

Decolonizing the curriculum with decolonial pedagogy

Introduction

The South African government adopted the Protection, Promotion, Development and Management of Indigenous Knowledge Act in 2019. It laid the foundation for the 2004 National IKS Policy. This is a great step forward in decolonizing knowledge production in South Africa. But it failed to acknowledge that South Africa has been teaching a specific type of indigenous knowledge for hundreds of years. The indigenous knowledge system from Europe is being taught in Africa, but then presented as universal knowledge. It became universal, because of power, the power of colonialism, and not because of its content. So you have Indigenous Knowledge System for Africa (IKSA) and Indigenous Knowledge System for Europe (IKSE). If you accept European indigenous knowledge as valid universal knowledge and African knowledge as invalid universal knowledge, but with a limited value just for Africa, then a policy in promoting Indigenous Knowledge System for Africa will be trapped in an unequal fight for recognition.

To avoid this trap, a trajectory is needed that covers three topics:

1. We need to move from general notions about knowledge, be it Eurocentric or indigenous, to knowledge on the level of individual disciplines. What is indigenous philosophy, indigenous economic theory, indigenous pedagogy or indigenous mathematics? In order to answer this question, we need a fundamental critique of the Indigenous Knowledge System for Europe. The call for Indigenous Knowledge System for Africa is based on the proposition that there something wrong with Indigenous Knowledge System for Europe. What is wrong with that system? Is it completely wrong or can we retain parts of the discipline?
2. We need to reconstruct the disciplines. There are three elements in the reconstruction of the disciplines:
 - a. Turn your view to the global south. Don't limit it to Africa. Contrary to Eurocentric beliefs, science did not arise in Europe. Every civilization had a system of knowledge production on the basis of which they build cities, manages economies and developed social, economic, political and cultural institutions. Some of these civilizations still exist in different parts of the world. How does their knowledge in the different disciplines look like? An African discipline for economic theory might be based on the concept of Ubuntu, but it could entail concepts that other civilizations produced regarding economic institutions and processes, including the European civilization.
 - b. Identify the theoretical concepts that form the foundation of the discipline. The foundation of a discipline consists of theoretical concepts. We need to identify these concepts, look at how different civilizations developed them and what the differences and similarities are with the Eurocentric concepts.
 - c. Discuss the policy implications of the reconstruction of a discipline. A peculiar characteristic of Eurocentric sciences is that its policies implications often tend to justify and enforce colonialism. In fact, much of the social sciences and even biology was long time racist in its core and justified oppression and exploitation based on race, religion and ethnicity.¹ It was founded on colonial fantasies rather than on empirical facts and sound theoretical reasoning. When we reconstruct a discipline, the test of its validity is not only its theoretical and empirical coherence, but also its practical implications.

¹ See S. Hira (2023), chapter 6, A DTM theory of Racism for an exposé on this topic.

The pedagogical implications of reconstructing the disciplines

Once you take this approach of reconstructing the disciplines as an effort to build an Indigenous Knowledge System for Africa, it will have huge pedagogical implications, because you are not simply changing **what** is taught, but **how a discipline is learned**. In fact, a decolonial reconstruction requires a different philosophy of education. Most textbooks are written as if the theories are established truths. A reconstructed textbook would instead begin with questions. Only after students have considered possible answers do they encounter established theories. The emphasis shifts from learning theories to investigating problems. Students demonstrate reasoning rather than recall.

Instead of presenting Western disciplines as the universal discipline and other perspectives as "alternatives," every tradition becomes one contribution to humanity's understanding of the discipline. Students learn comparison rather than memorization. They learn to identify assumptions before applying conclusions.

Theories in a discipline emerged in specific historical circumstances. Western theories are placed in a historical context, so students go from studying abstract models to understanding the historical context in which the discipline arose. This prevents theories from becoming timeless dogma.

Perhaps the most important implication is changing the role of the classroom. Instead of teachers using textbooks to teach students, they encourage the students to challenge the standard textbooks and become participants in reconstructing knowledge. The task of the student shifts from consuming knowledge to co-producing knowledge. The work is research oriented. This task has become much easier with the help of AI. The teacher is no longer primarily an authority transmitting established truths, but a guide who helps students in formulating questions, evaluate evidence, identify assumptions, compare explanations, and construct well-supported arguments.

In many disciplines mathematics has replaced the profound understanding of theoretical concepts of a discipline with a shallow mechanical reproduction of formulas, even if the student does not understand the meaning of the formula.

Paulo Freire argued that education should help learners to become critical participants in understanding and transforming their world, rather than passive recipients of information.² A reconstructed curriculum aligns with that spirit, while extending it through a global, pluralistic study of scientific thought in a discipline. The goal is not to replace one orthodoxy with another. It is to cultivate scientists who can critically evaluate multiple traditions, understand the historical and philosophical roots of scientific ideas, and develop new approaches suited to the challenges of the twenty-first century.

I will deal with some case studies to illustrate my propositions with the theoretical framework of Decolonizing The Mind (DTM).

Case study 1: epistemology

Every student needs to have a basic understanding of epistemology, the study of what knowledge is and how it is produced. Epistemology, or the study of knowledge, is a required course for undergraduate students in all universities. In the Indigenous Knowledge System for Europe the canon of epistemology more or less goes like this.³ Science and epistemology arose in the West and goes back to the classical Greek philosophers. Plato and Aristotle defined knowledge as a justified understanding of reality. Medieval philosophers argued that faith and reason complement each other. The turning point in scientific thought comes with René Descartes who holds that reason is the primary source of knowledge. British empiricists argue that experience is the source

² Freire, P. (2000).

³ See Magee, B. (1991) and Russell, B. (1945) for an overview of Western philosophy and Bhattacharjee, A. (2012) of how this resulted in a canon for the methodology of the social sciences.

of knowledge. German philosopher argues that knowledge requires both sensory data and theoretical argumentation. The two important instrument of reasoning are induction (construct a theory from observation) and deduction (test a theory with observations). Popper finally posits that a theory is valid if it set up in such a way that it could be falsified, meaning that it articulates cases in which the theory can be tested to be false. This canon is presented as the universal truth that is firmly established and cannot and should not be disputed. In a decolonial pedagogy we start by challenging the canon. We invited students of epistemology to delve into the historical context in which Western epistemology evolved. Here is the DTM outline of this context.

We start with defining knowledge in general as "the collection of insights and understanding about the natural and social world."

There are two dimensions of knowledge. The first is about understanding the world. The results are statements that are captured along the line of true and false. This is the scientific dimension of knowledge. The second is about how to behave and interact with the world. The results are statements that are captured along the line of right and wrong. This is the ethical dimension of knowledge. In Western philosophy ethics is removed from sciences. Ethic is subjective and science is objective.

In many civilizations these two dimensions were connected to each other. The sources for understand the world are observation, reasoning, innate knowledge, social interaction, creativity, imagination and common sense. The sources for behaviour and interaction with the world are spirituality, revelation and tradition. The understanding of the natural world differs from the understanding of the social world. All these notions are absent in Eurocentric epistemology.

The historical context of the rise of Western philosophy is the conflict between science and theology. This conflict is not present in other civilizations. Global colonialism started in 1492 with the Spanish occupation of Abya Yala (formerly known as the Americas). In the first 150 years the knowledge base of colonialism was Christian theology. After 1650 the European Enlightenment replaced Christian theology as the knowledge base of colonialism.

The European Enlightenment arose from a fierce political and intellectual struggle with Christian theology and the Church. The political struggle led to the separation of state and church. The intellectual struggle led to the separation of ethics from knowledge, so that knowledge became only science. This separation took place in the field of epistemology in six stages and with six propositions.

The first proposition is that the Bible is not the only source of knowledge. In fact, the Bible was disregarded as a valid source of knowledge in general. René Descartes (1596-1650) argued that the mind can create valid knowledge independent of the bible.⁴

The second proposition is that knowledge is derived from experience and not from religious texts (John Locke (1632-1704)).⁵

The third proposition is that something more is needed than observation and reasoning to produce new knowledge: analysis and theory (Immanuel Kant (1724-1804)).⁶

The fourth proposition is that theoretical analysis needed to be validated. It should be able to predict the outcome of experience (George Hegel (1770-1831)).⁷

The fifth proposition is that valid knowledge is secular. With positivism the actual separation of religion from science takes place and science becomes secular (August Comte (1798-1857)).⁸

The last proposition is that positivism applies both to social and natural sciences. The same methodology is use for the production of valid knowledge.

If we use the classroom to reconstruct epistemology we can the students research and discuss the following questions:

⁴ The argument is developed in Descartes, R. (2006 [1637]).

⁵ See Locke, J. (2017 [1690]) for this argument.

⁶ Kant, I. (1998 [1781]) for this argument.

⁷ See Hegel, G. (2008 [1821]), p. 14.

⁸ Comte, A. (2000 [1896]) for this argument.

1. How is knowledge defined in Western philosophy and how does this definition differ in other knowledge systems?
2. What caused the separation of ethics from knowledge, and church from the state?
3. What could be the theoretical foundation of an African epistemology and how does this relate to epistemologies from other civilizations in the Global South?

With this approach students are forced to move from uncritical acceptance of Eurocentric epistemology to helping in reconstructing a different epistemology.

The practical implications of this approach are twofold. Students develop a critical understanding of the Eurocentric bias in standard textbooks of a discipline. They can identify the hidden assumptions and subjectivity in the author's approach of the discipline. By studying other epistemologies they help reconstruct the discipline.

Case study 2: logic

I take another example in the realm of philosophy: logic. Logic is the study of the principles and rules that distinguish valid from invalid reasoning. The canon of Western logic is based on the logical framework developed by Aristotle, called formal logic. He formulated three interconnected laws of logic:

1. The law of identity: A equals A. A thing is always equal to or identical with itself.
Example: Columbus is Columbus.
2. The law of (non)contradiction: A is not non-A. A thing cannot be different from itself. It is a different way of formulating the first law. Example: Columbus is not a dog.
3. The law of excluded middle: If A equals A, it cannot equal non-A. Everything is and must be either one of two mutually exclusive things. Example: a thing cannot be Columbus and a dog. It is either Columbus or a dog.

In the same basic course for undergraduates, ask your students: can you think of examples in which the logical framework of Aristotle is not valid and can you connect these examples with logical systems outside of Western philosophy. There are plenty of examples. Take of a woman with a photograph when she was 10 years old and another photo when she was sixty years old. Ask the question in formal logic: are the two photographs of the same person or not? You can not provide an answer with formal logic, because you can not say yes on the one hand it is the same person and no on the other hand it is not. If you say yes, then you say that a ten year old person is the same as a sixty year old person. If you say no, then a person of ten years old is a completely different person than a person of sixty years old. They have nothing in common.

The problem is that formal logic can not deal with change, only with static processes. That logical framework does not enable us to understand processes of change, and yet life is all about change. If you apply formal logic to movement, you end up with paradoxes. A paradox is a statement, argument, or situation that appears to lead to a contradiction or an absurd conclusion, even though the reasoning according to formal logic seems correct. Eurocentric philosophers call these situations a paradox, because they are unable to comprehend them with formal logic. Instead of saying "we are lost and are not able to understand the situation or argument" they say it is a paradox, implying that they understand it but can not explain how it works.

A famous paradox is from one of the four paradoxes of Greek philosopher Zeno of Elea (c. 490–430 BCE). This paradox, the dichotomy paradox, goes as follows. Suppose you want to walk across a room. Before reaching the end, you must first travel half the distance. Before reaching halfway, you must first travel half of that half. Before that, you must travel half again. This process continues forever. Since there are infinitely many halfway points, you must complete infinitely many tasks. Completing infinitely many tasks is impossible, therefore, you can never reach the destination, because you can not move. Yet reality shows that movement exists. You can move from point A to point B in one step. You don't have to take infinite small steps, as Zeno's argues. Zeno questions reality, while we question Zeno's logical framework. Reality is not wrong, Zeno is wrong and with him generations of philosophers who use paradoxes to cover up their misunderstanding of reality.

Ask students to research other logical frameworks in which change and movement are possible. And they will surely find many.

Victor Ocaya explains how the Acholi people from Southern Sudan have embedded in their language the principle of change and movement. He focuses on the third law of Aristotle, the law of excluded middle. Everything is and must be either one of two mutually exclusive things. A thing cannot be Columbus and a dog. It is either Columbus or a dog. Ocaya says: *"This principle says that between a statement and its negation there is no other alternative. The Acholi language, however, has a peculiar way of repeating an adjective in a manner that seems to suggest a third possible alternative between a statement and its negation. For example:*

1 Piny lyet: It is hot.

2 Piny pe lyet: It is not hot.

3 Piny lyet-lyet: It is rather hot.

*In (3) the English "rather" does not capture the Acholi idea of lyet-lyet, which is somewhere between (1) and (2). Piny lyet-lyet quite unambiguously asserts that it is neither "hot" nor "not hot" and the law of excluded middle rules out just this possibility. This is evidence against the law of excluded middle, from an Acholi standpoint."*⁹

The biggest weakness of formal logic is its two value outcome: a proposition is either true or false. It is impossible to have more than two values.

In the ancient Indian philosophy of Jainism the two value logic is regarded as inadequate to understand reality. The world is not only black or white. There are many possible perceptions of reality. No single proposition can capture the complexity of reality.

Therefore, it is mandatory to put a prefix to every proposition that expresses this by using the term "syad", which means "in some ways", "from a perspective", "arguably", "possibly". The Jains have developed a seven-value logic based on the notion of true, false and unassertible (cannot be described, it is impossible to make statements about it).¹⁰ The seven values are:

1. Possible, something is true. Example: Columbus is dead.
2. Possible, something is false. Example: Columbus is not dead.
3. Possible, something is true and false. Example: Columbus is dying: dead and not dead.
4. Possible, something is unassertible. Example: We cannot assert whether Columbus is dead or not dead.
5. Possible, something is true and unassertible. Example: Columbus is dead, but we cannot assert that.
6. Possible, something is false and unassertible. Example: Columbus is not dead, but we cannot assert that.
7. Possible, something is true and false and unassertible. Example: Columbus is dying, but we cannot assert that.

If you are accustomed to thinking according to two-value logic, this does not make sense. How can somebody be dead and alive? Very simple, by taking change and continuity into account. Once you do that, formal logic does not work, but Jain logic does. Look at Columbus breathing, sailing with his ship, kidnapping Tainos, raping Taino women, stealing their gold. You can be certain that he is alive. There are many signs that he is alive.

Look at Columbus when he is dead, lying in his coffin on his way to be buried. His heart has stopped beating. So you can be sure that he is dead.

Now look at the short period in which Columbus is dying. He has difficulty breathing and it seems as if he is going to stop with breathing. You can claim that he is alive, but he is on his way to be dead. Then he stops breathing, but his heart still beats for a short period. Not breathing is a sign that he is dead, but if his heart beats, he is alive. Now his heart stops beating, but he still has brain activity, because the reserve oxygen in his lungs can provide his brain with a few last minutes of energy. If a doctor in these minutes performs CPR by pressing on his chest to get his heart beating again, he might

⁹ Ocaya, V. (2004).

¹⁰ Jain, P. (2000).

regain a heartbeat. So how do we characterize his position in this short period? Formal logic cannot deal with this situation, because he is dead and not dead in this period, depending on what criteria you use to define life or death. And sometimes we cannot assert whether he is dead or alive, because the criteria are not clear-cut and can contradict each other. You can define breathing as the most important criterion, but brain activity is also a criterion. You can have some breathing, yet still have brain activity. The problem lies in the fact that there is not one single criterion that can describe the exact situation in the phase of transition. There are a complex multitude of criteria: heart beat, breathing, brain activity. They all interact in different ways at different times in the transition phase.

Students, who are encouraged to question formal logic, can make valuable contributions in the class room to reconstructing other logical frameworks and applying them to real world situation. It also strengthens the belief that change is possible in a pessimistic world, which promotes the idea that change will never come. Once you believe that change is possible, the next step will be to study and understand the conditions under which change will come and that your contribution might be in creating those conditions.

Case study 3: economic laws

A standard liberal textbook by Samuelson and Nordhaus defines economics as *"the study of how societies use scarce resources to produce valuable goods and services and distribute them among different individuals. If we think about the definitions, we find two key ideas that run through all of economics: that goods are scarce and that society must use its resources efficiently."*¹¹

Ask students of economics: are there other definitions of economics possible? It is not a standard question in the economic classes. But even in Eurocentric economics there is another definition possible. In Marxism economics is the study of the production, distribution, and exchange of material goods within historically specific modes of production, shaped by class relations and the extraction of surplus value. There is not a single definition of economic theory in Marxism, but these are the elements that constitute a Marxist view on economic theory. It takes up the issue of injustice (class exploitation), but not as an ethical category, but as a scientific category that is rooted in the labour theory of value. According to this theory the value of a commodity is determined by the *socially necessary labour time*, the average amount of labour required, under normal conditions of production and with average skill and technology, to produce that commodity. Because workers produce more value than they receive in wages, the difference, known as *surplus value*, is appropriated by capitalists as profit. This process forms the basis of Marx's theory of exploitation.

What about definitions of economics in other civilizations? In Islam economics is the discipline that studies how human beings, as Allah's trustees, acquire, produce, exchange, distribute, and consume resources entrusted to them in ways that establish justice, promote human flourishing, preserve the common good, and fulfil their responsibility before Allah.¹²

They all deal with the production and distribution of goods and services, but in Liberalism it is about the efficient allocation of resources. In Islam the ethical foundation of economic is firmly rooted in the definition of economic theory. It is about justice based on the requirement to fulfil a divine responsibility. In Marxism there is a concept of injustice, but it is not located in an ethical framework, but in a scientific "discovery". Friedrich Engels names the theory of labour value one of the greatest discoveries of Marxism.¹³

From the concept of the nature of economic theory we derive different visions for the economic order. The liberal economic order is based on private property, coordinated primarily through competitive markets and characterized by freedom of contract and enterprise. There is a limited role for the state, mainly protecting property rights,

¹¹ Samuelson, P. and Nordhaus, W. (2010), p. 4.

¹² See the works of Baqir as-Sadr, M. in the references.

¹³ Engels, F. (1970), p. 33-34.

enforcing contracts, and maintaining competition. The underlying principle is: individual freedom produces the greatest prosperity.

In Marxism the ideal economic order is based on collective ownership of the means of production, a planned economy, the abolition of capitalist exploitation, the production organized according to social need rather than private profit and ultimately, a classless and stateless communist society. The underlying principle is: collective ownership eliminates exploitation and enables human emancipation.

In Islam the ideal economic order is based on the recognition of private property as a legitimate right and trust, markets are free but ethically regulated, the prohibition of exploitation, fraud, monopoly, and *ribā* (usury or interest as classically defined in Islamic law), redistribution through institutions such as *zakāt* and voluntary charity, protection of workers, consumers, and the poor and stewardship of resources under Allah's sovereignty. The underlying principle is: economic life should establish justice while enabling people to fulfil their responsibilities before Allah. Surah Al-Hashr (59:7) provide the principle for the Islamic economic order: *"...so that wealth may not merely circulate among the rich among you."* The concentration of wealth concentration should be limited. The liberal economic order has brought humanity the horrors of colonialism with massive exploitation of large parts of humanity through the looting of national resources and human labour through slavery and other forms of bonded labour. It led to the enrichment of the Global North and the impoverishment of the Global South.

In Liberalism David Ricardo's theory of comparative advantage is one of the foundational theories of international economics. The theory explains why international trade can benefit all countries, even when one country is more efficient than another in producing every good. The key insight is that trade depends on relative costs, not absolute costs. Before Ricardo, economists argued that countries should specialize in goods they can produce more efficiently than others (absolute advantage). Ricardo demonstrated that trade remains beneficial even if one country is more productive in every industry.

Ricardo concluded that international specialization increases total world production, trade benefits all participating countries, comparative advantage and not absolute productivity determines trade patterns and free trade generally increases economic welfare.¹⁴

Ricardo use the example of trade between Portugal and England, but what about the colonies. There was no free trade and free labour there. So the theory cannot explain the economic process of transfer of wealth from the colonies to the land of the colonizers. Yet Ricardo's theory of comparative advantage is seen as an important theory in understand international economics.

In Islam the principles for international economic policies are derived from the Quran. While Ricardo asks *why trade is economically beneficial*, Islamic economics asks *under what moral and legal conditions trade should occur*. Ricardo's theory is a **descriptive and analytical model**. Islamic trade theory is primarily a **moral and legal framework**.

There international trade is not about efficiency as in Ricardo's theory, but about many other things such as justice, mutual benefit, prohibition of exploitation, protection of weaker parties and respect for human dignity.

Surah An-Nisa' (4:29) says that international trade should be voluntary: *"Do not consume one another's wealth unjustly, but only through trade by mutual consent."*

Surah Al-Hujurat (49:13) sees international trade as a mean of supporting peaceful interaction between nations: *"We made you peoples and tribes so that you may know one another."*

In the classroom student of economics can be encouraged to question the much acclaimed theories of the important Western economist and by doing so they study other theories about economics that have been developed in the Global South.

There are huge practical implication of reconstructing economics. How do economic policies differ that are based on the concept of greed (Eurocentric economists call this efficiency from policies that are based on social justice. Take the funding of higher education. How do funding policies differ from these two perspectives?

¹⁴ Ricardo, D. (2001 [1817]), chapter 7.

Concluding remarks

I can easily expand this list of case studies to many other disciplines. In my book *Decolonizing The Mind* I discuss the discipline of philosophy, economic and social theory, political theory, cultural theory, world history, mathematics and the natural sciences. If we really want to build and use an Indigenous Knowledge System for Africa, you need to do this on the level of disciplines, and not limit yourself to general notions about knowledge.

There are three other conditions for a successful approach.

First, you need to have a thorough understanding of decolonial theory that enables you to analyse the shortcomings of the Indigenous Knowledge System for Europe. Decolonial theory places knowledge production and dissemination in the context of colonial domination. This domination was not only, social, political and economic but also intellectual. Understanding the mechanisms of intellectual colonial domination helps us in identifying mechanism of know knowledge was colonized in general and the distinctive disciplines in particular.

Second, you need expert knowledge of the discipline that enables you to identify the core concepts of the discipline, how these concepts have been developed in building the discipline, what the strengths and weaknesses are of these concept and what their practical implications are. A thorough command of the discipline means a through understanding of Eurocentrism.

Third, you need to have an open attitude towards contributions from other civilizations from the Global South that have been colonized by the West, and not limit yourself to African knowledge. Reconstructing a discipline is not just an African task. It is part of an global effort to decolonize knowledge.

There are many advantages in reconstructing the disciplines. It deepens our understanding of the discipline. It shows that the dominant canon is historically situated rather than universally valid.

The discipline is broader than any one paradigm. Understanding other paradigms can lead to better policy implications that are derived from that paradigm.

Reconstructing the disciplines leads to innovation in the disciplines. Historically, major scientific breakthroughs have often followed periods in which scholars questioned the conceptual foundations of a discipline. Reconstruction removes conceptual constraints; innovation creates new knowledge. The question *Why do we think this way?* Is replaced by the question *What new ways of thinking become possible?*

Every discipline contains assumptions that eventually become invisible. These assumptions shape the questions researchers ask. Reconstruction makes those assumptions explicit. Once assumptions become visible, they can be questioned.

Questioning creates intellectual space. That space allows innovation. Innovation requires new observations. More evidence often leads to new theories. Innovation is constrained by the assumptions of a discipline; reconstruction expands the space of possible assumptions.

Reconstruction encourages interdisciplinary thinking. Disciplines often become isolated. Reconstruction reconnects them. If you study logic, you can apply it to other disciplines. You understand both the history of logic and the history of the other discipline. A telling example if the application of Jain logic to quantum physics. The Heisenberg Uncertainty Principle is one of the fundamental principles of quantum mechanics. The principle states that there are pairs of physical properties that cannot both be known with unlimited precision at the same time. You can not know the position (where a particle is) and the momentum (its mass $\times$ velocity). If you the one, you can not know the other. In classical physics (Newton's physics), every object always has an exact position and an exact velocity. You can know both and based on this knowledge you can predict the future. You can know the position of a car and its measure its velocity and thus know where the car will be at a certain time in the future and what is velocity is. At the atomic scale, this picture changes. Consider an electron. If you determine its position very precisely, its momentum becomes highly uncertain. If you determine its momentum very precisely, its position becomes highly uncertain. The better one is known, the less well the other can

be known. With formal logic, this is incomprehensible, but with Jain logic it makes perfectly sense. Uncertainty is build into Jain logic.

Take the study of economics. In a decolonial approach you can not study Islamic economics without studying the religion of Islam. You will not be able to understand the principles and working of Islamic economics. You study two disciplines: economics and theology.

The most significant innovations may not initially be new mathematical models or policy prescriptions. They may instead be new foundational concepts, new organizing questions, and new ways of integrating knowledge from multiple intellectual traditions. Those changes can subsequently lead to innovations in theory, empirical research, and economic education.

Decolonizing the curriculum with decolonial pedagogy is a collective effort. Individual researchers can play an important role, but if reconstructing the disciplines might lead to new teaching material that can be used outside the individual classroom, then this opens the door for projects for reconstructing the disciplines.

These project can be limited to South Africa, but it might benefit from international cooperation. I will end by giving an example of reconstructing mathematics.

Mathematician Gustavo Paccosi from Argentina has been working on how decolonial traditions in Latin Abya Yala (formerly known as Latin America) impact the study of mathematics. He looks at how indigenous mathematics in Latin America has evolved and also at to what extent the differential and integral calculus of Newton and Leibniz were indebted to Indian mathematicians.

Aditya Kolachana from India is studying the underappreciated contributions of the Indian tradition to mathematics and astronomy, from ancient Vedic times through to the modern era, emphasizing its practical applications, theoretical advancements, and distinctive methods of teaching.

I have been in conversation with them on a case study of how mathematics has been colonized and how to use indigenous knowledge in decolonizing and reconstructing the discipline. We focus specifically on differential and integral calculus. We will focus on the recursive schemes that Indians had been using since before the founding of the Kerala School, both for the construction of their altars and for determining the relative positions of the planets, and which several contemporary authors assert are structurally equivalent to Euler's method for solving differential equations. Could such recursive schemes propose new keys to reading or alternatives in the understanding and teaching of differential equations?

We hope we can find a partner in South Africa to start the project as an experiment in developing an Indigenous Knowledge System not only for Africa, but for the whole world.

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