultural Values

I agree with Smith’s (1994) effort to take spirituality beyond the narrow definition of religion which may currently appear to be universally accepted. In an article entitled “Toward developing a theory of spirituality” she attempts “to develop a supra-religious definition which expresses the commonalities of varied religious traditions rather than that which is unique to any individual religious institution or expression” (p. 5). By doing so, she agrees with a definition of spirituality as a way of being and experiencing reality that comes “through awareness of a transcendent dimension characterized by certain identifiable values1 in regard to self, others, nature, life, and whatever one considers the Ultimate” (p. 6).

West-Burnham and Jones (2007) define spirituality as “the journey to find authentic, unified and profound understanding of the existential self which informs action, sustains hope and enables personal transformation” (p. 18). West-Burnham and Jones add that spirituality is also the way human beings seek to respond to the great existential questions regarding purpose, life and death, beauty and creativity. Indeed, what profound and authentic knowledge could exist other than understanding the self? In fact, the Baha’i writings state that understanding the self is the ultimate goal of life. Elaborating this notion of Baha’i spirituality, Dunbar (2009/2010) states that:

A key to understanding spiritual reality is the concept that Spirit is one, even though we often distinguish the separate functions it performs and call them by different names. . . . the soul, mind, spirit, heart, sight and hearing of human beings are all one thing. They are “but one single reality” but are characterized with different names according to the function they perform. In other words, it is the spirit or soul that sees through the eyes and hears through the ears. The latter are simply instruments. The spirit is the hearer. The spirit is the seer. The spirit is the knower. (p. 5)

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1 Highlight/italics mine. These are the ‘identifiable values’ I would like to work on my thesis.
It seems that most definitions of spirituality, in their essence, stem from the belief that there is a transcendent or a metaphysical nature or power, generally referred as spirit, in human beings. Drawing on the essence of Ethiopian philosophy about human beings, Sumner (1974) states that the soul/spirit is not only transcendent in human beings, but it is also the one thing that sets them apart from animals. Sumner says,

The soul was created, as well as the flesh itself. It is spiritual, thus raising man over the animal kingdom. It experiences neither sorrow nor fatigue. Whereas the flesh is inclined to eating and drinking, the spiritual soul transcends such limitations. It is everlasting in identity. (p. 247)

That is, I believe, why in his book *Education and the Soul*, Miller (2000) says that “to deny spirit is to deny an essential element of our being and thus diminish ourselves and our approach to education” (p. 9). Miller defines spirituality as a “sense of the awe and reverence for life that arises from our relatedness to something both wonderful and mysterious” (p. 4).

Religion Versus Spirituality

When it comes to the relationship between religion and spirituality, there are at least three kinds of scholars: one group is convinced that spirituality encompasses religion (Bigger & Brown, 1999; Smith, 1994); a second group contend that religion encompasses spirituality (Arbab, 2000; Lample, 2009); yet a third group believes that we cannot separate spirit, religion and God and they do not contradict each other (Kamalu, 1990; Mbiti, 1969). An exploration of the literature also reveals that these distinctions can be broadly categorized as secular vs. religious spirituality.

The first, secular spirituality, is a position that acknowledges the spiritual dimension of human existence, but divests it from the concept and practice of religion. Tacey’s (2004) argument captures the rationale for this position:

2 In this thesis, the term “spirituality” is used as a synonym for the phrase “spiritual value.”
We can no longer situate ourselves comfortably in the containment of the traditional religions. We need spiritual guidance, but for a variety of historical and social reasons we cannot return to organised religion or dogmatic theology in their old, premodern forms. Western society cannot be expected to return to antiquated systems of meaning that have not themselves been part of the long line of historical changes and revolutions that society has experienced over the recent period. (p. 2)

People who take this stand often identify themselves as being spiritual but not religious; they generally believe in the existence of many spiritual paths and deny that there is an objectively set path to follow. Such spirituality is too personal to fall under any form of religious belief, and it comes with varieties (Redfield, 1997; Tacey, 2004; Thompson, 1981). As Thompson (1981) puts it, “Religion is not identical with spirituality; rather religion is the form spirituality takes in civilization” (p. 103).

Other scholars, such as Arbab (2000) dismiss the validity of spirituality in the absence of a religious foundation. He argues that the encounter between human consciousness and the divine creates religious text, a basis for spiritual teaching:

In the text life is described in both its material and its spiritual dimensions. It reveals aspects of spiritual reality, which, once uttered, can become the subject of exploration, not only by the individual soul, but also by entire populations. Without the revealed text, spirituality would be an expression of personal experience, never to be validated by the intellectual interactions that create social knowledge. For, by religious truth is not meant mere assertions about the esoteric, but statements that lead to experimentation, application, and the creation of systems and processes, whose results can be validated through observation and the use of reason. (p. 177)

Regarding the deep connection between spirituality with religion, Bigger and Brown (1999) state that:

The word ‘spiritual’ tends to evoke religious feelings of prayer, meditation, mystical vision and relationship with the divine. This stems from a time when sacred and secular were scarcely divided: the ‘spiritual’ was embedded in story, of deities, of divine actions in the world, of Jesus, or Krishna, or Shiva, of personal relationships with deities, and of faith. Inner feelings of trust, commitment and aspiration were seen naturally as part of this domain. (p 35)
Contrasting “secular spirituality” with what he calls “religious spirituality,” Medina (2006) indicates that religious spirituality is “a metaphysical framework in which the sacred, or that which is considered sacred, assumes divine dimensions and is located in transcendent spiritual realms” (p. 104). In this sense, “divine dimensions” or “transcendent spiritual realms” may attribute the source of this spirituality to the divine. As rays are essential characteristics of the sun, spirituality becomes an emanation of the divine vouchsafed to human beings as a special gift (as distinct from other animals). Almut Beringer (cited in Medina 2006) explains this concept by saying “we conceive human beings as having spiritual dimensions. The sacred or divine may be located in a transcendent, absolute, metaphysical-spiritual realm; however, it is not limited to that order, but penetrates into the physical-material worlds” (p. 105).

Yet, both arguments show that we can take spirituality as a common thread characteristic of all human beings, whether or not they belong to any form of religion or whether or not the concept of the divine is associated with it. The difference between the two groups (those who associate and dissociate spirituality with the divine/religion) would be in recognizing its source, and may be found in the purpose and method of developing and utilizing spirituality. Religion, in this context, becomes the broad framework or knowledge system in which one tries to understand what spirituality is and how one can develop and use it in a given context. However, it is important to note here that, as suggested by Dei (2004), “approaches to spirituality need to attend to and be critical and respectful of different religious traditions, including secular thought” (p. 154).

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3 In this paper, I am using the term religion broadly to mean a system of knowledge that is free from the blind imitations and fanaticism associated with some sectarian movements. “It is possible, indeed indispensable, to consider …religions as expressions of one historical process resulting from the interventions of the Divine in the affairs of humanity. In this sense it is legitimate to explore ‘religion’ and not ‘religions’ as a system of knowledge and practice and identify its contributions to the civilization building process along with those of science.” (Institute for Studies in Global Prosperity, 2009, p. 70)
In some cases, I find that scholars who prefer the term “spirituality” to “religion” are afraid of and would like to avoid the blame heaped upon religion as the stirrer of mischief and instigator of fanaticism. They see the apparent need to understand and engage with the question of spirituality because it is so intrinsic to human nature, but they cannot argue for the existence of a supreme creator or religion as a foundation for spirituality. I am assuming that they see spirituality as neat and tidy—that is, not associated with the evils in the world and sacred forever—while religion is associated with some of the evils in the world. It is fair to say that these scholars admit spirituality to be the noblest fruit yielded by religion.

While these discussions of which came first, spirituality or religion, are going on, I would like to make my own view of the matter clear. Because many Ethiopian and African scholars have described their people’s conception of spirituality as closely bound up with religion or that one is a reflection of the other (Kamalu, 1990; Mbiti, 1969), the reader will notice in my theoretical discussion that I favour a spirituality that is connected with what we think and do as a result of religion. My view, which is in agreement with some of the writers, is that, spirituality is entrenched in religion. Describing the African conceptions of religion, spirit and God, Mbiti (1969) states:

According to African peoples, man lives in a religious universe, so that natural phenomena and objects are intimately associated with God. They not only originate from Him but also bear witness to Him. Man’s understanding of God is strongly coloured by the universe of which man is himself a part. Man sees in the universe not only the imprint but the reflection of God. Mountains, hills and other high standing earth formations are in no way thought to be God: they simply give a concrete manifestation of His being and His presence. . . . They are points of contact, drawing together, not only people in a given region, but also men, spiritual beings and God. (p. 48)

Restating the belief that spirituality is engaging with the spirit which is entangled with the physical nature of human beings, Mbiti (1969) describes the spiritual world of Africans as:

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4 90% of the population believe in God, either as Christian, Muslim or other minority faiths.
. . . very densely populated with spiritual beings, spirits and the living-dead. Their insight of spiritual realities, whether absolute or apparent, is extremely sharp. . . . the spiritual universe is a unit with the physical. . . these two intermingle and dovetail into each other so much that it is not easy, or even necessary, at times to draw the distinction or separate them. (p. 80)

In fact, Mbiti laments that no serious studies have been made prior to 1969 about the extent to which the spiritual world plays an important role in African life. Since then African scholars seem more and more to be convinced that:

. . . spirituality-centered wisdom not only defines African personhood but it also provides the needed clues and hopes for surmounting the puzzle of the lack of development in Africa by rethinking the pedagogy of Africa’s current-day education systems (returning to the source). (Nashon, Anderson, & Wright, 2007, p. 1)

In light of this African view of spirituality, religious teachings are not only about some aspects of a metaphysical existence, but also about day to day physical existence. Therefore, religion can be taken as a system of knowledge that can benefit or harm humanity, depending on what we do with it. Religion in its worst form and in its deteriorated stage can be a source of destruction in the same way that scientific knowledge can be abused and cause harm. Thus, spirituality may be seen as the highest and noble expression of religion, while enmity, fanaticism, and ignorance are its worst expressions. However, as West-Burnham and Jones (2007) suggest, it does not matter whether we engage in unnecessary debates over precise definitions of spirituality and how it relates to religion; it is enough to say that it is a question to be engaged in as we explore values and bring them into the classroom.

Accordingly, there is a striking similarity in how religions, politics and science grow and die. In this respect Kuhn’s (1970) discussion of how science grows through revolutions is relevant here. According to Kuhn (1970), scientific revolutions in scientific development occur when an older paradigm is replaced in whole or in part by an incompatible new one. Speaking of the parallel between scientific and political revolution Kuhn states:
Political revolutions are inaugurated by a growing sense, often restricted to a segment of the political community, that existing institutions have ceased adequately to meet the problems posed by an environment that they have in part created. In much the same way, scientific revolutions are inaugurated by a growing sense, again often restricted to a narrow subdivision of the scientific community, that an existing paradigm has ceased to function adequately in the exploration of an aspect of nature to which that paradigm itself had previously led the way. In both political and scientific development the sense of malfunction that can lead to crisis is prerequisite to revolution. (p. 92)

Therefore, one can conclude that science and religion are knowledge systems that are governed by the same universal law of change, but addressing mostly different, but sometimes similar questions in life.

Values As They Relate to Africa and Ethiopia

Tyler (1949) observes that educational philosophers recognize that there are basic values in life, largely transmitted from one generation to another by means of education. He, in fact sees schools as aiming essentially, at the transmission of the basic values derived from comprehensive philosophic study and, as a result, considers educational philosophy to be the basic source from which objectives can be derived. As we know, current advance in organizational framework and function demand that every organization develop its mission and value statements, because these value statements govern everything the employees of the organization say and do.

Having seen the importance of values and the effort to apply them in many international scenarios, the story of Africa seems different. Amare Asgedom (2009), Yatta Kanu (2007), Elleni Tedla (1995) and Joel Spring (2008) discuss how formal education promoted the interests and values of Western nations, rather than the interests and values of Africa itself. For example, Tedla (1995) writes, “Because the origin of modern education lies in the West, embedded in the liberal evolutionist thought of modernization, this education transmits the liberal values and behaviours deemed essential for the modern state. Liberalism champions individualism, secularism and materialism” (p. 179–180). In her view, individualism simply means that the
interest of the individual comes first, as compared to the interest of the community or others. The individual is left to the care of institutions. The individual is not obliged to be a contributing member of the community and, conversely the community has no obligation to take care of the individual. Placing the blame on formal education Tedla says,

> Modern education has not valued Africa’s insistence on the boundedness and indivisibility of person and community. Thus, what is taught in school is not based on or tied to the accumulated indigenous experience and wisdom of teaching of the ancestors. The community is ignored as though it has nothing to do with formation of African personhood or reality. (p. 179–180)

One would wish that through formal education, some of the good values of the Western world could be transmitted. However, Asgedom (2009), citing different scholars and offering his own analysis, argues that essential values are deep and very cultural and, therefore, are not easily transferable. Asgedom states:

> Western culture did not enable us to develop our own science and technology. The most important stands, such as technical skills, hard work ethic, Western professional commitment, etc., have failed to transfer. The trivial cultural components, such as living styles, consumption patterns, entertainment, wants, etc., have penetrated all through our culture. The latter, however, are not only less useful, but even tend to hamper development as they imply unviable aspirations, demands beyond what the country can afford. (pp. 63–64)

The transfer of trivial life styles easily comes as no surprise. As Abdul-Baha (1987) asserts, disease tends to spread faster than health. Formal education in Africa is so Western that in whatever form it is given to Africans, it seems it can never transform them. An African can become Western-like, but never Western; as a result, she ends up becoming neither Western nor African. This is a crisis of identity that surfaces itself in hampering development as mentioned earlier.

**Ethiopia and Values**

An Ethiopian writer Alemneh (2007) states that formal education in Ethiopia has been imported “as a foreign commodity because both the text book and the teachers were brought
from outside bought by a lot of money” (p. 9). This parallels the situation of other African
countries. Through our education, we were made to value what is foreign. As a result, we lacked
self-knowledge or self-understanding, a very important prelude to development. We value what
is foreign; ultimately, all educated people tend to go out of the country to experience first-hand
what is foreign. There was nothing Ethiopian about formal education. As a result, we began to
exalt what is foreign and downgrade or devalue what is ours. As students entered formal school,
y they and their parents were considered completely ignorant and were forced to take schooling as
a “civilizing” process. Slowly, such education continues to alienate students both from
themselves and from their parents and the community. Children were set against their parents
because of difference in values. Children lost national pride and honour, values which were
deepl y engrained in their parents. The psychological impact of formal education was similar to
the effect of direct colonization. Everything that is foreign and Caucasian (white) is considered
to be the highest (best) and everyone wanted to obtain it, if possible by going to a foreign
country to be part of its “civilization.” As a result, Ethiopia has lost innumerable educated
citizens to Western countries.

This has happened despite the heavy investment of every emperor of Ethiopia since 1908
in formal education in the hope of bringing about a better future for the country. Sadly, the result
has been the production of an elite class that has been a threat to the emperors’ power and
ineffective in fulfilling the aspirations for and of the people (Asgedom, 2009; Hailu, 2007;
Negash, 1996). The main purpose of expanding formal education in Ethiopia, at the expense of a
well established traditional education, was to lay the foundation for modernism and
development. Such formal education, modeled after that of Western nations was embraced with
the highest hope that it would deliver much-desired economic growth for the people. However,
despite the high investment and interest, and the community support and effort expended in formal education, it did not succeed in achieving these objectives. As a result, it is not strange to find a peasant dying of starvation beside an agricultural college at which the students study the high science of farming, or a community that has difficulty crossing a river while a university funded by their taxes offers a course on bridge building. Such a tragic picture remains true in Ethiopia and in most other African countries (Asgedom, 2009; Negash, 1996; Okrah, 2008; Spring, 1998).

**Traditional Education and Values**

With this background in mind, I now discuss how values were transmitted or transformed in the traditional education system of Ethiopian culture. Whether important universal values, such as hard work or a specific local value like *yilugnta*, the traditional schools were able to inculcate values that stayed with the students for the rest of their lives.

The Ethiopian monasteries, churches, and mosques were solely responsible for both the successes and failures of Ethiopian traditional education. Until recent years, the monasteries provided great educational centres, and they supported scholars who could teach courses in reading, writing, the sacred music of the church, poetry, grammar, *Qene*, history, and religious paintings. Students moved from monastery to monastery in search of a special teacher on their level or in preferred subject. Graduates of these schools could often start their own community, and some even ended up writing and teaching as philosophers.

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5 The word traditional in the context of Ethiopian schooling refers only to long existence and indigenous aspects. It does by no means imply lower quality as the word modern sometimes implies higher or better quality.

6 Suppressing self interest out of fear of, or respect for, public opinion.

7 *Qene* is an Ethiopian style of speech, in which one says one thing while implying something different at the same time and in the same sentence, as in a play on words. It depends on a word being interpreted in more than one way.
One of the strengths of the traditional education, as opposed to formal education, was its practice of constructivism, which took into account the physical, social, and cultural background of the students. The children usually studied close to home and instruction was centred on moral and religious education, with the strong support and presence of parents. The teacher was one of their own, someone who belonged to the community and was known by all. The school setting was familiar, usually held on the grounds of a nearby church or mosque, making the transition between home and school very smooth. The subjects taught included law, administration, service, and basic numeracy. The challenge for the yekolo temari [students of the traditional church school] was to raise funds for their teachers, by going around the community asking for bread and any food which they would then bring to their teachers. This responsibility demanded physical and moral strength to circulate among the people of the village and fight with dogs.

As I said earlier, in order to understand what great philosophy and philosophers the traditional education brought forth, it is enough to read the five-volume work entitled *Ethiopian Philosophy* written by Professor Claude Sumner. These five volumes probe the heart of Ethiopian philosophy and the great philosophers, such as Zar’a Yacob, who are associated with it. In one of the dark stacks of the University of Toronto’s Robarts Library, on the ninth floor, one can obtain materials and be enlightened on Ethiopian philosophy. Professor Claude Sumner (1974, 1986), a Canadian by birth and an Ethiopian by choice, discusses how he came across a manuscript entitled “mashafa falasfa” (Book of the Philosophers) in the Manuscript Department of the National Library of Addis Ababa and how the title immediately aroused his interest. He later referred to this manuscript as “The Book of the Wise Philosophers,” in whose pages the essence of Ethiopian philosophy was recorded. In describing the method of his study of this manuscript, Sumner says that “we are searching for Ethiopian patterns of thought, for structure,
for a *Gestalt*, for the complex unity of a *Weltanschauung*, for the whole phenomenon of

Ethiopian traditional wisdom” (Sumner, 1974, p. 7). Illuminating the fact that Ethiopian thought is situated and animated by a moral virtue (spirituality) Sumner (1974) states:

> Ethiopian thought is a wisdom rather than a philosophy in the strict and narrow sense of the word. And this wisdom in its turn appears at two levels, first as a literary type which constitutes the specific object of the next concentric circle, secondly as a moral virtue which permeates all the remaining layers and forms the central core from which it emanates like a sun in all directions. (p. 9)

Sumner explains how this wisdom/moral virtue is the origin of all the cosmological, psychological and sociological forces in the Ethiopian mind. The same wisdom/moral virtue is, I contend, the originator of the Ethiopian scientific world, of Ethiopian understanding, and the manner in which it deals with the physical environment.

For example, the philosopher Zar’a Yacob wrote in 1667 a work, entitled *Hatata*, meaning “to question bit by bit, piece-meal; to search into or through, to investigate accurately.” Regarding this work, Professor Sumner commented that “it is an absolutely original work, the fruit of his own personal reflection.” Sumner compares Zar’a Yacob, with his Western contemporary Rene Descartes, author of *Discourse on Method* (1637). Sumner states that in both philosophers one finds a method, the occasion for a critical inquiry, the necessity for such an inquiry, a criterion which leads to the establishment of a basic principle that is applied in the theodicy, ethics, and psychology of both authors.

Table 1 is my tabulation of the comparison between Greek/Western and Ethiopian/African philosophy, as found in Professor Sumner’s work (1986, p. 17).

<table>
<thead>
<tr>
<th>View/Item</th>
<th>Greek/West</th>
<th>Ethiopia/Africa</th>
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*Table 1: Comparison between Greek and Ethiopian philosophy* (after Sumner, 1986)
Consideration of things

As they are in their impersonal objectivity (a world of things);  
Anthropocentric (a world of persons);

Starting point

The world of external reality which is distinct and measurable;  
Does not depart from the world in which he lives; does not disengage himself from it, he does not stand out, but is part of it;  
his starting point is within himself, in his own personal experience; he does not try to express what is in his mind, but, rather, attempts to evoke it;

External world

Reconstructs and recreates the outside world within the framework of his own thought;  
Starts from what is already in his mind and endeavours to transmit it by suggestion;

Epistemology

Abstracts and arrives at the universal idea;  
Sticks to the particular and tries to absorb it;

Truth

Desires to conceive and to demonstrate it;  
Seeks to offer himself to it and to have it desired by others;

Focus of observation

The Western world is the world of senses and of matter; its instrument in the last analysis will become geometrically rigid reason; it is interested in things which have nothing in common with the interior world.  
The Ethiopian universe is that of human beings and of human life;  
The exterior and the interior life are one and the same, the spiritual and the material are also the same.*

*Italics added.

In order to understand ourselves and then be able to transmit and/or transform this understanding through education, we need to know the essence of Ethiopian philosophers and the educational philosophy which produced them. Arguably, given the circumstances of the current state of education and development in Ethiopia, there is a need to redefine and reorient both.

Science Education

Science education in this thesis regards the method and content whereby scientific subjects are offered in formal classrooms. However, in order to include or exclude what subjects are taught as science in schools, there needs to be a clear definition of what science is, at the same time clearly recognizing that the definition of science is still the subject of much debate. These debates revolve not only around what science actually is, but also whether that definition applies universally or not. How we define science determines how we speak about science
education in general and in traditional society in particular. It is also this definition that helps us what to include or exclude from science education and what to consider as indigenous knowledge.

Science, according to what Cobern and Loving (2000) call the “Standard Account,” “is a naturalistic, material explanatory system used to account for natural phenomena that ideally must be objectively and empirically testable” (p. 58). Cobern and Loving state that when a discipline earns the title “science” it acquires the authority to promulgate truthful and reliable knowledge, control over education and credentials, access to money and human resource, and the kind of political clout that comes from possessing knowledge that is essential, yet esoteric. The belief that science is universal and powerful has justified its education in the schools. Slowly, such belief and practice were extended to all parts of the world including Africa. DeBoer (2000) affirms that:

During the early years of the 20th century, largely because of the influence of writers such as Dewey, science education, and education in general, was justified more and more on the basis of its relevance to contemporary life and its contribution to a shared understanding of the world on the part of all members of society. (p. 583)

In all these efforts to define science and to teach it in schools, it remained rooted largely in Western history and culture. Cobern and Loving (2000) confirmed that the “Standard Account” of science can be called Western, given its historic origins in Ancient Greek and European culture. They state that “speculative thought about nature, natural philosophy, and later what became known simply as ‘science’ always engaged Western culture. The Western experience with science has been a long one and, in a sense, Western culture and science have matured in consort, but not without trials” (p. 53). Cobern and Loving note that the growth of such science and its education has caused the disintegration of traditional values and forms of representation. It also engendered a mentality that anything scientific is modern and great and
any other form of knowledge that tries to understand and describe nature in its own way is not worth considering and or including in the school curriculum.

The mentality that brought science education to Africa (Ethiopia) is not much different from that which sought to colonize and occupy the people and the land as slaves and objects for use. Cobern and Loving (2000) testify that Europe was an expansionist culture, and European exploration, conquest, and the colonization of lands beyond Europe brought Western science to those lands and their inhabitants. Accordingly, they state:

In these parts of the world where Western science is experienced as a relatively new phenomenon, the interaction of science with culture has taken a more violent form and the disintegrating effects have been much more sharply experienced. Indeed, colonial education designed for indigenous peoples used science as the tool of choice to modernize and supplant indigenous culture . . . The point is, the West judged the rest of the world by its own measures of choice, Western science and Western technology, and used education to enforce change on those societies found deficient. (p. 53)

Though Ethiopia boasts that it was not physically colonized, it is my conviction that formal education in the name of science made the country a colonial land and succeeded in uprooting almost all traditional values, rendering the country subservient to, and a subscriber of, Western culture and its modes of thought.

Currently, Ethiopian cities and towns are racing to catch up with the cities of the so-called modern world in all aspects, while its educated elite are fleeing the country in search of those life styles. Science education, in this case, has become a means of domination and it can be said with certainty that it did not assume its power and relevance in the Ethiopian context. We can say either that there was/is no science education in Ethiopia, or that what is offered as science in schools is pseudo science. Disciplines such as biology, physics, chemistry, and even highly specialized sciences, such as medicine and engineering brought no benefit to the society, because they are not what they were meant to be. In fact, they were taught at the expense of
traditional and indigenous knowledge, and have led to both the loss of identity and the worship of what is Western.

**The Need to Redefine Education in Ethiopia**

Anyone who has been working in the development field, at least in sub-Saharan Africa, realizes that the pumping of US$1 trillion in development assistance over the last five decades and the intensification of formal education has not contributed to the development of the region (Bolton, 2007; Klees, 2010; Moyo, 2009). Moyo, for example, describes this grim condition as follows: “. . .with an average per capita income roughly US$1 a day, sub-Saharan Africa remains the poorest region in the world. Africa’s real per capita income today is lower than in the 1970s, leaving many African countries at least as poor as they were forty years ago” (p. 5). While Africa is clearly endowed with abundant natural and human resources, it is ironic that wide spread famine, disease and corruption continue to affect the continent. In the meantime, millions who cannot solve these problems continue to graduate from Africa’s secondary schools, colleges, and universities.

Such dark economic, social and political conditions in Africa call for a redefinition of the concepts and methods of both education and development. Bolton (2007), for example, considers problem solving “capacity” as one of Africa’s most lasting development problems (p. 40). Seen in this light, capacity building is understood to be the major achievement of development, and education as the sole means of building that capacity. Therefore, I am convinced that a re-examination of the concept and method of development necessarily calls for the re-examination of education. When these two dynamically interlinked concepts: education and development, are understood and practiced in proper perspective, they are able to merge into one integrated
empowerment enterprise. Development then becomes the empowerment of people through building their capacity by means of proper education.

In its proper context, education is the process by which we reveal the potential in human beings. If, as was said earlier, man is to be regarded as “a mine rich in gems of inestimable value” which only education can reveal and enable the human family to benefit from (Baha’u’llah, p. 260), then clearly education must be seen as an enterprise which requires first the understanding of what potential treasures human beings possess, and then, the revealing of these treasures for the purpose of the common good. In this sense, education in and of itself becomes the means and the end of development. Moreover, since human beings do not exist in a vacuum, understanding their context is inseparable from understanding them. From the opposing perspective, the failure of education in Ethiopia and generally in Africa can be ascribed to its inability to understand the nature of human beings within their own environmental and cultural context. Okrah (2008) summarizes the importance of culture-based empowerment in the following way:

When schools help the learner to develop morally and intellectually by expanding their knowledge understanding of their cultural heritage, the future generation (students) would be empowered to develop culturally and manage their environment and generate greater wealth for their societies. However, schools have actually failed in Africa and other parts of the world in as much as the economic and cultural agendas often come into conflict as the curriculums continue to reflect and transmit the cultures of other people (the West). (p. 28)

For this reason we need to redefine what education means and what it should do in Ethiopia. By discovering our humanness and then our Ethiopianness, we might create a starting point to reposition education in Ethiopia.

**Redefining Development**

Building upon the definition and purpose of education given above, development is thus an organic process in which our true nature (as located within our own environment) is expressed
and carried out in the material world (Abdul-Baha, 1995; Kamalu, 1990; Mbiti, 1969). For reasons I will discuss later, spirituality and culture are deeply embedded in the character of the Ethiopian people, and this is the true nature that must be expressed and carried into our education and development endeavours. In my discussion here, the term spirituality refers to the true nature of Ethiopians, as closely as we can identify it, which embraces the vast array of their spiritual and cultural wealth. The term science refers broadly to the efforts by which we try to express our spirituality and culture in the visible world. In a document entitled, Valuing Spirituality in Development (National Spiritual Assembly of the Bahai’s of India [NSABI], 2003), we read that:

Embracing spirituality needs to be a guiding principle for a new type of development where a sustained and intensive dialogue between the two systems of knowledge, science and religion, takes place. Acceptance of this principle ‘will both necessitate and make possible major restructuring of the world’s educational, social, agricultural, economic . . . systems.’ (p. 2)

According to this document, future societies will prosper because the spiritual dimension of human existence is taken to the centre of every economic, social and educational effort.

Recently, the appeal for integrating spiritual values and local culture in education has been increasing in the fields of both education and development (Dei, 2004; Miller, 2007; Nashon, Anderson, & Wright, 2007; NSABI, 2003; Okrah, 2008; Tedla, 1995). Foundations are being laid, in part, by a growing number of efforts in universities and some development agencies to have spiritual and cultural values and principles considered seriously in academic and development projects. At the heart of the conceptualization of these efforts is the understanding that human nature is fundamentally spiritual and that spiritual principles are the basis for culture. Such an inclusive understanding resonates with the Ethiopian soul, which in the last centuries provided enormous motivational power to defeat colonialism and persevere in the face of severe difficulties.
In support of the call of African scholars such as Dei, Kanu, Mazrui, Mbiti, Okrah, Tedla and many others for a type of education rooted in the understanding of spiritual nature and cultural heritage, and as a means for moral and intellectual empowerment of the people, I argue that the following two major knowledge systems are worth investigating in the Ethiopian context.

1. The core concepts of religion/spirituality and culture should constitute the first category of this knowledge system. Given the complex historical and social background of the country, any education and development effort in Ethiopia must not ignore the religious and cultural forces to which our citizens have made strong commitments (Bishaw, 2004; Michael, 2000; Wolde-Yesus, 2001).

2. After spirituality, science (and its education) must be the second most important knowledge system to be considered, based on an appropriate assessment of national and international scenarios and the role science plays in nation building.

Spirituality in Epistemological Discourse

I agree with the premise that, without a proper understanding of the nature of reality, we cannot lay the foundation for better education (Lample, 2009). In this particular research, it is also imperative to define and situate spirituality in relation to the nature of the universe, the nature of the human being and the nature of knowledge. Moreover, such an understanding helps to underpin the theoretical framework of the research and to show how spirituality emerges from religion to connect with science (in this case, schooled science). It is interesting to read how Roberts (2000), discusses the view of Polkinghorne by citing “the natural friendship between religion and science” and goes on to explain:

It’s a slightly crude thing to say, but it has an element of truth in it, that science is concerned with how things happen, the process of the world, and religion is concerned
with why things happen, the meaning and purpose of what’s going on in the world. And each of them has its own domain. I think that you need both; you need two eyes to see in order to understand the world. I would understand the world less without my science or without my religion. (p. 163)

It is with the same conviction in mind that I acknowledge and reproduce Lample’s representation (2009, p. 121) of the parallel between physical and spiritual reality:

Table 2
*Parallel Between Physical and Spiritual Reality*\(^8\) (from Lample, 2009)

<table>
<thead>
<tr>
<th>Reality</th>
<th>LEVEL 1   </th>
<th>Revelation (R2)</th>
<th>The Universe (S2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Ontologically objective reality; reality “as it is”; the “mind of God”)</td>
<td>LEVEL 2   </td>
<td>(Revelation that can be known; the revealed Word of God; the book &amp; its authoritative interpretation)</td>
<td>(physical &amp; human reality; facts, patterns &amp; laws of creation that can be known by the human mind)</td>
</tr>
<tr>
<td>Knowledge system of religion (R3)</td>
<td>LEVEL 3   </td>
<td>(the body of religious knowledge, including methods &amp; standards of inquiry and justification)</td>
<td>(the body of scientific knowledge, including methods &amp; standards of inquiry and justification)</td>
</tr>
<tr>
<td>Practical knowledge associated with spiritual life &amp; moral social practice (R4)</td>
<td>LEVEL 4   </td>
<td></td>
<td>Technology &amp; practical knowledge associated with material progress (S4)</td>
</tr>
</tbody>
</table>

Accordingly, the ontology and epistemology of my research revolves around Level 3, given that I believe and expound the following:

· Reality has both knowable and unknowable aspects;

· What people know about this reality can be realized either spiritually or physically;

· Traditional Ethiopian knowledge and practice of spiritual and physical reality complement each other and should be viewed in relation to each other;

· Culture is a collective description of spiritual and moral life, as well as technological and material progress;

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\(^8\) Reproduced from Lample (2009), p. 121.
Science education is a process through which we understand, transmit and transform our inseparable spiritual and physical culture. The division at Level 4 is made simply for analytical purpose; otherwise in the Ethiopian traditional way of life both categories are like refractions through a single prism.

The only difficulty I have with Lample’s representation is that it does not show the centrality or the primacy of spiritual life over material progress as advocated in Ethiopian philosophy. It puts the two on an equal level and blurs the fact of interconnectedness in the whole schema of spiritual and material lives. This may be considered one of the shortcomings of the critical analysis of a variety of subjects. I would have combined R4 and S4 in one box, of only to show the merger of spiritual life and material progress.

**Spirituality, Culture, and Science in Education**

As mentioned earlier, the discussion of religion/spirituality and culture in academic circles, particularly in the context of science education, is not only not common, but is mainly a source of discomfort (Medina, 2006; Miller, 2000; Shahjahan, 2005; Wane, 2002). In classroom discussions and published journals—unless they are specifically aimed at the issues of religion and culture—the themes are relegated to the margins. For example, out of 200 articles published in major science education journals in 2008 (International Journal of Science Education, Instructional Science: An International Journal of the Learning of Sciences, Journal of Science Teacher Education, The Journal of Learning Sciences, Journal of Research in Science Teaching, Science Education, Science & Education), I found only four articles that examined the role of religion—without the word spirituality—while seven articles investigated the influence of culture in science education. In the same year 2008 (3) volume, from the 59 articles published in four issues of the journal of Cultural Studies of Science Education only seven of them talked.
about indigenous knowledge and native science. Even within these seven articles the subject of religion and spirituality in science education was marginal. In another case, the four issues of 2008 (103) volume of the journal of Religious Education, did not contain a single article written on the relationship of religious/spiritual values and science education.

In the context of science education, various studies of religion and science show a positive outcome of the effort to help learners perceive science and religion as complementary ways of knowing and doing (Dickerson, Dawkins, & Penick, 2008; Mansour, 2008; Martin-Hansen, 2008). In a study by Falcao (2008), where it was suggested that scientific training affects religious beliefs, it can be seen that science education has a direct relationship with spiritual values. Patchen and Cox-Petersen (2008) also found out that identifying practical possibilities for culturally relevant pedagogy in science education is important for students and teachers. After many years of teaching and working with native Americans, Cajete (1999) argued that spirituality cannot be ignored, as it is an “integrated focus on traditional expressions of indigenous science” (p. 44). If religion/spirituality and culture have a say in the education of Western countries, it can be argued that in countries where Western science did not take root in its proper form and use, research and education cannot ignore these concepts and practices.

Parker (cited in Dei et al., 2000), building on this common meaning, states that spirituality is “the ancient and abiding human quest for connectedness with something larger and more trustworthy than our egos” (p. 93). Accordingly, this process of the “ancient and abiding human quest” to go beyond the ego yield fruits called “spiritual values” (e.g. truthfulness, generosity, trustworthiness, compassion, respect, hard-work, integrity, and so forth). As these spiritual values are integrated into the social life of the society, they become part and parcel of the societal fabric called culture. While the ego reveals the animal nature in us, the process of
overcoming ego can lead us toward spirituality. As spiritual values pass from generation to
generation and are applied in our everyday lives, they inherently define our culture. Spiritual
values become cultural values shaping what has been listed by Pai, Adler and Shadiow (2006) as
the “pattern of knowledge, skills, behaviours, attitudes, and beliefs, as well as material artefacts
produced by a human society” (p. 19). Moreover, given Dunbar’s (2010) definition of the spirit,
we cannot avoid putting the spirit at the heart of our definition of culture and cultural values. In
light of this, the distinction between the spiritual values (acquired as a result of conscious
exertion to develop them) and cultural values slowly becomes blurred. In such a situation, people
are no longer conscious of the original source of the spiritual values; instead they sustain them as
cultural values that are taken for granted. These cultural values ultimately affect the way people
learn.

When discussed separately from religion and spirituality, the term culture has often been
a source of controversy among scholars who happened to embrace a diverse set of concepts and
practices. In the context of this dissertation, I share Park’s (2005) conception of culture as “an
objectifiable body of knowledge constituting the legitimate foundation for the building of
interventions” (p. 11). Speaking of this kind of culture and its relation with students Abdi and
Cleghorn (2005) state:

Culture can affect students’ preferred ways of learning, thus it is not only the social
context of teaching and learning that is important but the context as represented by the
experience that the learner brings to the setting. To contextualize instruction is to attend
to both of these aspects of the culture of schooling. (p. 5, emphasis in the original)

As I will continue to argue, in the context of countries like Ethiopia, religion and
spirituality constitute the legitimate foundation and setting upon which to build meaningful
educational interventions. The reasons for these interventions that require identifying specific
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spiritual and cultural values and restoring them in science education in the context of Ethiopia may be argued from a number of standpoints:

1. Students are human beings and their learning should consider their spiritual nature and endeavours (Goleman, 2003/2004; Vradenburg, 2007);

2. The material world is the reflection of the spiritual world (Abdul-Baha, 1987; Guild and Garger, 2001);

3. Spirituality is an independent worldview with an impact on learning (Dei, 2008; Griffiths, 2002; Halliday, 1978; Mansour, 2008; Matthews, 2002; Patchen & Cox-Petersen, 2008; Shahjahan, 2005).

In summary, in order to initiate and sustain a new type of development which is greatly needed in Ethiopia, the creation of a naturally sound and culturally competent model of science education is of paramount importance. In order to create such a model of science education, what is needed first is an overall assessment of the country’s spiritual and cultural context, and second, a development of science education (curriculum and instruction) that matches this context.

Values Education

Values education—which could mean the teaching of values—has been one of the important questions that have vexed the minds of educators for a longer period of time. Questions such as how to define values, how and where to place them in the curriculum, and how to teach them have been uppermost. Various writers have examined the issues from different angles. For example Raths, Harmin and Simon (1978) define values as follows:

People grow and learn through experiences. Out of experiences may come certain general guides to behavior. These guides tend to give direction to life and may be called values. Our values show what we are likely to do with our limited time and energy. (p. 26)

Zajda (2009) defines values as “socially shared ideas about what is good, desirable or important” (p. xiii). Accordingly, values refer to ideas held by individuals or groups concerning
standards defining what is good or bad, what is desirable and what is not desirable. Zajda states that:

Some values deal with proper ways, or standards, of interacting with others (being polite, . . .). Other values describe desirable states of existence to which we all aspire (e.g., desire for work. . .). . . Values may refer to a particular belief system (believing that pluralist democracy is the best political system), a mode of conduct (being honest, tolerant and courageous), a state of existence (peace, tolerance and equality), or a moral judgement (truth, beauty and justice). (p. xiii–xiv)

Therefore, for Zajda, teaching students morality or values education constitutes “teaching them what we ourselves, as citizens, with a democratic voice in a pluralist democracy, understand by morality and moral values” (p. xiii). Expounding the nexus between ethical theory and classroom pedagogy, Zajda (2009) states (citing Snook, 2003) that “the ethical teacher is one who understands both the moral purpose of education and the importance of viewing the process of teaching as essentially ethical in its nature” (p. xv). As one of the reasons for values investigation in schools Watson and Ashton (1995) state the following:

Society does not wait for consensus before transmitting values, and neither do schools. They convey values every day, knowingly or unknowingly, both at the more explicit level of what is taught, and at the less openly acknowledged level of how the school is administered. . . . Education cannot be value free. Undue influencing of the young in certain directions than in others is inevitable. Rather than being at the mercy of chance, teachers need to be as aware as possible of what they want to convey, and students as far as possible should be drawn into this awareness. (p. 14)

Arguing for values-based education Sankar (1992) reminds us that education affects the whole spectrum of human values: creative, experiential, aesthetic, material, instrumental, ethical, social, and spiritual. He explains that “a student whose educational experience involves this portfolio of human values will emerge with an integrated personality. The search for human excellence via education can only be realized if education is value-based” (p. 247).

It has become increasingly clear that teachers and schools have great influence on the development of values in children; the challenge, however, in values education is how to make
this influence open and make education a means of promoting a particular version of national/international identity (Laming, 2009; Leenders & Veugelers, 2009). Moreover, responding to some of the critics of values education requires persistence and wisdom. Critiques concerning the loss of moral direction in society or the exploitation of values education to promote a dominant ideology are not easy to address. As I will discuss later in Chapter II, it is also important to understand that values may not only vary from culture to culture, but they can also be subjective.

Even though the general framework of my research relates to values education, it specifically examines values in relation to other subjects, especially science education. The research does not treat values as independent subjects to be taught in separate classrooms. In fact, it is one of the objectives of this thesis to find out how the balancing act of values in science education can take place.

**Alternative Theoretical Frameworks**

Whether in Ethiopia or abroad, educators concerned about the shortcomings of the transmission and transaction models of education are trying to come up with more comprehensive and appealing models. They are looking for a type of education that contributes to the development of the whole person or the complete human, beyond a mere transmission of facts and techniques (Cajete, 1994; Dei, 2004; Gitari, 2008; Miller, 2007). In this kind of education, learning is rooted in the natural and cultural milieu of the child. As Dei (2004) affirms, “context and situation are important in understanding the complex wholeness of the individual self/being” (p. 156). Wholeness is also about creating connections among the various factors surrounding the child’s existence and developing the capacity to transform them when necessary (Cajete, 1994; Miller, 2007). Transformative education (Miller, 2007) is a type of
education that brings spiritual discourse and local knowledge into the curriculum, a process which, according to Dei (2004), “has often been rendered invisible, negated, devalued or at best marginalized by modern Western philosophical traditions and scientific thought” (p. 154). In fact, the inclusion of cultural values or local ways of knowing in science education has been a persistent call from some African and native American educators (Cajete, 1994, 1999; Dei, 2008; Gitari, 2006; Tedla, 1995). The following theories and arguments open the way for a new type of science education in Ethiopia.

**Postcolonial Theories**

Ethiopia takes pride in the fact that it has never been the target of direct colonization during the colonialist periods of the 18th and 19th centuries. This reality should have led to an educational and curricular sovereignty. Yet, as postcolonial theorists argue, Ethiopia has been the victim of the Western schooling system as a result of poor planning by its political leaders, North American and European imperialism, and the actions of international development and financial organizations (Carnoy, 1974; Spring, 1998, 2008).

Spring (1998) argues that with the breakup of colonial empires after World War II, new forms of colonialism or postcolonialism appeared, through the work of international organizations, multinational corporations, and trade agreements. In its current manifestation, neocolonial power promotes market economies, human capital education, and neoliberal school reforms—all designed to promote the interests of rich nations and powerful multinational corporations. In this postcolonial context, education is seen as more of an investment designed to produce better workers to serve the multinational corporations—to encourage migration and bulge the educated diaspora supplying cheap labour in big cities in Europe and America—than a process of enhancing the potential to serve one’s community (Becker, 2006; Spring, 1998).
Postcolonial theories contend that poverty in underdeveloped countries is attributable to the deliberate efforts of richer countries to continue the cycle of imperialism. One way of doing this is through privileging one form of knowledge or power through institutions such as publishing corporations, research organizations, institutes of higher education and testing services (Weiler, 2001). This privileging happens over and above the “features or elements of the colonial heritage” that the colonized people retain (Gyekye, 1997, p. 26). According to this argument, almost all of Ethiopia’s academic institutions, trade organizations and relations, and government and non-government operations have fallen into colonial traps. While not impossible, it will be very difficult for the Ethiopian school system to escape the impositions of these organizations and donors, whose advice—usually through consultancies—is tagged with their money. Therefore, identifying the local spiritual and cultural values and exploring how they can counteract these impositions is part of the ongoing struggle against neoliberal agendas.

**The History and Philosophy of Science (HPS)**

One way of recognizing the need for working on local values is to examine what we learn from the history and philosophy of science, at least epistemologically. Beginning in the 17th century, science was revered as the only reliable source of truth, and a way to systematically deal with problems. The turn of the 20th century, however, saw a shift in the ways we view and do science. Many science educators agree that modern science has somehow departed from the assumptions held about it in the renaissance period: the betterment of life and the provision of happiness for all (Eriksson, 2008; Hodson, 1998; Rowlands, 2008). As a result, there is a call to reassess the aims and interpretations of the results of science. A time has now come where scholars converge in showing the shortcomings of the current practice of Western science, and in doing so, the need to suggest a new alternative and/or complementary knowledge system.
Questions concerning its epistemology and its subjective understanding and applications are now being dealt with in the discourse of History and Philosophy of Science or Science, Technology, Society and Environment (STSE) (Cajete, 1994, 1999; Hodson, 1998, 2003; Kipnis, 1996; McComas, 2004; Pedretti, 1997; Savan, 1988; Wellington, 2001).

Science is subjective in different sociocultural situations, as it is different in individuals. Human realities such as history, religion, culture, and social priorities—what Schwartz and Lederman (2008) call “sociocultural embeddedness”—are closely linked to the kind of research to be performed and how it is to be carried out. As long as the priorities in these human forces are selfish (that is, whether they serve only a particular interest group), science continues to be exploited for their promotion. History has shown that science has been exploited for anti-social, commercial and military purpose because of selfish motives. It has helped aggravate racial prejudice in the United States and Germany, fanned ideological fanaticism in Russia and China, and served as a colonizing tool in many African and Latin American countries. Studies of eugenics, phrenology or Nazi archaeology illustrate how science may be exploited for personal ends (Friere, 1970; Hodson & Prophet, 1986; Savan, 1988; Selden, 2000).

Cajete (2000) also writes about the cultural bias in science. Countering the notion that “science must be objective to qualify as science, that it is culturally neutral and somehow exists outside of culture and is thus not affected by culture,” Cajete (2000) states that “nothing people do is divorced from culture, including systems of knowledge, technology, and education.” According to Cajete, everything is “contexted in culture” (p. 3).

Sankofa

Tedla, an Ethiopian-American scholar (1995) summarizes the concept and objective of Sankofa as follows:
An important aspect of the effort to voice the need for incorporating African values is summed by the Akan word “SANKOFA.” It is roughly translated as “Return to the source and fetch” . . . Africa needs a new type of education that is rooted in traditional African philosophy and indigenous education . . . The source is our culture, heritage and identity. SANKOFA means as we move forward into the future, we need to reach back into our past and take with us all that work and is positive. . . . to focus on what is positive so Africans can build on it as a foundation for future education. (p. 1)

Many other African scholars have voiced their concern about education in Africa through this alternative framework known as Sankofa. While scholars such as Haile Gerima tried to capture the essence of Sankofa in a movie, others (Elleni Tedla, 1995; Kwadwo Asafo-Agyei Okrah, 2008; Yatta Kanu, 2007) researched and wrote about the subject. Despite comments suggesting that African cultures and traditions are out of date in our modern era, the concern, as expressed by Okrah (2008), is that these traditions have actually helped mould the attitudes and characters of children to become productive and useful citizens. In fact, Okrah suggests, the concept of Sankofa provides the theoretical framework for identifying those aspects of African culture which are valuable, keeping the goal of national development in mind. Tedla used this framework while travelling to North Ethiopia with the intention of identifying local values to be brought into the national curriculum. She then wrote a book entitled *Sankofa: African thought and education* in which she discussed her findings. Tedla goes on to list the values and concepts she found through interviews with an elder and then suggests that these values need to be incorporated into the Ethiopian school curriculum. Likewise, Sumner (1974) suggests:

> And yet Ethiopia is in possession of a rich centuries-old culture, much of which has been written down. There is an urgent need that philosophy, taught in Ethiopia at a university level, should not be entirely alien, but integrate values found at home, in the fertile native ground. (p. 3)

Aside from some attempts made by Hailu (2007), Tedla’s work is the only real effort to identify Ethiopian cultural and spiritual values with the goal of bringing them into the
curriculum. However, both studies have their own limitations, which the current research has tried to overcome. Some of the limitations identified in the research literature include:

- the studies focused only on one source of data, as a result, it lacks the richness of information that would have been extracted from different curriculum stakeholders;
- the studies did not have a particular focus on science education;
- the studies did not show how we go about including those identified values.

Resident in the United States, Tedla was not able to follow up her work through dissemination and implementation. It is sad to see how her great ideas were ignored or less understood by Ethiopian curriculum experts.

**Native Science**

In the foreword to *Native Science* (Cajete, 2000), Leroy L. Bear discusses the importance of looking for localized knowledge. He argues that if “science is a search for reality and if science is a search for knowledge at the leading edge of the humanly knowable, then there are ‘sciences’ other than the Western science of measurement” (p. x). Bear then adds that “One of these other sciences is Native American science.” Accordingly,” he writes, “in order to appreciate and come to know in a Native American science way, one has to understand the culture/worldview/paradigm of Native American people” (p. x).

Like the African Sankofa, Native science is “a metaphor for a wide range of tribal processes of perceiving, thinking, acting, and “coming to know” that have evolved through human experience with the natural world” (Cajete, 2000, p. 3). Based on Cajete’s (2000) argument that the perception of science is “a way of understanding the world, a story of how things happen, a way that human beings have evolved to try and explain and understand existence in time and space and relationships vis-à-vis the natural processes of the world . . .
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every culture has science” (p. 3). Brayboy and Castagno (2008) add, “the ways that Indigenous people engage the larger natural world are inherently valuable because they are rooted in their experiences and reflect their own internal belief systems” (p. 790). With this understanding in mind, Cajete (1999), sets out to list and explain what he calls “the general understanding of the Indigenous science paradigm” which includes almost all kinds of human understanding, such as metaphysics and philosophy, practical technologies and agriculture, spirituality, community, language, and so forth.

Synopsis

I hope that the organization of this literature review helps my readers prepare themselves to understand more easily the logic and the language I will be using in the next three chapters, in which I will be dealing with the issues of method, presentation of findings, analysis and the exploration of the future to which the research is leading. In the last few pages, I have tried to define the recurring terms of the thesis: spirituality, spiritual values, culture, and education. With these definitions and clarifications in mind, it will, hopefully, be easier for the reader to understand how Ethiopians perceive their spirituality and culture. I have also elucidated how what is referred as culture, in the context of this thesis, is ultimately not only related to but actually rooted in spirituality. Moreover, I argued that the decline and abuse of the power of religion should not be reasons to avoid the discussion of these terms and concepts (religion, spirituality, culture, values) in the academy. I suggested that educators should continue to engage with these themes as they relate to teaching and learning. What emerges from this suggestion is that science, religion, and politics are, in fact, living and organically intertwined processes that are born, grow, and die in relation to one another. It is this common evolution that education and development have to understand and attend to.
This process of understanding in education is best done within the alternative theoretical frameworks discussed at the end of the chapter. The improvement of science education in Ethiopia cannot ignore the colonial traps within which it is enmeshed and cannot also continue forever with the idea of science as purely objective. The current crisis in the education itself is a reminder and a reason to return to the source community, find what worked and restore it (Sankofa).

In brief, I hope that the above discussion about the role of spiritual values in education has provided adequate background for my research questions concerning the perception of spiritual and cultural values, the uniqueness of these values, the inclusion and/or exclusion of values in the education system, and what the future holds for the integration of values in science education. It is also intended that the discussion of science education in the African/Ethiopian context would bring out its relevance, particularly to the question of whether Ethiopians have science education, whether they need to pursue the current type of science education, and whether it is time to pursue an alternative science and its education.
CHAPTER III

METHODOLOGY AND METHOD

The Question of Methodology

If traditional Ethiopian knowledge had survived to this day as a research tradition, I would have given this chapter the Amharic name Awuchachign/Afersata. These terms refer to the tradition in which a certain matter is investigated by bringing together those who are concerned with the issue and some community members in the locality, leaving the final say with the person who facilitates the discussion. In Canada, and generally in the North American context, this Ethiopian tradition is closest to what is commonly called the methodology and wisdom of ethnographic qualitative research (QR) (Denzin & Lincoln, 2000; Fetterman, 1998; LeCompte, Preissle & Tesch, 1993).

Basically, the focus of this methodology is about in-depth understanding of human behavior and the finding of the reasons that govern this human behavior. But because my approach to research and writing, according to Ellis, Adams and Bochner (2010) “seeks to describe and systematically analyze (graphy) personal experience (auto) in order to understand cultural experience (ethno)” (p. 275), I argue that the term and concept of autoethnography best fits my methodology.

As described by Ellis, Adams and Bochner (2010) such autoethnographic research and writing approach:

challenges canonical ways of doing research and representing others and treats research as a political, socially-just and socially-conscious act. A researcher uses tenets of autobiography and ethnography to do and write autoethnography. Thus, as a method, autoethnography is both process and product. (p. 273)

As I discussed in Chapter 2, however, this methodology is inspired by the need to re-examine our views and methods of research in science. I have already stated how the ways in
which we have been doing scientific research and present findings are inextricably tied to the
cultural background and norms, vocabularies, and paradigms of the scientists. As a result, I have
found it important to present stories that relate to myself and to the research participants; these
stories are “constitutive, meaningful phenomenon that taught morals and ethics” (Ellis, Adams &
Bochner, 2010, p. 275) and may suit the category of narrative analysis.

Elaborating on the difference between ethnography and autoethnography, Ellis, Adams
and Bochner (2010) state that ethnographers study a culture’s relational practices, common
values and beliefs, and shared experiences for the purpose of helping “insiders (cultural
members) and outsiders (cultural strangers) better understand the culture” (p. 278). Accordingly,
ethnographers become *participant observers* in the culture, by taking *field notes* of cultural
happenings, as well as their part in and others’ engagement with these happenings. An
ethnographer may also interview members of the culture. When researchers do *autoethnography*,
they retrospectively and selectively write about epiphanies that stem from, or are made possible
by, being part of a culture and/or by possessing a particular cultural identity. However, beyond
telling about experiences, “autoethnographers often are required by social science publishing
conventions to analyze these experiences” (Ellis, Adams & Bochner, 2010, p. 278).

Although it is difficult to disregard the academic restrictions on what research is and how
research should be conducted, autoethnography allows a certain freedom to produce, again in the
words of Ellis, Adams and Bochner, “meaningful, accessible, and evocative research grounded in
personal experience, research that would sensitize readers to issues of identity politics, . . . and to
forms of representation that deepen our capacity to empathize with people who are different from
us” (p. 275). As I will discuss in detail shortly, when reading Chapter 4, readers will recognize
how the stories I present and the analysis I offer reflect my multiple identities and values as an
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Ethiopian, a Bahá’í, and an educator, thereby acknowledging and accommodating subjectivity, emotionality, and personal influence on the research.

Narrative and Its Analysis

The substance of the autoethnography methodology is the stories (narratives) and their analysis. Writing of stories, Covington (1995) states that:

our establishment of identity is based on historical construction—our “being-in-time.” How this is arrived at may be different for different cultures. Within Western culture it is embedded in historical narrative by which I mean the notion of narrative as consisting of time sequence with a beginning, middle, and end, reflecting our conception of the human lifespan. For other cultures with different world views, narrative will be structured differently. (p. 405)

Accordingly, Covington cites the example of how in the stories and storytelling of Trobriand Islanders, there is no developmental arrangement, no building up of emotional tone; their stories have no plot, no lineal development, no climax. Regardless of its structure or pattern, “there is a human need to create stories, no matter how we structure them. Stories are not only phenomenological interpretations or theories of who we are; they also constitute a primary means of communication and exchange (Covington, 1995, p. 405). Consistent with what Covington stated, Baron and Bluck (2011) also tell us that “humans are storytellers. Telling stories is a unique phenomenon that occurs across various cultures” (p. 93).

Though stories in most cases are self-explanatory, researchers who are at arms length from the storytellers, tend and need to analyze them; hence narrative analysis. Smith and Sparkes (2009) state that “narrative analysis, as an umbrella term, is a method that takes the story itself as its object of enquiry” (p. 280). More specifically, Riessman (2008) describes narrative analysis as “a family of methods for interpreting texts [e.g., oral, written, and visual] that have in common a storied form” (p. 11). According to Smith and Sparkes (2009) narrative analysis is one of the techniques to interpret the ways in which people perceive reality, make sense of their
worlds, and perform social actions. As a technique, it “may be a particularly good choice for researchers interested in complex, subjective experiences, as well as intentions, patterns of reasoning, and attempts to find meaning in personal experiences” (Woike, 2008, p. 434). It is out of this complex, personal and original nature of narrative analysis that its lengthy and rather messy process emerges. But as a technique, as Smith and Sparkes (2009) would agree, it provides opportunities and spaces for people to tell long, in-depth, rich, and contradictory stories about their thoughts, emotions, and lives in ways they may not have done previously, and in a manner that quicker and cleaner methods might suppress.

**Up Close and Personal**

It is based on the aforementioned theoretical discussion that I situate my own research. In the next few paragraphs, I will explain how I view my own research in relation to the literature cited earlier and some to be cited now.

My research is an ethnographic study, in that it is about “the routine, daily lives of people” (Fetterman, 1998, p. 11). Moreover, according to Lecompte, Preissle and Tesch (1993) ethnography emphasizes “the discovery of shared beliefs, practices, artifacts, folk knowledge, and behaviors, as well as highlights the social mechanisms that facilitate these processes (p. 141). According to Denzin and Lincoln (2000), to have an in-depth analysis of focused samples, this research involves the “studied use and collection of a variety of empirical materials, personal experience; introspection; life story; interview; cultural texts and productions that describe routine and problematic moments and meanings in individuals’ lives” (p. 3). My research used data generated mainly from interviews and, to some extent, from field observations, a focus group discussion and, importantly, my personal experience.
I conducted this research in the environment in which I have lived since I was born, and thus knew the situation very well. As is acknowledged in ethnographic studies, I began my research “with biases and preconceived notions about how people behave and what they think” (Fetterman, 1998, p. 11). However, I entered the field with a set of specific questions and consciously interacted with the research participants, as I sought stories that could provide a basis for analysis. In my six-month stay with the research participants, in addition to interviewing people, I was observing students in classrooms and administrators and experts in offices, looking for justifications and meanings in the stories. Moreover, I was able to observe how the actors and the structures in the education system work and the different tensions they experience both among themselves, and with other curriculum stakeholders.

Moreover, I have been returning to Addis Ababa every year for three years since I began my doctoral studies. Each visit lasted more than a month and during my third visit, I stayed for six months. Though the bulk of the data was collected and enriched in the third year, I have been familiarizing myself with the research environment and requirements in the city.

In addition to my repeated visits to Addis Ababa, an important aspect of this inquiry was my presence as an educator and a curriculum expert within the scholarly environment of the city. My personal, educational and work experience helped me to express myself clearly and fit in easily in discussions and in the discourse on integrating spiritual and cultural values and science education. As discussed in the context and meaning of autoethnography, such an overt admission of personal experiences and preconceptions during an inquiry and in the writing process sets the qualitative apart from quantitative inquiry. Wallace and Louden (1997) argue that, “qualitative researchers presume that understanding of events is constructed through the preconceptions we bring to them” (p. 321). Cognizant of the impact of personal experience in research, Cohen and
Manion (1994) reiterate the importance of experience and authority in our endeavours to come to terms with the problems of day-to-day living. Speaking from a different perspective, qualitative research can be taken as a situated activity that locates the observer in the world (Denzin and Lincoln, 2000; Fetterman, 1998). Therefore, this research has, in a way, consisted of the process of exploring the stories of day to day living in Ethiopia in which I am a participant, and of analyzing how these stories relate to our science education, whether reaffirming or transforming it.

In summary, as will also be discussed later, the basic data for the thesis came from the interviews. But as the analysis progresses, I tap frequently the observations and focus group discussions which I carried out. Due to my location in the research, I often call on my personal experiences to make my own or support others’ statements. When a view or an opinion is not quoted directly from the interview or the literature, it means that it came from either the observation, the focus group discussion or the broader societal milieu and personal experience (see Figure 1). In fact, the more I moved from the basic (central) data to the analysis (periphery) (as indicated in Figures 1 and 2), my writing moved from narrative analysis to autobiography, defying an exact categorization as either of the two.

Due to this same personal involvement in the inquiry process, I also urge my readers to evaluate the research in terms of my background (credibility) and the methods I used, the potential benefits of the research to the Ethiopian people, and the knowledge it generates for the community of learners in the areas of spirituality and learning.

**Accessing and Representing Participants**

**The storytellers.** The main sources of the data were people who are traditionally at the centre of curriculum development and implementation. To start with, in consultation with
curriculum experts at the Ministry of Education, White Tiger Secondary school was chosen as the starting point of the research and a spring-board from which to progressively select the other storytellers. This particular school was used because it is representative of most public secondary schools in Ethiopia in having a diverse population of low-income students. Since Ethiopia is an economically poor country, it was important to find a school that serves a population representative of the general economic condition of the majority. The students of the White Tiger Secondary School are also racially and religiously diverse. Moreover, aside from being an old school, staffed with relatively older and experienced teachers who can speak knowledgeably about comparisons of current and earlier classrooms practice, it is conveniently located at the centre of the city and can be accessed easily.

Once in the school, I was given the list of all 10th-Grade students with their respective classes. I drew a lot to choose three sections—out of a total of six—from which I then picked three students randomly, one student from each section. The idea in this method was to start from three 10th Grade students, chosen randomly, and then to extend the inquiry outward to their science teachers, their parents, the science curriculum experts, education policymakers, potential employers, religious leaders, prominent figures and elders. Both symbolically and practically, I considered the students to be at the centre of the data collection, because, basically it is about them and for their learning. The majority of the other informants (teachers, parents, curriculum experts, policymakers, and employers) existed because of the students, therefore, I felt strongly that the sampling was an outward movement that began from the centre (the students) and radiated outward to the parents, the school and the community at large.

Once the students were chosen randomly, obtaining the other sources of data was a relatively simple matter of identifying their parents, their science teachers, etc. With the
exception of finding the parents—which required talking to the students—the other sources were identified through the institutions they were identified with, the other exception being elders and employers, who were identified in collaboration with the Millennium Office,\(^1\) established to celebrate the Ethiopian Millennium. In doing so, the sampling was structured so as to include the most important actors in the development and implementation of curriculum in the Ethiopian context and also those whose views are taken seriously, at least theoretically, in the development of a new curriculum.

The people from among whom the informants were taken included:

· Students, parents and teachers who are actually are most affected in the development and implementation of curriculum;

· Curriculum experts and policymakers who hold the ultimate authority in the development of the Ethiopian curriculum (i.e., text books);

· Elders, religious leaders, and employers who should have a major say in the type of curriculum we envision for the future, based on the finding of the research.

So it can be said that these samples not only represent the past, present, and future in the context of the Ethiopian curriculum, but who are also in a position to offer insight into what is happening at present and what is to come in any future curriculum.

Once the groups were identified, two to three individuals or units were chosen from each of the pool of participants. Particularly when making the purposive sampling, the criterion for selection was the authority the individual informants had in relation to the school curriculum and

\(^1\) The Millennium Office was a government office established to coordinate the year long millennium celebration (2000 Ethiopian Calendar) which happened seven years after the 2000 Gregorian calendar. The office had the list of elders, famous people, etc., who contributed to the development of the country.
how much they understood and analyzed the issues at stake. Such individuals and groups included:

1. Three randomly selected Grade 10 students (one girl and two boys) chosen from different sections;
2. Three science teachers who teach science subjects in the school;
3. Three parents, one for each of the sample students;
4. Two curriculum experts in the Ministry of Education who are involved in the development of science curriculum for secondary schools;
5. Two employers who have companies with more than twenty employees (companies which mainly employ science graduates);
6. Two nationally acclaimed elders who have a critical understanding of the cultural and spiritual values of the people;
7. Three religious leaders of different religious organizations, (Orthodox Christian, Muslim and Baha’i);
8. Two high-level government officials who are involved in setting and implementing educational policy.

A total of 20 individuals took part formally in the research. The process of data collection assumed three stages, sometimes distinct, sometimes overlapping that consisted of individual interviews, observation, and a focus group discussion conducted over the span of six months. Stories that came out of these data and my understanding of them will be recounted later.

**The school, the classrooms, and the students.** Here I feel it is important to describe the school and the students, from whom I collected data. The following recollection from my diary
gives readers a glimpse of the site where I interviewed students, parents, and teachers, and observed classrooms.

April 1, 2010—Early morning 7:30 a.m. A typical day in the school. I sat on the veranda of the building in which the principal’s and some administrative offices and classrooms are located, watching while the students arrive and start forming line ups on the flag-ceremony field. As usual almost all the teachers greet me (either shaking hands or nodding) as I am now part of the school family. I am, according to the teachers, “the guy who came from Toronto, Canada to do a research in our school.” I have created a good rapport both with the administrators and the teachers.

Students keep entering the school continuously until the main gate closes at 8:30 a.m. at which time the flag ceremony begins. Formal classes start at 9:00 a.m. allowing 30 minutes for the flag ceremony and different announcements. We stand after students line up and are asked to be quiet during the national anthem, aired on a loudspeaker. The students are supposed to sing together along with the recorded music, but one can only hear some two percent of the students’ voices. Regardless of reminders and warnings from the principal, the students are generally not interested in singing the national anthem. When the flag ceremony and announcements are over, I follow one of the science teachers who is wearing a white gown. As usual, he/she has chalk and a rag inside a chalk box. Although broadcasts of Plasma TV went on air some time ago and not much is written on or erased from any blackboards, teachers still maintain the habit of carrying those things, in case they are needed. Teachers and students arrive in the classroom simultaneously. The teacher puts on the TV and surfs for the right channel: for example, a biology teacher searches for and tunes in to a biology subject channel for the right grade. It is easy to surf and get the channel. They have also a Plasma TV manual.

Almost simultaneously, the Plasma teacher starts teaching the lesson and the students finally settle down in the classroom. Some quickly bring out their note book and flip through the pages trying to catch up with the Plasma teacher. Some students who usually sit in the back row are “back benchers” who are often not interested in the lessons or the Plasma teacher. They continue chatting with each other in low voices. The human teacher—who is physically present in the classroom—tries to call attention to what the Plasma teacher is saying and, at times, scribbles the topic and a few phrases on the blackboard. His only real chance to talk about the subject is when the Plasma TV program ends, at which point, the teacher tries to summarize what has been said and asks for questions. The bell for the next period sounds before the question is answered.

Teacher X has to leave the classroom immediately for two reasons: first, because the next period teacher (Teacher Y) enters the classroom quickly to make sure that his/her subject channel is ready to start and to give some introduction if possible; the second reason is that Teacher X must proceed to the next class to do the same thing. Because of

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2 The flag ceremony in the Ethiopian public schools is a mandatory morning ritual, in which the students line up on a field facing a flag pole. The home room teachers are usually responsible for keeping order and discipline. After a student hoists the flag, the students sing the national anthem (sotto voce and with obvious disinterest), while the principals, teachers, or other students make announcements, perform artistic presentations or read poetry. It is a way of gathering all the students together and setting the tone for the day.
this rush between periods, I did not find a single teacher who was able to give a good introduction to the subject in the brief seven minutes before the Plasma TV started, or a good summary after the program ended.

While the Plasma is being aired, I observe what students do. The students are almost equally divided into two groups based on where they sit. The ‘front benchers’ are the ones interested in the subject and who can follow, at least to some degree, the Plasma teacher. They sit in the front rows and usually listen and watch both the Plasma and the human teacher in the class. They try to answer the questions asked by the Plasma teacher, although there is no interaction between the Plasma teacher and the students. It is only the human teacher who listens and approves or disapproves of the answers.

The “back benchers” are not interested in what is going on in the classroom. They come to the school for the sake of attendance, out of a sense of obligation to parents or the need to finish secondary school and have a certificate. They usually nap, read newspapers/magazines or correspond to each other on pieces of paper. Their main agenda is England’s Premier League: who won and who lost. Most students are avid fans of Manchester United, others are for Arsenal, and still others are supporters of the Chelsea soccer clubs. The teacher occasionally comes to the back rows and tries to check what they are doing. Since, the Plasma TV is aired non-stop or without pause, he/she cannot deal with any of the students’ disciplinary problems or attend to individual needs. When the teacher is present, the students appear to focus on the Plasma TV; but because I had always sat in the back row to observe the whole class, I could see there was no way to stop the “back benchers” from what they were doing.

The only opportunity to talk to students at length is during the break time or lunch. The afternoon schedule is lighter and offers a good opportunity for teachers to meet some of the students and talk about things of common concern. It is in these kinds of interactions that I sit in with the teacher—if the issue is not private—and listen to the conversation with the students. It is still amazing to see how the students respect the authority and value the knowledge and experience of the teachers. Although they are frustrated by the Plasma TV and the burden of economic woes, the teachers try to reach the students “for the sake of God.” There is still a special connection, a bond of love and mutual respect between students who thirst after knowledge and the teacher who is there to quench that thirst. It is not difficult to see, even in their frustrating social and economic circumstances, how most teachers are ready to show support for the students outside the classroom. But alas, the number of students who seek out their teacher as a guide is dwindling. There is silence and deep yearning on the part of both teachers and “front benchers” to get rid of the Plasma TV from the classroom and have the opportunity to interact freely. The conversation is ongoing about whether Plasma TV is preventing meaningful student-student and student-teacher interaction.

Most students leave school before 3:30 in the afternoon, the official school closing time. Not attending school at all and leaving early are considered an unofficial, democratic right. Administrators and security guards show the same tolerance to those who leave as to those who come to school. Late students and visitors are always stopped at the gate by the guards and interrogated—it is easier to leave school than to come in.
After 3:30 p.m. there are usually a few remaining students in the school, playing soccer in the field or attending club activities. Most of the latter relate to physical education and social sciences. Though the government approves of and speaks favourably about the promotion of science in the schools, it is not much in evidence. There is no expansion or use of laboratories and there are no research or demonstration sites, field trips or outdoor activities to encourage future scientists.

By 3:00 p.m. I am tired. With all the training and experience I have had about active learning and critical pedagogy, it is depressing to sit in classrooms with nothing but endless Plasma TV lectures that go on day after day, making person to person interaction impossible. I say good bye to the last teacher or student who came my way and head home.

In the taxi heading home, I open my agenda to record what a teacher has said that day about absenteeism, and then add my own repeated observations about students who do not attend classes. Except at exam time or early in the morning, there are usually only half of the students in attendance in class. Sometimes only six students out of 50—some 5 percent—are present in the classroom.

How the Stories Were Generated

As I said earlier, the data of this autoethnographic research consist of stories. The stories for the most part are collected directly from the key informants (storytellers). I used three data collection methods: in-depth interview; observation; and focus group discussion (FGD). The stories appeared in three forms: a) told directly by the storytellers (in double quotation marks); b) reconstructed by myself, based on the conversation and observations and FGD I had with the participants, and c) as told by myself from personal experiences. In the following pages I will describe in detail the instruments and the processes of data collection.

In-Depth Interviews

The initial contact with the participants began with self-introduction, presentation of a consent letter and forms, and discussion of the research topic. Once consent was secured and a comfortable degree of rapport established, the interviewees were presented with the questions in a natural conversations. They were encouraged to recount stories that highlight or support their views and beliefs. I met all individuals two to three times to discuss and interview them, each
meeting taking a minimum of an hour during my six-month stay. The interview was recorded on a digital voice recorder and immediately transferred into laptop computer files. The transcription and simultaneous translation (into English) of the interviews took place during and after the data collection period. The data was always stored electronically in a password-protected computer and in hard copy in a file cabinet. After each interview, I made a personal note about my impression or interpretation of the interview, which I usually shared with the interviewee for clarification. The actual response to the interview questions, my personal notes and the clarifying comments became part of the data of which analysis was made. The interviews were characterized by close and prolonged personal contact, that included homes, school, office settings, and sometimes parks.

Throughout the interview, my objective was to obtain answers, explicit or implicit, to the specific questions of the research (see Appendix B for details of the interview questions). In the interview, all four major research questions were asked, with some clarifying questions as a follow up. In brief, I asked the interviewees about their perception and practice of spiritual and cultural values, which of these values they thought characterized only Ethiopians, their views and experiences regarding the inclusion or exclusion of values in education in general and science education in particular and, finally, what sort of tensions they thought might arise if values were to be deliberately incorporated into the curriculum.

Between the major research questions, I probed a little more deeply to get clarification from them about the major research questions, and to make sure that it was clear what we were talking about. For example, after an interviewee explained what he/she perceived to be spiritual and cultural values, another question might follow, such as “how did you develop these values or how do people develop these values?” This question was intended to address the meaning and
practice of values at the family and community level. Other probing questions were asked about whether formal schooling has anything to do with values, and which values play any role in the present social and cultural context.

After the interviewees had answered the question about what tensions they thought might arise if values were included in education, further questions were asked regarding remedies for the tensions, the best strategies for developing a locally relevant curriculum, and visions for a values-oriented science education.

Even though stories have been the mainstay of analysis, I have looked for and found unity of thought and expression about key events, words, phrases and whole sentences on spirituality and science education as well. Most of the time, the questions were reframed to fit the background of the interviewee, as the participants ranged from illiterate mothers to elite policymakers, from 10th-Grade students to individuals with PhD degrees.

Observations

As an ethnographic researcher, I immersed myself in the life of the school community. While aware of myself as a researcher and trying to be somewhat detached, I spent whole days (two to three days a week) for six months in the school, participating in their many activities, beginning with the morning flag ceremony and announcements to the afternoon hours when students started to leave school. Sometimes, I stayed in the late afternoon observing and participating in club and sports activities. Though 10th Grade students were not in the school during the last two months of my six-month stay in Addis Ababa, I continued to sit for hours in the teachers’ lounge, in the hallways of the administrative offices and classrooms and on the veranda. In this way, I became a friend and colleague for the principals, many teachers and a few Grade 9 and 10 students. As someone studying curriculum at one of the most elite universities in
the world, it was common for the principals and teachers to approach me and ask questions, share concerns and feelings, and seek my advice. In all these stays, encounters and conversations, I continued to observe critical incidents and hear anecdotes that related to my research questions. I also took field notes.

But most of the time, I sat in the back row of the classroom observing what went on in biology, chemistry, and physics classes. Regardless of the uneasy feeling I had sitting for hours on end of Plasma TV classes, in which teachers played a minimal role, it was nonetheless interesting to observe how the students showed up and took seats in the classroom, how they interacted with their human teacher—as opposed to the Plasma teacher—and how some tried to focus on the Plasma TV, while others took it easy and tried to nap their way to the end of the class.

While observing in the classroom, I took notes on how the lessons were conducted, how teachers interacted with students, and if there was mention and discussion of local spiritual and cultural values in relation to the subject at hand. After each session, I talked to the teacher and some of the students about whether they saw possibilities for raising the issues of values, and whether the lesson was consistent or against their expressed beliefs and values. For example, after the lesson on the empirical evidence of evolution, I asked the teacher and the students whether they were truly convinced about the subject matter or if they had learned it simply because it was in the curriculum.

In fact, the observations and the informal discussion notes provided the basis and the criteria for choosing and analyzing the stories in Chapter 4, as they illustrated a more realistic picture of what went on in the minds of science teachers and students in the classroom. Especially during my second-level analysis and discussion of the implication of the findings, I
had to repeatedly return to my observation note book, digital voice recorder, and diary, in which I had stored much valuable information. At times, when the data presented in Chapter 4 do not seem to correspond with the analysis or conclusions I arrived at, those insights must have emanated from the immersion experience and observation notes in the school. The observations have also helped me develop recommendations for ways and means of integrating the values identified in the science education system (See Appendix C for detailed observation points).

**Focus Group Discussion (FGD)**

The objective of the focus group discussion was to create an occasion, first, to see how much shared understanding of and commitment to the most commonly identified spiritual values existed, and second, to see if tensions existed within the same and among different groups on understandings and practices of the values. Two students, one science teacher, one parent, one curriculum expert, and two elders were involved in the focus group discussion. These individuals were chosen because they were the main actors in what went on in and outside of the classroom. When signing the interview consent form, each participant was asked to participate in the FGD and agreed.

The FGD took place for three hours in a quiet and comfortable hotel to which I invited everyone for lunch. After formal introduction of each individual and a brief presentation of the purpose of the research and the discussion agenda, I proceeded to raise the focus group discussion points. I then encouraged universal participation while an assistant took notes. Most of the participants did not want their comments to be recorded, no doubt anticipating a tense atmosphere and I agreed to their request not to record. Every time a question was raised, all participants had an equal chance to speak, unless they preferred not to do so. It was my hope that, as Carspecken (1996) describes, individuals who were not able to articulate their views
during the interview would take advantage of the opportunity, when among peers, to formulate their ideas in this more comfortable setting. The FGD was not able to generate as much data as I had expected for three major reasons: the older people took a great deal of time to explain their views, mainly repeating what they had previously stated in their interviews; there were also minor controversies which took some time to settle; and finally, the students voices were silenced to some degree, as they were in the minority in the focus group. (See Appendix D for detailed focus group discussion points)

**Challenges Along the Way**

While the research process was challenging as a whole, the problems I faced during the data collection were more specific and, at times, frustrating. Here, I have recounted some of these challenges to give the readers the background against which the data were collected.

**Plasma TV.** Meless and Teshome (2006), Bitew (2008) and many other Ethiopian educators have already written about the technical information and the different challenges the introduction of Plasma TV posed for the Ethiopian schools. Here, I will discuss only how it became an obstacle to observe teacher-students interaction within the context of spiritual and cultural values.

Bitew (2008, p. 150) explains that since the end of 2004, all public schools in Ethiopia have been using the live, nationally broadcasted “plasma” mode of instruction for 35 of the 45 minutes assigned for each lesson period. It is an e-learning video broadcast over Internet protocol networks via a satellite receiving device called a plasma display panel (PDP) to wide, plasma television screens installed in each classroom. It is within this e-learning video environment, that the physically present subject teacher’s role is reduced to one of merely surfing and changing channels, turning on and off the PDP. While this was going on, I used to sit at the back of the
classroom observing what goes on in biology, chemistry and physics classes. The Plasma program presents all subjects in the form of a lecture, interspersing it with a few questions and demonstrations. Students attend five to six subjects each day using the PDP. In most cases, the structure of the presentation is repetitive and only serves to convey information (facts) for memorization. The few questions put on the Plasma are immediately replaced by other pictures before students have enough time to think and discuss them.

Therefore, it is my personal observation that the nature of the PDP is neither interactive nor engaging. The subject teachers I observed did not play any significant role in instruction. There was little person-to-person interaction in the classroom. There were very little live or significant interactions among the students or between the teacher and the students.

The content for Plasma TV was developed in South Africa and disseminated nationally, using English as the language of instruction. Historically, there has never been good English language instruction in Ethiopia and students enter secondary school without the necessary language background to understand the lessons in the PDP. Bitew (2008) quotes a teacher to illustrate the challenge PDP presented for the classroom:

I taught in this school for seven years, I knew the students well before the introduction of the plasma. Although the students’ interest was still high, their results have become worse since they began to learn through plasma. I am not sure whether they understand even 50 percent of the content in the transmission. Because of the language problem and the high speed of the transmission, the students always complain that they have not understood the lessons. More tutorials and teacher-student interactions are needed. Besides, we sometimes cannot attend the live transmissions because of either power or technical failures, so we miss those lessons entirely (Year 11 teacher). (p. 157)

Bitew’s findings resonate with what I observed in the PDP classrooms, that because of either the lack of sufficient language to understand the subject or the high speed of the transmission, students seemed unable to focus on the instruction. I saw many students lolling back in their seats, paying no attention whatever to the PDP.
In the same manner, since the Plasma TV usurped the role and authority of the science teacher, it was difficult to observe what they personally thought and felt on the subject at hand and what their efforts to include local spiritual and cultural values might have looked like. This observation is qualified by a short extract, quoted below, taken from the conversations I had with one of my science teacher research participants:

The Plasma TV has almost replaced us. We do not have any meaningful interactions with students and other teachers, and students have no interactions among themselves. The first five minutes before the Plasma starts are almost non-existent, as we are not using them in any way due to the many internal and external factors of the classrooms. The last five minutes assigned to summarize and paraphrase the topic of the Plasma are the only opportunity to talk to the children. Within those five minutes some students sometimes ask one or two questions, or the teacher asks one or two questions, or the teacher goes on summarizing the topic. But before any substantial discussion can take place, the next teacher shows up or the next Plasma program starts.

**Information drought.** On April 5, 2010 I jotted down the following in my diary:

I met a curriculum expert at the Ministry of Education. He placed the statue of St. Mary on his desk while continuing to stare at his laptop. He seemed to be surfing the Internet. I introduced myself to him and explained my purpose in coming to see him. His name and face were familiar to me. At first he refused to accept the whole idea of research and later, after much discussion, he agreed to be interviewed. But then when I presented him with the consent letter, he declined to read and sign the consent-seeking letter and form. Regardless of any explanation, I was not able to convince him to give me his consent, saying “I can only give you verbal consent.” When all logic to convince him to sign a consent letter failed, I complied with his desire to give verbal consent. I was interested in what he might say, even though I was not sure whether I should consider his interview as part of the main data.

When I was ready to present the interview questions and record him with my digital voice recorder, his face became flushed and he refused to be recorded. I could not understand his reason for being so frightened of signing the consent form and being recorded. After much further negotiation, he agreed to write his response on paper. He then offered me paper to write down the interview questions. Once I read the questions aloud to him and made sure that he understood them, I left his office and agreed to return in a week. But before I left, he said, “Do not expect newer information than what is available in the text book I prepared. You can know what I think just by going through the subject text book that I wrote.” Still, I insisted that he write to me whatever feeling and insights he had, whether they are similar or different from what I already knew and what the text book (curriculum) contained. When I came back after a week to collect his response, he had barely written a single page in response to the eight questions (the four
major research questions and four follow up questions) which I had presented to him. There was almost nothing I could consider data.

**A half-hearted interview.** I met another key informant after a series of calls and negotiations, and jumping over numerous bureaucratic hurdles. On the day of our appointment, he was thirty minutes late. Once in his office, he began to attend to his office duties and staff without referring or apologizing to me. He then turned his attention to me and, before I started recording, he began talking about the issues in my research. But as soon as he saw the voice recorder, he appeared frightened, in spite of the fact that he had signed the consent letter. He then started to talk hesitantly. Once again, there were interruptions from his subordinates, ringing phones, and he himself began calling other people. He then stopped our discussion and suggested that I speak to somebody else. He gave me bio information on the other person who, in his estimation, was a more appropriate person to talk to. In the meantime, he declined to be recorded, but continued to offer his insights on some of my questions. I continued scribbling a few notes. Finally, I took the phone numbers of the people he suggested that I meet. He seemed to be afraid of the government and other religious groups, lest he be misunderstood and misinterpreted and lose his high office.

**DISconfirming evidence/responses.** One of the interesting aspects of doing research is finding evidence or insights that do not conform to mainstream thinking. There are always participants who see things in a different way. Such differing thoughts provide both opportunities and challenges for the researcher. It is an opportunity in that it can broaden one’s perspective on the issue at hand, but a challenge in that it represents a different line of thinking in and of itself.

For example, one of my research participants I chose quite deliberately. She is a well-educated woman with great experience, both national and international, in the science fields and in policy making. She is herself a parent and, based on the way people regard her with respect,
she is an elder too. With these credentials, I could not ignore her insights. I was eager to find the wisdom in her views. For some reason, I was almost argumentative throughout the interview, in the hope that she would get my point. At times, my enthusiasm seemed to help trigger some enthusiasm in her. I liked the way I led the interview (building questions over one another) then trying to combine what she was saying with what I wanted to ask. But throughout our discussion, she consistently addressed the questions, saying, with a certain humility, that they either did not correspond to her area, or that she felt less than capable to answer them. Regardless of the inconvenience I felt, I have to admit that I was happy to get a different view, to hear someone—though one I least expected—answer my questions in a different way. She described herself as an “objective scientist,” who only believes what she can “see and touch.”

On the other hand, I was able to get an insight into the type and depth of tension, even opposition, that my “Sankofa” project might arouse. The participant was totally unwilling to admit that everything is values-laden and that our culture and spirituality have a role to play in science education. It is a reminder that reality is so complex that it can never be grasped by an individual human mind and that no single answer can suffice for a single question. Regardless, figuring out where the data fit required a great deal of work.

“Hope for the best, but prepare for the worst”. April 14, 2010. I thought to myself: God must be watching even though my thesis supervisor is not. It has been three hours that I have been sitting and waiting with a friend who drove me to the office. The priest I wanted to interview is head of a committee of highly educated priests of the particular religion. Everyone had told me that there was no one who possessed a comparable depth of knowledge, and no question that he could not answer. His was thought to be the final word on any question. So I have been waiting until he came out of a meeting.
I had set the appointment with him by following a direct channel—that is, according to protocol—and through connections. Normally, he is a busy person, of course. After applying to his office as a researcher looking for an appropriate person to interview I met some individuals well connected with him who secured his willingness to do the interview. Unusual rain kept pouring and a chilling cold was cutting into my chest and my soul. The guards did not allow me into the office building, stating that they had been told not to allow people in before the “meeting” ended. My friend agreed to stay and we sat under a tikul (thatched roof) which had been erected for coffee service. It has no walls. Therefore, the continuous rain and cold left me completely drenched. Moreover, because I had been running from one program to the next without a break, I was hungry, as I had not eaten a proper lunch. I did not want to leave the compound before I knew for sure that the chief priest had a good reason for not being able to speak to me.

Ethically, this person should have cancelled our appointment ahead of time or should have left a message at the front desk if he could not meet with me. Or, he should have let me know what time he was coming out of the meeting. But without any information, I sat there in suspense, thinking that he was going to come out of the meeting any minute. One hour, two hours, and finally three hours went by as I sat and waited. No one showed up. I started to wonder if he was actually in the building. But, no one had said he had left the compound. He was not answering his cell phone. I kept asking people randomly if they know the whereabouts of the chief priest. No one would say anything for sure. When three hours had gone by, I felt that enough was enough and I left. I never went back to see him, as a person who has no values cannot talk about values that can be included in the curriculum.
Selecting, Writing and Analyzing Stories

Once I finished collecting the data, the bulk of which was generated through interviews, the next stage of sifting and presenting the data was a major challenge in the research process. Though from the outset, with the encouragement and advice of my thesis supervisor, I had the idea of collecting and presenting stories regarding the research questions and analyzing them, not all the conversations necessarily had stories. Sometimes, whether in an interview, in observation, or in a focus group discussion, stories were not told, unless someone asked for them. Though Ethiopians usually love to tell stories, and quote from fables and proverbs in their conversations, there is no guarantee that they will always do that. The conversation has to be long and the rapport close enough to trigger storytelling. As a result, there were very few participants who did not tell stories and who preferred to express their own views in brief sentences. When this happened, it was necessary to construct stories based on their conversations. Therefore, the task of going through all the stories to decide which ones were relevant, which could be presented verbatim, and which ones had to be reconstructed was by no means easy.

As was mentioned earlier in the discussion of subjectivity, because of my background as an Ethiopian educator and a practicing religious person, I had some of my own stories to tell about education and spirituality. These stories are sometimes similar and sometimes different from the stories I was told by other Ethiopians. Along with Clandinin and Connelly’s (2000) affirmation that a thesis is not written necessarily “for status, postgraduate degree, promotion, and tenure, but in the broader sense of building links between experiential inquiry and life experience more generally” (p. 152), I would argue that my thesis is a link between and among the inquiries (stories of others), my personal stories, and a deep desire to see Ethiopia become a better country. Therefore, I felt the best possible representation of the data, their analysis, and the
writing of the report would be like an autobiography as well as a narrative analysis. It is an autobiography in that it is a self portrayal, in that I am telling a story about a stage in my own life in which my life experiences are being filtered and refined to take me to the next level of my development, that is, a life that will be spent improving the lives of the Ethiopian people.

Thus, the thesis is a stepping stone from one level to the next. At times, I have difficulty distinguishing my research endeavour from my lifetime desire to be an actor in the renaissance of my country through education. As I have been doing before, I will be continuously seeking a more concrete answer for the question: why is Ethiopia the way it is now? Even after this research, and, like Clandinin and Connelly, I share in Dewey’s (1938) belief that education, experience, and life are inextricably intertwined. My work as an educator and a researcher is a life that I have consciously chosen as a way of transforming Ethiopia.

The thesis is a narrative analysis in the understanding of Connelly and Clandinin (1990), who affirm that humans are storytelling organisms who lead storied lives. My role as a researcher and educator is to listen to the stories of the research subjects, attempt to understand and represent the relationships between the experiences of the individuals and their social framework, referencing my own experience and the context through which I understand others (Jonas, 2005). In the words of Clandinin and Connelly (2000), my research tells of “a personal and social history” (p. 155).

How true, then, is, Clandinin and Connelly’s assertion that “people live stories, and in the telling of them, reaffirm them, modify them and create new ones” (p. 155)! As I did my research, I asked questions, and wrote the stories based on both my own lived experience and the experience of others. It is, in a way, a form of narrative inquiry (Connelly & Clandinin, 1998; Polkinghorne, 1995; Richardson, 2000). Thus, my story is the story of the Ethiopian people as
they attempt to “progress to a solution, clarification, or unravelling of an incomplete situation” (Polkinghorne, 1995, p. 7). We tell and listen to stories to sharpen our minds, to memorize basic moral codes, and apply them both in our ordinary daily lives and at critical moments. This is the main driving force in my selection, writing, and analysis of the stories. If, through this kind of retelling and analysis, the reader sometimes hears my voice louder than the participants, in actuality what they hear is their voice echoing through me.

**Role of the Stories**

Whether in presenting or analyzing stories one needs to understand their central place in human lives, including their education and research. Reiterating this belief about story Lewis (2011) states that:

> Quite possibly, it is the principal way of understanding the lived world. Story is central to human understanding—it makes life livable, because without a story, there is no identity, no self, no other. It is through genuine repetition, storytelling, that humans narrate ways of knowing and being. We live and think the world within a story structure that is “brain-based and deeply human” springing from the depths of the human psyche both individually and collectively. (p. 505)

Listening to stories, retelling them, and then approaching them analytically affect us in different ways. With little background, stories generally convey a holistic sense of who the speakers are, what they are speaking about, and the context in which they are being narrated. While analysis calls attention either to a particular aspect of the story or a summary of the lessons learned, it is also a way of personalizing and extending the story. It is an effort to understand, interpret and live stories. Analyzing a story for me is a way of continuing and sustaining a conversation until a point is made. Though Lewis (2011) insists that “we need to move the space to create a place for the storyteller to share her story without the interpretation of the narrative researcher” (p. 506), he admits that the relationship between narrative and humans is akin to symbiosis. We know that in a symbiotic relationship, everyone benefits; in this case,
the participants in the relationship are: the storyteller, the listener, the writer, and the reader, that is, everyone involved in the making, telling, listening to and reading of stories. Elaborating on this symbiotic relationship, Lewis (2011) states that the narrative process is inseparable from the story product. According to Lewis, as thought becomes inextricable from the language that expresses it and eventually shapes it, narrative analysis gives form to the story product, and vice versa. Our experience of human affairs takes the form of the narrative we use in telling about them. In another sense, storytelling is a like a self-fulfilling prophecy, one that inspires and directs action for its fulfillment. It sets the discourse for future human action. In fact Lewis (2007) goes so far as to say that narrative being is human and human being is storied; and, in essence, this relationship is so pervasive and powerful, that if we change our story, we may even change our lives. He admits that “we come to know ourselves through the world and its stories [and] we come to know the world through our experiences and our stories” (Lewis, 2007, p. 11).

The presentation of stories and the form of analysis that follow in this research is one more effort to answer some of the questions Lewis (2011) shares with others; questions such as:

If story is central to human existence and understanding why, in the research world, is there not more storytelling, particularly in the social sciences? Where are the places and spaces for storytelling in research? Can research create a space for the storyteller and her story? Can a researcher become a storyteller? Can storytelling become research? Is it enough just to share the story? (p. 506)

Moreover, since we are dealing here with the question of spiritual and cultural values, the use of stories seem to be a naturally fit in the process. This is because storytelling and listening are forms of spiritual process. They tap into the wisdom of filtering the essence of the heart and convey it to others so that they can learn with joy. This is also what happened in my research. I focused on the moment when the storyteller seemed to be so deeply focused and lost in inner thoughts, that there was no way other than storytelling to make the point. With the stories came proverbs and parables and I listened intently and recorded them with a digital recorder. As is the
custom in Ethiopia when learning from elders and spiritual leaders, I sat quietly to listen to hours of descriptions of what they mean by spiritual and cultural values, which values are unique to Ethiopia, how these values are included and/or excluded from school and what tensions would exist if these values were to be incorporated in the science curriculum.

Out of such conversations and stories, the field observations, and focus group discussion have come the data to be presented and analyzed. Most of these stories were verbatim transcripts from the words of the participants themselves, while some stories required reconstruction based on the conversation I had with them. Evidently, in this later case the participants put the bones and flesh on the story, and I, as it were, added the blood and soul. Sometimes this results in:

- discontinuity in the storytelling; or the materials of the story may be found dispersed across several conversations; in this case, there was a need to gather the pieces from different places together and incorporate them in one integral story;
- actual stories being told in the first or in the third person, but having to be recast in order to protect the storyteller by reversing the subject of the story;
- having to make a calculated guess, after reading the content of a story, about who the storyteller is; therefore, in all the stories, there is no introduction to or description of the identity of the storyteller.

In addition, presenting stories at the beginning of a conversation to make a point and later discussing the meaning and implication is highly cultural in Ethiopia. In the evening coffee ceremonies or common plate dinners, our parents would tell stories from which we were supposed to draw lessons. This doctoral research and its report are, somehow, like reliving my childhood.

For the sake of the readers, the foregoing paragraphs can be summarized as follows:
1. In collecting data there was a conscious effort to collect stories, but some stories needed reconstruction;

2. Certain stories were selected and presented;

3. My personal experience served as an additional story, showing up in parts of the story analysis and offering a lens through which I understood and interpreted the stories of others;

4. Given these three modes of presentation, analysis and discussion of autobiography and narrative analysis were necessary;

5. Arguments supporting and justifying the importance of telling and analyzing stories is given, based on a review of the literature;

6. Finally, discussion is offered, creating the parallel between what I and others said about stories within Ethiopian culture.

In the next section, I will further explain how I moved from the mass of data and stories I collected to the selection of the few stories presented here and the criteria used to select them.

**Brook and the Stories**

As mentioned earlier, reducing and analyzing the data was not an easy task. In fact, I consider Brook, my first born son, to be a symbol of the process, the pain and the joy of working with data to give birth to a thesis. Coincidentally, he was conceived immediately after the data collection was over and, while he was growing in the womb of his mother, the thesis was also growing in the womb of my mind through the different approaches I took to handle the data. Like most students engaged in writing a thesis, every day was filled with talk of the thesis with colleagues, professors and anyone interested in hearing how I was going about writing it. Every night when I returned home, I thought of Brook in the womb and tried to get a sense of what his
growing process was like. I meditated on the analogy and the parallel of the requirements of a baby and a thesis to grow and be delivered. Brook’s birth was, then, like producing the first draft of the thesis and his subsequent growth like editing and refining it.

Just as in Brook’s growth process, the construction and analysis of the data required both nature and nurture. I used the following procedure and criteria both in selecting and constructing the data stories I present here—comparable to the development of a body in the womb at different stages—and also in internalizing the data so as to take them to a different level of analysis:

1. The first step in dealing with the data was to translate them into English. Listening to the interviews in Amharic and translating them into English helped me mark key terms, phrases, concepts, and anecdotes/incidents which related directly to my research questions. Once the translation was done, I read and reread, organized and reorganized all the data, selected and deselected the stories, until arriving finally at a choice of stories presented that were more or less representative of the whole body of data. I used the traditional method of highlighting key and recurring terms and phrases, tabulating how many times and where they occur. At times, discussions with professors and colleagues necessitated revisiting the data.

2. In answering the research questions, I used the theoretical frameworks in the literature review (Chapter 2) as a lens through which I looked at stories that were within the framework. Whenever I chose a story, I made sure that it either related closely, for example, to Sankofa theory—whether the story conveys lessons from the past that we can carry to the future—or to postcolonial theory—whether the story demonstrates that colonialism is still very much alive in Ethiopian education), etc.
3. I was constantly aware that the stories must ultimately answer the research questions I set out to answer. Therefore, in selecting the stories, I made sure that the stories addressed the research questions, whether directly or indirectly, even when some of the stories might seem to convey a negative image of Ethiopia.

4. As I briefly mentioned in the introduction, my experience as a biology teacher in secondary schools, in my work for development agencies, as a lecturer on curriculum studies and pedagogy, traveling the length and breadth of Ethiopia, in all four directions have given me the maturity and authority to discern the stories that are valid and representative in the context of Ethiopian education.

Once the selection of stories was made, analysis was carried out on two levels. The first focused on drawing attention to what is directly observable meaning and practice within the stories. Of course, this extended beyond a simple listing of events and conversations that deserved attention. There is also basic discussion of the findings, which at times appears to be a preliminary interpretation of the data. I tried to identify nodes and landmarks in the stories which would prepare the reader for more dialogue and the creation of further relation and implication. I also drew the attention of the reader to the chronology and logic of events as related to answering the research question under consideration.

The second level of analysis consisted in taking the first stage of analysis to a higher level, revealing the implication of those stories, the reality shaping the events and conversations told about, and how they in return shape reality. In some cases, I have tried to show how those implications affect education and an analysis of why they need to be considered in the science classroom. It is at this level of analysis that I use the notes from my field observations and
personal experience. Even at this later stage, I continued citing quotations verbatim and, at times, the literature, when necessary to justify my analysis and the conclusions being drawn.

In some cases, as readers will realize later, a few of the stories are self explanatory and did not require further analysis. A simple reading of the stories partly answers the research question posed at the beginning. These same stories could also simultaneously provide an answer to other research questions within the thesis. Therefore, the placement of the stories under a particular research question should not be taken as rigid placement. Moreover, any level of analysis for any of the stories need not be taken as applying solely to the particular research question under consideration. Basically, the research questions are highly related, in that they all examined the bridge between home and school. Wherever a question does not seem to be totally answered by a story or its analysis, it is important to continue reading as the question will be taken up later and resolved.

As stated earlier, as an Ethiopian myself, I am so committed to finding the answers to the questions that I sometimes tend to share my personal insights and understandings based on my own personal location, my education, professional experience and thoughts triggered by the stories themselves. This is simultaneously the challenge and strength of narrative analysis based on stories. The challenge is how to represent others as honestly as possible, while the strength is the open admission of any personal bias. Ultimately, I suggest that the effort must be measured by how much I stayed on course in my exploration of Ethiopian spiritual and cultural values and science education, of how well I succeeded in drawing together, as Polkinghorne (1995) stated, “diverse events, happenings, and actions of human lives into thematically unified goal-directed processes” (p. 5).
The Question of Validity and Report Writing

It is my hope that through the retelling or construction of the stories, I have engaged myself in the research questions that need to be explored by the research. Such questions include the understanding and practices of spiritual and cultural values, the values unique to Ethiopians, the relation between science and values, and, more importantly, the vision and implications for a future of science education founded on Ethiopian values and knowledge. I have tried throughout the thesis to show what preconceptions I bring to the understanding and interpretation of the participants’ views. In these texts, as Wallace and Louden (1997) put it, authority lies in “the richness of readers’ recognition of a truth, not in assertions about the reliability and validity of the research method” (p. 320). Therefore, I feel that the “research is judged more for its practical outcomes and less for its methodological rigour” (Taylor & Wallace, 2007, p. 4). Regardless, I would like to remind my readers that while the data were being collected and a preliminary write-up underway, drafts and regular reports were sent to the thesis supervisor and committee for feedback on the progress of the fieldwork, the content and the style of writing, and all valid comments were taken into consideration.

As Fetterman (1998) noted, the writing of the report itself was part of the analysis. While writing up the stories and analyzing them, I have not only given an account of insights shared by respondents, but I was with them myself both physically and spiritually as an Ethiopian, engaging in dialogue with others in search of answers for the country’s long-standing social and economic problems. Both during data collection and analysis I viewed myself as moving in a world of different stages, but one which, for others, seems to appear as three separate worlds. My major and primary world was the interview, in which my informants answered the research
questions being asked. In presenting the findings from the interview I made an effort to be as faithful as possible to the words and messages of the interviewees.

The second level or stage was the presentation of the findings from observation and focus group discussion which, when compared to the interviews, was marginal. The manner in which the notes were taken and presented did not guarantee greater validity than the interview. The third level, which I called “Broader societal milieu and personal experience” was the common ground for both the researcher and the other participants. It is the larger societal milieu in which we all exist and out of which we derive our epistemology. It provided the background and the context from which the research participants drew their experience, and represents the ultimate goal which this research strives to serve. It was within these three worlds that I kept moving in my findings and analysis (a model of this movement is given in Figure 1).

Such a style of writing and analysis is similar to what Taylor and Wallace (2007) termed “transformative research,” where it has “thrown into sharp relief the cultural embeddedness of the individual practitioner-researcher’s professional practice” (p. 4–5). It is also in line with what Lawrence-Lightfoot (1997) said about the reasons why the merging of the realms of art and science became relevant, as in:

An effort to represent the nuance and complexity of the whole, in an effort to speak about things that resist reductionism and abstraction, in an effort to challenge the tyranny of the academy, and in an effort to build bridges between theory and practice, research and action. (p. 7)

After all, my work is about border crossing, creating an intersection between science and spirituality, between what is and what ought to be, between the present and the future, bridging the gap between school and community, connecting empirical evidence with dots of personal experience and feeling. In fact, the more I looked at the data and the more I explored my personal experiences, the distinction between others and myself faded. Every border seemed
imaginary and constructed. The thesis became a tale of the journey from other data sources to my own experience and vice versa which, at times, required only quiet meditation on the topic. The thesis is a note that I will take with me as a foundation and inspiration for my future work as an educator in Ethiopia. That is also why the thesis will serve as a link between my past and my future, an autobiography which has a vision of what is to come. In brief, in this research and writing, my life world has become, as Taylor and Wallace (2007) stated, “a major source of experiential data for narrative portrayal and critical self-reflective as life writing, autobiography, and autoethnography harness research as/for professional praxis” (p. 5).

Figure 1. Model showing interview as central to the data collection and other instruments as the scaffold in a research to restore values into curriculum.
Ethical Considerations

In any research involving human beings, ethical considerations are of paramount importance. In fact, in relation to ethics and story-writing, Richardson (2000) states:

Writing stories sensitizes us to the potential consequences of all of our writing by bringing home—inside our homes and workplaces—the ethics of representation. Writing stories is not about people and cultures “out there” . . . they are about ourselves, our work spaces, disciplines, friends, and families. . . . Writing stories brings the danger and poignancy of ethnographic representation up close and personal. (p. 932)

In the case of this thesis, a separate ethical review protocol was prepared for the research, to protect the privacy of the participants and to ensure the proper management of the data. Though I had assumed that the research involved no risk to any of the participants, all efforts were made to assess ethical problems and approaches. Appropriate procedures were followed to get informed consent of the participants, and their right to withdraw remained known throughout the research duration. In addition to requirements of the University of Toronto, the formal ethical protocols of the Ministry of Science and Technology in Ethiopia were adhered to. Few letters and certificates related to ethics and legality are attached as Appendix E.
CHAPTER IV
ETHIOPIAN STORY TIME AND FIRESIDE CONVERSATIONS

Knowledge has many tissues; the foundation is humility; its brain is the understanding of how to act. Its tongue is a true word; its conscience is the thinking of good [deeds]; its hand is forgiveness; its leg is the going to the learned. Its domain is justice. Its kingdom is praise and gratitude. Its sword is hope. Its power is prayer. Its fence is love. Its camp is consultation with conscientious people. Its wedding is victory, wisdom, patience, increase of truth. Its wealth is good counselling. Its lodging is generosity and meekness. Its friend is love of generous people. Its treasure is to avoid offence.


Organizer

As readers will realize shortly, the central data for this research are stories. The purpose of the formal data collection was to gather material for stories, rather than presenting verbatim accounts of what people said. Therefore, the few stories presented under each research question form the springboard on which the analysis of the same stories and the sharing of insights from observations, the focus group discussions (FGD), and personal experience are built. Basically, all the stories under “Story Time” were told by the participants themselves, mainly during the interviews and, to some extent, during the observation and FGD sessions. The stories in most cases are presented as they were told, so the first person pronoun “I” (as in the story “When I Was Growing Up”) refers to the storyteller or research participant and the whole story appears in a block quotation. In presenting some of the other stories, I either shortened, or restructured or reorganized them (as in “The Stranger”) or reconstructed them (as in “Zar’a Yacob Reincarnated”), so as to increase their readability. In presenting the stories, I have tried my best to present the voices of the research participants as honestly as possible. The stories are told in sequence under each research question, followed by two levels of analysis.

This corresponds to the manner in which stories are told and discussed in Ethiopian villages. In the evenings, weekends, and holidays people sit in circles drinking coffee or *tella*
(local drink) with snacks, such as roasted barley and chick peas. The elders lead and sustain the conversations by telling stories, offering insights from the stories and life experiences. In most cases the objective of the conversations is to recapture the past and indicate the future so that the young people know and memorize their roots and history, understand the present and develop a vision of the future. It is a process of edifying the souls of the young in an engaging way. As the storytelling and conversations go on, there are few procedures people follow:

· There is always a background and an objective for the story and the storytelling is a way of reinforcing or explaining the point to be made. In this particular thesis all the previous chapters serve as a background to the stories about to be presented;

· At the time of the actual storytelling, the elder or another individual who is going to make the point tells the story. The stories may vary in length, but however long, they must stay on the course traced by the background. In this chapter the actual stories are presented under the title Story Time;

· Once the storyteller finishes, there is usually a question from the audience: “Fire negeru mindinew?” literally “What is the grain here?”¹ In Ethiopia, sifting the wheat grain from the chaff symbolically signifies taking the gist out of the whole mumbo jumbo of the story. It is a way of making sure that everyone gets the point in the story. In this chapter immediately after the stories, I use the topic “Fire Neger” to present the summary of the stories and to perform Level One analysis;

· Once the Fire Neger or calling attention to the main point is over, there follows a conversation inspired by the story just presented. This part of the conversation may at

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¹ In the Amharic language, the phrase “fire” literally means “grain” but when used with the word “neger” in conversation, it signifies the “main points.”
times drift away from the main point, for the sake of higher level dialogue, tapping personal experiences and quoting the wisdom and sayings of others. While the conversations are still within the periphery of the points to be made, the focus now tends in the direction of the implications of the stories in real life. It is a way of showing how the points in the particular story are linked with the larger story of life and affirms the Ethiopian belief that everything under the sun has an impact on everything else. In this chapter it is presented under the topic Chiwiiwit [Conversations] and can be taken as Level Two analysis.

I have followed this basic procedure in the presentation and analysis of the stories. However, I would like to inform my readers that some research questions have four stories attached to them, while others have as many as eight. As I discussed earlier, there is no rigid rule for order or placement of the stories. The order of the analysis itself does not imply a particular category. Rather, it reflects my effort to call attention to major nodes in the stories. The order of the analysis follows the order of the nodes in which they appear in the stories. Thus, usually the first part of the analysis matches the first story, and the second part of the analysis matches the second story, and so on. The reader may sometimes want to refer back to the stories to figure out which part of the story a certain analysis corresponds to. Whenever and wherever I find direct quotes from the original data pool or the literature which explain a point better, I included them in my discussion, citing the sources clearly. Figure 2 below represents a summary of the organization of this chapter, beginning with stories at the apex of the triangle and expanding towards the base to encompass various analyses at different levels.
Figure 2. Pyramid of data analysis.
Research Question 1:

Ethiopians’ Perception and Practice of Spiritual and Cultural Values

Story Time

Following are four stories. The first is reconstructed on the basis of what an elder told me about how Ethiopians show hospitality; the second is quoted directly from the interview with one of the key informant; the third is my own construction based on observations of what took place in one of the science classrooms; the fourth and final story is a recapping of my personal encounter with a Hindu priest.

“The Stranger”

A stranger is travelling from one village to another. As the day gets darker, he has to spend the night under a roof; so he knocks at a nearby house.

Owner: “Who is this?”

Stranger: “Yemeshiebet ye’Egziabher engida” [I am a guest from God who is lost in the dark.]

Owner: “Ye’Egziabher engida—Ayikum kemeda. Bet ye’Egizabher new.” [A guest from God! Let him not stand outside; come in. The house belongs to God.]

The complete stranger enters the house. Everyone in the house rises from their seat and bows before the guest.

Owner: “Nor!” [hello.]

Guest: “Be’Egziabher tekemetu!” [In the name of God, please be seated.]

The guest is invited to be seated in the most comfortable place. No one asks the guest anything until he is fed and the elaborate coffee ceremony is over. A child of the family comes over with a bowl of water to wash the feet of the guest (symbolic of the story of Christ washing the feet of His disciples) and a blessing (usually “May almighty God bless you” or “May the Creator illumine your mind”) is given to the child who did the washing. Tella, which is a brownish local alcoholic drink made from hops, malt, and bread, to be enjoyed during holy days, weddings, and other festive events.

Tella is a brownish local alcoholic drink made from hops, malt, and bread, to be enjoyed during holy days, weddings, and other festive events.

Areke is a clear strong alcoholic beverage prepared by distillation.
pleases the children, as it tends to be better than usual. The guest is so well-treated that
the owner of the house traditionally offers his bed; in case he must sleep on the floor, the
family members sleep around him to protect him from biting insects and to keep him
warm.

As the dawn breaks the traveller bids farewell to the owners, thanks them for their
hospitality, and proceeds on his journey.

“When I Was Growing Up”

I grew up in a place called Raya. It has been many years since I left the place, but I have
a vivid memory of something I always thought of as a spiritual practice. People from all
over, from central Shoa and from Amhara region used to come in groups to an Orthodox
church called Teklehaimanot. There was a river flowing around the church and there was
a spring of tebel4 [holy water]. Beside the river, there was a field with shimmering green
grass. When monks—who are considered to be saints—came to this place, it was
considered a moment for great celebration. Their coming was announced to surrounding
villages whose inhabitants regarded them with great awe and respect during Edir and
Ekub5 meetings. As children we usually looked forward to the delicious foods to eat. The
believers, depending on the amount of wealth they possessed, would prepare a welcome
feast; some would slaughter oxen or goats and others would bring the traditional tej6 and
tella beverages. People would line up along the river with great excitement welcome
these saint people. “Oh! They are here!” the people would shout. The monks would be
dressed all in yellow, a unique form of dress at the time. People come close to the monks
and kneel down before them to wash their feet and seek blessings before the meal. This is
what I personally witnessed. This is the essence of spirituality. People would vie with one
another to wash the feet of the monks, while the monks themselves would decline out of
humility and resist presenting their feet to be washed by others. They would shy away,
saying, “never, never!” But three or more people would force the monks to stretch out
their legs and finally wash them. This was a demonstration of respect and love.

This was an example of spirituality infused into culture, based on love, respect and
recognition; it was a bowing down to what was considered sacred. And, apparently,
whatever these saintly monks dictated to the people was obeyed. People listened to them
wholeheartedly. There was nothing artificial or deceitful about it. No one would dare

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4 Tebel is basically holy water from the ground springs, usually located around churches. The believers
drink tebel and take showers in it, for the purpose of miraculous spiritual healing. When the sick are in desperate
need of healing or when they lose hope in modern medicine, they come to the tebel. All kinds of people come to the
tebel, including people of different religious backgrounds. Priests also use this water in exorcism rituals to “get rid
of the devils.”

5 Edir and Ekub are traditional social institutions serving the purposes of mutual support and assistance
among members of the community. They will be discussed later in greater detail later

6 Tej is a yellow colored alcoholic drink made from honey and hops. It used to be a drink of the upper
classes before tej houses were established for its public sale. Ethiopians were not allowed to process tej and tella
scientifically for mass production and sale, while beer factories were imported for that same purpose, a good
effect of how imported materials and knowledge have been promoted at the expense of indigenous knowledge.
denounce, slander, or backbite about these saintly beings. Such denunciation and criticism of priests and saints as goes on these days was unheard of. If these monks counseled us, saying “O my son, do this or do that,” we would take it as a religious command and as straightforwardly as possible, and obey it as if it were Christ Himself or one of His apostles who had said it. No wonder that we now see so many saints in our culture: Abba Ghiorgis, Abba Pentelion, Abba Guba, Abba Tsama, and so forth. These were ordinary human beings who were raised to the level of sainthood because of their religious devotion. They were considered heroes for renouncing the world and its vanities and focusing on devotion and service to God and to the people. People hold prayer vigils on their anniversaries and do not work on those dates.”

“Zar’a Yacob Reincarnated”

A reluctant student raises his hand in the class. It seems as if he is not sure if he is allowed to ask the question or if the teacher can answer the question.

One can still read the “specific objectives” of the physics lesson written on the blackboard:

1. Describe the dependence of the force of mutual gravitational attraction on the masses and the distance of separation.


Student: If the force exerted between two objects (mass) is measurable, though invisible to the naked eye, why do we deny the existence and measurability of such a force in human beings, or consider as magic or sorcery the force debteras exert on particular objects to make them move or stand without physical contact?

The teacher pauses for a moment and scratches his head, as if he does not know what to say or how to say it. The class atmosphere is tense. All the students wait for the teacher’s response.

Teacher: In Ethiopia, spiritual traditions and values were not explained in such a way that they were understandable to the people. Otherwise, historically, the word ‘tewahido’ (as in the Ethiopian Orthodox Tewahido Church) was meant to show ‘blending,’ that is, the art of connecting the visible and the invisible. It was, of course, a concept of physics embedded in the Ethiopian culture that shows how visible and invisible forces exist and work together. This is nature in its simplest form, but a phenomenon that was later institutionalized in religion and compartmentalized in science.

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7 The medium of instruction is English. Where there were a few words and sentences in Amharic, for better communication between teacher and students, I have provided the English translation.

8 Ethiopian diviners.

9 Unlike the Ethiopian Orthodox church, other Orthodox churches, such as the Greek and Russian, do not use the word “tewahido.”
Ethiopians are very familiar with mesewer (bilocalization) and other seemingly magical events. Anderbi[^10] [a skill of make believe and other psychic powers], such as mesewer [divining] are forms of great art. They are a form of knowledge, or what is called in modern physics “time travel.” Even mathematics has a place for these events. Such forces are so great that if I move my head in a certain direction, I make the universe move in the same direction with me. The universe moves according to my will. The knowledge of this power was discovered in Ethiopia and will be acknowledged by later generations. Next you have the verse in the Holy Bible which states that “Ethiopia shall soon stretch out her hands unto God.”[^11]

Physics, for example, explains that the observer and the observed are interconnected. Viewed in this light, we can be more than what we appear to be. We could be beyond is observable from the outside. These must have been the sorts of forces the debtera understand and use.”

Soon, another student raises her hand, perplexed by the teacher’s answer. At this point the school bell sounds for the afternoon break. But a few students decide to stay in the classroom to continue the discussion. The rest of the students gather around the teacher and the interaction becomes more informal. They invite me to join the circle.

The same student who was so eager to ask a question raises her voice and said: “When and where did we know this thing as Ethiopians? At what point did we lose it?”

Teacher: There was a time when the Ethiopians flourished. But when this civilization was taken over by businessmen—when it was traded for money—the knowledge within our civilization began to break down. They started to abuse it and make fun of it. They usurped the good culture and exploited it as a means of making money. This knowledge became a magic show just to get money. This is a measure of emptiness. This happens when you feel you have nothing to contribute and then seek enlightenment from someone else. In this situation, you cease to be creative and begin living from the toil of others. The things of the spirit give way to the things of the body. Then development is opposed by materialistic assumptions and needs. . . . People exchange their values for immediate things. When this happens, you see lots of ‘glittering’ things. But, in essence, it is only a matter of time before this mighty, so-called civilization collapses; then it will be the time for the meek to rise up.

This is the difference between the holistic and the reductionist. The holistic have the universe as their standard (even though it may not be clear to them from the outset); they are integrative. When the reductionist thinks about salt on the table, she focuses only on the salt; the person who thinks holistically, by contrast, sees everything around the salt. So the reductionist focuses only on what is visible. It is a sign of a decadent culture and the beginning of disintegration. It should have been 10 percent to the reductionist and 90

[^10]: Ethiopian diviners with this skill make people feel that they have been invaded by invisible external forces or that someone is throwing stones on the roof. They use their psychic powers of concentration to burn someone’s home or to make someone sick without obvious reason.

percent to the holistic who see the spirit too. That 10 percent helps us to survive physically. In fact, it is also approved in *lewahido*. So if people focus on the invisible 90 percent, they can control their environment; they can even disappear and reappear physically. It is possible in the law of physics too.

I jump in and ask: “So is it the invisible force (spirit) that helps us to understand and control the environment?”

Teacher: We are now talking about influence, which means something that is invisible that has an impact, like magnetism or radiation. When you move a magnet over iron filings, the filings are attracted to the magnet. We see that happen and the brain concludes something. They produce thoughts. If we think universally, we think it in terms of the wide universe. We know we are just part of that huge universe. If unfortunately, we think only in terms of ourselves, about getting money, that is the opposite of universal thinking. In return, such choices of thought and practice influence and taint the material events. The interactions between and among people become focused in negative, unhealthy directions. When unhealthy thoughts live in our minds, they are manifested in unhealthy ways, such as begging, disease, and disaster; these are the products of unhealthy thoughts in our minds. We have become ‘out of tune’ with the universal wave. We focus on the trivia and become lost. In another sense, when we see things in their ‘natural’ state, we tend to synchronize ourselves with the state of nature. We align ourselves with the workings of nature, and the meekness which results is the foundation for development.

Student: “Can everyone realize this force within? What is the method of knowing and using it?”

Teacher: It is about synchronization. There are different influencing waves. Once we know which one is universal, we will all embrace that universal influence. Perhaps we conceive of the highest influencing wave as God beyond all religion. It is natural and based on fundamental equations. So, physics itself supports it. When we synchronize ourselves with the universal wave, we will come to terms with what is solid and realistic. Once such synchronization occurs, knowledge becomes available to everyone. There were times in Ethiopia when this synchronization occurred and civilizations flourished. I always believed that science itself is our culture. We have become deluded by the assumption that foreigners know more than we do. If we understand that science started here, if we know our own identity, we will know that civilization started here. It started along the banks of the River Nile. Civilization followed the Nile River and went to Egypt. They might have recorded this history on the pyramids. But, unfortunately, we have undermined our own history as the cradle of civilization, and in the end, we ourselves have been undermined. Moreover, communism damaged our culture and history. Newton’s mechanical physics also harmed our education. We have the knowledge, but we seem to be using it negatively these days. We may lose it altogether if we continue to misuse the psychic power.

The principal came in and interrupted the discussion.
“The Hindu Priest in Guyana”

Whenever I find myself in a storytelling situation, whether in a classroom or somewhere else, I tell my listeners the following story to call attention to the gravity of the problems facing Ethiopia. Every time I tell this story the audience is filled with a sense of shame, followed by the feeling of regret, as people realize their own responsibility for the sad state of affairs. Then, like the legendary phoenix, rising from the ashes, the audience regains a sense of commitment to rise again and do more.

Ten years ago, I went to Guyana with another friend for training on a new approach to literacy. While visiting different places, we also paid a visit to a Hindu temple in the capital city, Georgetown, since there was no Hindu temple in Ethiopia. Coincidentally, the priest in the temple was giving a sermon on the concept of reincarnation. He was citing all the blessings one can receive in this life for good deeds done in the previous one. As an example, he mentioned the then Vice-President who became President. At that particular time, the President was sick, and because of the leadership gap, the Vice-President took power. So the Hindu priest attributed this to be her reward for her previous good deeds.

The priest then went on to list the sins that deserve the worst punishment if people do not repent. “If you persist” he said, “in your wrong doings and refuse to turn to God, your punishment is to be born in Ethiopia.”

Fire Neger

Here and under every section titled “Fire Neger” I will offer a summary of my interpretation of and conclusions about these stories.

When Hotels did not Exist

As indicated in the story above, titled “The Stranger,” there was a time when people, mostly villagers, had to travel, usually on foot or on horseback, to visit their relatives, to seek justice from a landlord or, in some cases, in search of a famous traditional healer. While on their journey, people usually carried their own foods, dry-bread, roasted barley (kolo), or dried meat. They had no fear for their safety. When the sun began to set, people had two options for spending the night: they could either go into the churches, which were open to all, or they could
knock on the door of a nearby house, as demonstrated in the story. The village houses had no electricity, so sometimes the family inside could barely recognize the physical appearance of the guest as he or she entered the house. As can be concluded from the story, there was mutual trust and an instant connection between the guest and the host. The whole idea of a surprise appearance and the hosting of a guest seemed to revolve around a Creator (God) who creates and sustains all. The names and the qualities of God would be invoked when greeting someone, and all the while conversations would go on, throughout the offering and receiving of hospitality, as represented so vividly in the story.

As illustrated by the two stories “The Stranger” and “When I Was Growing Up,” there was a real effort to make a guest happy mainly for two reasons: first because a guest is sent by God and to make a guest happy makes God happy—based on the biblical story that hosts entertained angels thinking they were human beings; and second, we all travel and we would like to be treated well as we treat others well (foot washing, delicious meal, better bedding, etc).

**Sainthood**

As shown in the story “When I Was Growing Up,” monks in Ethiopia used to enjoy credibility and were seen as being saintly, of goodly character, and had a powerful presence among the people, all the while enjoying detachment from material wealth—a true example of a living religion, in which something that has life gives life. They were the essence of divinity, vision, and leadership. They rebuke the layman and the landlord equally for committing injustice. Their courage in rising above the daily cares of material existence and focusing on heavenly issues made people see them as heroes. Therefore, it was an honour for people to offer hospitality, to slaughter an ox, to wash their feet, and so on. People also took lessons of detachment from the monks’ behaviour, and were encouraged to be detached from the world
while living in it. The monks led by example and inspired people to do better. Their sacrificial and heroic life was revered, whether they were living or dead. That is why we rarely find a day that is not named after a holy person in the Ethiopian calendar used by the Orthodox Church.

_Tewahido_

As we see in the story “Zar’a Yacob Reincarnated,” the word _tewahido_ (as in the Ethiopian Orthodox _Tewahido_ Church) is expressive of the Ethiopian view of oneself and the world. It simply indicates the unity between the invisible and the visible or the divine (the infinite), as manifested in the physical (the finite). Human beings can use their will to understand what this union means, how it manifests itself and live within its fold. The constant union and influx of matter and energy is demonstrated, for example, by the sudden appearance and disappearance of the divines. As shown in “When I Was Growing Up” and “Zar’a Yacob Reincarnated,” the Ethiopian monks and _debteras_, due either to their high level of traditional education or long hours of prayers and meditation or perhaps a mix of both, understand this union and use it for the common good or their own benefit.

It is this understanding and practice of the union between the invisible and the visible that promote or destroy civilization, according to the teacher in “Zar’a Yacob Reincarnated.” The more we understand the process and align ourselves with it, the union between the divine and the material (holistic life) leads to civilization; and, vice versa, the more we ignore this union and move away from it (as in the reductionist life), civilization collapses. As human beings we always have the choice to completely ignore the invisible that is united with us and focus on the immediate and material.

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12 Unlike the Ethiopian Orthodox church, other Orthodox churches, such as the Greek and Russian, do not use the word “tewahido” in their names.
Formerly, education and philosophy in Ethiopia placed much emphasis on the presence of the invisible-divine in human beings and the need to align ourselves with its will and purpose. Education through rigorous reading, prayer, fasting, meditation, and exercise enabled learners to understand both the visible physical and the invisible divine nature and move between them with relative ease. That is why, within the traditional Ethiopian knowledge system, the concept and practice of bilocalization, divining and time travel were so common. Human life was an effort to synchronize with the will of the divine. Since the divine permeates every single atom in the universe, those who aligned themselves with the divine have a better understanding of the existence of the atoms and their place in the universe. Based on such understanding, there came the belief that once the alignment between the physical and the divine is attained, it is possible to use one’s will power to move physical atoms and their larger forms. The conviction “when I move, the world moves with me” is one fruit of such an understanding, as we see in “Zar’a Yacob Reincarnated.”

**Fighting back to Restore Honour!**

The priest in the story “The Hindu Priest in Guyana” could never have imagined that two Ethiopians could actually be seated in the audience listening to his sermon. As a good preacher, he was trying to make his point about the worst kind of punishment. When asked why he used Ethiopia as an example, he admitted that he had gleaned the idea from the media, in which Ethiopia is depicted as a hellish place. “In fact,” he stated, “some media and some NGOs have continued to use the same gruesome pictures from the 1986 Northern Ethiopian famine to raise awareness and funds.” For the priest, the story was a way of making a point. But when Ethiopians hear this story, it calls to mind the spiritual qualities they possess. A discussion with someone in an Ethiopian audience who hears this story reveals that Ethiopians have a sense of
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pride that motivates them to protect themselves and their country from dishonour. Beyond the immediate wit of the story, it is clear that Ethiopians possess qualities such as long-suffering, humour in the face of difficulty, and a desire to be rejuvenated. The laughter is an analogy of the making of popcorn through heat pressure.

Chiwiwit [Conversations]

After recording and listening to the stories and my conversations with the research participants, I started packing to come back to Toronto. Upon my return, during a break from the data collection, and in the few months before writing the first draft of this thesis, I was constantly trying to filter out and write down what I learned from the ocean of conversations and anecdotes in which I had been immersed. I repeatedly asked myself what those findings mean for the kind of education Ethiopia needs to build for the future. As I said earlier, for me this thesis is not a theoretical exercise. If there is a conducive environment in Ethiopia, I would like to make practical suggestions about the way education in general and science education in particular should be conducted. Henceforth, I would like to focus on some points implied by the preceding findings, including the important role of the concept of a Supreme Being (God) and the fear of God plays in the Ethiopian mind, how people are raised to the level of saints, and how these thoughts relate, in turn, to education.

A Supreme Being (God)

In his discussion of Ethiopian philosophy, it is interesting to see how Sumner (1974) observed that the divine is the foundation of ordinary living and leadership:

One usually distinguishes three historical elements from which Ethiopia was born: 
qaddas, the sanctifying and blessing element devoted to divine service; haras, the element formed by farmers, workers, tradesmen and cattle breeders; nagas, the leading element, that protects, judges and gives orders. Everyone in traditional Ethiopia is firmly convinced that the first of these elements is the basis of the other two. (p. 26)
According to the Ethiopian way of life (way of knowing and doing), the belief in and the fear of a Supreme Being is all important, as illustrated by the first three stories. In fact, the people hold that conviction so strongly that they consider the Supreme Being as special to Ethiopia: they call Him Ye’ethiopia amlak (the Ethiopian God). This faith in God and the fear and respect that come out of their love for Him form their standard of living. What is good or bad should be differentiated based on the belief in God. The concept conveyed by the Amharic word newer indicates thoughts and actions that go against the will of God. The word God is embedded in almost every interaction and conversation that takes place between individuals. It is easy to see in the classroom observations that when a teacher comes to the class and says “good morning” or “good afternoon students” the usual response from the students is “Egziabher yimesgen” [Praised be God!]. When boys tease girls, the girls try to avoid them by saying “be’Egziabher tewoegn [I beg you in the name of God to leave me alone]. So it is not surprising, whether in travelling or hosting a traveller, people invoke the name of God and associate their existence and will with His existence and will.

Discussing the Ethiopian conception of God in Ethiopian philosophy more emphatically, Sumner (1974) writes:

God appears . . . as the ultimate pattern of human action and the summit towards which the paths of human existence converge. He is the goal, the purpose, the aim, the finality. He draws to Himself what He has created for Himself. He is the last moment of a movement that has originated in Him and which, having throbbed in the heart of the created universe and in man’s conscience, loops up its cycle in the Creator. (p. 393)

The Ethiopians also understand that the Supreme Being is invisible, but He dwells in everything and sees every human thought and action. A good deed or an evil action done to other human beings is equated with doing good or bad to God. From this all other forms of respect derive: for family, elders, guests, country, religious figures, authorities, and friends. To this end, there is a saying in Amharic Esu bayayegn amlaku yayegnal [though the other person cannot see
me His God will see me]. Moreover, in line with what Sumner (1974) stated about Ethiopian philosophy, most actions within relationships are triggered by giving back to God what we have received from Him. For example, the preparation and the preservation of extra food and local drinks are done with God’s guests in mind. As such, it seems that the motive for the local science of preparing and preserving is initiated by a moral motive to serve others. For example, the local drinks *tella*, *tej* and *areke* required identifying the proper grains, with the proper measure and the procedures for preparing them. Though there is no written recipe, all women in the household know how to prepare the drinks.

Depending on the availability of materials and the occasion, the alcohol can be strong or weak. Grains and materials like barley, corn, *teff*,¹³ and honey are needed. Knowledge and skills of fermentation, distillation, and preservation are also needed to prepare and store the drinks. Therefore, traditionally a good woman of the household is both spiritual and a good scientist as she treats her guests with the utmost respect and comfort while supplying them with the best dishes and drinks. It can be said that Ethiopian women have developed and refined and passed down through many generations the processes of fermentation, distillation, and preservation. But all this knowledge had not been incorporated systematically in schools.

It is because of this fundamental argument that any Sankofa¹⁴ in the Ethiopian context cannot avoid the concept of God and the exploration of the use of His attributes as a primary motive to generate and apply knowledge. As described in the section on Alternative Theoretical Frameworks in Chapter 2, secular education and secular government tend to speak against Sankofa, and to be characterized by a postcolonialist mentality. In my view, the questions to be

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¹³ A tiny grain grown in Ethiopia.

¹⁴ See Chapter 2, “Sankofa,” for an explanation of this term.
explored further in this context are when and how to introduce the notion of God and His attributes into the curriculum.

**The Fear of God**

It may appear natural that people fear a Supreme Being who is almighty and omnipotent, and has the power to reward and punish. If people believe that for every action there is equal blessing, reward, or punishment, it is expected that one will take responsibility for every action. Whether by understanding the logic or from a sense of awe or feeling of love and respect for the Creator, it may not be unnatural to fear God. From a curricular and pedagogical perspective, belief in the existence and power of a Creator, the reality of the soul, the existence of heaven and hell, or reward and punishment are powerful values that cannot be ignored in school learning. In fact, as argued earlier, the reality of human beings is their universal spirituality which sets them apart from other living things (Abdul-Baha, 1987; Goleman, 2003/2004). On this theme, I refer to Vradenburg’s (2007) conclusion that “inquiry, at its highest level, should emanate from a search for the best alignment between the workings of the universe as discovered through scientific inquiry and the purpose of the universe and of humankind’s role in it as discerned through spiritual inquiry” (p. 1).

In fact, young children come to school already with such strong beliefs from both their home and community. Unfortunately, present-day schools are devoid of these values in the name of science and secular education. Science in the Ethiopian context neither embraces nor addresses these values. So if, for example, we insist on teaching the child in his or her mother tongue because it is a value close to the child, why do we not also allow the parents’ beliefs and culture infuse the school? There may not be one specific, unequivocal answer to the question of a Supreme Being, heaven and hell, blessings and curses, but we do know that we can engage the
students with the questions themselves. As suggested by West-Burnham and Jones (2007) that educators should develop the “capacity and resilience to engage with the questions” (p. 19), we can help students formulate the right questions; we can help them set up experiments; we can help them prepare projects to address those issues; we can help them see the benefits and harm of these values within the society, that is, how useful or harmful they are in terms of development.

It is also useful for pedagogues and other scientists to research the extent of the impact of these values on education, development, peace, and stability. Is fear always negative? Hornby (1995) in the Oxford Advanced Learner’s Dictionary offers a positive definition of fear, as in “put the fear of God into someone.” Fear is thus defined as reverence, respect, or awe for somebody or something. Are we not awed by the majesty and pageantry of kings and queens? Are we not excited by the power and majesty of celebrities, prime ministers, wealthy people, aware of what they can do with that power? Is it backward to feel reverence and fear towards the Supreme Being who created and sustained all the less powerful? How can this fear be included in the teaching of ethics in science? Will people become more humane when there is little or nothing to share? Will people still sacrifice without the fear of God? Will people be truthful and trustworthy even when they are in distress, when they have nothing to eat, or their safety is endangered?

We have seen that people can show humility or remain orderly in a state of plenty. But we have also witnessed horrific scenes of ordinary people turning into monsters when they trample others in a “sale,” or become greedy and self-seeking, as they did during the economic crisis of 2008–2010. In fact, some newspapers pointed out the primarily moral—as opposed to economic—cause and the effect of the crisis (Dailymotion video, 2008; Salsman, 2009). The
Ethiopian people proved otherwise. Even while starving, they remained calm and orderly in line to receive food aid. They did not engage in civil war or uprisings during the food crisis.

It is critically important to exercise intellectual restraint, not to indulge in dogmatic arguments about God and truth. Curriculum experts and teachers should be exceedingly careful to make discussions inclusive of all. They should find common ground for every religion and ethnic group. Teachers must know how to engage in the discussion and implementation of values without showing favour to one set of values or beliefs over another. As suggested by Dei (2004), earlier approaches to spiritual discussion and engagement must take into consideration and be respectful of the different religious traditions. This might well have been the aim of secular education: to treat everyone equally, whether in offering a critique or showing appreciation. It is important that the teacher’s personal beliefs and values not mask the critical pedagogy that students are engaged in.

Heroes and Saints

The concept of “hero” and “saint” is a recurrent theme in Ethiopian community life. Whether at war or peace, Ethiopians have heroes and saints. As a sign of the belief that it is the will and in power of God that protects from invaders, it was customary to carry sacred arks onto the battlefield. The driving force to be a hero or a saint is the desire to serve others selflessly. From the community perspective, the extent of sacrifice and devotion to the common good is a major criterion for being considered a hero or saint. In fact, before there was much stress on the separation of church and state, heroes and saints were one and the same, people who loved their people and country, who were more educated and more religious, who sacrificed themselves for the common good, whether resisting foreign invasion or seeking social justice within the country. A good example is Abuna Petros, whose statue stands magnificently at the centre of
Addis Ababa right beside the city hall. Abuna Petros was the pope for the Ethiopian Orthodox church during the Italian invasion of 1936 to 1941. During that period, Abuna Petros was forced to renounce his faith and submit to Italian rule. He was slain by the Italians for adamantly refusing their demand.

One of the celebrated elders with whom I had a discussion enthusiastically explained to me why heroes and saints should be in the curriculum. He gave me an example of how people behave and act, depending on what kind of hero or saint the media is covering at the time. When the media talks about war heroes, many young people want to be soldiers and go to war. When the media depicts athletes, everyone starts to run in the morning. When the Ethiopian athletes dominate the winner’s circle at the Olympics and other international games, or when singers release songs about athletes, then the media is overwhelmed by the talk of these heroes. Such news encourages everyone to exercise regularly. It is the same when people hear of heroes in business or development. Saints like Abba Ghiorgis, Abba Pentelion, Abba Guba and Abba Tsama, are not only about prayer and devotion to religion, but also are about feeding people and fighting for social justice.

In summary, it is my understanding that Ethiopian spiritual and cultural values emanate from the conception of the existence of God and the desire to achieve His will. Any educational endeavour, including science education, which ignores this fundamental assertion is not worthy of the efforts of Ethiopian citizens. If we sincerely believe that we need to ground students’ learning in their cultural background, it is essential that we engage the students on questions of spiritual and cultural values. If science education is going to continue as a fragmented form of knowledge, isolated from the whole structure of the interconnected Ethiopian mind, then it must at least engage students with the question of metaphysical powers.
A Different Kind of Science Education

The story “Zar’a Yacob Reincarnated” highlights how Ethiopians understand the relationship between the spiritual and the physical. Zar’a Yacob was one of the philosophers who held that the foundation of Ethiopian philosophy was its understanding that spirituality is the basis for what we know and do. The conviction that “if I move my head in a certain direction, I make the universe move in the same direction… the universe moves according to my will” is the fruit of such an understanding. In my opinion, this conviction must have been at the centre of the discovery and application of the knowledge to build the stele of Axum, the rock-hewn churches of Lalibela, and other monumental structures. Such an understanding and practice has parallels with the teachings of Christ (Matthew 17:20): “if you have faith as small as a mustard seed, you can say to this mountain, ‘Move from here to there’ and it will move. Nothing will be impossible for you.” Moreover, capitalizing on the impact of human motivation to act within the material universe, Baha’u’llah (1990) stated that, “one righteous act is endowed with a potency that can so elevate the dust as to cause it to pass beyond the heaven of heavens. It can tear every bond asunder, and hath the power to restore the force that hath spent itself and vanished” (p. 286).

Moreover, the concept of interconnection, upon which the whole of the indigenous knowledge of Ethiopia and Africa is built might have come from a deeper understanding of the interconnection between and among all elements of the universe. In a more elaborate sense, there seems to be no independent existence between the observer and the observed, the doer and the act. In this sense, the observer cannot, in all honesty, dissociate him or herself from the research object and present an unbiased view. Thus does an Ethiopian live in the world, flow with the world, commune with and listen to the world. In the indigenous context, there was no separate

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tool called science with which to slice and analyze the world. There was only living in harmony with the world, feasting, and praying. Taking the preceding discussions into account, if Ethiopians insist on having “science education,” it has to be one that examines these relationships and interconnections and determines what can be done about them.

In contrast to the focus of Western science education about the physical universe, the Ethiopian knowledge system does not differentiate between the physical and the spiritual universe. There is a constant flow and union between the two; they exist alone and together in the same world, at both the same and different levels simultaneously. Mbiti (1969) captured the essence of this understanding when he discusses the African concept of interconnectedness. He concludes that, “the majority of peoples hold that the spirits dwell in the woods, bush, forest, rivers, mountains or just around the villages. Thus, the spirits are in the same geographical region as men” (p. 80).

Because of this intermingling and flow, as Mbiti admits, there is nothing dead in the African universe. This is in stark contrast to the Western idea of matter. Mbiti adds:

One cannot argue matter to be totally inert or dead if the spirit which moves it is inherent within it; for the soul or spirit would then be an essential aspect of the matter itself. The notion of dead or inert matter definitely requires that one ascribe the motion of matter to some non-material principle which is external to matter. (p. 85)

Abdul-Baha’s (1985) and Mbiti’s (1969) discussion of the living nature of everything in the universe conforms to the notion of Ethiopian interconnectivity, while challenging the Western notion of inertness in physics and chemistry. Both writers state that everything has its own level of consciousness or vital force and, thus, its own level of response to external action from other objects. There is a hierarchy of forces descending from human beings through to the animals, the plants, and finally reaching stones and rocks at the lower end, that is, the power of intelligence, the power of the senses, the power of growth, the power of composition and
Nothing is dead and death is a relative term that applies to different levels of existence. Abdul-Baha (1987), for example, states that a non-believer is dead as compared to a believer. The proposed Ethiopian science must, in this respect, be a study of the power that exists at different levels and the balance and harmony that exist within and among them.

Moreover, a glimpse of the concept of the theory of relativity shows some similarity with the Ethiopian concepts of space, time, matter, and energy. In fact, Kamalu (1990), in a manner that takes the Ethiopian view into consideration, argues that the systematic nature of African thought is in harmony with relativity physics—unless one sees these concurrences as purely coincidental. From a critical observation and analysis of what the traditional doctors, the diviners (debteras) and rainmakers do, we can conclude that matter (concrete objects) and energy (spirit) in the African knowledge system are one and the same, as in relativity physics. There is a form of fluidity between the two, such that energy takes the form of forces which are the very essence of matter, and vice versa.

Through such varied Ethiopian cultural activities and rituals as those for healing or for bringing and stopping rain, the unseen spirits become blended with the visible world and the material world becomes the reflection of the spirit world (as discussed by the teacher in the story “Zar’a Yacob Reincarnated”). The visible and the invisible work together and, in that sense, everything around us is sacred and carries spirit within it. The coming or the absence of rain tells much more than its scientific explanation, viz. that it is the cooling of water molecules in the air. In the coming or absence of rain, the Ethiopian mind sees a curse or a blessing in the response to good or bad deeds from an all-knowing divine source. It is interesting to note that Nashon (2003), in his study “Teaching and learning high school physics in Kenyan classrooms using analogies,” suggests that “in some cases, cultural practices and beliefs may have had quite a
significant impact on teachers' use of analogies” (p. 340). Nashon goes on to explain that even in the case of a person slipping on the ground, Africans do not attribute it to a lack of friction. Rather, they consider it to be “caused by some remotely controlled superpower” (p. 340). Even though the immediate cause for the slipping may be muddy ground, an African believes that the person’s fall was ultimately the will of the Supreme Being. In another sense, as Horton (1971) suggests, the spiritual and the practical or the invisible and the visible work hand in hand.

Such a perception, in one sense, is a quality of humility that comes from considering oneself as one part of nature, not above nature and ruling or controlling it; in another sense, there is a feeling of responsibility or accountability, that all our deeds have repercussion within the universe. Likewise, with the realization that we are part of this vast universe comes the knowledge that we are the universe itself and nothing can stand in our way, that nothing is above and beyond us. Accordingly, when this knowledge is exploited to promote the good of this universe, civilization flourishes. If human beings choose to exploit this realization to selfish ends, then the visible civilization declines and the darkness of ignorance reigns. When people turn their light from the universe to themselves, they will not have vision and enlightenment and, as a result, they lose balance and harmony. Immorality becomes the order of the day, corroding the vitality of beliefs people have in the universe and the invisible God.

The Transmission Model of Education

The transmission model of education enhances students’ respect for teachers in many ways, as the source of ultimate truth, knowledge, and authority. The story “When I Was Growing Up” is partly a demonstration of how honoring authorities and saints originated and were sustained. Challenging or questioning the teacher’s authority in any context has been very difficult. But as shown in the context of the story “Zar’a Yacob Reincarnated,” there have always
been humble students who have the courage and wisdom to ask the teacher insightful questions. Regardless of the silence in the classroom, some courageous students are willing to break the silence and ask whatever questions come to their mind. The humble student will usually have a way of politely pausing before asking a question in a way that does not antagonize the teacher, but, at the same time, will display a seriousness that elicits a response. Physics (science) and divinity trigger many and frequent questions from students who have been brought up in traditional and religious families with little or no formal education. The students seek explanations from their teachers about meanings and insights that they could not get from their families and their religious institutions. Given this observation, it is difficult to totally conclude that the transmission of education does not engage students in discussion.

In summary, there appear to be a contradiction between the traditional beliefs and practices at homes and in the community and what the students learn in science classroom in the guise of “science.” Either local values are not incorporated or dealt with in the classroom, or science does not extend itself beyond the classroom to explain local beliefs and customs—in any exciting and meaningful way as part of the curriculum or pedagogy—except to discard or ignore them as superstition and sorcery. Fortunately, there were, and are, always good teachers, who are ready to listen to students, who try to address every question, who try to relate what goes on in or is thought about in daily life with classroom discussions, and who figure out what most deeply concerns their students. These are, in a way, the philosophers and scientists of Ethiopia, who ably try to fill the gap in the curriculum.

**Patriotism**

I argue that one of the reasons why Ethiopia has never been colonized is the determination of the people not to submit to any violence and the high degree of sacrifice they
are willing to exert in order to preserve their dignity. The histories of the wars waged with foreign invaders demonstrate this truth. Richard Pankhurst (2001), who wrote extensively on Ethiopian history, explains that the Ethiopians do not accept defeat. The colonizers tried a number of times to conquer and rule it; however, they were each time defeated. According to Milkias (2011) “Ethiopian freedom fighters did not give up” even in the face of the brutal poison gas attack of Mussolini’s troops (p. 54). Due to the long history of freedom and governance, any foreign intrusion was considered a national shame. The story of “The Hindu Priest in Guyana” touched the Ethiopian nerve of national pride. For an Ethiopian, death is better than accepting injustice and shame, perhaps stemming from the fact that the prophet Mohammed sent his families and followers to Ethiopia, knowing that they would be protected from “the persecution of the Querish” (Milkias, 2011 p. 192). It may be easier, therefore, to build a curriculum whether in the natural or social sciences about social justice, based on these pre-existing history and qualities. Such a curriculum might go far in helping the critical mass of Ethiopians to arise not only to defend their honour, but also repair their national image before the eyes of the world.
Research Question 2:

Values that Ethiopians Consider to be Unique to Ethiopia

Story Time

All the stories presented below are quoted directly from the key informants. I could not give descriptions of who the informants were as it would violate confidentiality.

“The Encounter”

When I travel outside Ethiopia people ask me different questions about Ethiopia, although the most frequent question is about the famine. The news on the famine was so exaggerated that most people all over the world assumed there was nothing to be seen anywhere in Ethiopia except famine, emaciated children with swollen bellies, and civil unrest. It was so exaggerated that the Oxford Advanced Learner’s Dictionary (1995) used Ethiopia as an example and analogy for famine. In fact, some compare us to monkeys living in trees assuming, again, that there are no houses. There is a joke in which one Westerner asks an Ethiopian how we climb the trees in order to spend time in our “home.” The Ethiopian quick-wittedly replies: “We use elevators.” The Westerner then said, “Wow, it must have taken a lot of work to put elevators on living trees!” This Westerner was so prejudiced, that it did not even cross his mind how we were able to build elevators but not houses! But apart from the occasional jokes, I usually have two answers [to your question], based on what David says in the Psalms about the nature of Ethiopia.

The first answer is the verse stated in the Psalms, which says, “Ethiopia stretches her hand unto God” (Psalms 68:31). This verse is relevant, because it is not only about the future but about the present. It shows that Ethiopia is a country founded on and abiding by spiritual teachings. Generally the way we conduct our lives, as in the way we dress, speak, or eat, has a religious foundation. This foundation has given rise to the current cultural practices such as mutual love and respect, heroism, and patriotic love and all are rooted in the previous religious traditions. In order for a society to exist and have culture, there must be mutual love, respect, and courtesy; these practices come from religion. And vice versa: it may be that cultural values have been the inspiration for religious values; they support and complement each other. They have a reciprocal relationship and can create a complete and fulfilled society.

For example, from the church student to the high-priest, there are different styles of dress. When followers go to church and mosques or during religious holy days, we have a particular way of dressing. Usually, men wear the *gabi* and *kuta*, and the way we put it on is suited for a particular occasion. Women wear a similar, somewhat finer dress, called *netela*, which looks a little like the *hijab* as prescribed in the religious teachings (The

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16 A loosely woven white wrap of pure cotton, worn like a blanket and very warm.
Many of the women’s dresses have an embroidered cross on them. And most mothers and girls from the villages have the sign of the cross tattooed permanently on their necks or on their foreheads.

We eat together, share our meal from the same plate, and usually the elder of the house blesses the food and cuts piece of the *injera* and offer it to others. In modern times, the sharing of food from the same plate is thought to be unhygienic, but for us, it is a custom that symbolizes unity in the family. Now the tradition of eating with the hands from the same plate is becoming fashionable in Western cities, where Ethiopian restaurants are famous. *Gursha* [feeding others] from the same plate is another symbol of our commitment to each other. It demonstrates that we trust the people with whom we share our food.

The second answer about what is unique to Ethiopia concerns the content of what we eat: mainly *teff* and barley. The system of preparing the land to sow the *teff* and the way it is harvested are unique to Ethiopia. Again, somewhere in the Psalms it says, “Ethiopians are given their food.” It is a unique seed, difficult to find anywhere else. Of course, these days they are apparently growing it in the United States. *Teff* has a high iron content. Once it is harvested, it must be ground into flour and then, by a unique process of fermentation made into *injera*. Some yeast from the one set of dough is set aside for the new dough and left to ferment for three days. Then the fermented dough is baked into the injera. When one develops a taste for *injera*, it is well liked and delicious. *Teff* and *injera* have evolved with the people and the environment in Ethiopia and reproducing the same kind of *teff* and *injera* in other countries is almost impossible.

“It Takes a Village to Raise a Child”

There is something I need to tell you, beyond what I said earlier. I was telling you about the peaceful coexistence of different people in the area where I grew up. Now I will give you a concrete example by mentioning how every parent is responsible for every other child in the community. In our area, all adults act as parents to each and every child. All mothers and fathers are like real parents to all the children in the area. No parent is silent when he or she sees any child misbehaving. There is no *yilugnta* when it comes to bringing up children. If a parent gives lashes to a neighbour’s children for some wrong doing, the actual parents do not complain. In fact, they praise the neighbour parents who performed the act. This is a major value we are now losing. Moreover, parents have different expectations for girls than they do for boys. Girls must be home by 6 p.m. and if my father sees a girl in the street he chases her inside, regardless of whose daughter she is. It was seen as a matter of safety and dignity, even though outsiders may consider it male dominance. I am not also saying that girls cannot stay outside. But they can be at

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17 “For if the woman be not covered, let her also be shorn: but if it be a shame for a woman to be shorn or shaven, let her be covered” (King James Bible- Cambridge Ed.)

18 A national dish in Ethiopia, *injera* is a yeast-risen flatbread with a slightly spongy texture, traditionally made out of *teff* flour.

19 Suppression of self interest out of fear of or respect for public opinion. See fn. 5 in Chapter II.
risk after 6:00 in the evening and my father feels the communal responsibility to protect every girl. We cannot claim every cultural and religious tradition is right to this day. Islam says that women should be protected, but does not go as far as to say “let them not play outside their doorsteps.” We protect our girls, especially the older ones, and everyone takes the responsibility seriously. So, among parents there are those who take the tradition more seriously, like my father. The girls accept the protection of adults and they are careful to go indoors before my father comes home. Parents follow the tradition and there is no such thing as “I do not care as long as it is not my child.”

“The Good Old Days”

In comparison with my grandfather, I feel that he had more integrity. I do not have the same integrity my forefathers had, but I carry their names. It is sickening. Our forefathers were highly religious and, as a result, they were highly trustworthy. If they gave a promise, they sacrificed their lives to keep it (adera tebaki). They valued friendship. They went out of their way to help families and friends. If you asked them to accomplish a task they would go without sleep until they performed it.

Nowadays, we do not find that quality in today’s generation. Why? Because the current generation is opportunistic and selfish. Our children seriously believe in the rule of survival of the fittest which they learned in school. The motto is “if you are fit, if you have money, fame, you will survive.” Our forefathers were gallant, truthful, and self-sacrificing, while the current generation will lie if lying helps them to survive. Most members of this generation want to stay alive, even if you dislike them; the mentality is “it is alright to be despised as long as we survive.” The previous generation would not have been so disliked because it was thought that there was no justification for such an attitude.

“The Bad and the Good”

My father used to say, “If a farmer feels bad it may not be because his ox died, but rather, because his neighbour’s ox did not die.” One of the worst attitudes that has crept into the Ethiopian mind is that of mikegninet [envy], when a person becomes jealous of the achievement or possessions of others and places n obstacles on their path to success. We are born free and good, but this mentality takes root as we live daily in a wicked environment. When people turn away from their religion and culture, they tend to develop ill-feelings towards the community and this feeling grows until it finally corrodes the whole fabric of the society.

Character is a universal self-identity, the theoretical self or the fundamental nature of a human. We lose this baseline character as soon as we are born, when we begin to cry from discomfort. Life then becomes a struggle not to die. This struggle forces us to lose sight of the forces of life, such as universality and interconnectedness. Then we learn mikegninet. We are so conditioned to and hypnotized by the growing process in the society, that we can never imagine life without a struggle for survival. In a situation where we think there are scarce resources and less community support, we feel the need
for struggle to survive and mikegninet becomes just one more strategy. If we reclaim universality, we will become integrated; we will know that, as one grows we all grow.

**Fire Neger**

**Misconceptions about Ethiopia and Ethiopians**

According to the story “The Encounter,” many foreigners think of the whole of Ethiopia and of all Ethiopians as famished, impoverished, and disposable, whereas Ethiopians would like to think of themselves as free, independent, beautiful, proud, intelligent, heroic people. From the story, we see that Ethiopians want to consider themselves equal to others, regardless of all the facts and statistics of poverty. It is true that famine has occurred repeatedly in some parts of Ethiopia, due to drought and political conditions. The misrepresentations have made people all over the world think that the whole of Ethiopia was starving. In fact, much of the displacement occurred for political rather than economic reasons. But Westerners who have never been to Ethiopia see grim pictures of Ethiopia in the media and the sudden appearance of Ethiopian immigrants working in coffee houses, warehouses, and parking lots. Thus, while Ethiopians are proud of their history and choose not to be humiliated, the media and their presence and types of work in Western cities portray them otherwise.

In the story “The Encounter,” we hear of the greatness of Ethiopians and how they pass down their culture from one generation to the next. The centerpieces of these stories include the oral and written stories from the different religions of the region, about historical sites, and the wars fought against invaders. There is an underlying assumption that Ethiopians are the chosen people of God, and each piece of the culture is rooted in spirituality. The clothing worn, the cross symbols displayed everywhere (on dresses, tattoos, carvings), the types of food eaten and how it is shared—all symbolizing attachment to the Creator.
As in “The Stranger” and “The Encounter,” Ethiopians have great attachment to God and believe that they too are His chosen people. Though some people prefer to shun the concept of a loving God because, there are so many hungry people in the world who profess to love Him, others are convinced that “whom the Lord loveth he chasteneth, and scourgeth every son whom he receiveth.” God chastises those whom He loves.” Famine, to them, is also a reminder of the lack of spiritual guidance, conceived of as mea’at, a concept shared by many African communities signifying the retribution of God for sins committed. In my early childhood, I observed people flocking to churches and mosques to ask for forgiveness, so that God would sends rain and famine would end. It is this strong religious attachment to a divine presence that we see carried over into the arts and music of the Ethiopians. Religious symbols glorifying God are seen everywhere in daily life: in statues, dress, tattoos, and in the homes of most individuals, and not only in the course of conversations about God.

Another tradition reminiscent of religious teachings in these stories has to do with the sharing of meals. It is a shame for an Ethiopian to eat alone without sharing with another person. It is quite normal for someone to be invited to share a meal, even though the individual may be a stranger. And as we see in the story, it is also customary to feed the other person, even from the same plate. Furthermore, sharing a meal when there is not enough for oneself is a mark of community solidarity reminiscent of the words and actions of Christ and Mohammed. Sharing is so natural that it requires no thanks. In fact, in some of the tribes of Western Ethiopia, there is no word for thank you, since sharing is seen as natural a duty as that of sun to give light and heat.

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20 “Are ye not as children of the Ethiopians unto me, O children of Israel? saith the LORD.” (The King James Bible, Amos 9:7)

21 The King James Bible, Hebrews 12:6.
Other unique cultural values are attached to the plants and animals native to the region, and their associated by-products. As mentioned in the story “The Encounter,” for example, the production, preservation, and use of the Ethiopian stable food *injera* and its source *teff* are typical of Ethiopia. Both the production of *teff* and the making of *injera* evolved over thousands of years in the context of Ethiopian life and environment, making it difficult to reproduce them in other parts of the world.

**The Past**

Certainly, it cannot be said that the Ethiopian past has always been good. Although the country has been free for the last three thousand years, a glimpse of Ethiopian history shows that there were actually many ups and downs in its social and political life. But one thing is not in doubt: almost every father in every household keeps telling his children stories of the “good old days” in praise of the ancestors. The fundamental reason given for their goodness is their religiosity. When the word religion is mentioned in this connection, it is to show the set of moral behaviours reflected when one claims to be religious. Unlike the popular Marxian trope that religion is the “opiate of the people,” the word religion in Ethiopia is synonymous with being and doing good. Therefore, when the forefathers are said to be religious, it means that they showed qualities, such as trustworthiness, friendship, and sacrifice for the common good. In contrast, when the current generation is said to be irreligious, it may not be that the generation does not belong to any religion. Rather, it seems to mean that the generation does not necessarily reflect the spiritual qualities that should be characteristic of those belonging to a certain religious group. It could generally mean that the younger generation does not show trustworthiness, friendship, and sacrifice. One of the reasons given for such irreligious behaviour is that schools no longer provide morals classes; rather, they teach survival of the fittest or the struggle for
survival. This later phrase seems to mean that in order to survive, a person should not have to help others.

**Protecting Women and Children**

As in most traditional societies, women and children spend most of their time close to home and in the villages, while the men and fathers leave the village for various reasons. Nevertheless, there is a feeling of communal responsibility and concern in the village for the way children are treated as demonstrated in the story “It Takes a Village to Raise a Child.” As mentioned in the story, although children are left free to roam about and mingle with other children in the village, bad behaviour is likely to be punished by any adult who happens to observe it.

As children grow into their teens, the control shifts more towards the girls, who are expected to stay close to home, even when they are given the traditional education offered by the churches and mosques. Girls are expected to follow in the footsteps of their mothers and are instructed in how to maintain a good home. While members of the community trust each other to be responsible for every other person, there is extra caution shown regarding the protection of young women. Such protection may appear unacceptable and oppressive when measured against the standards of modern day democracy and education. However, it is part of the culture and the communal responsibility that Ethiopians rear children through a moral discipline and prepare them for adult life.

**Negative Mind Set**

As depicted in the story “The Bad and the Good,” a negative attitude called *mikegninet* [envy] develops when people do not display the positive cultural and spiritual values the Ethiopians possess. This may be seen through the analogy that darkness is the absence of light. It
may be defined as the bad feeling one entertains and the action one might take against the progress or success of another. Such feeling and action might come from family members, neighbours, friends, or co-workers. When one is promoted or succeeds in a particular effort, someone else may experience jealousy and wish to stand in the way of that person, perhaps creating obstacles to the person’s progress. Rather than an open and frank opposition or a demand for fairness, it is seen as going against justice and an expression of ignorance.

There is much controversy as to how the characteristic of mikegninet develops in human beings. For example, there are those, such as the science teacher in the story “Zar’a Yacob Reincarnated,” who argue that there is no evil in nature or that there is no such negative force in the universe. For them, mikegninet is the result of a bad upbringing. They say mikegninet is a negative trait that we learn and develop after we are born. According to this affirmation, mikegninet is the absence of positive qualities such as sharing, generosity, and respect, in the same way that darkness is the absence of light. As in the story “The Bad and the Good,” when the process of growing becomes a struggle not to die, we lose our appreciation for the universality and interconnectedness of life and, consequently, we learn mikegninet. As people lack the sense and action of interconnectedness, they tend to develop individualistic motives and purposes. In this situation, there is a struggle more to preserve the self than the common good. In times of need and scarcity, when people lack the quality of sacrifice to counteract negativities, they tend to develop selfish motives and mikegninet.

**Chiwiwit/Conversations**

From the preceding stories, I understand that a very important aspect that may be unique to the Ethiopian way of life is how religion and culture are so intimately intertwined. Any effort to identify local values with the intention of bringing them into the school cannot ignore the fact
that religion fundamentally shapes what and how Ethiopians think and know. It is the interplay of religion and culture that shapes their individual and collective responsibilities, their rights and prerogatives, and the institutions that govern them. In the next few pages I would like to show in more detail how this interplay takes place and the impact it has on science education.

**Religion: The Initiator of Civilization and Culture**

Based on the discussion in the physics class (in the story “Zar’a Yacob Reincarnated”), one may conclude that the rise of civilization depends on the perfect marriage between a fresh revelation from God and local or indigenous spiritual and cultural knowledge. When Judaism brought new insights to the Ethiopians, the people were able to build one of the world’s great civilizations, known as the Axumite kingdom. Milkias (2011) states that:

> The Semitic-speaking Ethiopians’ first capital was Yeha, where a magnificent temple was built in 600 BC. Yeha was situated about 12.43 miles north of Axum. The latter became a fixed capital for all Ethiopia around 300 BC. An empire soon expanded and flourished from this centre. (p. 39)

Currently, the magnificent obelisks of Axum bear witness to these events. Later, at the peak of the merging of local knowledge and Christianity, the Ethiopians built the great rock-hewn churches of Lalibela and the castles of Gondar—though the rest of the world has yet to discover them. It was also at the peak of the fusion of indigenous knowledge and Islam, that Ethiopians built the walled city of Harrar.

Phillipson (2005, 2009), for example, discusses why the Lalibela rock-hewn churches are of particular interest. While acknowledging that one of the obelisks of Axum is “one of the largest single blocks of stone that people anywhere, at any time, have attempted to stand on end” (2009, p. 13), he says that even the Lalibela churches should not be called stone churches, preferring to categorize them as hypogean\(^\text{22}\) to emphasize that they were not built but rather

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\(^{22}\) From the earth, subterranean.
“excavated” (2009, p. 88). Phillipson provides evidence of past and present to explain that those marvellous structures are the product of indigenous knowledge. The way they were carved out of a single rock and the reason why they have existed for many centuries without falling apart are indications of Ethiopian spiritual-scientific genius before such blending dwindled. Such accomplishments must have resulted from the amalgamation of spirituality, science, and culture in Ethiopia, supported by an appreciation of highly sophisticated mathematics. Moreover, the Ethiopians observed and documented the heavens and developed profound knowledge of astronomy (Awede Negest, 1953 EC). They developed and used their own unique alphabet, numbers, and calendar, all of which would have been impossible without a deep understanding of physics. And Ethiopians would not have been able to sustain farming and herding for millennia without a proper and holistic understanding of how nature works. It is in this context that Leroy L. Bear discusses the importance of looking for localized knowledge. Looking back at the history of the political, social, and economic achievements of Ethiopia, it may be fair to claim that if science is a search for “knowledge at the leading edge of the humanly knowable,” Ethiopian science is fully comparable to Western science (Leroy L. Bear in Cajete, 2000, p. x).

However, despite the existence of Ethiopian science, the economic and political situation in the country and my engagement with the research participants show that Ethiopia is in a dire state of emergency. As expressed by the Teacher in “Zar’a Yacob Reincarnated,” Ethiopia is feeling empty and seeking enlightenment from others. According to one key informant, when someone lives by the toil of others, it means that:

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23 See BBC FOUR at [http://www.youtube.com/watch?v=Nc4yrFXw20Q](http://www.youtube.com/watch?v=Nc4yrFXw20Q) for an exploration of ancient Ethiopian knowledge of mathematics.

24 EC refers to the Ethiopian Calendar which is eight years behind the Gregorian calendar in current use in the West.
the things of the spirit have departed and been replaced by the things of the body; a holistic and integrative view of life has given way to a reductionist view, resulting in the aggravation of selfish motives and power mongering. The mind of the people is invaded by unhealthy thoughts and lost its synchronicity with the Supreme Being and positive energy. All the political instability, the civil wars, famine, emigration and displacement are the results of the absence of and/or distraction from its true way of life, based on science, religion, and culture.

Traditional versus “Scientific” Knowledge

The preparation of the local drinks and food like *tella*, *tej*, and *injera* are as diverse as the people who prepare them, as we see in the stories “The Stranger,” “When I Was Growing Up,” and “The Encounter.” No one uses a precise recipe when combining the ingredients; the processes are also not well timed and recorded, so that others can use the same length of time for the next preparation. Moreover, the variety of spices used depends on personal choice and the individual’s level of cooking knowledge. Like turkeys at Thanksgiving, the Ethiopians cook *Doro wat* (chicken sauce) for holy days. But the time to cook the *doro* sauce takes from a half to one full day. Of course, the taste is different from one home to the other. That is where scientific methods come handy both in preserving and/or transforming such knowledge. Precise measurement, recording successes and failures, and experimenting with new approaches are not part of the Ethiopian cooking tradition.

Given how Ethiopian restaurants are succeeding in Washington and Toronto, one is convinced of what is said about *injera*: Canadians and Americans love its unique taste and the variety of sauces served with it. Finding *injera* in the Internet, one learns that even non-Ethiopians are discussing it, creating menus, and showing how to make it. There is no one perfect recipe for baking *injera* and people are encouraged to simply experiment until they make it to their own taste. This is an area where Western science can help traditional knowledge, by providing tools for measurement and recording the ingredients for the processes of cooking and brewing. It is interesting to note that, traditionally, such cooking and brewing used to be the
measure of a woman’s abilities and served as the criteria for proposing marriage. Is this not precisely what the theory of Sankofa challenges us to do in moving forward with time tested and evolved traditional knowledge, while incorporating new discoveries and ways of doing?

**Religion Gives Purpose for Learning**

Though there is an argument in some quarters that there was no such time as the “good old days,” the story by that name shows that there are people who sincerely believe that they existed and that things were better than the present. The point here is not to eulogize the past, but rather, as the theory of Sankofa asks, to delve into the past and bring forward into the present practical knowledge that can be used in today’s school system. Based on the story, it would seem entirely fair to ask whether, if the understanding of religion in the Ethiopian tradition means being and doing good, it is not vitally important to consider putting the objectives of scientific lessons in terms of fulfilling religious objectives. If education is about development and building a better society, is it not advisable to rethink the content and methods of our lessons, so that they result in building trustworthy, friendly youth who are prepared to make sacrifices? If social justice is “the philosophical basis for social policies directed toward a more just distribution of social goods” (that is, services) (Reisch, 2002, p. 346) and if social justice is about “the distribution of benefits and burdens throughout society” (Miller, 1976, p. 222; cited in Reisch, 2002, p. 345), citizens must be willing to be trustworthy, friendly, prepared to make sacrifices for each other. Such lessons are better taught formally in the classroom than left to chance.

**Science as Local Culture: The Merging of Science and Religion**

The Ethiopian belief that their knowledge of the physical universe and social life was based on their religious background is not unfounded. The Bible talks about how human beings were created around the Ethiopian Ghion (Nile) river; it refers to the great Ethiopian Queen of
Sheba visiting the famous King Solomon, of Moses marrying an Ethiopian, and one of the Disciples of Christ baptizing an Ethiopian business man. There is also the history of Islam where Ethiopia is said to have provided protection to refugees, who were sent by the Prophet Mohammed. Not only that, but we have the evidence of Lucy and Ardi, ancient human fossils, found in Ethiopia.

Moreover, there is much discussion about the struggle against colonizers and the contention that Ethiopians always emerged victorious. Such victories were a source of great pride to the whole of Africa and served as the foundation of pan-Africanism. These wars, for the most part, were fought with the sanction of the churches. At times, the Arks were carried at the head of the troops. In addition, Ethiopia is one of the few countries where Judaism, Christianity, and Islam blended easily with the traditional religions, and with each other. Evidence of this reality can be seen everywhere in Ethiopia: from church ceremonies to social life; from individual to community life.

As well, an in-depth understanding of the flow of energy between matter (the visible) and spirit (the invisible) was an integral form of the belief systems. Therefore, mesewer [divining], anderbi [use of psychic powers], spiritual healing, incarnation, and hypnotism were common knowledge for those who gave attention and time to its study and training, as in the story “Zar’a Yacob Reincarnated.” Treatises by ancient Ethiopian scholars are filled with people who disappeared and reappeared, who made discoveries after long hours of meditation—one being St. Yared who composed the much-loved hymns of Ethiopian Orthodox Church. According to Merahi (2004), St. Yared was an Ethiopian saint, who wrote the hymnody of the Church in the 6th century A.D., inspired by the Holy Spirit and moved by a deep love for the Church. He even used musical notation for this beautiful Church liturgy, creating special hymns and musical
variations for different occasions and seasons. It is said that, in a moment of deep meditation and heavenly experience, St. Yared “while [he was] singing and dancing before the Ark of the Covenant, Emperor Gebre Meskel hit Yared’s foot with a spear but he did not feel any pain because he was inspired” (Merahi, 2004, p. 6).

Accordingly, if science is about improving physical and social life, and if our physical and social lives are so highly influenced by religion and our spiritual experiences, then examining the point where science and religion meet is unavoidable. In order to transform life in Ethiopia, we must study what our religion says and how we believe in it.

All the natural sciences (physics, biology, and chemistry) tell us that this universe is built by and functions on the basis of laws. Within the limits of our free will, we abide by natural, physical laws. In a broader sense, we conform to physical laws or social laws by choice. However, a deeper reflection of the laws also shows that social laws are usually the reflection of physical laws. In the Ethiopian mind, the observance of laws leads to life and progress, while breaking the law leads to death and destruction.

Therefore, in order to transform physical reality, we need to understand the physical laws. But, since it is human beings that have the power to transform physical reality, we need to understand the social laws that keep people together and make them work for a common goal. In fact, in terms of priority in education, the learning and development of the social laws must come first, as they are the foundation for understanding and utilizing the physical laws. It is hardly relevant to try to understand physical laws when society is in chaos and people do not know how to live together. It is out of this necessity that we look for the essence of spirituality that has the power to bring people together. In the stories “Zar’a Yacob Reincarnated” and “The Bad and the
Good,” we can see that understanding of and alignment with spiritual values lead to material progress, while ignorance of them leads to division and decadence.

A good example of a spiritual value—a social law and force—that keeps society together is love. It is within religious and spiritual tradition that much is said about love. But we do not have an accurate description of what kind of power love is, how it connects people and how we can develop and use it to affect physical reality. This is where a new type of science education comes into play which examines the nature of spiritual and cultural values and their impact in the physical universe. In the Ethiopian context, a case in point: such science education could examine how love brings respect for each other and motivates people to sacrifice for the common good. It could answer such questions as: How do we fight mikegninet and promote collaboration, interconnectivity and good will? How can we help children understand that the good of one is the good of another? How can traditional subjects like physics or biology teach social interconnectivity and transformation?

This is the basis of my concept for restoring spiritual and cultural values into science education. I share the view of the teacher in the story “The Bad and the Good” that individuals have the potential for developing all the good qualities and values and that we fail to develop them as we grow, either because of inadequate education or unfair social conditioning. Second, as a community, there was a point in time at which most Ethiopians reflected the good qualities but lost them through wrongful living. As a result, it can be said that Ethiopians were influenced by immediate circumstances and were ultimately led away from upright living. The departure from our original nature has created more harm than good. Ethiopians made bad choices and are now harvesting their fruits. Therefore, in order to reverse the situation and return to our original
goodness, both at the individual and the community level, science education needs to put spiritual and cultural values front and centre.

Within such science education, even complex chemistry and physics concepts can be expressed in simple natural and cultural forms. These days, such concepts as relativity and quantum mechanics are difficult for even college students to grasp, let alone by the high school students of Ethiopia. Nevertheless, it is interesting to note, our Ethiopian forefathers knew these concepts centuries ago, because they incorporated them into the practices of *mesewer* and other magic-like actions. They did not fragment the physical and social laws as Western science has done. The current challenge in Ethiopian science education is to bring back those days and moments where physical and social laws were well understood and worked in unison for the benefit of all.

**Communal Responsibility**

One interesting tradition in Ethiopia was that of communal responsibility or belongingness. The proverb “it takes a village to raise a child” is so true in the Ethiopian context as told earlier in the story of the same title. Children were cared for by everyone. Our fathers and mothers acted as parents for every other child in the neighbourhood. They did not hesitate to wash them when they were not clean, educate them when they were not going to school, or feed them when they were hungry.

When children commit wrongs parents do not turn their back, saying “I do not care.” In another sense, it is known that all children are interconnected and the character and health of one child affects the character and health of other children. Some of my friends have told me that it is my father who taught them how to read and write, or how to speak a few words in English. There are some who said my father shaved their heads or washed their feet. Such extended parenthood
comes from different feelings: one is the conviction that we are all interconnected and the good of one is the good of everyone else. The common good is given greater priority than individual good. From another perspective, it is also creating a safe and healthy space for your own children; but in order to protect your own child from harm, others have also to be protected. “One bad apple spoils the bunch” as the proverb goes.

Rights versus the Protection of Girls

In the story “It Takes a Village to Raise a Child” we hear issues concerning the rights of girls. The first concerns what Deutsch (2007) said about the reconstruction of gender in light of a “normative conception” of men and women. He explains that:

People act with the awareness that they will be judged according to what is deemed appropriate feminine or masculine behavior. These normative conceptions of men and women vary across time, ethnic group, and social situation, but the opportunity to behave as manly men or womanly women is ubiquitous. Thus, gender is an ongoing emergent aspect of social interaction. (pp. 106–107)

Therefore, before judging certain behaviour towards women as being oppressive, the social context and time must be taken into account. Given the natural evolution of society and the opportunity for education, some aspects of the social interaction between women and men are likely to change and it is well recognized that communities and institutions will continually need to become aware of and fight oppressive and discriminatory practices based on sex.

The second question concerns what is a universal value and who decides it. One of the problems in Western “liberating” democracy is the lack of knowledge as to the extent that one or another liberty is used. If this liberty is about being free from social oppression but staying within or becoming a slave to carnal desire, such liberty is not worth living and dying for. Most research participants agreed that if this liberty is about shunning the common good and the public concern, they prefer to remain with the Ethiopian cultural value of yilugnta [concern for public opinion]. Therefore, my argument here is that although some of the things so-called
“traditional” societies did or do to women seem to constitute violations of women rights, they were meant to protect the societies in general and women in particular.

For instance, in view of the fact that in modern cities such as Toronto and New York there are still instances of rape of girls and women, one can see their vulnerability and the need to restrain men. But such restraints of men do not mean that women are not responsible for protecting themselves. While searching for the right approach and methods regarding the protection of the rights of all, we cannot simply dismiss all traditions as useless without first valuing their merits and demerits. I believe that Robert M. Marsh’s excellent study and analysis, “Civilizational Diversity and Support for Traditional Values” gives us many good reasons not to rush to judge traditional values and practices, but rather to critically analyze the historical and logical existence of these values. In fact, he admits that, “sociology is now more likely to integrate “tradition” into analyses of ongoing social change” (p. 270). In the same article, Marsh contends that “the civilization of which one’s society is a part” is one independent variable “to explain why some people support traditional religious, family and gender values which stand in opposition to modernity” (2009, p. 271).

The instituting of laws and structures for the liberty of women may not be effective before the world figures out and fully embraces the equality of the sexes in marriage, housekeeping, the work place and the raising of children. Unless the power relation that exists between men and women is ironed out, unless spiritual qualities take the centre stage of human existence, women will continue to be treated as objects to be possessed. According to the story “It Takes a Village to Raise a Child,” unless schools are as strong and as responsible as parents to protect the rights and safety of girls, access to and the quality of education will continue to suffer. There should not be a sudden and radical discontinuity of values between school and
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home. Again, science education can provide the occasion to study the nature and qualities of the human being and how all must be treated and protected. Science has to help us understand the logic and the importance of local values and then decide whether to carry those values forward or discard them.

Social Institutions

It is natural to ask what the social organizations or institutions look like when local communities in Ethiopia host saints and heroes, as in “When I Was Growing Up,” or build divine civilizations, as in “Zar’a Yacob Reincarnated,” or when instituting some moral codes for raising children, as in “It Takes a Village to Raise a Child.” Although Ethiopia has enjoyed a system of government for thousands of years, there were also grass root community organizations that ensured the safety and prosperity of all its members. These traditional social organizations were established on the assumption that one cannot exist without others. The Supreme God is the creator of all and He made all the people to be responsible for each other. Edir, Ekub, and Debo, defined below, are good examples of major traditional social organizations which are part of rural and town community life.

Edir is a community organization whose members assist each other during bereavement and mourning. Members make voluntary monthly financial contributions, forming the Edir’s fund. The members are entitled to receive a certain sum of money from this fund, to receive regular visitors, and to be supported by female members in household work during mourning. Beyond their support during a family tragedy, Edirs participate in community projects, such as building bridges and cleaning. Edirs have also helped the government to raise funds during wars and epidemics. Regarding the level of participation in Edir, Veerakumaran (2007) states that,
“the member’s participation is very high in Edir because its foundation is based on the willingness of each and every member” (p. 6).

In Debo (an organization for teamwork), a group of farmers take turns to do farming and construction work for each other and other needy people. They sing and dance, and look happy and energetic while doing the hard work of tilling and harvesting. In this way, much work is done in a very short time. Food and drink are served by the host. Due to the synergy created in the process, Veerakumaran (2007) states that the productivity of each farmer is increased and each type of work is being done on time.

The other social institution, Ekub, is a kind of community bank, into which a group of people commit to making a monthly, weekly, or biweekly deposit to a selected treasurer. The total deposit is given as a form of loan to one of the members. A lot is drawn to decide who takes the total deposit, after which that individual continues to repay the loan while others wait in line to take the next deposit as a loan. One of the advantages of Ekub is that people who have financial problems or have urgent needs can receive a loan without interest. The process is based on the kind of communal trust, love, and respect which commercial banks do not have when dispensing money.

Veerakumaran (2007) discusses the strengths of these institutions and the reasons why these local cooperatives reflect significant local values which must be tapped for the development of the country (in line with the theory of Sankofa). He says that they:

- Are established on the felt needs of members and voluntary membership
- Give fair and equal compensation
- Require equal contribution
- Require the equal participation of each member
- Serve their members
- Support cultural development and other development activities
· Are political neutral
· Offer equal opportunity to all members
· Can be organized at the work place or where people live
· Provide indigenous way of solving members problems
· Do not need the assistance of external experts to establish, formulate by-laws, keep account books, manage employees, etc.
· Are strong and autonomous
· Deserve the faith of their membership
· Attract the strong participation of members
· Have management committees that are loyal
· Are rarely corrupt. (p. 7)

Moreover, the concept of yilugnta (described in “It Takes a Village to Raise a Child”) keeps individuals in a community together and makes them abide by the unwritten rules of community life and traditional institutions. Due to a deep understanding of the interconnection among individuals, the concept of individuality is alien to the Ethiopian people. Because of yilugnta, it is common to see Ethiopians sharing work, meals and drink among themselves and taking care of others’ bills. It is a practice that involves the sacrifice of individual needs for the common good. It is because of this that hospitality is such an enjoyable tradition in Ethiopia. As already discussed, there is an element of sacrifice in entertaining guests, because a traveller is regarded as a guest from God, Who sees everything and rewards good deeds. Because guests have always been welcomed by everyone, paying for food is newer [taboo]. Hotels are a recent phenomenon in Ethiopian history.

In retrospect and in summary, it is understandable that people should ask why Ethiopia is economically poor, despite its long history of religious immersion, traditional education, and competent social organizations. This question is best addressed from the perspective of the postcolonial theories discussed in the “Alternative theoretical framework” section of Chapter 2. Though Ethiopia takes pride in the fact that it has never been a target of direct colonization
during the colonial periods of the 18th and 19th centuries, the formal education promoted in the last century became a cause for indirect colonization, resulting in the loss of local values and human dignity. As postcolonial theorists argue, Ethiopia has been the victim of a Western schooling system which introduced through a combination of poor planning on the part of its political leaders and the imperialism of North American and European countries and their international development and financial organizations (Carnoy, 1974; Spring, 1998, 2008). According to this argument, almost all of Ethiopia’s academic institutions, trade organizations and relations, and governmental and non-governmental operations have fallen into postcolonial traps from which escape is almost impossible.
Research Question 3:
The Inclusion/Exclusion of Spiritual and Cultural Values in/From Ethiopian Science Classrooms

Story Time

All the stories under this topic are quoted directly from the participants. The diversity of the participants is proportional to the number of the stories themselves. Interestingly, though the stories are told by diverse sources from different angles there seems to be similarity in theme and conclusion. The stories answer the question of what participants take on regarding the inclusion/exclusion of spiritual and cultural values in/from Ethiopian classrooms. My personal experiences also tell me that the stories echo the sentiment of most Ethiopians.

“The Transition”

I attended morals classes from Grade 4 to Grade 6. Coming from a Muslim family, I attended a Quran school for kindergarten. In the Quran school, we study mainly religion, but there were also English, Arabic, and math lessons. I continued in Islamic/Arabic school until Grade 3. After that, there was an exam to see if we qualified for public school. We started to attend a public school named after Emperor Haile Sillassie. Our families put us in the school and we just continued studying whatever was presented to us. Of the two hundred of us who attended the exam, fifty were found qualified. When we were put in the 4th Grade within the public school, regardless of our limited knowledge of Amharic (the language of instruction at the time), we excelled. Of course, we had little knowledge of reading and writing in Amharic. But we excelled in the other subjects. In Grade 4 in public school, we started taking a morals class founded on Christianity. We used to score 100% in the morals class because most of the topics had already been covered in our Quranic schooling. As you know, Islam embraces three major books: the Quran, the Torah (Hebrew Bible) and the Evangile (Gospels). The fundamental teachings of these three major sacred books are not in conflict. Because the morals class was so closely associated with Christianity, we did not have many questions, but when it came time for the exam, we used to score better. The point is that in earlier times, preschools were mainly religious (either Christian Yekes timhirt bet or Islamic Madrasa school). So anyone placed in the school learned useful attitudes, such as respecting the elders. The past traditional Yekes timhirt bet and Islamic Madrasa schools have yet to be studied well and the positive lessons carried towards the future.
“My Child is Perfect”

So what is happening now? What is going on after the gap we experienced in the morals classes and traditions? Let me tell you an anecdote I personally know. In one school, the principal brought together a few adolescent girls, whom he wanted to counsel to be more careful in their lives. He gave them some advice as any teacher would do. One parent did not like what the principal said and came to school to argue with the principal. The parent scolded the principal, saying that the sexual life of his daughter was not the concern of the school. Earlier, teachers and principals enjoyed more authority than parents as regards children. Teachers were considered spiritual parents and were supposed to be more responsible than the biological parents in terms of the children’s upbringing. Unfortunately, there are now reports of physical violence against teachers and principals. There was one situation where a parent fought for the “rights” of a child who broke a school window. The parent was furious at the school because the child was punished. He told the school not to bother his son, since he would pay for the broken window. You can now compare the moral condition of the pre- and postcommunist regime and see the moral gap created and its negative consequences.

“A Government and a People at War”

Let me tell you a story that shows how consciously spiritual teachings and values are excluded from school. In 2003, our organization invited members of the Ethiopian diaspora and foreign experts to help the Ministry of Education (MoE) to incorporate a Moral Leadership course into the teacher training curriculum. It was a successful project in other countries such as Bolivia and, since we believed it had benefit for our country, we gave the proposal document to the MoE. In fact, at that time they were in the process of revising the curriculum. We thought it was an opportune moment to support the country and infuse some morality into the school curriculum. But they rejected the proposal. It is true that neither spiritual nor cultural values are reflected in the school curriculum. The present generation seems to be divorced from these two types of values. Even those who once celebrated them have no respect for those same values any more. They are attached only to the form and not the content. They talk about values, but they do not practice them.

So the question was: Why do we not maintain and promote spiritual and cultural values that matter, regardless of their name or source? The officials and experts in the MoE rejected the idea outright, by calling it religious preaching. We even insisted that they rename what we mean by “spiritual.” We told them to call it “ethics” which we thought might be philosophically and scientifically more acceptable. However, we know that the term ethics is an alternative for spirituality. So even if we use the term ethics to refer to them, we will still be dealing with values, such as generosity, love, kindness, and so on, that is, spiritual values. Let us teach our children these values so that they later learn to become like their forefathers in spiritual strength; they will respect and care for each other. Currently, we have lost that type of relationship in the name of secular education. People are full of pride; people have become egotistical. The moment people become office holders, they become selfish and arrogant, a sort of know-it-all type.
“The Misery of a Father”

I have little children and they ask me questions. The one who is light in color says she is *ferenji*.25 I tell her that *ferenji* refers to someone of a different race and that she is actually an Ethiopian. We have this mentality that the *ferenjis* are better than we are in everything. I am not sure how this attitude crept into our mode of thinking. I try to explain to my children that brilliance has nothing to do with color. No color is excellent by itself and does not prove intelligence. So I tell them firmly that they are Ethiopians, and that because of that, they are not any less than other people. Color is not a measure of identity. Everyone is created after the image of God and everyone has a potential. It is God who endowed human beings with knowledge and wisdom. The fact that God created us in His image does not mean that He looks like us physically. Rather, we possess His qualities. He shared with us His qualities. For example, if we say, “God is the all-knowing,” it means that we have the potential to know. When we say, “God is righteous,” it means that we have the potential to remain righteous if we protect ourselves from sin. Therefore, God has shared His qualities with us regardless of race or colour. That is what I teach my children. I try to inculcate in them principles such as truthfulness and trustworthiness, and that people should not be judged by the color of their skin, but by virtue of their character. Learning about values begins in the family and if the schools support family efforts, we can build better citizens.

“An Official Voice from the Ministry of Education”

Regarding the role of religion in education, the Federal Affairs Office, religious leaders, and other Ministerial offices are having good discussions with us. They always offer us comments and feedback. We ourselves went and visited religious leaders. They have produced documents and gave them to us. And we will invite the same religious leaders when we write the curriculum. There are frequent meetings with the four religious groups; particularly the Catholic, Protestant, and Orthodox, and Muslims. We have sent them a document based on what came out of these meetings. We named this document “Main Religions of Ethiopia,” and sent it to the religious organizations with a section Terms of Reference (ToR). Then we facilitated a discussion on the ToR. Later, they themselves came up with a document of values. The idea was to inform others through education concerning what is to be recognized and respected in all religions. We have this document, although it has not been officially released. We edited the document in a form that is acceptable to us, and also replied with some comments on what we thought were inappropriate. We asked for some explanations and finally sent it back to them. We also sent the document to the parliament and to some community elders. We did this, you see! So, for example, Islam has teachings and values which it wants others to know and recognize, and then ultimately respect them. All religious organizations have done that. Though it is unpublished, we have a standardized document that talks about the commonalities and important teachings of all religions and explains concepts across

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25 A general term Ethiopians use to refer to white people. Children usually can not differentiate the subtle difference among Asians and Europeans and, as a result, they call all light-colored people *ferenji*. 
religions in the same language and form. The ultimate objective is to bring those things into the formal curriculum.

It will be used as supplementary reading in the schools and serve both teachers and students. It will also be helpful for the wider community to have and to read. This is a diverse society, so the idea is earning respect based on knowledge, a sort of “informed” respect. We need tolerance, and when tolerance is based on knowledge, it will be more sincere and sustained. We have also reviewed some materials prepared internationally and found them helpful. We did not have the authority or courage to write about those religions, so we let the religious organizations do it in a participatory manner. We involved people from the top. We asked the religious leaders to respond to us in writing. For example, I do not have the capacity, the know-how and the legal background to write about Islam. I cannot simply call an individual and ask that person to write about Islam. So, we communicated with the organization. For example, because the Ethiopian Islamic Council is the legal representative of Islam in Ethiopia, we asked the Council to send us its best ulamas [those learned in Islam]. The same applies to all the other religious denominations; we asked their official representatives directly. That will make the statements they make more official and legal. We orchestrated this very carefully.

But the Ministry of Education has the responsibility to reorganize it in such a way that it is teachable, so that is what we did. We undertook the leadership part. In fact, in developing the text books about ethics, we will also be asking them to send us their most learned individuals.

Whether this is participatory enough is hard to judge. You know, when you start a project like this, you cannot involve everybody, but when the work reaches at a certain level, it is easier to involve as many people as possible, either for commenting, rewriting, or editing. However, we did not forget to include key people since the start. We used experts outside the Ministry, because it is impossible to have all kinds of experts in one office. Taking the initiative and then the leadership is very important, but later we will involve many people.

“Us and Them”

In a book called ‘Yegazetegnaw Mastawosha’ [Memoir of a Journalist], I read that the writer went to Southern Ethiopia when he was writing for the newspaper The Reporter. He tells an anecdote about something that happened during an interview with an elderly person in a small village:

“Are you truly a journalist” asks the elderly villager.

“Yes,” answers the journalist.

“Tell the Prime Minister word for word what I say to you now. Tell him this: ‘We know and hear that your children are learning in English. If you say that we were oppressed because we did not learn in our local language, why do not you teach your children with your local language? We know that all higher officials send their children where they are
taught in English and Amharic only. I want my children to study in Amharic, because I want them to travel throughout Ethiopia; I want them to have wider job opportunities. And then, if possible, I want them to learn in English, so that they can access jobs in the whole world. Now my question is: why do you want us to learn Dorziegna? Is it because you want us to stay here and remain as weavers of traditional clothes forever? Can you please write this without adding or reducing anything, just as it is, and let him (Meles Zenawi) read it? If you are asked who said it, tell anyone you see that I am Chebero . . . and my house number is . . . in the town of Dorze.”

Why do people write in Latin script when we have our local script known and admired by everyone? With what resources are we publishing all the books? How can you compete with Amharic, a language having a long history?

My main point is that the current curriculum never teaches how to love and respect what you have or love for each other. It denies the spiritual and cultural values developed and cherished for so long by the people of our country. It has to take these values into consideration. The text books being developed also need to include this. Now the curriculum is making children hate each other; for example, they are getting the idea in their head that they may not love and marry each other. This is the mentality being promoted: if I am Tigre, I have to speak and marry a Tigre; if you are Oromo, you have to marry an Oromo; if you are Dorzie, you should marry Dorzie. This should not exist in the 21st century. I assume you will include my voice as is in your thesis. Moreover, look around and write what you feel; do not be afraid. What is the objective of the curriculum: is it for unity or division? Is it Hitler’s or Mussolini’s agenda being promoted? Or is it an Ethiopian one?"

“Loyalty”

Another value I propose to be included in the school curriculum is being truthful to yourself, then being loyal to your family, and then being loyal to your country. People must be faithful to the institutions they belong to or work in. The second value I propose is about the work ethic. We have some cultural elements that debase the value of work. By the way, one of the responsibilities given to humanity by God is that we all live by the fruit of our efforts. I do not feel there is sufficient effort to develop the culture of work. There are no activities and lesson plans to strengthen the desire to work, whether at home, school, or in the community (rural or urban); we do not have the culture of productivity. All of us learn or work just to live, but we have to live to learn and work. Love for one’s country is not just a motto, it is about discharging one’s responsibilities. It is about giving back what is expected of you. You have to be committed, trustworthy, and faithful in your work. These values are not included in the school.

When I was in school, I studied economics. We studied all kinds of theories except what we can do to develop our country. In fact, the basic question should have been: how can a country emerge from the vicious circle of poverty? There is no such value included in our education alongside the Western theories.

26 A local language.
I do not want to say or be understood as having said that whatever the Westerners do is wrong and whatever we do is right. What we have now is a new generation and there may be a gap of twenty years between us and them. But when you think of discipline as implying integrity, truthfulness, a commitment to work, and sincere respect, I see that the present generation has lost them. There is a weakening of the moral fiber. We do not see much in terms of creativity either, because the education has nothing to offer to the local context. Whether in the natural or social sciences, there is nothing offered that can help the people tackle the country’s problems. It is not problem solving. There is nothing wrong with having theoretical knowledge, but unless you can use this theory to solve the problems of the country, theory has no use. Until you figure out how Western knowledge can be used to develop our country, that knowledge is of no use and there will be no creativity.

Take accounting science for example: it is an American system the current generation is learning. They did not study some of the systems developed within the country. Sometimes the graduates come out with the theory, but when they see things in practice, they become strangers. If they were given relevant training related to the work that we do in the bank, they could easily fit into the work environment. If you see what the students study in marketing science, it is based on the Western market system. Nobody asks how marketing can be promoted in this country, based on our cultural and spiritual norms. It is the same with agricultural and other sciences. If this were to happen, we will first cultivate creative minds and then they would immediately become productive.

“Economic Hero”

If we included more about economic heroes in our curriculum, there would definitely be more economic heroes and fewer war heroes. But then how will we protect our sovereignty? The country has to be strong in all respects. The people in some countries may think that Ethiopia is poor and may not be able to have arms or that we don’t have systems to protect ourselves. But if we are economically strong, we could buy the arms and the fighters the next morning. But what we need are economic heroes. In fact, we are witnessing the impact of the talk on economic heroes in the media. Once, the media started to focus on business and farming heroes, everyone started to plant trees along the river banks. We are getting fresh produce, such as fresh sweet corn, throughout the year; This is what happens when there is recognition of agricultural heroes and hard work. Farmers should be on television as examples of hard work and symbols of success.

We remember that during the communist regime, war heroes were so exalted that we all wanted to join the army. That is why I joined the Police Force. I wanted to be a Major in the Force, because it is about heroism. Unfortunately, in Ethiopia farmers are not adored as heroes. They are just farmers.

“Corruption on the Rise”

Once we had a car accident and hit a boy who was crossing the street. He died immediately in the presence of witnesses. Although we were straightforward and honest in dealing with the case and refused to bribe the police, they tried to force us to bribe
them. Another bystander started negotiating on our behalf against our will in order to circumvent the legal process. The driver spent a week in prison until a deal was made in the amount of 20,000 Ethiopian birrs (about USD$1,700) to subvert the law, even though we were innocent of any crime according to the law then in force. The police even delayed for some time, saying that 20,000 birrs was not enough. They had no sense of spirituality, even though they claimed to belong to a certain religion.

Another anecdote is about a piece of land we were supposed to get from the Mayor’s office. We acquired the plot of land because a higher official who has the proper authority certified that we deserved to have the land. The responsible authority recognized the plan and the project and gave us the land—after much negotiation. Everyone agreed and we were about to legalize the land grant. In the meantime, this higher authority left office. Then, immediately, all those who knew about the project and the work in the office refused to give us our rights. They had not uttered a word when that higher official was chairing the office committee. Most of the staff who work there are educated people with Ph.D.s and MAs. They are people with status. But they kept quiet when their boss was around. If they had any principles, why did they not object or challenge the decision as soon as it was made? We believe that they have the right to object, but it should be done properly. We had a letter of order. If they had had enough courage, they should have substantiated their objection and reversed the order. It has been more than two years since we were declined the land by the lower officials, and we have been negotiating ever since. It is a situation where these lower officials chose a path of corruption. The denial is because of financial and political interests and prejudice.

These incidents illustrate that the current generation is divorced from the content of religion. They have the form and the name, but not the life-transforming aspect of religion. If we were to put into practice some of our spiritual teachings, we would have respected and served each other.

Fire Neger

Transition between the Traditional and the Modern School

Both the traditional schools (churches and mosques) and the pre-communist Ethiopian schools had morals classes with the clear implication that the lessons were derived from the religious sacred books. The Orthodox churches taught moral lessons from the Bible, while the mosques taught moral lessons from the Quran. But the pre-communist formal schools taught morals classes derived from the Bible and dismissively assumed that Ethiopia was a Christian country. The Muslims had no say in the national curriculum. Muslim students spoke the Lord’s Prayer with the other students before going to class.
During the time that the traditional and formal schools existed together, many students used the traditional schools as pre-school classes, where they received basic literacy and numeracy skills to prepare themselves to go to the formal, modern public schools. When they entered these formal schools, they generally succeeded better than the general student population. This is usually attributed to the skills of memorization, the moral foundation, and the basic numeracy and literacy they acquired before coming to the formal school. In the Christian churches, students were encouraged to memorize the Psalms, while in the madrasa, students were taught to memorize the Quran. Because of the strict discipline and rigor of the classes, students learned perseverance and respect for the knowledge of teachers, parents, and elders. This gave them the beginnings of a moral foundation. The possibility of being multilingual was also great. Christian children were taught in Ge’ez, while Muslim students were taught in Arabic, both being second languages for the children. In fact, English became yet a third language when they started to study in the formal schools. In some towns like Harrar, most Muslim students come from Harrari, Oromo, or Somali families and were required to learn Amharic as the official language. Therefore, the children learned four languages: their respective native languages, Amharic, English, and Arabic.

In short, both Islamic and Christian traditional schools taught basic numeracy and literacy, memorization skills, a moral foundation, vision, and independence. Unfortunately, the transition between the traditional pre-schools to the formal primary schools was abrupt, in that the formal schools did not include moral lessons and, in some cases, study of the students’ mother-tongue.

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27 Amharic was the official language of instruction for primary schools at the time.
In 1974, when the communist military regime came to power, it adopted the ideology of Marxism and banned any moral or religious lessons from the school system. Almost all private schools were nationalized and forced to follow a centralized curriculum. Religious or moral instruction was slowly replaced by Marxist political and economic theory. Parents and churches began to neglect giving children religion-based moral lessons. People stopped going to church or mosque, for fear of ridicule or smear campaigns. Religion was outdated. The idea of equality was misunderstood and students and teachers became “equal” to the extent that teachers and principals were afraid of students who were involved in politics. Some parents considered a teacher’s punishment of students as an act of oppression and demanded more “freedom” and “rights” for their children.

Because the military regime worked hard to increase school attendance, the number of schools and students increased. As a result, a three-shift system was introduced, which later was converted to two. This shift-system persisted for a long time, even after the fall of the military regime. The system resulted in a large increase in the number of unqualified teachers and the use of inadequate educational materials.

Politic power struggles dominated the educational scene and cultural and spiritual values were relegated to the margin. Anything that had any relation to religion or spirituality was pushed aside, as such matters were considered part of the imperialist agenda. Individuals, institutions, or ideas that advocated spiritual teachings in the school were severely persecuted. The stronger the atheist and hater of religion, the more friendly he was to the political system, and vice versa. Until recently, it has been difficult to raise any discussion of spiritual matters in the school, under pressure of secular education. No initiative could take root in the school, if it came from a religious group or had the word “spiritual” attached to it. As shown in the story “A
Government and a People at War,” there was no openness in the Ministry of Education to ideas of moral education in the school system.

Most people attribute the current moral failure in the country as a whole to the lack of spiritual and moral teaching in the schools. There is a common observation that people have become selfish and individualistic, in contrast to the communal lifestyle we used to enjoy. People kill, are corrupt, and do anything that promotes their individual desires and goals. The recent history of Ethiopia has witnessed the killing, imprisonment, and persecution of thousands of people, for all kinds of reasons, both true and false, but primarily to satisfy the selfish egos of powerful individuals who stood for their own gain rather than the common interest.

Key informants admitted that with the erosion of the moral foundation, there came a loss of self-knowledge. Identity crises became the rule, rather than the exception. Everyone wanted to become like the ferenjis, either by emigrating to their countries, or by becoming rich and following a wealthy lifestyle in Ethiopia. The idea that “the lighter the skin, the curlier the hair, and the more Western the clothing, the smarter the person” became firmly implanted. The values once developed based on the Bible and the Quran were slowly replaced by values taken from Hollywood movies and secular education, which devalued and dethroned God and the accompanying fear of God. As Baha’u’llah (1990) said “the vitality of men’s belief in God is dying out in every land” (p. 200). Therefore, the measure of success has become how rich one is and not how strong a believer one is. Since it did not matter how one became rich, people focused on the ends and not the means. Education itself was judged by how much economic benefit it would bring, and when it did not bring wealth, people would forego education and seek business or any other occupation that would net them a better income.
Thus, the system of education which, consciously or unconsciously, excluded the concept of God and the teachings of spiritual and cultural values finally became a victim and was drowned in the sea of materialism.

A Step in the Right Direction

Currently, most people, including policymakers, understand the need to disseminate religious values, recognizing that they are the basis of Ethiopian life (see the story “An Official Voice from the Ministry of Education”). At the level of the individual, Ethiopians value religion. Wherever they are scattered around the world, they are quick to identify with their religion, establish and attend church or the mosque. Most large cities in North America have witnessed this phenomenon among expatriate Ethiopians. Having a religion, even if not overtly practising, is fundamental to the Ethiopian identity. Ethiopianness is closed allied with certain forms of religious expression.

At the level of the community, religion is the foundation. It is the arena for collective worship, networking, and, in general, communal life. Churches and mosques are centres to which people come with ideas to discuss and where traditional or family courts and reconciliation take place. There is also recognition that peace and stability, which are prerequisites to development, can only be found when people’s religious views and values are respected.

Another important development taking place in Ethiopia is the inclusion of Muslim religious leaders in the process of developing materials about religion. Although these materials do not yet include all independent religions in the country, they do include those having a large following. In the future, it will need to be more representative and the invitation extended to all religious groups that can contribute to the process.
Generally, it is interesting to see that the Ministry of Education (MoE) is now seeking recommendations from religious institutions, experts, and foreign countries on what religious values to teach to children, regardless of its avowed dedication to secular education. It is also commendable that materials are being developed as supplementary reading before they are used as a mainstream textbook. Nevertheless, the lack of more grassroots involvement may encourage the MoE to revise the materials more quickly. The base of participation should be expanded at all levels, from the ordinary believer to students and teachers, and not only highly placed religious officials.

_Yehagierun Serdo Behageru Bere! [Let the Local Meadow be Grazed by the Local Ox]!_\(^{28}\)

Though there is no doubt about the importance of learning through local languages and using the mother tongue as the language of instruction, there are diverse views as to how and when to go about it. This research is in line with and in favour of recapturing local languages as carriers of cultural values, but it did not seek to answer the question of how it can be done. The issue of which language and when to use it in the science class is a separate subject which should be carefully researched. In any case, since the method and content of learning are so closely related, it may be valid to raise the question of the use of local languages in the science classroom.

As efforts to contextualize science education go on in local communities, the importance of using the local language for learning the local science is indispensable. But such an effort may prompt the fear that it is a tool for domination to exclude local people from the national and international job market. The importance of learning one or more international languages in an increasingly competitive world cannot be overestimated—at least until such time that students

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\(^{28}\) An Ethiopian proverb that encourages local problem solving with local expertise.
have had the opportunity to learn one local and one international language, so that they can be
understood anywhere in the world. Therefore, it is essential that balance and harmony be found
among learning local, national and international languages in the Ethiopian context. More
collaborative research should be done by the College of Education and Institutes of Language
Studies. The storyteller in “Us and Them” has a valid concern that some children lag behind with
respect to national and international standards. But experts encourage the use of the mother
tongue in the earliest years of schooling.

In the meantime, education officials in Ethiopia have to try to be inclusive in their
planning. They must figure out to what extent they embrace local diversity, while maintaining
national unity. It is not fair to make children the experimental guinea pigs for all kinds of
ideologies before ideas are well developed and tested. It is not also morally acceptable for
officials to put their children into private schools with a well defined curriculum and expert
teachers, while at the same time experimenting with new ideas on children in public schools
whose parents have no choice.

**Problem-Solving Education**

According to Sumner (1974), the aim of Ethiopian indigenous education schools was to
develop such qualities as truthfulness, to oneself, to the family, and to the nation. With rigorous
schooling, one learns that it is only through effort and hard work that higher objectives are
achieved. Therefore, graduates of the traditional schools and schools with morals classes were
known to be hard workers, respectful of others, of their country, and trustworthy in their
dealings. As acknowledged by David Shinn (2002), a former US ambassador to Ethiopia, it was
virtually unknown for Ethiopians to go abroad for further education and to seek refugee or
residence status in other countries before the communist regime took power.
Nevertheless, the current state of affairs is an extension of that same communist regime and shows the evidence that education has lost its power to create hard workers with moral commitments of any kind. According to the story “Loyalty,” the generation gap is so visible, that it is even difficult to compare the current graduates with the graduates of only 20 years ago. In more general terms, it can be said that no lessons in the current education system solve any problems. One has to remember that education is as purposeful as it is for enlightenment. It must help people solve problems. Looking at the many current economic and social problems facing Ethiopia, we can also conclude that education has not played a problem-solving role.

It is these same economic and social problems that triggered Ethiopia’s 1994 Education and Training Policy document. The policy clearly stipulates that the content and method of education in Ethiopia must focus on problem solving. In order to encourage implementation of this new approach, the policy provides for a new type of teacher training and school administration. However, as all of the participants in this research agree, the current educational policy and its implementation are far from achieving these goals. Teachers, employers, religious leaders, and elders all complain that current day-school graduates are not well equipped to solve the country’s multifaceted problems. This view corroborates the research findings outlined in my book *Ethiopia and the Generation that Unsolves Problems* (Faris, 2011).

**Tit for Tat**

As revealed in the story “Corruption on the Rise,” the current Ethiopian bureaucracy is infested with corruption. People have to bribe or return favours for most services rendered to them in public offices. It has almost become a pattern in all offices to refuse legitimate services, unless the customer pays some money secretly to the bureaucrat or judge, who has the ultimate say in the decision. At times the bureaucratic chain begins from the security guard who has the
authority to either admit one or not to the office, and proceeds up to the Office of the Registrar—who decides whether your file deserves to be seen by an official—and finally, to the official who is supposed to provide the actual service.

Outwardly, the reason given for corruption is the small salary paid to public servants, one which does not correspond to rising expenses. But inwardly, as stated by some of the storytellers, it is the lack of spiritual values that once motivated people to be honest and truthful regardless of their economic situation. It is stated that although people claim to belong to a certain religion, it is only in form not in content, as in most cases, civil servants have stopped putting religion into practice in their work place, despite continuing to attend church and mosque.

*Chiwiwit/Conversations*

No one questions whether Ethiopians have spiritual and cultural values, shared or unique. What might surprise people is the extent to which these same values are either included or excluded from the school system. I believe the stories given in this section have demonstrated well enough that such values are not included in the schooling system. What is the impact of the lack of values in the school system? What are the consequences of depriving a generation of Ethiopians from engaging themselves in questions of spiritual and cultural importance? How can we overcome this state of affairs and make education the means for transmitting and transforming people and their actions? These are some of the questions I will try to explore as an outcome of the stories and the Level One analysis of this section.

*Values and Schooling*

For the sake of further clarification, as illustrated in the story “The Transition,” it is possible to show in three steps how spiritual values existed in Ethiopian education and how they were pushed out of the system:
1. Beginning in around the 4th century up to the beginning of the 20th century, religious schooling was the dominant form of education. We know for sure that Orthodox Christianity had established an elaborate educational system which extended over much of northern and central Ethiopia, while Islam had Quranic schools in the northeast, east and southern parts of the country. There were famous Christian learning centres in Gojam, Gonder, Wollo, and Tigray, while Harar, Arssi, and Bale served as some of the major centres of Islamic learning.

Milkias (1976) provides an excellent discussion of the content and method of the Ethiopian traditional education, and describes the elites produced by the system. I quote him here at length as his discussion gives background and clarifies some of my own arguments throughout the thesis. In a very general description of the content of Ethiopian traditional education, particularly the Ethiopian Orthodox Church, Milkias writes:

The primary level had five stages. The first stage concerned the mastery of Fidel, the Ethiopian alphabet with 231 characters, while the second stage consisted of reading Fidele-Hawaria (“the apostle’s syllabary”), studying by rote the first chapter of the first epistle general of St. John in Ge’ez. Writing and numerical studies began here, but this was rather optional and the teachers seldom attempted to teach them of their own volition.

The third stage was memorizing Gebata-Hawaria (some sections of the New Testament and the Apostles’ Creed) which were read aloud by the pupils in unison, the emphasis being on pronunciation and intonation. Tselote-Hawaria (religious prayers) would also be studied by heart at this stage, Writing and numerical studies could continue but this depended on the inclination of the instructor and the desire of the pupil. Religious songs were taught at this point so that the pupils would start to serve as choristers.

The fourth stage known as Dawit (the Psalms of David), consisted of reading the psalms, the instructor paying particular attention to the pupils’ Ge’ez pronunciation. The lesson was divided into fifteen sections, each named after a Negus (King), the name of Negus being the first word or phrase of each section. Being allowed to proceed from one Negus to the other was considered an important promotion. Under no condition would an instructor let a student start a new Negus until he had total mastery of the one preceding. When he finished the fifteenth Negus, he was considered a primary graduate and the parents rejoiced and gave gifts both to the teacher and the pupil.
The next and last stage in the curriculum of elementary traditional schooling, which was usually accompanied with a church career as a deacon, was a transition period to a higher education to become a debtera, or a full-time church career as priest. It involved committing the whole Psalms of David to memory with proper pronunciation and intonation. Prayers such as the Wudasse-Amlak (Praises to God), Arganon (Praises to the Virgin Mary), arranged for each day of the week, Songs of Solomon, Songs of the Prophets, elementary Kedase (rudiments of general liturgy), and Sa’atat (hours of night services) would all be committed to memory.

The more ambitious students, however, strived for a still higher education that qualified them as “liq” or debtera. These students usually went to the ancient institutions of higher learning located in the Amhara and Tigre provinces. Education at this level had three main branches. First was Zema Bet (School of Music), second was Kine Bet (School of Poetry), the third was Metsahaf Bet (School of texts, or books). (pp. 80–81)

Higher education in the traditional system had its own learning and specialization centres, much like current day colleges and universities. Each school, in turn, had its own branches and levels, offering 25 to 30 years of intensive study in different specialized departments. The content included musical composition, singing and religious dancing, Ge’ez grammar and poetry (largely memorization of texts), philosophy (including the work of foreign philosophers such as Plato, Aristotle, Diogenes, as well as local philosophers like Za’ra Yacob and Walda Heywat). Interestingly, such learning did not end in rigorous memorization, but also included critique of other philosophies and religious teachings. In the School of Texts or Books the study of literature, history, and law were included. Milkias (1976) also stated that “add to these, inter alia, astronomy, astrology, the preparation of medicinal herbs, ‘magical prayers’ and ‘formulae’ which many an ambitious debteras studied on an extracurricular level” (p. 82). Therefore, one can say that the debtera was similar to the western title “doctor.” Surprised by the extent of the knowledge and wisdom of the debters, many Europeans expressed wonder at their skill along with ordinary Ethiopians who did not attend the traditional education. Milkias cites an Italian missionary, M. de Jacobis, as saying the Ethiopian debtera had “more real knowledge than the
most learned professors in our European schools” (p. 84). These were the same debteras who
served as consultants and secretaries to the emperors and lords of the time.

What we learn from the whole content and structure of the traditional education is that
the knowledge generated and applied in the process was intricately laced with moral and spiritual
values. In fact, knowledge itself has no existence beyond actions inspired and animated by those
values. In Sumner’s magnum opus, Ethiopian Philosophy: The Book of the Wise Philosophers,
we read what knowledge represented for the learned Ethiopian quoted earlier:

Knowledge has many tissues; the foundation is humility; its brain is the understanding of
how to act. Its tongue is a true word; its conscience is the thinking of good [deeds]; its
hand is forgiveness; its leg is the going to the learned. Its domain is justice. Its kingdom
is praise and gratitude. Its sword is hope. Its power is prayer. Its fence is love. Its camp is
consultation with conscientious people. Its wedding is victory, wisdom, patience, increase
of truth. Its wealth is good counselling. Its lodging is generosity and meekness. Its friend
is love of generous people. Its treasure is to avoid offence. (Sumner, 1974, p. 258)

Teacher training took place through apprenticeship. The best students were coached by
the teachers so that they would continue to teach in the multigraded class system. Assessment
was not a competition among students, but rather the refining of oneself day by day. Students
were measured against their own past achievements and how much they had improved since
then. As a child, I attended a yekez timhirt bet [kindergarten] whose style of teaching was similar
to the traditional education system. However, I was sent to the yekez timhirt bet with my older
brother, and studied reading by imitating others. When everyone was taking a turn on Fridays to
read in front of the teacher, I was able to read the Dawit [Psalms]. I then graduated from the
kindergarten with my brother and went into 1st Grade with him.

In these traditional schools the teachers’ expenses were covered by the local community.
Students would go door to door begging food—something like today’s fundraising. But it is
interesting to consider the possibility that school expenses can be covered by a local community.
In fact, in some churches, where there were famous expert teachers, students from other regions
came and joined the classes. It was through these teachers and method of learning that the *debteras* [diviners] were trained and raised for service in the church and to the state. These *debteras* were known for serving the church and the state wholeheartedly and with great wisdom, while others became infamous for abusing their education, extorting money, womanizing, and terrorizing their enemies. In a way, it is also due to the *debteras* that the marriage between the church and the state in Ethiopia lasted for a long time as they served both institutions. In 1974, this longstanding relationship was called into question and finally usurped, when Emperor Haile Selassie was deposed by a military coup. Nevertheless, because of the long history and the large numbers of their followers, churches and mosques have continued to be a powerful social force in the nation’s politics.

2. Formal, modern education began to spread in Ethiopia after 1908, the year in which Emperor Menelik opened the first modern School, with the objective of raising foreign language translators. It became clear, however, that the elite landholders were not interested in the schooling that was proposed, fearing that the white people would lead the children to Catholicism. Thus, the transition from traditional, religion-focused education to modern, secular schooling took root slowly. Later, with the entrance of Emperor Haile Selassie into power, priests were recruited to teach Ge’ez, the Amharic language, and morals classes. These continued until the 1970s, and I myself had the privilege of attending one of the moral classes, which the priest began by writing “the beginning of all wisdom is the fear of God” from the Psalms on the blackboard.

3. When the communist regime took power from Emperor Haile Selassie, they discarded morals class from the school curriculum, as the first step towards “improving” education. The communist government’s policy of socialist education had three main objectives:
education for production, for research, and for consciousness. According to this policy, religion and spirituality had no place. Atheism was encouraged and people were forced to denounce God and religion in the “discussion circles” that were regularly conducted in schools and organizations all over the country. While Orthodox Christians and Muslims were still allowed to practice their religion in the open, other faith communities, such as various Protestants, Jehovah’s Witnesses, and Baha’is, considered to have arrived late in Ethiopian history, were marginalized and persecuted. The complaints we read in the stories “The Transition,” “My Child is Perfect,” “A Goverment and a People at War,” and “The Misery of a Father” are the results of the implementation of a wrongly understood secular education during both the communist and the current regime.

The overthrow of the communist regime in 1991 did not bring significant change in the overall role of religion in education and public affairs. The new government officially announced that it was to be a secular regime and that there was to be secular education. Currently, the government offers Civics and Ethics Education, with the emphasis on civics as opposed to ethics.

However, as is clear from the foregoing, the history of education in Ethiopia shows that spiritual values were at the core of traditional schooling and served as the foundation for academic success. One of the participants in the story “The Transition” states that those children who attended the Quranic school succeeded in their academic studies better than others. One finds the same observations in the Ethiopian Orthodox church: children who are first instructed in religion do better than other children, particularly as regards their powers of memorization and strict discipline, as expressed in high respect for teachers and colleagues. This has definitely given them a competitive edge in modern education.
It is nothing short of remarkable how the immense expansion of formal education in Ethiopia has been accompanied by the decline of the role of religion in schools. It is difficult to say which of the many factors contributed most to the poor quality of education and the decline of moral character. Despite the government’s effort to increase the quality of education through its Education Sector Development Program (ESDP), Ethiopia is ranked the lowest in most measures of educational quality. This, then, seems an appropriate time to reconsider the restoration of the spiritual component from our previous educational system in the current curriculum.

**Spirituality in the Classroom**

Almost all the participants in this research agree that there are currently no spiritual and cultural values evident at any level of the school curriculum. The government’s policymakers claimed that the course on Ethics and Civics Education would promote both ethics and disciplined students. The twelve “basic ethical principles” enumerated by the government and advocated by all government institutions and public schools were intended to effect such positive changes. They were intended to combat the endemic corruption that has paralyzed virtually every government office. In almost all of the government institutions—including the school in which I was conducting my research—the following “basic ethical principles” are written both in English and Amharic in bold script on the walls and major places in the building—sometime on every floor—and intended to inspire the following much-needed values:

- Integrity
- Loyalty
- Transparency
- Honesty
- Confidentiality
- Accountability
· Serving the public interest
· Exercising legitimate authority
· Impartiality
· Respecting the law
· Responsiveness
· Exercising leadership

Despite the announcement and advocacy of these principles, the establishment of an Ethics Office, and the efforts by all institutions to enforce them and create accountability, little progress appears to have been achieved. Corruption and unlawful behaviour remain the worst problems, in both government institutions and public schools. In fact, the negative impact of three decades of valueless education is being felt seriously by teachers and parents. Many students obey neither their teachers nor their parents, nor do they respect the rules and regulations of the school. They show no devotion to their studies and expose themselves to unsafe sexual practices at an early age. The students now are divided along rigid racial, religious, and class lines and they sometimes fight over these differences. It is well known that in Ethiopian colleges and universities, there are often serious physical fights based on race some of which I was myself a witness.

According to observations by some of the research participants, ubiquitous Hollywood movies and pornographic videos preach the supremacy of the wealth and “liberty” of the white race and everyone longs to visit or live in these foreign countries. Children and young people do not understand that movies are heavily edited and show highly selective scenes. The unrealistically positive portrayal of life in foreign countries diminishes the real challenges faced by immigrant populations. Nothing prepares the children for the fact that neither in Western countries nor in Ethiopia can one have a good life without a tradition of disciplined hard work, intelligence, excellent spoken and written English, economic resources and social capital in the form of friends or relatives in positions of influence.
Such is the current woe of Ethiopia. The schools do not prepare students for their future. Graduates cannot transform their own environment, let alone the social conditions prevailing in the country. And their education is so lame that it has not been able to help many of them succeed in the Western nations to which many have fled in search of a better life. Most Ethiopian graduates ended up minding parking lots, watching hotel doors and securing warehouses, performing the dirtiest and lowest jobs and receiving only the minimum wage for their labour.

Paul S. Kobel (2011) in his article *Ethiopian Americans* wrote:

Contrary to their expectations, many Ethiopian immigrants intent on escaping the poverty of their homeland find themselves underemployed after they arrive in the United States. Ethiopian immigrants earn their living in low wage service jobs such as parking lot and gas station attendants, waiters and waitresses, and convenience store attendants.29

In general, Paul’s statement is true for all the countries in which Ethiopians have became immigrants.

Though officials of the Ministry of Education continue to believe the effectiveness and improved quality of education, particularly of the Civics and Ethics course, many others consider it useless. The ineffective way in which teachers are trained, assigned, and supervised—including not being able to be good models for what they teach—and the curriculum’s focus on politically driven civics are considered by many as a way of making students submit to the rule of the current government and to promote party politics. Currently, there is an unofficial, but interesting, initiative being taken by the Ministry of Education to improve the ethics component of the curriculum. This is discussed later in the thesis.

**The Future of Values in the Curriculum**

Ninety-nine percent of the research participants are positive about the possible inclusion of values (or the bringing back of moral lessons) in the curriculum as demonstrated, for example,

in stories “The Transition,” “An Official Voice from the Ministry of Education” and “Economic Hero.” It seems very natural for Ethiopians that spiritual and cultural values be discussed in the classroom, decide what to do with them, act on the decisions, and see what emerges from the actions. Officials in the Ministry of Education admitted that currently there is an intentional effort to include values in all subjects besides the ongoing Civics and Ethics Education course. The decision was made unilaterally, without the involvement of any of the curriculum stakeholders. Eleven values are identified which are to be systematically taught in the classrooms in a spiral approach, that is, teaching the same values at all levels, but in an increasing depth.

I understand that such an idea is in its initial stage, but from my various interviews with curriculum experts and policymakers, I understood that the first value to be included is the meaning and importance of human rights. Students will learn about democratic rights which are also enshrined in the Ethiopian Constitution. The other value they will learn is “the pursuit of knowledge.” The research participants in the Ministry believed that seeking knowledge constitutes one of the principal aspects of learning. Some of the other values include the rule of law, integrity, work ethics and tolerance, protecting the environment, peaceful coexistence, and saving. It is proposed that a good analysis of the values be made and that students be required to take them seriously. The plan is to make arrangements for students to learn the values beginning in Grade 5, and continue until they finish university. Moreover, Grades 1 to 4 students will learn values within all their subjects in an integrated manner. It seems a highly conscientious effort, which starts from the development of Minimum Learning Competency (MLC). When the MLC was developed, the first question asked was what competencies students need to have. According to the interviewee in MoE, the competencies are listed under the three educational domains: knowledge, skills, and attitude.
The above-mentioned values are said to be listed after a process of soul-searching that tried to carry forward the most cherished, ancient traditions in the Ethiopian society. There are also some universal values, which are considered helpful in the development of other populations of the world. A good example of the former is the rule of law. This value was very much part of Ethiopian tradition. Examples given by elders for this value include how any ordinary person who happens to see two people fighting will intervene to stop the fighting by saying: “Behig amlak atitalu!” [In the name of the Lord of Law—stop fighting!]. In some cases, this same ordinary passerby might even tie the two fighting people together using their own clothes and ask them to go to a local judge, which they would promptly do.

Values such as saving have never been part of the tradition of most of the Ethiopian societies. Either due to a deep conviction that God takes care of the future, or that there was not much to save, people did not save. The only tribe in Ethiopia that has a tradition of saving is the Ghurage, who are mostly involved in business and farming. They are known to be materially successful, due to their tradition of ekub\(^{30}\) and rigorous and consistent habit of saving.

Regardless of the curriculum development process which was not as participatory as might have been desired, and its reception by the practitioners (teachers, students, parents, administrators and the general public), what the Ministry of Education did was to take one step forward in the right direction of including values into the education system. There was a consensus among policymakers and curriculum experts in the MoE that my thesis will come in handy during the next phase of supporting the work through research.

According to the research participants from the MoE, both curriculum experts and policymakers, there are two fundamental reasons for including values in the curriculum:

\(^{30}\) See footnote 5.
1. The government is deciding to put greater emphasis on the teaching and study of science (Teshome, 2008). In 2008, the government decided that public universities will accept new students into the Faculties of Natural and Social Sciences in a ratio of 70:30. Moreover, the government raised the Science and Technology Commission to the level of a ministry in October, 2010 and devised different strategies to achieve the vision “to see Ethiopia begin exporting its own technologies by the year 2025.” The mission of the Minister is to “create a sound science and technology Foundation and to coordinate the national technological capacity-building efforts, so as to enhance competitiveness of the economy and reduce the technological dependence of the country.” Another of its responsibilities is to “ensure that the country’s educational curricula focus on the development of science and technology.”

This idea was meant to create students who think rationally and critically by offering a strong science curriculum. It was also hoped that the students would become active participants in society, become people who take initiative, and who dedicate themselves to the common good. As one policymaker who was interviewed put it: students need to ask continually: why am I studying science? Is it to destroy or to build the country? However, there is a sense of fear that the curriculum will end up producing monsters who will use their scientific knowledge for destructive ends; hence, the necessity of educating values. There is a realization that science, per se, has no purpose; the people who engage in science put its purpose. Ethical people create ethical science.

2. The MoE performed an internal evaluation of the effectiveness of the Ethics and Civics Education program. According to one source in the Ministry, it was “discovered that the civics component is stronger than the ethics component. The ethics part is really shallow. The

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evaluation was done after we taught the text books for some years and found out that the ethics component is inadequate. Therefore, we devised a way to broaden the ethics lesson from self, to the community, to the country. We hope that ethics will serve the peace and development of the country.”

Therefore, the MoE tried to identify ethical values that are conducive to development and overlap with spiritual values. Using the phrase ethical rather than spiritual is important, since it is more acceptable in secular education. One of the assumptions is that in a country where there is diversity of worship or different forms of religion, we cannot deliver the teachings of any one religion. Hence, it is a matter of identifying eclectic values that embrace all. The policymaker concluded his view by saying, “Once children are in the 5th Grade, they will learn ethics as a separate subject. But it does not mean that the integrated approach in the previous grades will not continue. Projects, cases, and discussions about ethical issues will continue, so that they learn ethics consciously. The civics education component has nothing except these eleven values at all levels.” Therefore, based on this statement, it is hoped that the MoE will make sure that there are ethical discussions and consideration when developing curriculum for all science subjects.

3. The effort to create supplementary materials highlighting cherished religious values is a laudable effort in the part of the government. If the Ministry of Education succeeds in publishing and distributing what it called “supplementary material on ethics,” it will have taken yet another step in the positive direction of restoring spiritual values in the education system. In fact, it is preferable to first publish it as supplementary and test material before it finds its way into the mainstream curriculum. After a period of time in circulation and reading, the MoE can gather feedback from students, parents, and teachers and further refine the material. The process
will then become more participatory and inclusive. This is one way of making sure that local values and approaches will be incorporated into the educational system.

**Who Says What?**

The recurrent theme among students, teachers and parents was that the current Ethics and Civics Education course should go beyond being a separate subject aimed at building the moral foundation of students or teaching a list of selected values. There is an implicit understanding that science itself cannot exist without a spiritual and cultural context. The argument that science must take into account cultural contexts and be value-driven has to express itself in the classroom. One of the research participants even went so far as to say that the teaching of reproduction as simple scientific process (as opposed to a divine process) does not help us appreciate its beauty and purpose, nor its ethical dimensions. The point is: we need to take the scientific and the spiritual processes together, as long as they can complement each other and help facilitate development. The argument can be extended by saying that the Ethics and Civics Education course must incorporate the concept of the fear of God as part of both restoring cultural values to the education system, and as a reason to believe and practice those “basic ethical principles.” As we go proceed to create a subject that teaches and embraces both ethical values and scientific theories and practices, the subject assumes a different dimension and name from the subjects we are familiar with now.

In relation to the recreation and reorganization of the Ethics and Civic Education course and science subjects, the concepts of secular education and secular government must also be revisited. In the United States and Canada, where the governments are officially secular, the concept of God still manifests itself in different forms. Whether in the national anthem, in the speeches of presidents and prime ministers or the engraving of “In God We Trust” on units of
money, the concept of God and belief in His existence is promoted. The idea of being secular is that the government does not associate itself with or favour a particular religion—assuming all religions are equal in the eyes of the government—and does not encourage the focus on any particular religion at the centre of the curriculum. Secular education does not mean that we totally eliminate the concept of God from our psyche and education and, as a result favour atheistic values.

The Ethiopian government and curriculum are not only secular but also atheistic, as no mention of God is made in any situation. In a way, it is ironic that an atheist government and experts set the education policy of a people, the orbit of whose existence is the belief in and fear of God. In my short book written in the Amharic language, I told the story of how one of my classmates challenged a professor in this respect. As it happened, one of our curriculum professors used to speak openly about being an atheist. He then told the students that he was involved in the development of the education and training policy of Ethiopia. Upon hearing that, one of our friends stood up and asked: how is it that an atheist sets the education and training policy for a people known to be so religious and saintly? (Faris, 2007, p. 35).

**Reward and Punishment**

The importance of the concept of the fear of God is in its capacity to enable human beings to build on the notion of reward and punishment, which together reinforce the idea of conditioning in psychology. In the Ethiopian culture, people do not fear God without reason. As explained earlier, the primary reason to fear God is that people love and respect God, in the same way that a child loves and respects her father and always wants to make him happy by paying attention to what her father says. They do not want to offend God in their dealings with people. God is also considered to be the source of ultimate reward and punishment. People seriously
believe that speaking and doing good bring blessings not only to themselves, but also to families and generations. On the other hand, speaking and doing evil brings curses [mea’at] to oneself, to the family, and to the following generation(s). God observes and “records” the work of each and every one, and, sooner or later, we will reap the reward or incur the punishment that we deserve. The naming or entitling of someone as a hero or a saint in Ethiopian culture is a commonly agreed reward for the sacrifices made for the common good. The other side of this entitling is the shaming of someone who acted badly and opposed the common good. This is in harmony with what other African traditions say about the concept of mea’at and mirekat [blessings] one deserves for one’s work.
Research Question 4:

Tensions That May Arise if Ethiopians Deliberately
Engage Local Spiritual and Cultural Values in Science Education

Story Time

The following stories, all told by research participants, demonstrate some of the tensions that might arise if curriculum experts consciously bring the issues of local spiritual and cultural values generally into all classrooms and specifically to science classes. Most of the stories came from participants who are directly involved and, as a result, have first-hand experience in the development and implementation of curriculum. Even those stories narrated by people from outside the school system are expressive of the tensions that surround the restoring task.

“Is This Meto Haya [a hundred and twenty]?”

I am so depressed by this Plasma TV. Students have never been interested in learning through Plasma TV. They do not even think of trying to understand what the teacher on Plasma TV is saying. Any uneducated housemaid sits and watches TV at home though she does not understand a word of the movies. She follows the signs, uses common sense, and tries to decipher the meaning of what is going on in the movie. She sometimes retells the story she watched. Most probably our students are interested in the movies they watch outside of school, whereas they are not interested in the films presented on Plasma TV. They are interested in home movies, even when the language is totally foreign to them, like the Arabic movies they watch. But Plasma TV is in English which they have only been learning for the past few years. They would rather watch the Ethiopian TV entertainment program “Meto Haya” a hundred times than watch one Plasma lesson.

They claim that the Plasma TV runs too fast and is not understandable, but they also do not try to understand it. Our hope is that the curriculum will be revised for next year. The officials recognized the need to rethink the way the lessons are delivered through Plasma TV. Right now, our role as teacher is only ten out of the 40 minutes of class time, while the Plasma TV takes up 30 minutes. Imagine! Only ten minutes for student-teacher interaction! Next year, it is expected that the teacher and the Plasma TV will share equal time, that is, 20 minutes each. In these ten minutes, we scribble something on the blackboard or struggle to call their attention to the TV. In fact, we are supposed to keep quiet when the Plasma TV program is on. But we cannot do that, because there are a few

32 Meto Haya literally means “a hundred and twenty,” the name of a well-known two-hour television show which used to air in Ethiopia every Sunday afternoon.
things that come on in the Plasma that require their attention or else they will miss
something important. It is only a very few students who can focus on the TV this whole
time and it is very difficult to explain and summarize the whole thing in ten minutes. So,
from my perspective, the students are burdened when they have to study science in this
way.

“The Pedagogy of the Oppressed”

Last weekend, a few other teachers and I took 25 students to an HIV/AIDS protection
seminar. Their participation in the seminar was amazing. Maybe it is because the seminar
facilitator was young, or because they were allowed to talk freely, or perhaps it is because
they are interested in the subject. I don’t know. They were so active and contributed
freely. It was as if they wanted to learn more and they seemed to be at their best. The
method of teaching in the classroom, when compared to the seminar, must be boring.
This experience showed me that the students have potential. Especially if they have
spiritual qualities, they will help them focus on their studies and solve their problems,
regardless of the inconveniences at school. They need to be sincere. I like the way they
feel freer than our generation. But the sense of liberty has to be balanced with
responsibility.

My daughter is attending a private school, where they expect the students to obey every
instruction given by the teacher and the school administration. In public schools, the
teachers are more stable and experienced than the teachers in the private school, who are
younger and less experienced. However, the students in the public school do not take the
initiative to benefit from their teachers’ stability and experience. Of course, we the
teachers are also not 100 percent perfect. It is sad that the number of receptive students is
so low in public schools.

I ask the students to build simple models using toothpicks and styrofoam. The idea was to
give them a visual and tactile experience of what they had been learning in class. It was
an extra tutorial, because the teacher’s 10 minutes in the class is not enough time to cover
the ideas. It was also to encourage group work and peer support. However, most of the
students copy the work of the few smart students. It may be okey to copy, but they must
understand the logic and the meaning behind the structure. You will know by their test
scores that they did not understand a thing about the theoretical part of the model. They
did not care to get an explanation from the teachers or from the smarter students.
Therefore, when you give them written tests they don’t answer the questions. Their
interest in learning science is zero. They do not see a future in science.

Yesterday, some children prepared poetry, music and drama and performed it in front of
an audience. I was so impressed by the artistic talents they showed. We usually only
expect academic performance, as in pure science, but the children may have other talents
that could benefit them in the future. They were so changed that I even suspected that
they were not the same children that I teach in my class. It is unfortunate that the country
is so underdeveloped that it cannot tap the special talents of those children. They are very
creative outside the regular classroom, but we do not have the mechanisms to assess and
develop these talents.
Another instance of talent is their performance during the National Nations and Nationalities Day. You have seen the pictures of them taken during the holiday. What they did that day was excellent. They dressed in the costumes of the different ethnic groups in Ethiopia, demonstrated some of their culture, and acted out a number of things. It was really amazing.

They also demonstrate talent and depth when we discuss different issues with them at roundtable discussions; they express their opinions unreservedly. They offer good suggestions. But the moment they come to class and sit for biology and chemistry lessons, you see the challenges. The students feel disempowered and burdened. I feel their relationship with those subjects and the pedagogy is disconnected somehow. I wish they could use the same intelligence and wisdom in their academic subjects.

“The Role Model”

The course on civics is one of the strategies for including values. However, when we see the type of teachers delivering it, we know that it is not working. Teachers who are themselves bad examples cannot teach any kind of subject, much less ethics and civics. For example, students do not enjoy singing the national anthem. They do not sing it out loud. You cannot do it until they understand its importance. They think that the national anthem has something to do with the government. By not singing the anthem, they assume that they are expressing resistance. But the national anthem has nothing to do with the government. It exists regardless of the type of government. Civics education is offered at all levels, including college and university. It is my hope that some of our cherished ethical values will be taught in schools and preserved, regardless of the type of government in power.

What is most important is the teacher’s effort and example to cultivate the young generation. We should feel obliged as citizens to shape a better future. Children need support. But the question is, are we giving the support they need? Do we consider them as our own children? Students are our trust. The parents and governments entrusted us to make the children strong citizens. Are we discharging that responsibility?

“Whose Culture, Whose Spirituality, and Whose Scientist?”

We include the art of local distillation of areke [local vodka], the brewing of tela and the science of fermentation in general. When we do this, the Muslims ask: “Why do you include alcohol in the school curriculum? We do not support it. It should not be taken as a lesson.” However, our answer was: whether we like it or not, alcohol exists in the society and it is easy to learn what is in society. We inform the students about the effects of alcohol. As long as we inform them of its effects, it cannot be considered promotion. What we want the students to learn is the science of fermentation, and it is easy for them to learn about it through understanding the process of the preparation of tela and dough-making which are found in our own homes. Our ancestors were familiar with the process of distillation for centuries. They somehow have the information at home. In school, we just explain the scientific aspects of it. Simultaneously, we teach and encourage them to engage in discussion about the effects of drinking alcohol. We help them understand that
alcohol is a solvent for many solutions. Alcohol has many important uses in hospitals, and in industry. So students are helped to understand science as a double-edged sword: you can either benefit from it or harm others through scientific knowledge.

Ethiopia is a highly diversified country with more than 80 ethnic groups. There are bound to be some problems when you include certain values and exclude others. We did something good in biology class. The written text book included Ethiopian role models, such as Drs. Tewoldebirhan Gebre’egziabher, Gebissa Ejeta, and Aklilu Lema, people who were awarded alternative Nobel Prizes or other major prizes for discovering things in the field of biology. We have also included in the text book the first and only woman professor in Ethiopia. The first criterion for inclusion as a role model in the text book was having an alternative Nobel Prize. But then it was realized that it brings gender bias, since there was no female role model. Unfortunately, there was no woman who had been awarded the alternative Noble Prize. So for that reason, it was decided later to include Professor Alemtsehay, the first woman professor. And because many of the men came from different ethnic backgrounds, they also represented racial diversity.

“At the Crossroads”

At one point, because of the fast spread of HIV/AIDS, we had some interesting experiences. Because one of the safety measures suggested was using condoms, we had to show the young students how to use them. So the teachers brought condoms to the class and demonstrated how to use them using a stick. I personally did not like the idea. But due to the large number of HIV deaths, the government encouraged the lesson. Although many families opposed the idea, they tolerated it, thinking it would make a difference in halting the catastrophe. Sometimes some feminists in TV interviews advocated open sex education and the use of the actual names of the reproductive organs, like penis and vagina, which are somewhat derogatory terms in Amharic. Some people argue that our introverted attitude towards sex has done more harm than good, so they ask for more openness. Well, I am not sure whether being so open about sexual matters reduces the vulnerability to HIV/AIDS. We have to take time to assess the matter before we move to assume so-called better and more modern methods.

“From a Gnat to an Eagle”

When we began the Junior Youth Empowerment program, it was open to all, but some parents resisted sending their junior youth to the program. As soon as the young people had enrolled and passed through the program, they showed a remarkable spiritual transformation. Just by looking at these youth, other parents who had not sent their children at first, literally begged the coordinators to accept their children in the program. They enrolled their children when they witnessed the positive changes they observed in other children. Many attitudinal and behavioural changes were observed in the children: youth who were known to have no objectives in life or who were wondering around creating disturbances developed aspirations. The program became as successful in

33 A moral and practical empowerment program for junior youth ages 9 to 14, run by the Baha’i community of Ethiopia as part of a worldwide endeavour to empower this age group.
Ethiopia as it is everywhere else in the world. We had a guest from Cambodia who shared the same success story. In fact, the guest encouraged us to do more with the youth and little children, because they are gates to the heart of their parents. When parents witness the transformation taking place in their children, they want to associate with the program. There was a positive change, even with regard to the respect the children showed their parents. The new civilization to come will be built on the shoulders of today’s children and youth. Parents will follow the light in their children.

“Revolutionary Democracy”

This story bears the name of the ideology the Ethiopian government currently practices. As can be seen from the phrase itself, it is a synthesis of two broad concepts. It appears that the government did not want to practice democracy in its fullest sense; rather, it chose a specific type of democracy that excludes some of the rights that are characteristic in a fully democratic society. For example, in Western democratic society, it is considered a democratic right to own land, whereas in Ethiopia, land belongs to the government.

One of my interviews took place with a highly placed key informant, whom I gave the pseudonym of Mr. Pom. He supports the philosophy of revolutionary democracy which may, in and of itself, arouse some tension in the way we perceive spiritual values and their integration in the curriculum and pedagogy. Here is the conversation I had with him:

Interviewer: (Since he was expressly refusing the idea of spiritual values in the classroom, I suggested to him that) “for the theory of evolution, for example, there needs to be an alternative theory such as the theory of intelligent design that students may relate to.

Mr. Pom: To say there is intelligent design, I must either know the designer or when I see the process, it has to be self-evident that it is made through design. The conclusion about evolution is in the fossils we discovered. We have concluded that the deeper the fossil was buried in the earth, the older it is. We can then lay them out chronologically to theorize how the changes took place over time. If the change shows a deliberate design, we can ask the question how each change occurred. Intelligent design assumes the existence of a Designer who understood how the process and the change happens. So we need to understand the design thoroughly in order to talk about the designer and its intentions. Or else we need to conclude that the process of change and life is the result of the interplay between survival of the fittest and natural selection, according to which the fittest and the most adapted ones survive and continue to live and reproduce. I do not see the difficulty in understanding this. Rather what seems difficult is the belief in intelligent
design, because I say why does “he” or “she” make this particular unfinished design. Why doesn’t he or she or it create a complete design at once and launch it for survival? Why should we evolve? Take people for instance: those who live in cold climates are whiter than those of us who live in warmer ones. Is it the work of the intelligent design that weather determines our color? Or did he or she created us black and white to start with? We know from DNA evidence that the white people originally had black color while they were migrating. But I do not know.

My conclusion is that what we bring to the school should be something that helps the children live peacefully with each other and with the rest of the community, that is, subjects that will bring the children health and comfort. In schools, we develop their capacity to do those things. I feel schools do not have to extend their objectives beyond this.

Interviewer: Well, it may not be the place and the time for bringing up the argument for Intelligent Design (ID). But, what if this ID envisioned us the way we are now and put the system in place so that we can evolve in this direction? What if human beings were created as human beings from the start but they were programmed to assume different stages until they become human? Different stages and different shapes show more intelligence for the design.

Despite all your argument that there should be no mention of alternative theories and values in the school, should we not at least be able to teach from the perspective of critiquing them? Schools are also responsible for teaching critical thinking.

Mr. Pom: Of course, unless there is analysis and challenge on issues, schools cannot fulfill the objectives I stated. Unless a farmer asks why the flood is washing away the soil, and does something to protect the soil, education has no use. Otherwise, as in the Middle Ages in Europe, if we ask how many angels can stand on the head of a pin, there will be an endless debate. Such knowledge is not worth teaching. For me, education is an effort to understand the process of nature and then to subject it to our comfort. More importantly, education must serve the purpose of harmonious living and tackling common problems. Otherwise, any mind is free to think and wonder about questions beyond these relevant issues. Who knows but what the mind might have been created for this specific purpose. We can ask questions and get direct or indirect answers; we can write poetry; we can sing; we can paint pictures. These all have aesthetic values; but for me, the most important thing is living, i.e., agriculture and trade. Education must help individuals lead a healthy life, and also help others to do the same. People cannot live by themselves; we are interdependent, so we need to take care of others. Selfish people are self-destructive. No one can live alone. Let him think both about himself and also of others. In order to do this, one must ask and reflect how to protect nature, how to get things from nature.

**Fire Neger**

Most of the research participants agreed that there doesn’t have to be tension as a result of reforming the curriculum, as long as it is implemented slowly, through participatory
consultation and informed steps. Surprisingly, respondents were enthusiastic about including spiritual and cultural values into education in general and the science curriculum in particular. The stories told and the discussions held were mainly on some events and possible sources of tension, and the precautions that can be taken to relieve whatever tensions do arise.

The Discontent with Plasma TV

Both teachers and students are unhappy by the way the Plasma TV is managed and run in Ethiopian classrooms. As shown in Chapter II and the story “Is this Meto Haya?”, Plasma TV is the antithesis of active learning and learning about local values in schools. It is a very good example of postcolonialism at work, the fruit of the work of transnational corporations twisting the policies of national governments. Traditionally, TV has played an important role in entertainment. In Ethiopia people are more interested in its entertaining value than for its role in imparting information. When talking about TV, students are far more likely to remember the weekly entertainment program Meto Haya than anything else. Shifting the role of TV from entertainment to learning hard-core subjects takes effort, consultation, and experimentation. Since the government has not made any of these efforts, Plasma TV represents the antithesis of all creative pedagogical efforts in secondary schools.

Aside from TV’s assumed role as entertainer, the use of the English language for instruction has been another challenge. The human teacher tends to use the English that students can understand, or teaches difficult concepts using the local language, whereas the Plasma teacher—usually a foreigner—is speaking English virtually incomprehensible to the students, using vocabulary and pronunciation far beyond their capacity. Since the TV teacher stands in one place in one position, it is boring to focus and listen. Moreover, the time allotted to the TV teacher far exceeds that given to the human teacher, who could do so much to build upon what
the TV teacher has demonstrated. Thus, the human teacher is rendered useless and powerless in front of the Plasma teacher and students. Because so much money is spent on the installation of the TV technology, it has become political hot potato, with the government unwilling to make changes. Even the interviewee teachers were terrified to say anything negative about use of TV programming. Even if change were to be made, it would be late, since repairing the damage done throughout the years of Plasma TV would be impossible.

Integrating spiritual and cultural values and implementing creative pedagogy in the classroom while Plasma TV has a front row seat represents a herculean task. Tensions will arise within the entire structure of the teaching-learning process, in the school administration, and finally with the government. The instalment of Plasma TV in all Ethiopian public secondary schools, without any consultation with teachers, parents, or students is an excellent demonstration of postcolonial practices at work, most particularly how multinational corporations manipulate governments for their selfish ends.

In fact, in the first few periods of my classroom observations of Grade 10 biology classes, the topic was “Evidences of Evolution: Comparative Anatomy and Geographical Distributions.” A young white plasma teacher whose lip movements were not synchronized with her actual voice—a nuisance in itself—was lecturing on the topic. The live classroom teacher stood in the corner of the classroom as if at a loss what to do. In that situation, I was watching the Plasma TV and wondering if there was anything the plasma teacher was doing that the actual teacher could not do. After every one or two minutes of a display of pictures, videos or some movements, the Plasma teacher popped up and said something on the topic, always standing straight, staring at the camera, and moving her hands as if wanting to enforce her explanation. The classroom teacher (who spoke good English and was able to communicate his subject well) would have
been in a far better position to explain the topic. He might have shown some charts and pictures of animals and geographic locations for comparison, and also encouraged question and answer sessions, debates, and group works on the topic. In fact, the topic might have been much better taught by the project method, whereby students are asked to produce articles, pictures, videos of comparative anatomies and geographical distributions to support evolution. Alternatively, the students could have been given the option to debate the theories of creation and evolution, and produce evidence to support their arguments. Without teaching methods that involve interaction, it is unlikely that students will understand and practice values.

In our after-class discussion with the teachers, they admitted that most classrooms are lost opportunities for developing real knowledge, skills or attitudes in the students. Plasma TV has made it totally impossible to introduce critical pedagogy. There are rumours that there is some new curriculum being developed or revised, details of which teachers are completely ignorant. It is the teachers’ cherished dream to see the Plasma display serve them rather than the reverse. Unfortunately, for the time being, meaningful discussion in the classroom and any kind of research methods for assessing classroom pedagogy have suffered from lack of information. Therefore, the data on pedagogy have to come mainly from classroom interviews, classroom observations, and discussions.

**Active Learning**

Though the government has already installed Plasma TV in all high schools, it seems that students enjoy learning experience without the TV. When students are taken to a group activity, seminar, or any kind of extra-curricular activities, they show an increased interest for learning. All teachers shared their conviction that the current generation feels much more “liberated” than their parents’ generation. Responsibility and sacrifice are the last words they
want to hear. Staying imprisoned in a classroom under the authority of the teacher and the instruction of Plasma TV is not their idea of learning. Instead, they would rather engage themselves in out-of-class artistic and sports activities.

In comparison, students who go to private schools tend to feel more responsible and perform better academically, despite the availability of more knowledgeable and experienced teachers in the public schools. Parents pay for private schools, and demand results in return; teachers receive better salaries, and there is more administrative control. Public school teachers are paid much less, regardless of their performance. Parents not only do not pay for public schools, but some put their students in school as a way of getting rid of their headache children. Thus, many public school students are not motivated to do what it takes to be successful.

Teachers have expressed the difficulty of giving students extra work to supplement the TV lessons, because the appetite for learning seems to have been lost in the classroom. Students show more interest in art and sports, subjects which the curriculum, unfortunately, does not cater to. Any student who is keen to develop abilities in the arts or sports must leave school to pursue such goals. In our interviews, both students and teachers expressed the feeling that the dysfunctional academic education has so entrapped and disempowered them that they end up being less productive and less creative. If students are asked to do assignments, copying the work of their peers becomes the only means to get the work done.

The most lamentable victim in this dysfunctional academic situation is the relationship between students and science subjects. As the students progress towards high school, their interest in science decreases. Children’s fascination with exploring the environment and their enthusiasm to ask questions about the way the universe works are dampened, as they are presented with boring lists of facts and information to memorize. The hands-on experience, field
trips and laboratory work that could have motivated active learning about science are smothered by the rhetoric of Plasma TV. Instead of being fun, science becomes ugly and painful. No more does it answer immediate and relevant questions. It is simply a memorization of long names of things, classifications, and systems. Consequently, students tend to focus on the social sciences, sports, and arts, as these seem not only to have immediate relevance, but also to offer better job opportunities after high school graduation.

As we see in the story “The Pedagogy of the Oppressed,” most research participants agree that students have lost interest in science subjects. Science is not playing a role in the life of the students, communities, and the country at large. In a market- and money-oriented world, where sports and artistic expressions pay off and science does not, it is sensible for students to invest less time and energy in studying science. The hope in restoring local spiritual and cultural values to science education is that it will make the benefits of science learning immediate and relevant. Students cannot become active learners when the subject at hand has no relevance to their lives.

Therefore, the tight grip of Plasma TV, the lack of interest on the part of students to learn science, and the teachers’ frustration create much tension and serve as a hindrance, as we set out to integrate spiritual and cultural values into science education. The type of teaching and learning that goes on in the schools is best described by Paulo Freire (1970) as the “pedagogy of the oppressed.”

**The Devil You Know**

An obstacle that has been given greater emphasis by many participants is their fear about Ethiopia’s 80 ethno-linguistic entities, the implications of whose spirituality and culture in the science education are largely unknown. Even though every ethnic group would appear to believe
in the existence of a Creator, they may not agree as to what the nature of that Creator is. The cultural beliefs and practices of one of the ethnic groups could be taboo for another. A good example is the case of the study of fermentation, as we learned in the story “Whose Culture, Whose Spirituality, Whose Scientist?”

In order to teach the concept of fermentation and distillation, the science class uses the preparation of the cultural drink called *tella* and *areke*. But Muslim parents and students who do not approve of alcohol reject the idea of using the example of *tella* and *areke* in the classroom. But the curriculum experts argue that they are introducing the preparation of alcohol not as a useful object, per se, but as a process and product to be used for other useful ends. It is the same with scientists and other characters introduced in the science subjects. There is bound to be some tension regarding which ethnic group, religion, gender, or political organization these people and character represent. In some quarters of society, there is a fear of the new, that it could be mishandled to show the superiority of one over the other. They prefer to stick to the past, saying “the devil you know is better than the angel you do not.” Expertise and wisdom are necessary in representing everyone, providing logical justification for why some particular character is represented.

As discussed in the theoretical framework of the History and Philosophy of Science (Chapter 2) and as shown in the story "Whose Culture, Whose Spirituality, Whose Scientist?" no science lesson—or any lesson for that matter—comes without some value attached to it. It is also one of the areas in which postcolonial assumptions come into play in education; most lessons presented in schools make children vulnerable and submissive to the current outrageous pop culture. Therefore, one of the reasons for identifying spiritual and cultural values is so we do not turn off students from learning by bringing something that is seen to oppose their stated beliefs.
It is not that science should not fight superstition and prejudice, but that it should be introduced in a progressive manner. Lessons must be presented progressively, taking students’ spiritual and cultural beliefs as a solid foundation to build the next phase of learning. This applies whether introducing Plasma TV in the classroom, singing the national anthem during flag ceremony, or teaching the use of condoms, or supporting the main curriculum with extracurricular activities, as we see in the stories “Is this Meto Haya?,” “The Role Model,” “At the Crossroads,” and “From a Gnat to an Eagle”). Tensions should be minimized among the students themselves, between teachers and parents, between students and parents, and, sometimes, between students and teachers.

For example, the demonstration of the use of the condom in the classroom brings to mind a number of issues: first, one can ask if condoms are the best method to protect an individual from sexually transmitted disease; second, one may ask if it is in line with the spiritual and cultural values of the Ethiopian people. As in most traditional and spiritual societies, the Ethiopian people condemn premarital and extramarital sex. Marriage is highly valued and the rate of divorce used to be very low until recently. It seems that with the expansion of formal education, all evil practices including divorce rates increase. Talking about and performing sex, even kissing, openly are foreign to the society. Wearing shorts, skirts, and tights is still shameful. Therefore, rather than building our pedagogies on the local spiritual and cultural values of the people, why do we introduce something as uncomfortable as promoting the use of condoms among the youth?

Suspicion about the motives of different out-of-school programs is another source of tension in building a grassroots movement for a different curriculum in the school. The effect of the Baha’i Junior Youth Movement illustrated in the story “From a Gnat to an Eagle,” is a case
in point. As I learned from the interviews and my visits with the group, the Baha’i community in Addis Ababa is trying to implement a Junior Youth Empowerment Program focused on the studies of some ethical issues, in parallel with the practice of community service projects. The Baha’is say that this age group is neglected, but represents a critical stage in forming character that remains for life. It is not only about preparing them for the future, but there is also a belief that they actually can make a difference right now within their communities, by implementing community service projects. It has proven to be successful in many other places in the world. It is a free service which Baha’is offer as part of their community development efforts. However, even though the ethical issues shared have their roots in Christianity and Islam, the fact that the empowerment program came from the Baha’is can create tension and suspicion in the community, with some parents unwilling to allow their children to participate. Very few seem to realize that such out-of-school efforts can become powerful grassroots movements and contribute to curriculum reform.

Living the Life

One of the problems in the teaching field which also creates tension is the lack of teachers who embody what they teach. In most cases, those who teach science are not scientists and those who teach ethics are not ethical. Therefore, students are not able to follow lessons taught by people who do not live the life. There are also many other reasons, such as:

- students do not see the impact of what they learn on their teachers, parents or others; or they do not see its immediate relevance; then the subject becomes theoretical and intangible;

- students are not taught using different methods, with enthusiasm, and depth of understanding;
teachers are generally unhappy, complaining about their miserable life; they cannot impress or inspire students to be happy, to make learning a joy if they are unhappy themselves.

**Cadres of the Government**

As the story “Revolutionary Democracy” shows, there are people at all levels in the government bureaucracy who sincerely believe that revolutionary democracy is the only way to bring development in Ethiopia. This philosophy is, on the one hand, an extension of the communist regime in Ethiopia throughout the 1970s and 1980s and, on the other, a reflection of the desire to institute a free market economy, as encouraged by the World Bank and the International Monetary Fund. This philosophy is, therefore, the foundation for the existence of secular government and secular education in Ethiopia, which excludes the concept of God and spirituality from the school curriculum. Most decisionmakers in the school system are government cadres, who vociferously advocate revolutionary democracy, and who refuse to entertain any alternative idea and strategy for learning and development. They have a highly positivistic view of science and still hope that science will solve all problems (Teshome, 2008).

**Chiwiwit/Conversations**

After having described the yawning potholes in the Ethiopian educational curriculum and system, one is obliged to have a second look at it, with the aim of making some amendments. The depths of these amendments vary depending on the extent of the problem, the grade levels and the context. Nonetheless, no matter at what depth or whatever amendments may be made, challenges abound. It is these challenges I have called “tensions” throughout this chapter. And tensions may come as no when, one is attempting to tackle a century-old problem. The educational system has, in some quarters of the population, established a kind of norm not to be
contested. Some people would like to see real change, but are not sure what to change, or how to
go about making them. Therefore, tensions between the different curriculum stakeholders seem
to be a normal outcome of the change process. In the next few pages, building on the previous
stories and analysis, I will explore the sources and implications of these tensions.

A Deeper Crisis than We Think

Current Ethiopian formal education is plagued by innumerable problems. All the research
participants agreed that problems, such as the ineffective training of teachers, the presence of
plasma TV that supplanted the human teacher, large class size, an imported curriculum,
excessive rote memorization, and the pervasive use of English-language instruction haunt the
teaching and learning process. The lack of participation by local people in curriculum
development, the lack of any mechanism to incorporate indigenous knowledge, and the failure to
learn from past mistakes persist. The teaching of science as the most objective and the sole truth
has continued in our schools, without regard for current developments in the history and
philosophy of science.

It is, thus, with this state of affairs in the background that the alternative theoretical
frameworks for the thesis; viz. postcolonial theories, Sankofa, and native science make sense.
Nevertheless, a shift from such a state of crisis to a new locally rooted and relevant education is
not an easy task. Tensions are expected to arise from all sides. The plurality of views within
Ethiopia itself, the lack of trained human resources, power politics, outmoded thought patterns,
and selfish motives of people who stand to benefit from the existing system are some reasons for
these expected tensions.

If, however, there can be wholehearted consultation and universal participation in the
development of curriculum, some of these tensions may be easier to deal with. My discussion
with policymakers and curriculum experts have convinced me that all people have the potential to understand and work for what is ultimately good for them. In fact, there is nothing more cheerful than the process of rediscovering oneself with the object of becoming a subject of conservation and/or transformation. A time must come when Ethiopians will look at how the idea of God and spirituality is engraved in them. Consequently it will be worth considering in the curriculum the idea of knowledge as a gift from God, and people with more knowledge as having the lion’s share of this gift, as was customary in traditional schools. Based on the discussions here and under Research Question 1, I suggest that the fear of God and keeping His omnipresence as a standard of living must be the central animator of education in Ethiopia. The tradition of considering respect and service for others as respect and service to God must be upheld in every aspect of our educational endeavour.

**Standard for Values**

Muslim society has a point in its view on the teaching of alcohol in the school, whether or not one is talking about the science of fermentation. Despite the fact that some of the local drinks (*tela, areke, and tej*) have been brewed in homes for centuries, the teaching of them in the classroom may give the impression that the drinking of alcohol is being sanctioned by the school. So there is a legitimate question here: what is our standard for including or excluding a topic from the lesson? For example, taking the issue of alcohol, as discussed in the story “Whose Culture, Whose Spirituality, Whose Scientist?”, I will now briefly discuss what the options are in setting such a standard:

**Science.** This is a knowledge system that can tell us what is harmful and useful to the body. But we also know that the data from science is continually changing on the subject of the benefits or harm of such alcoholic beverages as red wine. Some encourage moderate use, while
others encourage abstention. There is as yet no final answer on the question; as a result, we need other supporting knowledge to strengthen what we may glean from science.

**Religion.** This is a knowledge system supporting that of science. In cases where we do not have enough information from science, we can turn to what our respective religions have to say. For example, both Old and New Testaments discourage the use of alcohol—except where St. Paul allows it to assuage a stomach problem. In the Quran and Kitab-i-Aqdas, there are stipulations that forbid the use of alcohol. Therefore, based on insights gleaned from the two great systems of knowledge, science and religion, one can conclude that the drinking of alcohol is of greater harm than benefit to the human body. Along with this guidance, the horrifying daily statistics of car crashes, violence, and rape stimulated by drunkenness are enough to encourage us to denounce the selling and use of alcohol for anything but medicinal purposes.

**Consultation.** When we are not sure what exactly to include and exclude, consultation among the various stakeholders will work it out. We have statistics to prove the extent to which alcohol is the cause of car accidents, violence, and illness. There are studies to show how alcohol is economically damaging. Such insights and statistics can be taken into account when deciding what and how to say about alcohol in the curriculum.

We can also take our goals and objectives as standard. What kind of students and citizens do we want to have in the future? How does the teaching of alcohol contribute to the overall building of a model citizen?

Moreover, critical pedagogy also comes handy here. Students need to be encouraged and taught to challenge ideas and actions which are often taken for granted. They must be able to

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34 The book of laws and regarded as the Most Holy Book of the Baha’i Faith.
question the norms around them, including what is given to them in the curriculum. Students need to be engaged in a discussion of the desired content of their lessons.

**Take Time**

My interviews with the teachers and policymakers (for example, in the stories “An Official Voice from the Ministry of Education,” “Whose Culture, Whose Spirituality, Whose Scientist?,” and “At the Crossroads”) convinced me that curriculum change is possible, but must be undertaken slowly and carefully. Teachers and policymakers are convinced that we cannot simply import values into the curriculum holus bolus overnight. They are fully aware that there might be problems. But if people of sincerity undertake studies and if they plan and organize them thoroughly and in a convincing manner, teachers do not foresee problems. They are largely of the opinion that the society they are serving only wants to make sure that there are good reasons for doing it. People are logical and need only acceptable explanations. The teachers suggested that introducing values in science classes can start as extracurricular activities, such as clubs. There are some teachers and active students who run different clubs and it is nothing short of amazing what they accomplish in those clubs. Despite their poor performance in formal classes, students do impressive work outside of class or as members of different clubs. Arguably, it is possible that projects of spirituality in science could also take off successfully if started in clubs.

**Attendance, Class Size and Pedagogy**

Another interesting development in Ethiopia is the expansion (mass extension) of education to all levels. This development runs parallel with the erection of more school buildings and the elimination of the shift system, the training of more teachers, and the supply of more materials to schools. In the school where I conducted my research, the teacher/student ratio has
dropped by half. Some teachers used to teach as many as 96 students in one small classroom, whereas now, there are some 45 students in each class. Based on my observations, many students do not attend classes. I observed on many occasions fewer than the average number of students who were supposed to be in attendance in class. I was told that teachers cannot punish students for absenteeism. The school administration encourages teachers to talk with students and try to convince them about the importance of attendance. Latecomers are allowed to enter class, so there are no strict rules regarding absence and late arrival. Whenever there are interesting events outside the school, students do not feel obliged to show up. For example, when there is a famous movie playing in the theatre, many students do not come to school.

A different trend in terms of attendance and participation is when there are events and holidays in the school or when out-of-school events are prepared by the school itself. When some extracurricular activity is taking place, students show up in large numbers and participate actively. In fact, all participating teachers agreed that students become more interested when teaching methods and topics are varied, as in “The Pedagogy of the Oppressed.”

In a lesson where they can participate in all aspects, from planning to implementation to evaluation, in activities where there are physical performances and real mental work, and in a situation where they feel spiritually satisfied, students become mindful and learn better. The examples of students’ performance in the extracurricular activities around Nation and Nationalities Day—similar to Culture Day in some schools in Canada—bear this out. It is ironic that Ethiopian educational policy encourages active learning, a student-centred approach, and problem solving education, but there are no appropriate strategies in place to promote these goals in the classroom. Based on the stories told by teachers and students, Plasma TV kills all the
grand objectives set for education. The only available avenue for achieving these objectives is extracurricular activity, which tends to be informal, not well planned, and inconsistent.

There are some important lessons to be learned from the success of the Ethiopian Baha’i Junior Youth learning groups, as we see in the story “From a Gnat into an Eagle.” These lessons include the capacity for spiritual transformation of oneself and the community at the centre of learning, small group activities with maximum participation from the children, more hands-on approaches, and the design and implementation of service projects. In addition, as we see in the story “The Role Model,” parents need a practical demonstration of the honesty of the initiative and the quality of the teachers.

It is also important to remember that all the recommendations in the preceding discussions rest for their effectiveness on the importance of having well trained teachers, in size classrooms with a moderate number of well attending students.

Show the Controversies: Background of the Values

One of the causes of tension in the classroom or with the inclusion of values is when they are imposed, or when they are taught simply for the sake of teaching values. In such situations, students do not see a reasonable context or realize the need to learn about values. But, as Weiler (2001) has stated, there are deliberate efforts being made by publishing corporations, research organizations, institutes of higher education, and testing services to privilege one form of knowledge or value over another. In my view and in light of my observations, science lessons can be conducive to providing the context for privileging certain values. That is why teachers need to be aware of this state of affairs and be able to counteract privileged postcolonial attitudes. Since we have already discussed that science cannot escape from its founding values or from promoting them, (see Chapter 2, The History and Philosophy of Science), it seems wiser to
make a conscious choice and to work with the values that are cherished most by local people. As stated earlier, teachers can help students understand the situation and may use examples for this purpose, from the history of science.

We know that most scientific discoveries are surrounded by controversy. I have already mentioned that the science historian Kuhn (1970) speaks of how science grows from crisis and controversy. Any scientific discovery has a history of how the innovators interacted and how they arrived at decisions. The commitment, courage, loyalty, and truthfulness with which the decisions were made and carried out are shrouded in intrigue. As expressed so vividly in the story “Whose Culture, Whose Spirituality, Whose Scientist?”, when teaching about scientists, we are telling stories that transmit values. Unfortunately, the teaching of science in Ethiopia is focused on the memorization of facts and information and the development of a few skills, but there are no debates or discussions that would encourage controversy. Moreover, the open discussions of local values in science class is either totally absent or minimal at best.

For example, when teaching about blood circulation, we can mention William Harvey, who explained it properly for the first time, improving on the Greek conception (Ribatti, 2009). But he raised a furor in Europe for introducing this new idea. Examples of his life and those of others can help us teach the values of tolerance, empathy, courage, and the independent investigation of truth. In science, students need to learn, more than anything else, to be open and see things with the eye of possibilities. As Nashon (2003) writes encouragingly, it is possible to combine controversial and cultural issues in a multicultural physics classrooms. He states:

Teachers might also consider the idea of 'a physics box': Students write down problems, issues, and solutions to physics-related subject matter and place them in the box for consideration by the teacher. In addition, students write their traditional (cultural) explanations for natural phenomena and a time is set aside during the week when the whole class can react to some of the controversial ones. Controversies to be discussed in
such a class may include values in science, truth in science, and the question of objectivity in science. (p. 343)

Future scientists do not have to oppose an idea just because it does not repeat an older one, or because the idea seems to go against some popular notion. We can be as creative as possible in listing every scientific topic and thinking how values can be integrated into each one. In fact, going one step forward we can ask students to dramatize, write poetry, compose songs, or paint a picture illustrating the concept they have learned.

In my interview with one of the curriculum expert, I was told an Ethiopian proverb which can be a good starting point for the discussion of values in science. When a teacher presents the physical state of matter in chemistry, she can mention the Ethiopian adage *Wuha biwokitut emboch* [literally translated as “if you pound water over and over again, you will still hear the same sound”]. People already know that one cannot either compress or break down the water. In chemistry, we know that water particles are already compact and cannot be compressed like gasses. The proverb can be used in relation to someone who does not listen to advice, just as water does not change a bit if you beat it. Having heard the proverb and the context in which it is told, students can discuss the physical and spiritual properties of change and transformation.

Though the expert admitted that there are no formal efforts to make a listing of our best traditions and include them in the curriculum, he did acknowledge that there are many issues we might study and bring into the curriculum. Some teachers across the country might already be tapping such local wisdom in their classrooms. Officially, there are efforts being made to do some integration at the primary school (regional) level. At the start of my data collection, I was told that the social studies curriculum framework is sent by the MoE to the regions, and that experts at the regional level then have the authority to consider their application in the local situation. They start from the locality, the district, and grow to the region. There was also an
attempt to include mention in the courses of famous personalities, at first those known locally, then at the level of the district, and finally regionally. Well known elders, religious figures, and famous personalities of the area were to be studied in the school. Students were asked to do some research about why those people became famous.

Students also study at primary school famous landmarks in their locality and region. They are asked to study the churches, mosques, or other historical places in the vicinity of their school. The MoE deliberately set up the framework of the primary school curriculum so that children would know and understand their own localities first, and then progress from there. This model of a decentralized curriculum should have been followed until university level. Unfortunately, at the end of my data collection, I was told by experts from a regional educational bureau that the mandate for developing their regional curriculum was revoked for reasons they were not informed of.

Yet, in a general sense, the theoretical importance of integrating spiritual and cultural values into science education has been accepted by curriculum experts, policymakers, and teachers. The problem is one of capacity and the expertise to do it. The school curriculum was compared with imported British, American, Russian, and German text books. No one bothered to adapt or create new ones. Nonetheless, the curriculum experts say we have come a long way in our efforts to take ownership of the process of curriculum development. There is participation in the process of developing the curriculum framework, and in writing and editing the text books. In my observation of the main office buildings of the Ministry of Education, I came across German, Italian, American, British and Netherlands citizens all trying to “fix” the Ethiopian education system in their own ways.
Balance between Unity and Diversity

One of the challenges in developing a school curriculum is striking the appropriate balance between the local and the national or universal, between the old and the new, between integration and specialization, and, most importantly, between what is common to all and what is unique to diverse individuals or groups.

It has been repeatedly said that Ethiopia is a country of widely diverse ethnic groups, most of them having their own language, spiritual, and cultural traditions. If the curriculum addresses one type of ethnic food, others may feel rejected and becomes angry (see the story “Whose Culture, Whose Spirituality, Whose Scientist?”). Though treating all ethnic groups equitably is vitally important, it is not easy to bring everyone and everything into the curriculum.

In fact, at present, there is a sense of competition among the different ethnic groups in the question of representation. Who is represented most or who is dominating the national scene has become a question everyone is asking. The fear or the tension is that if curriculum experts bring every possible value and tradition into the curriculum, the learning process becomes overburdened.

There must be an innovative approach to represent all while maintaining balance. It might be easier to do it at the lower grade levels. It is easier to talk about the family and the locality with first graders. Then one can talk about the zones and districts for the second and third graders. There is no opposition at that level, if you talk about local values. There will be no complaints about learning the values of people not of the locality. But as the child grows and enters higher grades, let us say 4th Grade, teachers will be addressing children who come from three or four different localities. At that point, teachers cannot talk about one locality only; they have to be able to talk about the region or the province. By the time the students reach high
school, lessons take on a national flavour. Regardless, my observations confirm that the curriculum experts need to be retrained and foster more openness to other experts in other fields in their efforts to identify those most appreciated values that can be brought to the curriculum. In more practical terms, for example, when one draws a sketch of a farmer, if he is wearing a short or longer pant it is easy to identify whether the farmer is from central or west Oromia. If the farmer is from Harrar (in east Oromia), the farmer will be depicted wearing a skirt shirrit.\textsuperscript{35} When one talks about animals, it would be about camels in Harrar, but about donkeys in Wollega, as these are the most familiar pack animals in their respective regions. A farmer in Wollega (west Oromia) might never have seen a camel in his life. So, in a national curriculum, if a teacher talks about camels, the Wollega area farmer could well ask what a camel is. Furthermore, the farmer from central Oromo (Showa) is culturally closer to Showa Amhara than to Harrar Oromo, because of its geographical location and many years of interaction. The Showa Amhara and Oromo share more in their physical characteristics and religion than is shared by two Oromo groups. In the same way, it may not even be appropriate to set a regional curriculum based on the sharing of common language.

In large cities like Addis Ababa, where there is heterogeneity in every aspect, the teaching of common values could become even more complex. An example given by a curriculum expert is the way girls are expected to do their hair. In earlier times, it was generally expected that girls’ hair must be clean. School administrators and teachers were careful to make sure that all girls wash and comb their hair, keep it neat, and come to school without a veil. Currently, Muslim girls have the right to cover veil their heads, whether they are clean or not. If one were to make a policy or rule against this practice, it would cause a commotion. Muslims

\textsuperscript{35} A type of loose clothing worn by most people in Ethiopian lowlands by wrapping it around the waist.
wear veils in the name of Islamic values. No one challenges this decision. It is a right that is respected and accepted. No one dares to tell a Muslim girl to remove her veil.

Moreover, every Friday after 11:00 a.m. no one can force Muslim students to attend class, unless it is of their own will. Friday after 11:00 a.m. is the time of Jumu’ah, when Muslims say the longest congregational prayer. Even the Plasma TV schedule has taken this into consideration. Therefore, as more religious and ethnic groups become more sensitive and concerned about their religious and cultural values, classroom practices and pedagogy become challenging. The teachers have to be very careful not to offend any ethnic or religious group. In fact, city students are generally more flexible and tolerant, in the face of the wide diversity.

In areas where one finds a “close relationship among the Ethiopian tribes . . . founded on inter-tribal marriage and migration” (Retta, 2003, p. 6), one might be able to set a common curriculum. Capitalizing on this Ethiopian commonality, Retta (2003) claims:

Well, as you could see, in the course of our millennia of interactions, we have changed and exchanged as much material goods as biological blood and spiritual habits! Ethiopians, as tribes and as individuals have been in a process of continuous and multifaceted interactions—of which a shared culture and a way of life has inevitably evolved and handed down to us all—the heirs. (p. 13)

Another perplexing issue for curriculum experts is how and when to create balance between integration and specialization. Much indigenous knowledge, including that in Ethiopia, emphasizes the importance of an integrated approach to knowledge, whereas specializations in current Western science produced many benefits in such fields as medicine and communication. The question is left open for curriculum experts and researchers to decide the appropriate time and context for the integration of and specialization in different subjects. It is also worthwhile investigating whether the concepts are not mutually exclusive. It may be possible for one to lead to the other or for both to occur simultaneously.
Identifying and Easing Sources of Tension

The focus group discussions helped to illustrate the tensions that could arise if we
wanted to implement some of the best ideas for restoring local spiritual and cultural values into
science education. In fact, during the FGD, most of the time was spent discussing the importance
of belief in and fear of God, as revered in the Ethiopian way of life. Though there was consensus
that the curriculum should not exclude the concept of God and the teachings of religion in any
way, there was disagreement as to what it means to include God and religious teachings in the
curriculum. The discussion centred on weighing two options: whether to set up a separate
religion class, or to integrate the concepts along with all other subjects.

The student, the teacher, and the curriculum expert were all three in favour of identifying
important spiritual and cultural values and integrating them in existing subjects in an “interesting
and professional way,” whereas the parents and the elders took a long time trying to “convince”
the rest of the participants that religion—as exemplified by the fear of God—should be taught
separately for students based on our traditional schooling. Their argument was that “religion is a
foundation for everything. People without religion are people who do not know their purpose in
life. When the vitality of religion dies, people become corrupt, and social and economic
development are arrested. Therefore, the teaching of religion should start early and run through
the university.” The first group argued that “the curriculum has enough burdens already. There
are more subjects than the students can study. Moreover, there are different religious groups with
different interests and the school will have a problem to decide which ones to include. But if
everyone comes together and identifies what are important values to include, experts may then
be able to integrate those same values into the rest of the subjects.”
There was also disagreement about whom to include during a discussion of integrating religious teachings in the curriculum. “The priests and the sheiks are not academically educated and may not understand the subtleties involved in school curriculum; and they may also have their own expansion agenda to push,” a major argument advanced; but the curriculum expert said, “we cannot do much in this respect without letting the ‘owners’ (leaders) participate in the affairs of religion.” Then the teacher suggested that “there must be other countries with similar experiences, so we can always learn from the experiences of others, if there is willingness from the government side.”

**Inconsistent Educational Philosophy**

The idea of having a consistent philosophy in education goes as far back as Tylor’s 1949 book *The Basic Principles of Curriculum and Instruction*. According to Tylor, educational philosophy must reflect the values of the society in which it operates. Moreover, the objectives and methods of education have to be in line with this same philosophy. Evidently, the Ethiopian government philosophy of “revolutionary democracy” is an effort to tailor philosophy to the local condition. As commendable as this effort is, it raises the question of how much the philosophy is consistent with or reflects what the Ethiopian people believe and practice. In a society in which the words and some of the principles of “revolution” and “democracy” are strange, reinstating the philosophy seems to be an imposition. Where students, their parents, and teachers are not on the same playing field with the government as regards philosophy, there are apparent tensions in homes and in schools. Even in Ethiopian recent history, where the principles of communism tried to rule out the values of the people, there was resistance everywhere until the word communism itself disappeared from the Ethiopian vocabulary. Once again, this reminds
us of the importance of getting to the heart of Ethiopian divine philosophy itself and exploring the possibilities of its impact on the education system.

**Summary**

In this chapter, I presented stories which I thought would shed some light on the research questions I put to the research participants. At the beginning of the chapter, I explained how I came to collect, organize and analyze the stories generated through interviews, observations, and a focus group discussion. Following is a summary of the findings and analysis highlighted by the stories:

In the Ethiopian spiritual and cultural realm the word *Egziabher* (God) and its invocation is common in both personal and communal relationships. In this realm, culture grows out of the belief in and fear of God and the spiritual teachings associated with God and the sacred writings. Whether making coffee or brewing local drinks, the objective is to offer hospitality as one signifier of the merger of spiritual and cultural values.

Along with the belief in God, Ethiopians also have a high sense of the sacred, which includes churches, mosques, holy water, saints (monks, priests), guests, the spirit, and figures of authority. Obedience to and celebration of saints, authority figures, and holy days are justified as an expression of love and respect for the teachings of God.

To Ethiopians, the belief in God also means acceptance of the existence of powers or energies invisible to the naked eye. Such forces as spiritual, gravitational, magnetic, and divine are manifestations of such a metaphysical existence. That is why *Tewahido* [the art of blending the visible and the invisible] is not only a matter of faith to many Ethiopians, but also an expression of nationhood. It is the balancing and merging of the invisible forces with the physical realm that creates and sustains Ethiopian civilization. When one existence overwhelms
or takes precedence over the other—energy over matter, or the physical over the metaphysical—civilization disintegrates.

Accordingly, Ethiopians have always believed that human education and development should be a reflection of spiritual life, a positive thought, and a synchronization of self with the universal. Science that is spiritually and morally grounded has been at the heart of its culture and way of existence. Traditionally, spiritual education has been the centre of the Ethiopian universe and affected many aspects of individual, family, community, and institutional life. Currently, my research showed that there are no moral teachings in Ethiopian public schools, and, as indicated by some of the stories, this gap has created a grave crisis, both in education and in development. The present-day secular education has resulted in the erosion of moral qualities in citizens, replacing them instead with pride and egotism.

Aware of some of the reasons for the failure of education, the Ministry of Education in Ethiopia is reassessing the role of religion and is currently working with religious groups to develop a document that explores the essential teachings of all religions. Based on the contributions of key informants, such spiritual qualities and cultural traits as being truthful, committed, trustworthy, faithful to yourself, family, and country, having a sound work ethic, and patriotic love—once considered the warp and woof of Ethiopian existence—could be on their way into the curriculum. The generational and moral gap engendered by the ideology of communism and secular education will, hopefully, be addressed in the near future.

While efforts are underway to make curriculum documents relevant, engaging, and rooted in local realities, there is also a need to revisit the pedagogical strategy that uses Plasma TV in teaching secondary school subjects. It has been stated that the use of Plasma TV to teach subjects has prevented any kind of meaningful discussion of local values in the classroom. In
contrast to Plasma TV classrooms, students participate and achieve more when engaged in out-of-class extracurricular activities which place a value on students as individuals. Therefore, teachers and curriculum experts have more work to do to revise Plasma TV instruction, so as to balance it with other teaching methods.

As the work of revising and contextualizing the curriculum and pedagogy proceed, it is vital that we raise the capacity of teachers to meet the demands of the new curriculum. This research has shown that one of the failures in the currently used course on civics and ethics is the lack of teacher role models, that is individuals who “walk the talk.” In fact, due to the limitations in the subject matter and its delivery, the civics and ethics course is perceived as the political agenda of the government, and resistance to its objectives and lessons has become an element in protests against the government.

It has been observed that the ethnic and geographic diversity within Ethiopia and the mismatch between the views of policymakers and local people create a spectrum of different tensions and obstacles in the effort to bring values back into schools. Through universal participation, careful planning, and consultation, there is hope that the curriculum, pedagogy, and teacher training in Ethiopia will be improved with less tension. Such measured steps also help to ease tensions that might arise among the different curriculum stakeholders when reform takes place.
CHAPTER V

THE MORAL OF THE STORY

Strength: Put your soul in the habit of patience as regards all difficulties and make her toil upon all actions for the sake of God, for your making her work will be like a mountain that does not shake. It will save all that stand by its side and will avoid destruction.
—Ethiopian Philosophy (Sumner, 1974, p. 51)

Background

In the Ethiopian context I was referring to, after a story is told and conversations conducted around the fireside, one goes to bed and meditates on the moral of the story. Tomorrow is another day and one has to envision and plan it, based on the story and conversations just heard. The following chapter is written with that similar envisioning and planning thought process in mind. Others might have preferred to call it the conclusion and recommendation. It is presented after the manner of the fourth synthetical stage in William Pinar’s (2004) four moments in the method of currere, that is, writing the future, after analyzing the past and the present (p. 37). It takes into consideration the challenge of the alternative theoretical framework Sankofa, in which we are encouraged to “return to the source and fetch” (Tedla, 1995, p. 1).

As discussed in the first chapter, because of my personal background and the perceived needs in Ethiopia, my research has focused on asking and finding answers to four major questions. Accordingly, in the autoethnographic tradition - based on the interviews, observations, focus group discussions and mediated by my own biography - I have come to the following four major conclusions:

1. Ethiopians perceive and practice spiritual and cultural values as one and the same with the belief in and the fear of God. They believe that any civilization and
achievement they had as a nation were the results of the divine philosophy and teachings they practiced.

2. Ethiopians believe that their way of life is rooted in spiritual teachings (sacred writings) and their association with the three major monotheistic religions makes them unique among other nations. When they stand together and worship God, they are inspired to do good and resist foreign influence. When they turn away from God, He punishes them and they feel the need to ask forgiveness in order to avoid His mea’at (chastisement).

3. Due to the elimination of moral education from the school system, all mention of divine teachings was forced out of the schools. Divine teachings were replaced by communist-inspired ideology and civics education, both of which contributed to the disappearance of moral values.

4. Though there is an interest in restoring local spiritual and cultural values in the formal education system, the process of accomplishing it may lead to certain tensions. Ethiopia’s broad ethnic, religious, and geographic diversity may make it difficult to incorporate some values and leave out others. Moreover, the idea of secular government and education is another source of tension as spiritual teaching is introduced into the curriculum.

Based on these four conclusions, I would like to offer a number of recommendations concerning what must take place in reforming Ethiopian education so that it is grounded in spiritual and cultural values. First, I will offer a vision that serves as a guide to the future and, following this, strategies that can be implemented to achieve that vision.
Vision of the Future of Science Education

A careful perusal of the stories shows that there is a strong consensus among research participants about the possibility that education in general and science education in particular can transform the country if properly taught and studied. Scepticism sets in when people begin thinking about such factors as the willingness of the government, the lack of expertise, commitment, and perseverance to carry it out. Regardless, a curriculum by Ethiopians for Ethiopians, whose lessons can easily be understood and practiced is considered to be a viable project for the future. There is little doubt that citizens who are well educated in such a curriculum would be better able to contribute to the country’s development.

Moreover, the participants not only agree on, but are convinced of the urgent importance of recapturing, before it is too late, what is positive from the past, as we move ahead into the future. It has been repeatedly said that traditional education in the churches and mosques and the morals class during the regime of Emperor Haile Silliasie gave earlier generations the spiritual and cultural framework enabling people to live for each other and work for the common good. As noted in all the stories retold above, this framework was bounded by the belief in and fear of God, and was animated by respect for parents, and love for family and country. This is in harmony with the conclusions of Marsh (2009) when he writes saying “belief in a high god, creator of the universe, is almost universal in Africa” (p. 277). Owing to this, a profound respect for authority figures and for teachers and their work permeated the educational system. People had sufficient humility to listen to and obey the teacher, to strive to demonstrate capacity, and to please her. The intention of those who graduated was to stay in the community and bring about change.
As we go forward in reforming the curriculum there is a need to restore moral teachings in the classroom, and as it used to be in the traditional education to make “the fear of the Lord” “the beginning of wisdom.” The teaching of morality cannot be carried out without the foundational concept of God, because it is the fear of God that keeps people peaceful in times of difficulty. In the Ethiopian context and mentality, civics and ethics education cannot take root in the absence of the belief in God. People may learn about love or how to love, but unless they know the source of love, they cannot develop it.

More importantly, people are motivated to understand and to take care of their environment when it comes as a religious instruction. Therefore, the future of science has to be explored from the perspective of the type of moral, that is, spiritual, education to be offered in schools.

In order to explore the possibilities and strategies of a new kind of science education in Ethiopia, some challenges will have to be met and new measures taken. Below, I will discuss the major challenge that we may face in creating a new vision, explore the vision itself, and then elaborate few recommendations for future action.

**The Obstacles of “Secular Government” and “Secular Education”**

The Ethiopian government claims that it has nothing to do with religion. As a result it calls itself a “secular” government with a policy of “secular” education. But as we watch closely what happens both at the government and school level, we can see that there is lack of proper understanding and practice of secularism.

First of all, the philosophical concept of what is secular in both government and in the lives of individuals is contradictory in the context of an ocean of people who are deeply religious. Whatever we do has a context: it either favours or dismisses a particular religion or all
religions. Therefore, while our every action affects religion and religious people, it is difficult to believe the assumption that one can ignore the issue of religion.

There is also an interesting paradox in the Ethiopian government’s approach to its policy on religion. It claims to be an atheistic government, while most people in government circles claim to be either Orthodox Christians, Muslims, or Protestants and favour these faiths as such. Religious festivals such as Christmas, Easter, Eid al-Adha, and Eid ul-Fitr are enthusiastically celebrated in the country as national holidays, including by the state-owned media. The media is full of content celebrating these holy days and entertaining their respective followers. Therefore, what the government claims to be and what it actually does are contradictory.

My research findings indicate and possibly urge the government to move in the direction of what Roberts (2000) called “a new twenty-first-century style of thinking that takes us beyond not only the modern but also the postmodern, [into] a new postsecular stage” (p. 162). The government’s philosophy and policy of education must, therefore, be rooted in the belief systems of the Ethiopian people.

Moreover, based on what one research participant said earlier, religions are not treated equally before the law, as was the expressed intention. For example, some dominant church groups simply take possession of a plot of land, erect barriers and build churches or mosques without any legal process concerning the ownership of the land. While other minor religions or sects struggle their way through all the bureaucracy hurdles to get a legal plot of land, others proceed to build churches or mosques illegally and no one dares to stop them. Some, in the spirit of true religion, insist on following the legal path and then abide by the result, while others, on the strength of their numbers, take possession of land unlawfully. One research participant called this practice politics at play. If, then, the government takes legal action on the matter people
become angry and refuse to vote for the government in a subsequent election. For reasons of political benefit, the government compromises the rule of law. If the government were truly “secular,” it would have treated all the religions equally. No religious group should be in a better position to obtain more property or time in government offices.

In summary, there seems to be a fallacy in the philosophy that government and education can be secular. Taking this and the first three stories in Chapter IV, I argue that the idea of secularism is strange to the Ethiopian way of life and should be examined critically.

The Vision of “Ethiopianism”

It seems only fair that, in order to create a presence and unique voice on the international stage, Ethiopia must have strong image and reality. In the same way that DuBois (1903/1999) comments about the southern United States, “Strange to relate! For this is certain, no secure civilization can be built in the South with the Negro as an ignorant, turbulent proletariat” (p. 74), no viable international civilization can be built while a strategic country like Ethiopia remains ignorant and poor. The storytellers in “The Encounter,” “Us and Them,” and “Loyalty,” acknowledge that to create a strong image of Ethiopia by building on the past will not be an easy task. It may not be possible to do this without having a common national vision. Such a vision must embrace a national sovereignty, which is based on an identity animated by justice and equality for all the diverse tribes within the country. Within our tribal identity and local culture, there must be an awareness of the commonalities existing under the umbrella of one Ethiopia. We have to promote the national unity of Ethiopia that views its constituents as parts of a beautiful mosaic. The curriculum must serve this end. This is what Ethiopianism means to me.

Without such a vision for Ethiopia, we may not progress very far, and we will continue to be and appear weak in the eyes of other nations. Our parents and forefathers protected our
freedom and our identity through their heroic deeds. They fought with Italy and other invaders so that we may remain free. As mentioned in Chapter 1, Ethiopia was and is a symbol of freedom among black people of the victory won over the colonizers. Ethiopians have a proud legacy upon which they can build a special curriculum based on their own history.

**Recommendations**

Based on my literature review, the personal experience I had as a member of my profession, the data collected in researching the Ethiopian education system, and the findings of this research, I will now propose a number of recommendations for the future direction of Ethiopianism, for the improvement of education in general and science education in particular.

**Reorganizing Science Education**

The stories in each section called Story Time bear out Lample’s (2009) conclusion that revelations in the sacred books constitute one form of knowledge generation and application. In most sacred texts, we see knowledge and wisdom referred to as gifts of God and their acquisition a requirement and a sign of faith. The Quran states:

Recite in the name of your Lord who created
Created man from a clinging substance.
Recite, and your Lord is the most Generous
Who taught by the pen
Taught man that which he knew not. (Quran, 96:1-5)

Baha’u’llah (1976) places particular emphasis on the importance of learning and knowledge: “Knowledge is one of the greatest benefits of God. To acquire knowledge is incumbent on all” (p. 171). According to my observations, religious books which encourage the pursuit of knowledge do not contradict the acquisition and practice of scientific knowledge. In

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fact, it is my understanding that God requires us to understand the universe and to discover how He created the world and the laws according to which it functions. In this light, religion becomes the motivation to acquire knowledge and wisdom and then constitutes the standard against which we measure the purpose and the meaning of the knowledge acquired. In an epistemology that takes religion as motivator and standard for acquiring knowledge, it may be necessary for us to revise our subject matter or create different ones from those we now offer in the schools. The data convinced me that the lessons in these subjects must reflect the harmonious interplay between science and religion.

Consequently, reorganizing science education from the perspective of religious values requires that we release ourselves from attachment to the traditional science subjects. The new science curriculum could reflect a relatively new subject matter whose philosophy, objectives, content, method, and assessment are studied using innovative pedagogical approaches. In this way, the current scientific methods will become tools learners use as they engage in the questions of what God and creation are and what the purpose of life is.

More practically and specifically, science education—if we do not call it by another name—must be about how local people understand and transform their local situation based on their practised religious and cultural values. It seems inappropriate to talk about science education before education itself assumes the right place in the country. That is why my whole thesis revolves around the importance of rebuilding education in general as well as science education specifically. As discussed by Tedla (1995), when explaining the concept of Sankofa, this rebuilding may call for the rediscovery and the reintegration of previous and current cultural and spiritual forms of knowledge and enlightenment into the study of the physical world.
In this regard, the subjects to be developed, taught, and learned may not be identical to those science or religion subjects that we know now. Such new subject matter will have to be a type of praxis that aims to understand and transform both the physical and spiritual nature of human beings, the energy that flows between these two natures, the process of developing this energy, and the objective of doing all of these. My view of the role of this subject is that it should examine, conserve and/or transform the traditional Ethiopian psyche.

It goes without saying that such a recreation of the subject or praxis will have to be accompanied by a new approach to teacher education, school structure, classroom management and program evaluation. Moreover, in such a holistic educational approach, I feel there is no strict division between critical analysis and whole-hearted acceptance and submission, between intuition and observation, between real action and experimentation, between silent reflection and engaging in dialogue. In other words, the wall between science and spirituality collapses. Science becomes a scaffold to spirituality, while spirituality becomes a standard for science. As Roberts (2000) suggested, it is time that Ethiopian physicists and mathematicians also become open to the possibility of God’s existence.

Nonetheless, the detailed program will have to be developed with the full participation of all curriculum stakeholders, including experts in the area. In summary, such a science education needs to reaffirm what Abdi and Cleghorn (2005) stated as a culture of schooling that attends both the social and the personal experience of the learner.

**Frameworks for Reorienting Science Education**

Based on my personal experience, described in Chapter 1 under the heading “The Researcher,” one successful experience with a framework which the Ministry of Education might be encouraged to emulate in Ethiopia is the Community Based Education (CBE) Program at
Jimma University in Ethiopia. Since I served as coordinator of this university-wide program and participated as a supervisor and mentor, I can recommend the CBE enthusiastically, knowing firsthand that it illustrates an excellent match between its ongoing activity and my research outcomes. According to the University’s official website:

Community-based education (CBE) is a means of achieving educational relevance to community needs and consists of learning activities that use community-oriented education programs. It consists of learning activities that use the community extensively as a learning environment, in which not only students but also teachers, members of the community, and representatives of other sectors are actively engaged throughout the educational experience.\(^2\)

In brief, the CBE consists of a program in which students go to the community with their teachers and engage the local community in the discussion and planning of various issues of common concern. Then the students come back to school, finalize the plan, make presentations, and receive feedback from their teachers. They then return to the community to implement the plan and monitor its progress. Briefly, in the words of one of the founders of CBE and my personal friend Asefa (2008) “the community-based education takes learning out of the classroom to the community setting” (p. 110). In this way, the students are able to ensure that the local community is consulted and its values incorporated.

Such community-based education is in complete harmony with the findings of Gitari (2009), who describes how science topics were streamlined into the curriculum in the context of Kenya:

Participation in a community development project should be structured into the high school curriculum. Following [formal studies], each student should be required to spend a stipulated number of hours serving the community in an aspect that requires the use of scientific knowledge. Such community projects would involve youth in, for instance, forms two and three; and their performance in the project would count toward their high school certificate. The youth would contribute to development projects such as the reclamation of a local river. The necessary science concepts from the science syllabi

would be incorporated into the project’s objectives. Youth and adults would work under a village scientific literacy project leader. The project leader would be part of a committee composed of key stakeholders from within the communities and science teachers of local secondary schools. (Science in Africa: Africa’s first on-line science magazine)

Also to be used as a possible model are the MoE’s consultations with various religious groups to find what values need to be known and respected (see the story “An Official Voice from the Ministry of Education”). The MoE facilitated the development of the unofficial document on values, while the religious institutions took responsibility for identifying the values that the community cherished most.

Yet another fine example of a consultative process between the educated elite and the local community is that set by the Institute of Sustainable Development (ISD). This institution was established by two of my undergraduate studies professors, Tewoldeberhan Gebregziabher and Sue Edwards. Its main purpose is to pursue sustainable development, primarily in Ethiopia, by empowering local communities and helping them build on their own sustainable development practices. I had the honour of visiting both professors in their respective offices and interviewing some of their staff during my data collection in Addis Ababa. One focus of the Institute is developing a program for enhancing the links between cultural diversity and biodiversity through assisting teachers and students to understand the value of local, indigenous biological variety in sustaining cultural traditions, local lifestyles, and endogenous production systems. The strategy the Institute uses to achieve this objective is to take students to the local community and help them learn from elders and local experts. Once the students return to their school, they make use of the local knowledge they acquired in building actual materials and models. One excellent example shown to me was the local grass plate used by villagers for serving food. To make this plate, the local experts collect a particularly strong grass grown in the

3 http://www.africanbiodiversity.org/content/isd_institute_sustainable_development
villages. It is then dried, split, and woven into plates. There is an entire culture built around the collection, preservation, dyeing, weaving, and selling of these innovative grass plates. In order to preserve this culture, the grass must be available to sustain the culture to which it has given rise. Furthermore, the sustainable development program also serves to protect plant diversity, including that of other species used for the local medicine, art, and music.

In summary, the framework to reorient science education in Ethiopia must be founded on continuous and spirally alternating segments of study, action, and reflection. Thus, as shown in Figure 3, a curriculum is not a finished product, to be prepared and delivered like a physical material. Rather, it is a living process in which students, teachers, parents, and other stakeholders are engaged in continuous study of an issue, in implementing and experimenting with insights acquired through study, and then reflecting on the lessons learned during the experimentation. Lessons are documented and learning continues in a similar cycle again and again. This cycle must then be maintained with consistency and intensity, until what we can call an Ethiopian Science Curriculum can be put in place for Ethiopian schools. Such an effort also reflects the living nature of culture and its strong relationship with “systems of knowledge, technology, and education” (Cajete, 2000, p. 3).

![Figure 3. Curriculum is not a finished product.](image_url)
Decentralized Science Curriculum

Like primary schools, secondary schools and universities also vary in their context. Though there should be some sort of similar topics across the curriculum, each secondary school and university must be allowed a certain degree of independence so as to maintain curricular sovereignty. As discussed earlier in relation to the story “Whose Culture, Whose Spirituality, Whose Scientist?”, it is only when students are helped to understand and transform their particular environment that they want to stay in that environment. Though the inclusion of some common spiritual beliefs and values unite them nationally, there may be variation in how these beliefs and values operate in each locality. Lessons are expected to cater to both common and specific environments and attributes of the people.

In order to successfully understand and transform the environment, the same people can apply some of these transferable methods to understanding and transforming other environments. The issue here is how to be global when thinking and acting locally. When trying to incorporate local values into science education, there can be as many types of science education as there are different localities with different values. Therefore, if we truly want to break away from colonial attitudes, we need to create a more decentralized curriculum. Such decentralization also helps localities free themselves from national governments that exploit education for purposes of remaining in power. The commonalities among small localities and science education may ultimately create the kind of universal knowledge that every child should be learning in every school.

Integration of Subjects

As we have read in the story “The Pedagogy of the Oppressed,” there appears to be a disconnect between local values, students’ interest, and what is going on in the classroom. It was
clear that the pedagogy currently used does not allow time for meaningful teacher-student
interaction or discussion around spiritual and cultural values. Moreover, there is often a tendency
to try to teach everything and, as a result, introduce so many subjects that the students do not
have time for more extracurricular activities. Therefore, it is essential that schools rethink the
types and the ways they prepare and deliver subjects or the way the “Study-Action-Reflection”
program is organized.

One way to avoid an overload of subjects and ensuring the necessary time to entertain the
question of values is to create well integrated subject matter that includes different kinds of
knowledge. In fact, there are considered views that propose that there should not be a
fragmentation of subjects in the first place: for example, Islamic and Baha’i views of knowledge
confirm that knowledge is a single point which the “ignorant have multiplied” (Baha’u’llah,
1991). In other words, as this concept explains, we can learn about the ocean in a single drop of
water, or about the sun by smashing the atom. There is no need to bring the whole ocean or sun
into the classroom. According to a Persian mystic poem: “Split the atom’s heart, and lo! Within
it thou wilt find a sun.” (Baha’u’llah, 1991, p. 11)

The point I am making here is about developing the capacity to discover key concepts
and knowledge threads, around which all other information revolves. Such universal concepts
include rhythm, interconnection, and balance. By helping students understand how rhythm works
in all walks of life, we need to help them to become excellent in many areas when they become
excellent in one.

As mentioned earlier, such excellence in all fields requires that we reassess the way we
think of education and the order in which we deliver it. The best of what we have researched and
learned in the fields of education, psychology, science, and religion need to come together to
explain how the mind works and how a wide range of materials can be covered in a short time.

To this end, as mentioned in the story “The Transition,” it may be time to consider seriously the argument for offering morals classes as a foundation for academic subjects. It is time that we investigate the impact of spiritual values, such as sincerity, purity of motive, kindness, and meditation on the material world. Moreover, as Wallace, Sheffield, Rennie, and Venville (2007) have rightly suggested, integration of subjects requires:

. . . developing leadership capacity across the breadth of the school, providing learning teams with stability and flexibility within a broad and consistent policy framework, building in job-embedded professional development, making a long-term commitment to resource provision, and establishing strong and enduring links to the community. (p. 46)

As an example of how we can consultatively deal with integration of subjects I have attached a brief description of my own experiment done in Addis Ababa, Ethiopia (Appendix A).

**Balance between the Local and the Global**

While teaching all kinds of diversity and including local values into the curriculum, the basic motto children in the whole world should learn is that the world is one country and humanity its citizens. The fundamental oneness of humanity should be acknowledged and practiced, at the same time valuing our diverse cultures and views. These concepts are explored in the stories “Us and Them” and “Loyalty.”

Most people are suspicious of the promotion of local values, because they think it promotes fanaticism and narrow-mindedness. They argue that promotion of values goes against the new spirit of global citizenship. Some may contend that focusing on local problems and solutions endangers the national and international competitiveness of the child, limiting job opportunities. So the question becomes how we can prepare children to serve the people of their own locality, to whom they owe primary responsibility of service, while simultaneously becoming globally competitive and employable? Tapping into the postcolonial theoretical
framework argument, we can also ask whether it is fair to offer the kind of education that makes children flee their locality without understanding and supporting it, only to become a source of wealth to other nations. How insightful is the following statement by Philip Emeagwali (2003):

> We are operating one-third of African universities to satisfy the manpower needs of Great Britain and the United States. The African education budget is nothing but a supplement to the American education budget. In essence, Africa is giving developmental assistance to the wealthier Western nations, which makes the rich nations richer and the poor nations poorer. (The Web)\(^4\)

It is this very issue that makes it so important that we develop vision and the capacity to become international citizens while making changes at the local level. It is at this point that the concepts of love, justice, and service should come into play. For it is not only out of a sense of obligation that graduates should serve their community, but also out of love and the desire to use their energies to transform the community from which they came. It is only just that every person in the world deserves the best: to live a dignified and democratic life. This is only possible when well educated and committed citizens remain in their communities to shoulder the task. To this end, a generation of citizens must sacrifice to make the change, so that the next generation will not have to go far afield to look for better opportunities.

In the meantime, children have to be taught the essential oneness of humanity. They will benefit from knowing that no human being is inferior or superior based on accidents of race, religion, and locality. The international community will also benefit from the realization that the suffering of one people is the suffering of all. The idea that educated Ethiopians leave their country to seek a better life should not be acceptable. Set against the postcolonial idea that education is viewed as an economic investment designed to produce better workers to serve multinational corporations in developed countries (Becker, 2006; Spring, 1998), the use of the

skills and talent of the Ethiopian diaspora should be discouraged for the sake of those Ethiopians who live in dire poverty. I concur with what one of the research participant students said on the topic:

Education is making out of us what we do not have to be and we do not want to be. Not only I, but most educated people want to go to abroad. I just finished 9th Grade and want to go to the USA. Educated people, including myself, are becoming selfish and the good qualities are lost in them. They focus only on themselves. They then forget the mass of the people who paid taxes to educate them. We lost the tax money and our educated people and, as a result, we stayed poor.

In summary, questions of rights versus responsibility will continue to haunt the educated elite of Ethiopia. Questions such as the following remain to be explored: To whom is loyalty owed first: to the whole of humanity, to their country, to their region or province, or to their family? Is loyalty to the world of humanity a feasible project while some work primarily for their national interest?

Focus on the Essentials and the Long Term

When there are at least two individuals opposed to each other in a system, the system divides. And when a system is divided, it breaks down or it does not work. If we want to transform education in Ethiopia and ultimately bring about its development, we may need to heal these divisions without harming those who are opposing one another. People should understand that mikegninet [envy] and revenge benefit no one. As discussed in Chapter IV (after Research Question 2) in the level one analysis, titled “Negative mind set,” people should realize the circumstances that lead to right or wrong action. Our primary objective in education is to help people create conducive circumstances for good work and better living. It is about understanding how a healthy system works and help people to align with the healthy system.

I agree completely with the science teachers who believe that education, particularly science education, has great potential to help people think in systems and with precision. For
example, physics talks about formulae, universal equations, and the universe. It talks about nature in general and about our relationship with nature. Therefore, physics can awaken the spiritual essence in human beings. The science of physics tries to define reality. If there is a Supreme Being who designed and created this vast universe, physics can point us in the direction of pondering that deep question, even though it may not be able to provide precise answers. As the physics teacher discussed so well in the story “Zar’a Yacob Reincarnated,” it is physicists who tried to demonstrate that the experimenter and the experiment are interconnected, and how it is impossible for them to be disconnected from one another. This discovery in and of itself is an indication and a warning. It is the interconnection that gives life to the universe and whenever there is fragmentation, energy and vitality are lost. Fragmentation breaks apart the rich molecules and extracts the energy that holds them together. This observation is similar to what the key informant teacher said about the importance of unity in creating civilization.

Therefore, infusing the curriculum with the concept of the unity between true science and spiritual values helps build better citizens, who can understand both the physical and spiritual workings of this universe. Such people are at peace with themselves and the universe, since they can see the deep interconnection between the physical and the spiritual and the individual and the surrounding environment. If the education system is overhauled in this way, we can raise enlightened individuals, who can build the country, reform the world, and who are happy to sacrifice for the common good. That is where humanity can benefit from the whole enterprise of education.

**Teacher Training**

Problems in our current schools are told partially in the stories “Is This Meto Haya,” “The Pedagogy of the Oppressed,” and “The Role Model.” In all three stories, we observe that
teach... or eliminate problems. In my conversations with teachers and students,
I realized that some of the problems in school—for example, lack of interest in learning—
increase among students as they grow and enter middle and high school. Most students blame the
teachers for not being good. In return, teachers—regardless of their expertise in their subject or
their inability to explain complex concepts—blame the children for not working hard enough. In
my observations, and in the words of George S. Counts (2004), schools appear to be failing to
offer children “the moral quality necessary to quicken, discipline, and give direction to their
matchless energies;” Moreover, they are not giving them “a vision of the possibilities which lie
ahead and endeavour to enlist their loyalties and enthusiasms in the realization of the vision” (p.
30).

It goes without saying that unenthusiastic and poorly trained science teachers are less
likely to awaken enthusiasm. Because the problem seems to be worse in science subjects, many
students, both at the secondary and postsecondary level, prefer to pursue social sciences and the
humanities. It is also partly the reason why the Ethiopian government decided to regulate
students’ choice and forced universities to make the entrance ratio 70:30 between the natural
sciences and the social sciences (Teshome, 2008, p. 53). It is expected that such a decision
involves change at all levels. For example, as part of the strategies to improve science education
in Ethiopia, teacher education overhaul may be needed. There have been different efforts by the
government to improve teacher training. The Preservice Bachelor of Education program in
public universities, the in-service Higher Diploma Program for university teachers, and support
from organizations and donors such as USAID, SIDA, VSO-Ethiopia and UNESCO-IICBA did
much to improve teacher training in Ethiopia. Despite the hurdles in implementing it, there is
now improved understanding of the student-centred approach by teachers. With better training,
incentives to retain trained teachers, and continuous professional development (CPD), it is hoped that teachers will perform even better.

**Medium of Instruction**

One outstanding issue that is not yet resolved in Ethiopia—and generally in Africa—is that of the medium of instruction, as we heard in the story “Us and Them.” Due to historical circumstances—mainly brought about by the invitations from Emperors Minilik and Haile Selassie to import British text books to Ethiopia—English has become the dominant language of instruction in Ethiopian high schools and universities. But as we try to bring local spiritual and cultural values into the education system, there are legitimate questions to be raised on this point, such as: Should we continue using English? Why do we not learn through our own language and learn English as just one subject? Should English continue as a science and technology language, giving a competitive advantage to native speakers of English? Should there be an official national language in countries where there are different tribes with different languages? Can we offer all levels of education in all kinds of languages? Should we be learning another international auxiliary language such as Arabic, Spanish or French? These are questions the responses to which are beyond the scope of this thesis. My intention is to call attention to this grave problem, which continues to haunt science education. I suggest that a series of studies and experiments be done to see how we can use local languages in the learning of science.

**Encountering Tensions**

As discussed under the Research Question 4, reorganizing the curriculum creates some tensions at different levels. In fact, according to Fullan (1993), tension seems to be a natural phenomenon when there is a transition from an old to a new way of doing things. Based on the theoretical frameworks I have used, the interviews, my personal observations, and Fullan’s
analysis, I will briefly discuss here some of the causes of possible tensions which may arise in the context of changes to the Ethiopian curriculum and what can be done to resolve them.

**Identifying causes of tension and resolving them.**

1. **Initial friction when encountering something new.** Based on my observations about Plasma TV and the resistance shown by both teachers and students to its pedagogy, we may say that there has been a negative reaction to its sheer novelty. It is natural to expect resistance to new ideas. Yet, it is out of this same clash of ideas that new things are discovered and created. By the same token, when there is an effort to include spiritual and cultural values, it may not come easily. There are many tribes and religious groups who want to be heard. Finding the commonalities and the differences among them and creating balance would be similarly difficult.

2. **Lack of participation.** As we saw in the story “An Official Voice from the Ministry of Education,” participation is a fundamental requirement for setting a meaningful curriculum. There should be a variety of studies and wider range of consultation. Lack of consultation at all levels leads to what Bickmore (2008) calls “ignoring problems of power and justice” (p. 442). I believe that as long as there is mutual consultation and an understanding of mutual benefit, the problems of power and justice can be addressed and tensions will be reduced. If there is no consultation, even a great deal of explanation does not prevent people from rejecting the best scientific ideas.

3. **Resistance from personnel who built their life and power on the curriculum.** Teachers, school administrators, and curriculum experts themselves see their indispensability in the use of the existing curriculum. Although Counts (2004) encourages teachers to raise their voices to see changes made in the curriculum, the centralized nature of the curriculum already puts power at their disposal. Unless they are happy about the change and are sure that their job is
secure, they will not embrace change wholeheartedly. Moreover, based on my observation of the significant presence of foreign powers inside the Ministry of Education building, their intervention may not be easy to overcome. There are also countries, international organizations, and publishers who have invested millions of dollars in Ethiopian education, with both pure and mixed motives. Therefore, understanding the power dynamics and resolving tensions in this area becomes extremely important.

An example given to me by one of the science teachers is worth mentioning here. She teaches about fertilizers, both artificial, inorganic and natural, organic. In her course, there is no emphasis on the side-effects or negative impact of artificial fertilizers on the soil or on human health. She is well aware and has said that whereas the developed world is abandoning fertilizers and trying to shift towards organically grown plants, we in Ethiopia are in the process of using more and more artificial fertilizers. We continue to import and use materials which are openly declared to be illegal or harmful in the developed world. She asks the question: Will business people, both the importers and exporters, and government institutions who make a living from the importation of fertilizer be pleased if we say “No” to chemical fertilizers in our text books? Will they allow the teaching of a curriculum that goes against their economic interests?


The collapse of communism removed capitalism’s competition, so there is no longer any other organized system to interfere with its spreading everywhere. The internal logic of its own expansion means that a capitalist economy seeks access to resources and markets everywhere, without restraint on the commodification process that tends to incorporate everything else into market exchange and monetary valuation. (p. 108)

Furthermore, Loy discusses how the process of globalization has affected and is going to an even greater impact on the way we think about and deliver education. Accordingly, every nation and educational system will have the problem of setting appropriate educational objectives. It will be a challenge for curriculum planners to create a balance between global citizenship (readiness to
serve the whole of humanity) and national citizenship (the sense of obligation to one’s country). How can individuals become global citizens by serving the best interest of their country? Is a student competitive at a global level if he or she is competitive at a national level? In short, meticulous attention is needed if we are to restore local values in the educational system which is already increasingly influenced by the demands of globalization.

5. **Inward-looking assessment.** When a revision is done on the objectives and content of a curriculum, there may arise the need for parallel revision of the methods of assessment. As we continue to include local values with the goal of improving the life of local people, assessment methods may have to be put in place to measure the extent to which students have learned to transform the lives of others. The objective of assessment could be measuring one’s capacity in terms of serving, rather than excelling over, others.

6. **Rigid personalities.** As evidenced in the story “Revolutionary Democracy,” in my data collection process, I came across a few die-hards who are truly convinced that science is a completely objective endeavour, without any trace of values. They believe, for example, that evolution is the ultimate truth and that there can be no alternative theory. They insist that we should not allow anything else in the curriculum regarding life or creation. The conversation that took place with some of my key informants proved that some authorities could really represent a serious challenge to reform, given their strong attachment to such views.

Some of these research participants seem to see only a utilitarian purpose for education. But, I argue, in the 21st century, we have already gone far beyond that. Education must be holistic, covering all aspects of human nature, including physical appearance, history, thoughts, and spirit (Miller, 2000, 2007). The recurring question, however, is how we will attract the
experts, who are capable of sifting the nonsense from what makes sense, the relevant from the irrelevant, the local from the international, etc.

In summary, in order to minimize tensions in a process of change, there needs to be less fanaticism in the way we assert our beliefs, whether they come from scientific or holy books. The more we become open to other ideas and views, the greater the possibility that we will find commonality among the different views. Thus, finding the common points and learning how to be united, while retaining diversity leads to avoiding the curriculum fragmentation now visible in the school system.

Conclusion

In this thesis, I have stated the reasons why I set out from Ethiopia to Canada: namely, to search for and identify the values behind development. I then explained why I returned to Ethiopia to find answers within my own country. I outlined the major questions I wanted to put before the Ethiopian people, the methods I utilized, some of the findings that emerged, and my own understanding of what the findings are. It is my hope that throughout the dissertation, I have been able to draw attention to what is contextual. I articulated my belief that the idea of contextualizing science education in Ethiopia is in harmony with the vision of individuals with the capacity to understand, critique, and either conserve or transform their social and cultural conditions. It is only when people are given the opportunity to take responsibility for understanding themselves and their own environment that they gain the capacity to be creative and transformative subjects and not merely objects of domination and manipulation.


selected practicum sites (high schools) for education faculty of Jimma University. *Ethiopian Journal of Education and Science, 2*(1), 85–128.


Appendix A

The Experiment

With the objective of introducing and expanding on the principle theme of this thesis, namely, the reintegration of local spiritual and cultural values into science education, I carried out what I call an “Experiment” in two stages: the first had to do with the training I offered to school teachers to help them explore the possibilities of including values in their respective subjects; the second concerns the conference presentations I made to engage people in the discussion of values in education. Brief discussions of both experiments are given below:

School of Nations. While finalizing my collected data, I had the opportunity to conduct a joint project of curriculum integration with a school in Addis Ababa. This was a school which has academic and moral excellence as its mission, but in which the administrators and teachers alike were unsure how to bring these two together. After consultation with the owner, the administrators and the teachers, I was given permission to sketch a training program for the teachers. They were to come together to investigate the idea and then practice integrating spiritual and cultural values into their respective subjects, without overloading the existing structure. I then ran a five-day training session in which the teachers, administrators, and owners of the school came together each morning to explore the values that promote moral excellence. In the afternoon the workshop attendees took the material resulting from our discussions and rewrote some lessons, each in their specialized subjects. The process was most illuminating, and each of us benefited greatly. (See the school recommendation letter and certificate in Appendix E).
School of Nations
Sarbet, Addis Ababa
In-service teacher’s training, July 2010

Day 1:

Introduction:

Welcome

Game: “Find out the person.” Each person writes a fact about herself or himself which is not well known to the others. The pieces of paper are collected and reshuffled and distributed back. Each participant has to guess the person who provided the fact.

What is discourse?

Reading 1: readings and sharing

Email messages from the Ethiopian Scientific and Academic Network (ESAN)

What is the discourse on spirituality?

Example from current research: presentation

How do these three factors: being Ethiopian, spirituality, being a science educator influence discourse?

Education in Ethiopia:

Reading 2: Form three groups; read the materials provided; analyze the advantages and disadvantages; come back to the larger group to present the models, putting them in a concentric circle in order from the least to the most promising

Which model dominated Ethiopian education?

Where do we want to take it?
Day 2:
Influencing the discourse on spirituality in education?

Reading 3: Read the theories and discuss how they can influence curriculum and instruction: Postcolonial theory, Poststructuralist, Sankofa, Native science

Day 3:
Holistic methods in education
Examples: Montesorri, Emilia Regi
Revisiting subjects with the eyes of spirituality

Day 4 and 5:
Understanding sacred writings and taking them to the level of application.

Paper presentations. Another milestone in the process of data collection was the presentation of the research idea and findings to different audiences, both local and international. The first presentation was made to 22 doctoral students of science education and other graduate students of physics and chemistry education students in Addis Ababa University. These students combined many years of experience teaching and had in-depth science education backgrounds. My presentation was well received and there were many questions about the nature of the qualitative research, which appeared to arise from their tradition of quantitative research. Nevertheless, my ideas were enthusiastically received and seemed plausible.

The second presentation was made to the Ninth Annual Research Conference of Unity University, in June 2010. The conference was attended a large number of scholars who commented on the research (See certificates in Appendix E).

I gave another presentation to students and members of the Comparative International and Development Education Centre where my research was thoroughly discussed. Once again,
the ideas were received positively and people were impressed by the idea. One well known professor invited me to provide a summary of the research for inclusion in a book he is editing on African science. I accepted his offer and the book is now in publication.
Appendix B

Interview Questions

Questions for Students

How do you understand and practice spiritual and cultural values at home and daily in school settings? (give examples)

Which values do you think are unique to you and your peers?

How did/do you develop and internalize these values?

How do these values create an environment for you to consistently learn from and meaningfully interact with others (family, neighbourhood, school)?

How are these values included in/excluded from the education in general and the science classroom in particular? (explain how) How do you react to the situation?

What do you think will happen if there is an effort to increase the understanding and practice of spiritual and cultural values in science classrooms (among students, teachers, parents, curriculum experts, policymakers)? What are the possible tensions that could arise from this effort?

How can we resolve these tensions and proceed to a future relevant science curriculum?

What do you think about the vision and implication of a future of science curriculum founded on Ethiopian values and knowledge?

Questions for Science teachers:

How do you understand and practice spiritual and cultural values at home and daily in school settings? (give examples)

Which values do you think are unique to you, your peers and your students?

How do you relate these values to your students’ achievements?
How did/do you develop and internalize these values both in yourself and in your students?

How do these values create an environment for you to consistently learn from and meaningfully interact with others (family, neighbourhood, school)?

How are these values included in/excluded from the education in general and the science classroom in particular? Explain how.

How do you react to the situation?

What do you think will happen, if there is an effort to increase restore an understanding and practice of spiritual and cultural values in science classrooms (among students, teachers, parents, curriculum experts, policymakers)? How do you want this to be done?

What are the possible tensions that could arise from this effort?

How can we resolve these tensions and proceed to a future relevant science curriculum?

What do you think about the vision and implication (e.g., for curriculum development and teacher training) of a future of science curriculum founded on Ethiopian values and knowledge?

Parents:

How do you understand and practice spiritual and cultural values at home and outside? (give examples)

Which values do you think are unique to you, your family and your neighbours?

How do you relate these values to your children’s school achievements?

How did/do you develop and internalize these values both in yourself and in your family?

How do these values create the environment for you to consistently learn from and meaningfully interact within the family and with the outside society?
How are these values included in/excluded from the education (science education) of your daughters and sons? (explain how)—How do you react to the situation?

What do you think will happen if there is an effort to increase (integrate) the understanding and practices of spiritual and cultural values into science classrooms (among students, teachers, parents, curriculum experts, policymakers)? What are the possible tensions that could arise from this effort?

How can we resolve these tensions and proceed to a future relevant science curriculum?

b. What do you think about the vision and implication (e.g., for your family, for the nation) of a future of science curriculum founded on Ethiopian values and knowledge?

Curriculum experts:

How do you understand and practice spiritual and cultural values at home and in your work? (give examples)

Which values do you think are unique to you and to the students for which you develop curriculum? How do you relate these values to students’ achievements in school?

How did/do you develop and internalize these values in yourself and how do you intend to develop and sustain them in the students through the curriculum?

How do you include these values in the curriculum so as to create the environment for the students and teachers to consistently learn from and meaningfully interact with each other and with the outside society?

How/why are these values included in/excluded from the education (science education)? Explain how. How do you react to the situation?

What are your thoughts on efforts to identify and restore spiritual and cultural values in the science curriculum? What do you think will happen if there is an effort to increase (integrate)
the understanding and practice of spiritual and cultural values in the science classroom (among students, teachers, parents, curriculum experts, policymakers)? How would you do it? What are the possible tensions that could arise from this effort?

How can we resolve these tensions and proceed to a future relevant science curriculum?

What do you think about the vision and implications (e.g., for curriculum development and teacher training) of a future of science curriculum founded on Ethiopian values and knowledge?

Employers:

How do you understand and practice spiritual and cultural values at home and in your work? (give examples)

Which values do you think are unique to you and your employees? How do you relate these values to your employees’ performance?

What are the criteria of recruitment and promotion beyond technical skills?

What are the spiritual and cultural values you need in the work environment?

How did/do you develop and internalize these values in yourself and how do you intend to develop and sustain them in your employees? (What role do values such as hard work, trustworthiness, and truthfulness play in productivity?)

How do you include these values in the policy and guidelines of the office, so as to create the environment for the employees to consistently learn from and meaningfully interact with each other and with the outside society?

How are these values included in/excluded from the education (science education) of your employees? How do you react to the situation?
What opportunities do you have to talk on the subject of values relative to the workplace with teachers and curriculum experts?

What do you think will happen if there is an effort to restore the understanding and practices of spiritual and cultural values in science classrooms (work place, among students, teachers, parents, curriculum experts, policymakers)? How do you want this to be done?

What are the possible tensions that could arise from such an effort?

How can we resolve these tensions and proceed to a future relevant science curriculum?

What do you think about the vision and implications for the workplace and for nation-building of a future of science curriculum founded on Ethiopian values and knowledge?

Elders:

How have you understood and practiced spiritual and cultural values throughout your long life? (give examples)

Which values do you think are unique to you and the Ethiopian people? How do you relate these values to the country’s social, economic and political status?

How have you developed and internalized these values in yourself and what do you think are the methods to develop and sustain them in others?

Did/Do schools help develop those values?

How do you think these values create the environment for people to consistently learn from and meaningfully interact with each other? How can we help people to take a disciplined initiative?

How are these values included in/excluded from the education (science education)?

Explain how. How do you react to the situation?
What opportunities do you have to talk about the subject of values with families, students, teachers, curriculum experts, and government officials? What do you think will happen if there is an effort to restore an understanding and practice of spiritual and cultural values in science classrooms? How do you want this to be done? What are the possible tensions that could arise from such an effort?

How can we resolve these tensions and proceed to a future relevant science curriculum?

b. What do you think about the vision and implications for nation-building of a future of science curriculum founded on Ethiopian values and knowledge?

Religious leaders:

How do you understand and practice spiritual and cultural values? (give examples)

Which values do you think are unique to you and the Ethiopian people? How do you relate these values to the country’s social, economic, and political status?

How did/do you develop and internalize these values in yourself and what do you think are the methods to develop and sustain them in others? Did/Do schools help develop those values?

How do you think these values create the environment for people to consistently learn from and meaningfully interact with each other?

How are these values included in/excluded from the education (science education)? Explain how. How do you react to the situation?

What opportunities do you have to talk on the subject of values with families, students, teachers, curriculum experts, and government officials? What do you think will happen if there is an effort to restore the understanding and practice of spiritual and cultural values in science
classrooms? How do you want this to be done? What are the possible tensions that could arise from this effort?

How can we resolve these tensions and proceed to a future relevant science curriculum?

b. What do you think about the vision and implications for nation-building of a future of science curriculum founded on Ethiopian values and knowledge?

Policymakers (Government officials):

How do you understand and practice spiritual and cultural values? (give examples)

Which values do you think are unique to you and the Ethiopian people? How do you relate these values to the country’s social, economic and political status?

How did/do you develop and internalize these values in yourself and what do you think are the methods to develop and sustain them in others? Did/Do schools help develop those values?

How do you think these values create the environment for people to consistently learn from and meaningfully interact with each other?

How are these values included in/excluded from the education (science education)? Explain how. How do you react to the situation?

What opportunities do you have to talk on the subject of values with families, students, teachers, curriculum experts and elders? What do you think will happen if there is an effort to restore the understanding and practice of spiritual and cultural values in science classrooms? How do you want this to be done? What are the possible tensions that could arise from this effort?

How can we resolve these tensions and proceed to a future relevant science curriculum?
b. What do you think about the vision and implications for nation-building of a future of science curriculum founded on Ethiopian values and knowledge?
Appendix C
Observation Checklist

Classroom

What are observable understandings and practices of spiritual and cultural values among students and teachers in the classroom and school settings? Are there specific examples? Do responses from interviews hold true? How are spiritual and cultural values creating an environment for students and teachers to consistently learn from and meaningfully interact with each other? How are the following understood and enacted: authority, respect, obedience, *yilugnta* [concern for public opinion], *debo* [a kind of group work], *ye Ethiopia amlak* [the God of Ethiopia], etc.

Are the observations unique to the school? If so, how?

What are the methods and possibilities for developing, internalizing and sustaining these values in students in science classrooms? Are there visible initiatives in this regard?

How are the values included/excluded/from science classrooms?

Are there tensions among students and teachers in the way they understand and practice spiritual and cultural values? If so, how. Describe.

Are there models of the future of science curriculum founded on Ethiopian values and knowledge which can be emulated? List and explain.
Appendix D

Focus Group Discussion Points

What understandings and practices of spiritual and cultural values do you share at home and in daily settings at school? Give examples.

(The following values can be given as examples: authority, respect, obedience, ‘yilugnta’ [concern for public opinion], debo [a kind of group work], ye’ Ethiopia amlak [the God of Ethiopia], etc.

Which values do you think are unique to you and your peers?

What are the difference and similarities among you in the ways you try to develop and internalize values in your students?

How do these values create the environment for you to consistently learn from and meaningfully interact with each other and with your students?

What can we learn from each other in the process of integrating values into science education?

What are the possible tensions that could arise from such an integration effort?

How can we resolve these tensions and proceed to a future relevant science curriculum?

What do you think about the vision and implication of a future of science curriculum founded on Ethiopian values and knowledge?
Appendix E Letters and Certificates

Letters

a. Ethics approval, Office of the Vice-President, University of Toronto

b. Professor John Wallace (thesis supervisor) to the Ministry of Education, Ethiopia

c. Request for full-time off-campus study form

d. College of Natural Sciences, Jimma University to Ministry of Science and Technology, Addis Ababa

e. National Research Ethics Review Committee (NRERC), Ministry of Science Technology, Addis Ababa, Ethiopia (Full approval)

Certificates

a. Science education, College of Education, Addis Ababa University

b. School of Nations

c. Unity University
University of Toronto
Office of the Vice-President, Research
Office of Research Ethics

PROTOCOL REFERENCE # 24648

December 15, 2009

Dr. John Wallace  Mr. Solomon Belay
Dept of Curriculum, Teaching and Learning  Dept of Curriculum, Teaching and Learning
OISE/University of Toronto  OISE/University of Toronto
252 Bloor St. West  252 Bloor St. West
Toronto, ON M5S 1V6  Toronto, ON M5S 1V6

Dear Dr. Wallace and Mr. Belay

Re: Your research protocol entitled “Recapturing spiritual and cultural values into science education: The case of Ethiopia”

ETHICS APPROVAL

Original Approval Date: December 15, 2009
Expiry Date: December 14, 2010
Continuing Review Level: 1

We are writing to advise you that a member of the Social Sciences, Humanities & Education Research Ethics Board has granted approval to the above-named research study, for a period of one year, under the REB’s delegated review process. Please ensure that you submit an Annual Renewal Form or a Study Completion Report 15 to 30 days prior to the expiry date of your study. Note that annual renewals for studies cannot be accepted more than 30 days prior to the date of expiry, as per federal and international policies.

All your most recently submitted documents have been approved for use in this study.

Any changes to the approved protocol or consent materials must be reviewed and approved through the amendment process prior to its implementation. Any adverse or unanticipated events should be reported to the Office of Research Ethics as soon as possible.

If your research has funding attached, please contact the relevant Research Funding Officer in Research Services to ensure that your funds are released.

Best wishes for the successful completion of your project.

Yours sincerely,

Daniel Gyewu
Research Ethics Coordinator

McMurrough Building, 12 Queen’s Park Cres. W, 2nd Floor Toronto, ON M5S 1S8
TEL: 416-948-3273 FAX: 416-948-5765 EMAIL: ethics.review@utoronto.ca
December 30, 2009

The Ministry of Education
Addis Ababa
Ethiopia

Re: Mr. Solomon Belay

I have the pleasure of introducing to you, Mr. Solomon Belay, a former lecturer at Jimma University and currently a doctoral candidate in the Department of Curriculum, Teaching and Learning, Ontario Institute for the Studies in Education (OISE) of the University of Toronto, Canada.

Under my supervision, Mr. Belay is undertaking his doctoral research project, entitled “Recapturing spiritual and cultural values into science education: The case of Ethiopia”. The aim of this project is to identify how spiritual and cultural values were understood and practiced in Ethiopia and explore how they can be integrated into the Ethiopian science education curriculum. His research requires a secondary school from which he will draw a random sample of students, parents, teachers, curriculum experts, education officials, employees and elders. The methods of data collection include interviewing participants, some classroom observations and focus group discussions. He will also require access to certain resources from libraries and documentation centres.

I have known Mr. Belay since his first year in OISE, both as a student in my courses and as an advisee in his doctoral research and I commend him to you as a person and scholar of high calibre. I believe that he has the necessary enthusiasm, commitment and academic discipline to conduct this important research in order to enrich curricular understandings and improve science education practice in Ethiopia. Consequently, I formally request the Ministry of Education and other concerned institutions and individuals to extend to Mr. Belay the necessary support to enable the completion of this project.

If you seek further information or have any concerns and questions regarding this research project, I can be contacted at the address below.

Sincerely,

John Wallace (Professor)

jwallace@oise.utoronto.ca
REQUEST FOR FULL-TIME OFF-CAMPUS STUDY FORM

Please return the completed form to the OISE Registrar's Office, Graduate Studies Unit, 252 Bloor St. W., Toronto, Ontario M5S 1V6.

SECTION 1:

Date: 8 OCTOBER 2009  
Student Number: 995381881

Name: SOLOMON BELAY

Department: CTL

Address: 417 2 VALHALLA RD, ETOBICOKE, ON.  
MAB 6C3

Degree: PhD

Email Address: sbelay@oise.utoronto.ca

Thesis Supervisor: PROFESSOR JOHN WALLACE

Thesis Title: RECAPTURING SPIRITUAL AND CULTURAL VALUES INTO SCIENCE EDUCATION: THE CASE OF ETHIOPIA

SECTION 2: Information required in support of request.

1. Place of residence while off-campus: (If outside Canada, your name will be registered with the International Student Exchange Office’s Safety Abroad Program within one week of receipt of this form in the Registrar’s Office. Students must then logon to the Emergency Data Base at www.utoronto.ca/safety.abroad to confirm that their name has been registered and to provide additional information.)

   K.O.I LAFTO SUB-CITY, ADDIS ABABA, ETHIOPIA

2. Purpose of visit: (Fully describe the academic reasons for undertaking your research off-campus)

   TO COLLECT DATA AS APPROVED IN MY RESEARCH PROPOSAL

3. Frequency of contact with supervisor:

   EVERY TWO WEEKS

4. Period of absence: From JANUARY 2010 To AUGUST 2010

   month  
   year

Student’s Signature: [Signature]

Date: 8 OCTOBER 2009

SECTION 3: I recommend the above student be permitted to register full-time off-campus.

Signature: [Signature]

Date: 14/10/09

Signature: [Signature]

Date: 16/10/09

The University of Toronto respects your privacy. The information on this form is collected pursuant to section 2(14) of the University of Toronto Act, 1971. It is collected for the purpose of administering admission, registration, academic programs, university-related student activities, activities of student societies, financial assistance and awards, graduation and university advancement; and for the purpose of statistical reporting to government agencies. At all times, it will be protected in accordance with the Freedom of Information and Protection of Privacy Act. If you have questions, please refer to www.utoronto.ca/privacy or contact the University's Freedom of Information and Protection of Privacy Office at 416-946-7303, Room 201, McMurrich Bldg., 12 Queen's Park Cres., Toronto, ON, M5S 1A1.
To: Ministry of Science and Technology
Addis Ababa

Subject: Support Letter to Mr. Solomon Belay

Mr. Solomon Belay, a third year doctoral candidate in the Center for Science, Mathematics, and Technology under the Department of Curriculum, Teaching and Learning, Ontario Institute for Studies in Education (OISE) of the University of Toronto, Canada, has requested for institutional support letter by the letter dated 4 March, 2010.

Before he left to Canada for his terminal degree in September 2005, Mr. Solomon Belay served our university to his full capacity as lecture in the then Faculty of Education, Department of Pedagogy. In addition, Mr. Solomon Belay also contributed to his level best to enrich the academic life of the university when he served as head of the Community Based Education office of Jimma University.

Currently, Mr. Solomon is working on his doctoral research entitled “Recapturing Cultural and Spiritual Values into Science Education: the case of Ethiopia.” We hope that the finding of this research undertaking will contribute to the country’s national effort in making science education curriculum more contextualized and relevant. With strong believe that the candidate will conduct his research in accordance with the approval granted to his proposal by the Office of Research Ethics, University of Toronto, the college requests your good office for support of all kind to Mr. Solomon Belay for the success of the research project. The College is committed to make the necessary follow-up on the proper implementation of the research ethics and the candidate is expected to submit copy of the research out put for our consumption.

CC: Mr. Solomon Belay

[Stamp: Jimma University]

Ketema Bacha (Ph.D)
College of Natural Sciences
To: Jimma University  
College of Natural Sciences  
Jimma

Re: Recapturing Cultural and Spiritual Values into Science Education: the case of Ethiopia

Dear Sir/Mr./s/Dr.  

The National Research Ethics Review Committee (NRERC) has reviewed the aforementioned project proposal/protocol. We are writing to advise you that NRERC has granted 

**Full approval**

to the above named project/study, for a period of **one year (March 14, 2011 - March 14, 2012)**. All your most recently submitted documents have been approved for use in this study.

The study should comply with the standard international and national scientific and ethical guidelines. Any change to the approved protocol or consent material must be reviewed and approved through the amendment process prior to its implementation. In addition, any adverse or unanticipated events should be reported within 24-48 hours to the NRERC.

We, therefore, request your esteemed organization to ensure the commencement and conduct of the study accordingly and wish for the successful completion of the project.

With Regards

Ameca Mulugeta  
Secretary of NRERC

Cc: Solomon Belay (PI)
To: Solomon Belay (Doctoral Candidate)  
Ontario Institute for the Studies in Education  
University of Toronto, Toronto, Canada

From: Mekbib Alemu  
Head, Department of Physics Education  
Facilitator of the M.Ed. Program  
College of Education and Behavioral Studies  
Addis Ababa University

Subject: Letter of appreciation and gratitude

Dear Solomon,

It is to be recalled that you are supporting our program voluntarily in different ways. While your effort to facilitate the sharing of experience between our graduate students and expatriate experts is appreciable, the commitment you showed us recently by sharing your own experience in science education research is notable. Our department, therefore, would like to express its appreciation for your presentation to our graduate students on June 5, 2010. Both the Physics Education M.Ed students and the Science and Mathematics Education (SMED) PhD candidates are repeatedly expressing their interest and inspiration by your talk on “Recapturing Spiritual and Cultural Values into Science Education: the Case of Ethiopia”. We believe that this direction of research will have a significant impact on our Science Education as well.

Therefore, on behalf of our department, I express our sincere gratitude and urge you to complete your PhD research and send it to us to serve as one very valuable source of information and inspiration to our students as well as staff members.

Best wishes,
School of Nations
P. O. Box 41189 Addis Ababa
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July 21, 2010
Ref. no. SON/059/10

Mr. Solomon Belay

Dear Solomon,

We are writing this letter to express officially our sincere appreciation for the training you conducted in our school entitled ‘Curriculum Integration: Social and Spiritual Values’, from 8 – 14 July 2010.

Our school is guided by the principles of academic excellence, moral leadership and world citizenship. We were aware of the fact that moral education without spirituality would not effectively serve in bringing up responsible and service oriented students. We felt integrating spiritual teachings in the curriculum was a necessary step and wanted to start it with a training of teachers. You happened to appear with the right ingredients for the training at the right time.

The method of delivery of the training itself, from the introductory or warming up sessions to the main part, which was always trainee centered and filled with activities which made us all active participants and responsible for our own learning were exemplary. We will definitely take them to the classroom.

During and after the training, we witnessed the enthusiasm of the teachers rise up. Moreover, they opened up for spiritual and social dialogues, in an atmosphere of tolerance and kindness. We are certain that once the teacher is transformed, he/she will affect the students directly.

The school has benefited from the training immensely and the lesson learned have already been put into action right away. The teachers are revising their text books with the new framework of understanding that is achieved in the training. We are confident, because of the bondage already created between us, that you will maintain your support to the school and follow up its progress while even in Canada.

With loving greetings
School of Nations Board of Directors
Unity University is pleased to award this certificate of merit to

Ato Solomon Belay

for his presentation of a paper at the Ninth Annual Multidisciplinary Research Conference held on June 25, 2010

Director, Research and Publications Office

President, Unity University & CEO, MIDROC Ethiopia