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Whose Knowledge Counts? The Struggle to Revitalise Indigenous Knowledges in Guatemala

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Abstract: Previous research on environmental engagement and public understanding of science demonstrates the importance of including different perspectives, including traditional forms of knowledges such as for example indigenous knowledges. Environmental governance and management are areas in which indigenous peoples strive towards an acceptance of indigenous knowledge to be placed next to Western scientific knowledge. The struggle concerns the management and control of indigenous territories, but it also concerns the dismantling of a hierarchical understanding of knowledge, which lessens indigenous knowledge about ecosystems and about how to create a good life. Through the revitalization of indigenous knowledge and traditional practices, indigenous communities develop ideas and establishments to find paths towards socioecological balance. This paper investigates the role of indigenous knowledge in relation to ideas of sustainability focusing on Guatemala. This paper studies indigenous groups' understandings of indigenous knowledge, their struggle to revitalise knowledge and their efforts for it to become validated. It uses decolonial theory in its analysis and raises questions of power structures and hierarchies within academia.

Keywords: indigenous knowledge; ancestral knowledge; traditional knowledge; environmental management; cultural revitalization; decoloniality

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1. Introduction

Western science has made and continues to make crucial contributions to the production of knowledge in many areas, yet there are nevertheless other intellectual and epistemic projects in which it does not contribute. One paradox is that a lot of knowledge that is important to sustain life on this planet is under threat from Western "science-ridden interventions" [1], p. 315. These interventions relate to an extractivist model of development and facilitate the intensive exploitation of natural assets such as soil, air, water, and all living things. The extractivist model that companies often practise in indigenous territories is extremely violent against nature and this model is incompatible with sustainability [2]. The above-mentioned paradox makes the active participation of indigenous groups very important in the governance of ecosystems. Climate change accelerates the loss of indigenous traditional knowledge due to the loss of animals and plants, which makes it even more important to understand the revitalization of indigenous environmental knowledges. Recent studies discuss how marginalised groups, such as many indigenous groups, confront and shape environmental change [3,4]. Focusing on Guatemala, this paper presents how indigenous representatives understand indigenous knowledges and how they work for its validation. The paper analyses the effort to revitalize these knowledges from a decolonial perspective, puts the question of revitalization of indigenous knowledge in a wider perspective, and relates it to knowledge production in Western(ised) academia.

Definitions of traditional, ancestral, and indigenous knowledge are contested in previous research [5,6], and I also came across various interpretations of these terms when

talking to indigenous leaders in Guatemala. This paper is not about trying to confine these concepts into well-ordered categories, but rather about trying to understand how indigenous groups understand traditional/ancestral/indigenous knowledges about nature, and how they work to revitalise and validate it. Just like any form of knowledge, indigenous knowledges exist in a context of belief systems and world views. These moreover form part of the histories and cultural heritage of peoples and are commonly passed on orally from community elders to younger generations. These knowledges constitute what George J. Sefa Dei describes as an 'Indigenous informed epistemology' which is a "worldview that shapes the community's relationships with surrounding environments" [7], p. 114. The epistemology is the result of the immediate experience of nature and its connection with the social world. If people destroy nature, they destroy a part of themselves [8], p. 11. This epistemology represents knowledge that is based on intellectual understandings and interpretations of the physical, social, and spiritual worlds. It therefore includes local peoples' experiences, their natural and human- built environments concepts, beliefs, and perceptions [7], p. 114. Traditional and ancestral knowledge also exist in non-indigenous communities but without an 'Indigenous informed epistemology'. These knowledges are not attached to an indigenous cosmovision or worldview. Non-indigenous traditional and ancestral knowledges can still depend on people's relationship to the place and to nature where they live. These traditional or ancestral knowledges can for example be about non- industrial forms of farming, sustainable forest management, or about small-scale sustainable fishing, such as in the case of my own family. These knowledges are passed from generation to generation through practice and in relation to specific ecosystems. As one of the indigenous representatives who I interviewed argues, "*traditional knowledge is not necessarily indigenous*" [9]. She adds, "*at the same time it is important to highlight indigenous knowledge, since it entails a life system which the indigenous communities' way of life is dependent upon. Their understanding is immersed with the knowledge and with the relation to the universe, the relationship with nature and the relationship to human beings"* [9]. In this paper I mainly use the term indigenous knowledge when referring to ancestral and/or traditional knowledge among indigenous communities. Indigenous knowledge in this paper does not come from a "…romantic Western notion of culture as static and bounded" [10], p.148, however. The idea that a knowledge can be entirely 'indigenous' to 'a people' is flawed since that would mean that this people would not have exchanged knowledges with others through history [10]. The concept of indigenous knowledge is political and gendered, and its history makes up part of marginalised peoples' struggles against political domination. Women's role as bearers and transmitters of knowledge is important and relates to the social reproduction that women traditionally are responsible for. Social reproduction comprises three main aspects. First, biological reproduction (the emotional, sexual, and affective services required to maintain intimate and family relationships); second, unpaid production of both goods and services in the home (this includes different forms of care as well as voluntary work which benefits the community); and third, the reproduction of ideology and culture (which stabilizes but sometimes challenges dominant social relations) [11], p. 7.

Hierarchies and Divisions: A Decolonial Perspective

Due to continued colonial practices of domination, peoples' knowledges and cosmologies are hierarchically judged and classified based on a European standard [12]. Rauna Kuokkanen has studied the mechanism epistemic ignorance which in her words "enables the continued exclusion of other than dominant Western epistemic and intellectual traditions" [13], p. 60. The consequence of this ignorance is that Wester(nised) academia commonly does not take notice of indigenous knowledge and if it does it does not understand indigenous people who speak from their own "epistemic conventions" [13], p. 60.

Another consequence of the epistemic ignorance is that indigenous students often are taught Western modern science (WMS) without any linkage to their own traditional ecological knowledge (TEK). There is often a tension between multi-culturalist and

universalist approaches to education. However, as Maria L. Hamlin argues, these epistemologies can be combined without one being introduced at the expense of the other [14], p. 763. The idea of combining these epistemologies is moreover in line with the Maya Cosmovision in which complementarity and interconnectedness play important roles [14], p. 763—[15], p.164.

As Boaventura de Sousa Santos shows, the hierarchical classification of knowledges can moreover be explained through invisible abyssal (bottomless) lines which developed during the colonial period and divide the human from the sub-human. One side of the line is the subject of knowledge whereas the other side of the line is the object of knowledge. These divisions are still present today with regulation and emancipation ruling the "Western" side of these lines, while appropriation and violence rule the other side of the lines [1] (pp. 189–195). The abyssal lines structure modern law as well as modern knowledge and in de Sousa Santos words "the struggle for global social justice must […] be a struggle for global cognitive justice as well" [1], p. 196.

Eurocentric epistemologies judge what knowledge is accepted in a certain cultural and historical context. The exclusion and undermining of knowledge and practices that take place in the periphery or among the "subaltern" can, in Gayatri Chakravorty Spivak's words, be expressed as epistemic violence [16]. That is a marginalisation of certain voices within Western discourses. This epistemic violence can moreover lead to an epistemicide, "the murder of knowledge" [1], p. 149, and the extermination of "ways of knowing" [17], p. 74. This takes place on 'the other side of the line' since knowledges there are perceived as peripheral, marginal, and local. A lot gets lost with the epistemicide, and one important aspect of this loss for this paper is that different forms of knowledge are linked to different relationships to nature, which means that knowledge about nature and people's relationship to nature gets lost.

Modern Western natural and social sciences are international, but this does not make them universal nor free of culture for that matter. Genocide and epistemicide against Africans, Moriscos, Marranos, and indigenous peoples that took place during the Castilian Monarchy's conquests of Al-Andalus and of the Americas from the end of the fifteenth century, in combination with the erasure of the historical memory of the origins of modern science comprised what Ramón Grosfougel calls the modern/colonial epistemic extractivist project [18]. One prerequisite for the continuation of this extractivist project is an attitude of objectification and destruction that "neocolonial imperial West" exerts on the rest of the world [18]. This link between knowledge production and colonialism means that much of WMS has its origins in epistemological extractivism, in which for example scientific knowledge from Persian, Arabic, and Chinese thinkers were taken and repackaged as Western [18]. Epistemic ignorance as well as extraction of knowledge still takes place today and as a result the work to decolonise academia continues [19–22] within as well as outside of academia. One influential movement outside of academia in this context is the indigenous political Zapatista movement in southern Mexico which questions the hegemonic and exclusionary structure through the notion of 'Un Mundo Donde Quepan Muchos Mundos' ('A World Where Many Worlds Fit') since the mid-1990s [23]. The Zapatista's decolonial political vision inspired academics such as Franz Hinkelammert and Enrique Dussel to develop the concept of pluriversality which sees beyond the Western world(s) claims for superiority and its universalising tendencies. As Walter D. Mignolo explains "the pluriverse consists in seeing beyond this claim to superiority, and sensing the world as pluriversally constituted" [24], p. x.

2. Methods and Materials

This paper is principally based on interviews made during fieldwork in Guatemala City in February and March 2018. Some of the interviewees live in Guatemala City whereas others live in other municipalities. Interviewees were selected using strategic sampling and snowball sampling. Originally my idea was to study the role of indigenous representatives in international multilateral climate negotiations, and therefore a first step

in the strategic sampling was to interview six indigenous representatives who participated in the international climate talks in Paris (COP21). These interviewees moreover participate in other international UN talks on, for example, biodiversity. The focus of the study changed during the interviews however, since the indigenous representatives who I interviewed were more interested in talking about an ongoing epistemological struggle and the revitalization of indigenous knowledges. The snowball sampling occurred when selected representatives recommended other indigenous leaders who work with promoting indigenous environmental knowledge on national, regional, and local levels. All interviewees work at local as well as national level and, as mentioned above, six of them work with climate change and other environmental issues at international level. In total, I interviewed ten leaders/representatives (five men and five women) of a variety of indigenous organisations that work to strengthen the influence of indigenous peoples and indigenous thought in the political, cultural, and economic spheres. Two of the interviews were conducted with more than one person and six were individual interviews. All interviews followed standard ethical requirements for qualitative research. The interviewees gave their informed verbal consent to their participation and were informed that they could withdrawal their consent at any point. The interviews were semi-structured and focused on the work that the interviewees do at different levels and their views on knowledge. All informants were interviewed in their capacity of leaders and representatives and since the interviews did not include any questions of sensitive personal nature, there was no need to do a formal ethical review. The data collection for this study was sponsored by Mid Sweden University.

All the interviewees speak indigenous languages as well as Spanish and Spanish is their second (or third) language. I conducted the interviews in Spanish and I have made all the translations to English in this paper. My experiences from having lived and worked (with human rights and research) in Guatemala for three years made the conversations easier but nuances still get lost in the translation process. There was of course a challenge, in that the type of knowledge that the interviewees talked about is deeply connected to their indigenous languages. In this study nine of the interviewees belong to the Mayas which is the largest group and identify themselves as Kaqchikeles, Tzutujiles, and Quichés. One of the interviewees belongs to the smaller group of Xincas.

3. The Guatemalan Context

The indigenous population in Guatemala makes up almost half of the country's population. According to the numbers in the 2018 population count, Guatemala has an overall population of 14.9 million inhabitants, of which 6.5 million (43.75%) self-identify as Indigenous, from the Maya, Garífuna (Afrodescendants), and Xinca Indigenous groups. The Maya population can be divided into the following 22 groups; the Achi', Akateco, Awakateco, Chalchiteco, Ch'orti', Chuj, Itza', Ixil, Jacalteco, Kaqchikel, K'iche', Mam, Mopan, Poqomam, Poqomchi', Q'anjob'al, Q'eqchi', Sakapulteco, Sipakapense, Tektiteko, Tz'utujil, and Uspanteko [25].

Even though the indigenous population in Guatemala represents a large portion of the country's population, this is not reflected in political nor in economic power and influence. Instead, the indigenous peoples in Guatemala continue to suffer from discrimination and there is widespread poverty in indigenous communities. This paper already raised the issue of epistemicide, but in the case of Guatemala the indigenous population also suffered genocide in the 1980s. This happened during the Guatemalan armed conflict in the context of US counterinsurgency and the fight against communism in Latin America, and it became the worst violence against the Maya since Spanish colonization. Previous research explains this armed conflict as a war between the state/estates and the communities, and situates it in the context of confrontation of capital against world insubordination [26]. The Guatemalan military viewed indigenous communities as a safe-haven for the guerrilla and the state conducted a counter-insurgency campaign designed to massacre, displace, and eliminate Maya communities. Of the 200,000 dead people that the

Guatemalan Commission for Historical Clarification reported after the war, 83% were Indigenous. On top of that 1.5 million people, of whom the large majority were indigenous, were displaced. The commission found that the military was responsible for 93% of these deaths [27], p. 107. Many of the refugees and the internally displaced persons returned to the places where they were from, but the armed conflict and the genocide is an unhealed wound in indigenous communities where grandparents and parents survived massacres. Since the peace accords between the state and the guerrilla was signed in 1996, new challenges and threats have arisen. The Guatemalan currency lost value in the 1990s and the economic hardship that followed made many Guatemalans (including many indigenous persons) migrate to the USA [28], p. 109. The emigration continues but over time the number of returning migrants have increased too, both forced and voluntary [28], p. 124. Today extractive industries negatively affect indigenous communities and have meant displacement and conflict for those who live/lived on the territories of these projects. Deforestation is another serious problem with for indigenous communities [27], p. 107. This brief description of the atrocities in the 1980s and of some difficulties that indigenous peoples in Guatemala confront today, contextualises the contemporary epistemological struggle and revitalisation that is presented in the results below.

4. Results

Different forms of knowledge and people's views on knowledge is an important topic among indigenous leaders and representatives in Guatemala. It is moreover closely linked to their social struggles for dignity and respect as well as to their environmental struggles for *la tierra,* the land, water, air and all the living species living there. Much of what was said during the interviews deals with what indigenous, ancestral, and traditional knowledge entails, how these knowledges are and could be protected as well as transmitted, that these forms of knowledges are a form of science, and how it could complement WMS.

4.1. What Does Indigenous Ancestral Knowledge Mean in Guatemala?

The leaders and representatives of indigenous communities and organisations who participated in this study talked about what indigenous traditional/ancestral knowledge means to them. One of the interviewees explains that one can make the distinction between "*ancestral knowledge*" and "*traditional practices*" [29]. Several of them explained the context in which this knowledge has grown and continues to grow. What they describe is a way of seeing the world and how things are interlinked. As one of the leaders explain, *"…the knowledge is upheld by the relationship between the human being with mother nature in mother earth and in cosmos"* [30]. This is the basis of the worldview that shapes the knowledge and what Dei would call their 'Indigenous informed epistemology' [7], p. 114. The importance of this interconnectedness between people and nature in our surroundings is a recurring premise among the leaders. One leader who works as a small-scale farmer explains this connection, "*if you keep the land, the water and the water sources healthy its two in one […] since we also relate to this water, we also relate to this land because it is what gives us life*". She continues *"…we opt for keeping nature healthy, and closer, so that she is close to us, and we are close to her"* [31]. The *"…indigenous communities and their land are immersed and their knowledge develops in the context of the language and the way of life […] if one does not have land, well then, one will not be able to develop ones knowledge…"* [9]. It is in other words crucial to be connected and have access to nature and the place where one lives/comes from for the knowledge to flourish and develop.

Different types of knowledge exist and develop within this context as explained above. The different types of knowledges in this context are connected to a way of seeing the world, where the relationship between all living beings and with cosmos are at the centre. Spiritual ancestral knowledge passed on by spiritual guides and traditional practices passed on by elders complement each other. Spiritual guides possess knowledge that allows them to see the past, the present, and the future. For example, the general

population may know if it will be cold or if it will be warm, but the spiritual guides are even better at predicting what weather will come [32]. This area of knowledge of foreseeing a phenomenon is useful in relation to climate change. It can for example be an understanding of volcanoes, knowledge about predicting intense rain or other weather-related phenomena or a landslide [33]. This knowledge *"... has been useful at community level, but does not have impact in the municipality, because they do not believe. It is superstitious, it is witchcraft. But there are people who manages to prevent a natural problem, a phenomenon. For example, a heavy rain"* [33].

The spiritual and the practical knowledge go hand in hand and relate to the way of seeing the world, the cosmovision. For instance, the practise of asking for permission before for example sowing seeds or cutting trees. One representative at an organisation that works with land related issues says, "*in order to sow maize he [her grandfather] has to ask the land for permission, the whole hill, all the animals, that is the tradition that we have"* [34]. When talking about how the idea of complementarity expresses itself in practice, another representative mentions that before cutting a tree "*you have to ask for permission and make sure that your energy is complementary with the energy of the tree, that is the first aspect, the second one is, that this tree really can be useful for a long time*" [30]. Moreover, "*the lunar phase is related to the life of a human being and with the life of all the elements*" which means that "*one cannot cut a tree during any moon phase […] Depending on the wood one can cut it during full moon or during new moon*" [30]. The importance of the moon phases is a reoccurring topic that the leaders and representatives brought up when talking about ancestral knowledge both in the Maya and Xinca communities. One concrete example of how this knowledge is used in practice is that of a farmer who grows pea pods for export. He explained how the traditional knowledge helps him to generate money. By harvesting the pea pods in the moon phase that corresponds he can cut fuel costs, since the pea pods do not need to be kept as cold during transport, as they would have to be if he had cut them during a different moon phase [32].

Much of the traditional knowledge and practices that the leaders and representatives mention relate to growing food organically, to fishing, to health and medicine, and to environmental conservation. One concrete example of how it is used for growing food is composting and one of the representatives talks about her grandfather's compost. She says,

> *what did my grandfather do? Well, he gathered all the garbage that was not glass or anything like that, but garbage that rots. He gathered it in sacks with all the soil that one collects when sweeping the house and then he took us [grandchildren]to the place where he put it. And when it was rainy season, tomatoes, tomatillo, these are the small green ones, and chili come up. Without any need to sow…* [34].

She also explained that this method allows you to grow food in places that normally would not be fertile enough. Another representative explained that traditional indigenous knowledge about trees with leaves that keeps humidity has been used by the UN Food and Agriculture Organization in a project that aimed at recovering land areas that had dried out. This project *"… has helped many families to keep the soil humid and to cultivate […]. It was and ancestral practice"* [35]. From an environmental conservation perspective the indigenous traditional knowledge allows "*a balanced use of natural resources, but it also allows you to have an income at present*" [32].

4.2. Safeguarding Knowledge and Its Challenges

Most of the indigenous knowledge is transmitted orally by elderly persons who are bearers of knowledge [29,32–34]. Women are often guardians of this knowledge, and young people take part in implementing the knowledge [32]. Women transmit this knowledge from generation to generation [9,36]. Women's role is in other words very important in the of safeguarding indigenous knowledge in Guatemala, because they know the knowledge, transfer the knowledge, and apply it [32]. As one of the women explains,

"*it is clear because the women have conserved more and the central element is that women, let's say that it can be a disadvantage or an advantage depending on how we see it. In other words, it could be positive for the safeguarding of indigenous knowledges but not necessarily for women's rights. Women have stayed in the house*" [35]. Women do, for example, transmit knowledge in the areas of "*medicine, knowledge in relation to their surroundings, in the intrinsic relation that exists between the human being, the cosmos and nature*" [9]. This illustrates some of the social reproduction [11] that women often are responsible for and how it is interconnected with the transmission of knowledge.

Much of the transmission of indigenous knowledge and the implementation of it takes place in the countryside and as mentioned previously a lot of the knowledge is context bound and exists in relationship with the land. As one Mayan leader explains,

> *our science is transmitted orally and, in the countryside, not in the schools nor in the universities. It is when we go to the mountain with our parents, our grandparents, with our older siblings to work. There is where we se the behaviour of the universe, what happens here in the world, how the sun affects us, how the moon affects us. Obviously, it depends on the context as well. Maybe the effects of the moon over there in Sweden is different* [29].

This illustrates how the knowledge is taught and learned as well as the way that it is context bound. Elders transmit some types of knowledge more than other knowledge, partly because not many are experts on, for example, the Mayan calendar.

> *So, there is a discussion in our [Maya] organisation. We discuss what the elders transmit and what they do not transmit. There are things that they do not transmit. Simply, the elderly sees if it is the case that the persons will do it [follow what they are taught]. There is a level of transmission, I say fairly wide and there is a level of very private transmission, and another level of transmission much more selective, for example the Mayan calendar* [33].

Many people find out the basics about the calendar but there are some Mayan elders who have a deep knowledge in this area. "*They have an opportunity to have much more profound understanding because they are not constantly connected to the world which is only for the one who writes or to what they say in the universities. They are beyond*" [33]. Here the leader shows a concern over the dominance by WMS and Western(ised) universities, and this is a challenge that several of the leaders and representatives raised when talking about their work to safeguard and revitalise ancestral knowledge and traditional indigenous practices.

Several of the representatives, moreover, talk about how their cosmovision and way of seeing the world is incompatible with what they describe as the dominant system. One of them sees it as living in an intercultural world with two systems where one capitalist system unfortunately wants to dominate the other. He says, "*they are selling us a model that is not the model that we are used to living, and we do not have the resources to have it. So, this model, this system is beginning to break down, and the problem is that it is also making us lose our knowledges*" [32]. This illustrates the problem that Santos describes when Western "science-ridden interventions"[1], p. 315, threaten knowledge that is vital to sustain life on this planet. Another representative explains how the biggest aspiration of a national indigenous organisation is the transformation of the system, a new Guatemalan state. He talks about it as their dream but adds that it is unachievable [33].

According to the participants in this study poverty, urbanisation, the formal education system, discrimination, and racism are some of the concrete obstacles for strengthening indigenous influence and thereby ancestral knowledge and traditional practices in Guatemala. Poverty because it makes it more difficult for people to organise and fight for revitalisation of knowledge when they do not have their basic needs fulfilled [37]. Urbanisation since it signifies that people lose the close connection to nature that so much of the indigenous knowledge is built upon. It leads to loss of cultural elements and indigenous identity [32]. There is a widespread racism, a discrimination against the indigenous

population as well as a rejection of everything indigenous in Guatemala [29] and this obviously makes the revitalisation of knowledges challenging since it is not taken seriously. Today indigenous children may study in their mother tongues in Guatemala, but what is taught in the schools does not change. As one of the Mayan representatives describes, "*they are giving us Western education in our language*" [32]. Indigenous organisations have therefore slowly begun to transform the education system from below by training teachers, so that they will be able to transmit the indigenous cosmology to the school children [30], which can be seen as an example of revitalisation. Another such example is the establishment of Mayan Universities that support the revitalization of indigenous knowledges. These universities are not based on WMS but can be understood as an effort to protect, develop, and transmit indigenous knowledges. This is not an isolated phenomena in Guatemala since there are many similar indigenous universities across Latin America [38]. One of these universities in Guatemala is the Maya' Kaqchikel Nimatijob'äl and the overall goal of this university is to protect the ancestral Mayan knowledges and contribute to systematisation of existing knowledge as well as to knowledge production.

> *… The spinal cord of the Kaqchikel University is the safeguarding of the ancestral Mayan knowledges, in the sense that, the civilizational crisis that we live as humanity, well, the Western sciences or the conventional, the ones which comes from Europe or the USA, have ended up indebted with humanity because they have not resolved the poverty and much less resolved malnourishment* [29].

The university is located on Kaqchikel territory, and the classes are taught in Kaqchikel. There are Kaqchikel language classes for those who wants to learn the language and the university is open both to indigenous and non-indigenous students [29]. As shown above, indigenous organisations in Guatemala fight to revitalise indigenous knowledge both through transformation of the existing educational system for children as well as through universities created and run by indigenous people.

4.3. Our Indigenous Knowledge Is a Form of Science Which Is Complementary to Western Sciences

One theme that leaders and representatives brough up in the conversations was that their indigenous knowledge is science and should be treated as such The Xinca leader says,

> *Sometimes it is difficult to understand how the knowledge can be considered a simple tradition. From our perspective the knowledge is based on a process of accumulation of experiences in the context of the relation between living beings who inhabit one shared territory. […] The accumulation of experiences weaves the scientific knowledge. […] The knowledge corroborates, it perfectionises, lets say, it systematises mentally.* [30]

One Maya representative says, "*we are making the argument again that it (Mayan indigenous knowledges) precisely should be considered science*" [32]. Another explains, "*…our grandparents were great observers and scientists in that they used the three main things to do science and what the natural sciences know as observation, experimentation and if it is repetitious. […] We observe all the behaviours in nature*" [29]. He continue by saying, "*how can it not be science when we follow the three basic principles of science. Observation, which is cyclical, which is repetitive and the observation*" [29]. Here the leaders provide a set of criteria to explain why the indigenous knowledge in their communities is science and the Xinca leader moreover distinguishes it from traditional knowledge. To summarise, their arguments observation, experimentation, repetition, and systematisation makes this knowledge science. The leaders perceive it as a form of science that differs from WMS. As one of the Mayan representatives explains, it is "*a science which at this moment has not been given necessary the level and the status since it is looked upon as inferior to Western sciences*" [32]. This statement by one of the Maya representatives is an example of epistemic ignorance since most of Western academia do not value this knowledge nor see it as a form of science. The lack of respect for Maya (and other indigenous) knowledge in Guatemala, illustrates the division caused by

abyssal lines that separate knowledges that are considered and respected with knowledges that are ignored and devalued. The struggle to revitalise indigenous knowledges therefore becomes a fight to erase the abyssal lines and hierarchies between Western sciences and sciences based on other cosmologies and epistemologies.

As explained above the leaders and representatives who I interview for this study argue for an improved status for indigenous knowledges and for Maya science to be considered as science. This does not mean that they value Western sciences less, however. Instead, they describe how the indigenous and Western knowledges complement each other and they seek more of these type of knowledge exchanges. As one representative explains, *"…these [WMS and indigenous knowledge] are complementary for the people in some way"* [9]. Several of the leaders express that we should work towards creating intercultural knowledges. The two systems, one based on Western cosmology and the other on Maya/Xinca cosmology, can complement each other [32]. One of the leaders says, *"I believe that it is complementary. We may use the tools from Western science and even more so now with the social sciences, we can use it to interpret ancestral knowledge"* [29]. This idea of complementary knowledges is in line with the ideas of pluriversality between epistemologies and cosmologies that for example Mignolo [24] argues for. Instead of seeing the Western cosmology and sciences as universal the pluriversal should be the universal. One representative says *"…we as indigenous peoples do not offer the only alternative; we are one alternative. All the modern knowledge and all its technology is another alternative, but with both we could make an alternative that guarantees the success to continue with this planet in balance…"* [32].

Several of the representatives and leaders mention examples of situations in which ancestral knowledge and traditional knowledge work or could work together with Western technology. One leader describes a knowledge exchange between an agronomist from the Ministry of agriculture and her together with other villagers. The agronomist wanted to teach the indigenous farmers to use pesticides, but the farmers ended up teaching him about traditional ecological methods of fighting insects (considered to be pests) with for example ashes and lime. She concludes, "*we do not know everything either, so maybe there are other ways that they [Ministry of Agriculture] may support us. But it [the knowledge of the agronomist] is not the same as our knowledge"* [34]. This example illustrates how the leader shows an openness to Western(ised) knowledge and a willingness to exchange knowledge with the agronomist that works for the Guatemalan state. One of the other representatives further illustrates this complementary view of knowledge with the following practical example. The Mayan organisation Asociatión Tzotzil *"manages and produces orchids in vitro [in glass] based on traditional knowledges, we have a laboratory with a whole Western system, but applying the traditional knowledges. So, what does this mean? When it is time to collect the seeds of the plats, it is done according to the moon. […]. Call it Mayan spirituality"* [32].

As outlined above indigenous Mayan leaders argue for their ancestral knowledge to be considered science and explains why that is based on a set of criteria. The fact that they argue for Mayan ancestral knowledge to be valued and classified as science does not mean that they devalue WMS, however. Instead, they argue for complementarity and collaborations between the different forms of knowledge/science. These results demonstrate that there does not have to be any paradox between being a form of science and being complementary to WMS.

5. Discussion

This study contributes to the understanding of how indigenous leaders and representatives in Guatemala understand indigenous knowledge and how they work for its revitalisation and validation. It shows that a complementary and balanced relationship between human beings and the rest of nature as well as the relationship with cosmos, are fundamental for the ancestral knowledge and traditional practices. Two practical examples of how this knowledge is practised include the ability to foresee natural phenomena in disaster management and the way both Maya and Xinca communities use the knowledge about the moon phases in food production and forestry activities. Elders and

women are important bearers and spreaders of ancestral knowledges and traditional practices. The transmission of knowledge is gendered in the sense that much of it is intertwined with social reproduction that women are responsible for. These indigenous knowledges are commonly transmitted orally in the countryside where people live and work and requires a close relationship with the ecosystems. These relationships are under threat however, and as mentioned in the results there are many challenges to the revitalisation of these knowledges and as explained earlier some relate to racism, widespread discrimination, poverty, extractivist industries, deforestation, and urbanisation. As mentioned in the introduction, climate change accelerates the loss of indigenous traditional knowledge due to the loss of biodiversity and as outlined in the methodology section, six of the interviewees actively organise to reduce climate change and strengthen the resilience among their communities. The results demonstrate resistance to epistemic violence and epistemicide despite all the difficulties and hurdles. The organised struggle for revitalisation does for example take place in the educational system through training of schoolteachers in indigenous cosmovision and the establishment and running of indigenous universities where knowledges are systematised, developed and taught. The training of schoolteachers is in line with arguments for indigenous students' access to TEK as part of the WMS teachings found in previous research [14].

Like De Sousa Santos [1], the leaders and representatives who took part in this study argue for the usefulness and importance of indigenous knowledge in relation to the failure of a Western system/model that has put this planet in the current critical situation with climate change and extension of species. They demonstrate the importance of the knowledge that their grandparents have held on to despite discrimination, racism, genocide, and epistemicide. As part of the struggle for the validation of indigenous knowledges and as an effort to move from 'the other side of the abyssal lines' to 'this side of the abyssal lines' [1] they argue that the knowledge they carry is science and outline why that is. Several of the interviewees moreover stress how their forms of indigenous knowledges are complementary to WMS. This way of thought is in line with what Hamlin found in her study, in which she explains the role of complementarity and interconnectedness in Mayan cosmovision and how these concepts facilitate the compatibility between Mayan TEK and WMS.

In the Western(ised) academia we need to demonstrate respect for different forms of knowledges and continue to reflect on how to do that better. At the same time, it is important for everyone who work within sciences to keep scientific methods and practices and to distinguish truth form belief. This study demonstrates that indigenous organisations in Guatemala work towards a pluriverse, non-hierarchical knowledge production, and that they are positive to collaborations with WMS. They see these forms of knowledges/sciences as complementary. The indigenous Zapatista movement's idea of 'A World Where Many Worlds Fit' becomes useful here, since it encourages complementarity and pluriversality as supposed to epistemic ignorance or even worse epistemicide.

To conclude this study demonstrates indigenous representatives' efforts to revitalize and vitalise indigenous knowledges, as well as the challenges that indigenous groups face in doing so. As argued by the leaders and representatives I spoke to, as well as by many researchers, a decolonized academia would benefit the development of knowledge, by strengthening knowledge transfer as well as knowledge production. It is crucial that this is done if we are to transform our societies the way that is needed with the "*civilizational crisis that we live as humanity*" [29]. Indigenous knowledges need to be taken into account, not through epistemic extractivism, but through validation. Those of us who work in Western(ised) universities therefore need to continue to make knowledge production and transmission less hierarchical. If we look at the bigger picture, this is important since the struggle for global social justice in interlinked with the struggle for global cognitive justice and both are vital in the transformation to more sustainable systems that are better opted to sustain life on this planet.

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