

Decolonization of care through a wholistic way of living: Gaga from the Tayal in Taiwan

Wasiq Silan^{a*†}, Chi-Chuan Chen^b, and Tin-Yu Lai^{cd}

^aCentre for Research on Ethnic Relations and Nationalism (CEREN), The Swedish School of Social Science, Snellmaninkatu 12, 00170, University of Helsinki, Helsinki, Finland; ^bOrganismal & Evolutionary Biology, Viikki Plant Science Center & Finnish Museum of Natural History (Botany), PO Box 7, FI-00014 University of Helsinki, Helsinki, Finland; ^cFinnish Environment Institute (SYKE), Marine Research Centre, Latokartanonkaari 11, 00790, Helsinki, Finland; ^dDepartment of Economics and Management, University of Helsinki, P.O. Box 27, 00014, Helsinki, Finland

*An.gao@helsinki.fi

[†]This author is a Tayal from Ilyung Taranan (river Taranan) in Wulai, Taiwan, who has also published under her Mandarin name I-An Gao.

Abstract

This article explores the “wholistic” as a central concept of “the good life” as expressed by the Bnkis, Tayal Indigenous Elders, who participated in the Day Club, Tayal territory of Northern Taiwan. In particular, we analyze the stories of care experienced by the Bnkis from the standpoint of wholistic relationships. The stories were recorded primarily between 2015 and 2018. In this analysis we used a critical qualitative design approach, privileging Tayal epistemology and informed by Tayal hermeneutics. Our results show that the concept of well-being for the Bnkis is closely linked to their relationships with people and with the land and spirituality. Through these relationships, the continuation of Gaga—Tayal law and cosmology—has been adapted organically over time. We argue that Gaga is central to Tayal Elder/Bnkis care and essential to Bnkis’ well-being. We propose that the concept of wholistic relationships embedded in the Tayal law of Gaga is vital in developing an elderly care system that is genuinely culturally relevant in the long run. This research demonstrates how the wholistic concept can improve human health and well-being, and ultimately provides an implication to sustainable development.

Key words: wholistic, care, Gaga, Tayal, Taiwan, sustainable development

Introduction

The Anthropocene has brought forth challenges including global mass extinction and the rapid decrease of species (Monastersky 2015), as well as those relating to language, and the climate and biodiversity crisis. These result from colonization of land—the entanglement of colonialism and the Anthropocene—and climate injustice for the Indigenous Pacific Islanders (Koons, 2019; Suliman et al., 2019; James, 2020). Settler colonialism in the Anthropocene threatens global biodiversity, accelerating climate change and habitat loss, thus endangering the sustainability embedded in the wholistic balance of multispecies relationship (cf. Koons 2019). Human health and well-being are mentioned as one of the focus of the United Nations (UN) Sustainable Development Goals (SDGs). In fact, Goal 3 of the SDG is about Good Health and Well-being, which pertains to ensuring healthy lives



Citation: Silan W, Chen C-C, and Lai T-Y. 2022. Decolonization of care through a wholistic way of living: Gaga from the Tayal in Taiwan. FACETS 7: 591–610. doi:[10.1139/facets-2021-0087](https://doi.org/10.1139/facets-2021-0087)

Handling Editor: Brenda Parlee

Received: June 29, 2021

Accepted: December 6, 2021

Published: April 21, 2022

Note: This paper is part of a collection titled “Ärramät, the intersections of biodiversity conservation and Indigenous health and well-being”.

Copyright: © 2022 Silan et al. This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/) (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author(s) and source are credited.

Published by: Canadian Science Publishing

and promoting well-being for all at all ages (UN 2015). This shows that human health and well-being has complex but interlinked relationships to biodiversity and sustainability (Naeem et al. 2016). To reverse climate change and drastically declining biodiversity, it is vital to reconsider the relationship between humans and nature. In this context, the wholistic approach, which commonly exists in different forms among many Indigenous cultures (Meyer 2008; Absolon 2016; Blackstock 2019; Wilson et al. 2020; Shih and Tsai 2021; Virtanen et al. 2021), including the Tayal in Taiwan (Yen and Chen 2013; Lin et al. 2020; Acabado and Kuan 2021), may serve as an approach to address these crises.

We draw our meaning of “wholistic” from Indigenous writers including Hereditary Chief Umeek/Richard Atleo (2004, 2011), Skeetchestn chief Ron Ignace and Marianne Ignace (2017), Bowers (2010) and Absolon (2010, 2016) (see also Berkes et al. (2000)). This concept entails validating the wholeness of Indigenous knowledge, Indigenous cultures, and their ancestral ties to sacred territories. The wholistic approach directs how we should conduct our research. Relationality is the core attribute of the Indigenous research paradigm (Chilisa 2012). Studying Indigenous communities according to the Indigenous paradigm means engaging with Indigenous knowledge, which is tied to relations and a particular time, space, sovereignty, identity, and belonging. To uphold relationality, one should emphasize reciprocity, collaboration, well-being, and gifting (Kuokkanen 2000; Porsanger 2004; Virtanen et al. 2021). In addition to relationships between humans, Indigenous relationality also extends to nonhuman relations—such as with land (Konttinen et al. 2021) and animals (Ness and Munkejord 2021)—and all these contribute to well-being.

The struggle and experience of Indigenous Peoples to survive oppressive colonial forces constitute commonality among Indigenous Peoples worldwide. This “shared experience of dispossession, discrimination, exploitation and marginalization precipitated through the colonial projects” (Gray et al. 2013, p. 5) impacts people’s wholistic perspective. Colonial thinking is also deeply embedded in gerontology (Berdai Chaouni et al. 2021). For example, many studies have recorded the multilayered concept of aging (Timonen 2008; Degnen, 2012) and care (Tronto and Fisher, 1990; Harding 2014; Vaara et al. 2016). Of these, the biomedical perspective is pervasive: treating aging as an individual’s irreversible decline and care as a buffer delaying the decline (Westendorp and Kirkwood, 2007; Childs et al. 2015). This privileged biomedical lens is a manifestation of ongoing colonization. Braun et al. (2014) noted that the positivistic research paradigm, embedded in the Euro-American lens, creates a construct of aging that alienates Indigenous Peoples. We need to create more space for an understanding outside the biomedical lens in policies and practice (Gao 2021), by including voices from marginalized groups around care and aging, for example, older people (Bowling 2005) and Indigenous Peoples (Braun et al. 2014). It was not until the last decade that mainstream medicine and public health slowly started to acknowledge that to live well, one needs to look at broader dynamics, including the Indigenous culturally grounded understanding of aging and care (see Greenwood et al. 2018). Tayal’s perspective in aging and care provide invaluable insights in addressing this imbalance power structure in care research.

In this paper, we examine the role of wholistic relations in Tayal culture and its importance to the well-being of the Tayal. Taking the elderly care system of the Tayal community as an example, we explore how recentering the wholistic concept can help to improve the likelihood of intergenerational knowledge transfer from Elders to younger generations and elderly care system for the Tayal. We further discuss how the wholistic approach may contribute and be applied to further enhance concepts, such as sustainability, that have been predominantly defined through the dominant knowledge system.

Background

Indigenous Peoples, the speakers of the Formosan branch of the Austronesian language family, have lived in Taiwan for thousands of years (Blundell 2009; Kuan 2016). Currently, 16 distinct Indigenous Peoples are recognized by Taiwan. For each group, wholism plays a key role in their onto-epistemologies, cosmologies, and philosophies. Bunun researcher Tunkan Tansikian asserts that in addition to the principles of survival, equal subjectivity, and autonomy, wholism is one of the key principles of Indigenous knowledge in Taiwan. He explains that, “even though the Indigenous knowledge system includes all kinds of fields, not one field is separate from any other. (...) ... there usually exists a philosophical basis of a worldview in the Indigenous knowledge system, and the worldview and the system supplement and influence each other, with the worldview linking the entire knowledge system to make it an organic whole” (Tansikian 2021, p. 11). For the Tayal people, the wholistic way of being is conceptualized through the concept of Gaga. Gaga refers to the Tayal laws and taboos, which incorporate morality, cosmology and a balanced relationship between people and the environment. They also entail an ethical responsibility and reciprocity between people, animals, the surrounding environment, and the cosmos within the Tayal territory (see Kuan 2010).

The traditional territory of the Tayal is among the most extensive of the 16 Indigenous Peoples in Taiwan. In the Tayal language and culture, Tayal means “human, human-being”. The word Tayal is composed of “mita” (look after) and “rhzyal” (land): “looking after and caring for the land”. Cinbwanan, the Tayal word for the world and cosmos, literally means “a place where fruits are growing and flourish” (personal communication with Silan Tali, 25 May 2021). These concepts express wholism, reflecting the worldview of Tayal, which embraces a close relationship with nature. The way of life of the Tayal people is land-based. Tayal life is inseparable from their territory and the nature around them, as reflected in their food, medicine, hunting tools, building materials, utensils, fuelwood, clothing, entertainment, and ceremonies (e.g., Liao et al. 2012). But, beyond these physical applications, Tayal people have a deep spiritual connection with plants, and they view themselves part of an integrated nature (Chao and Hsu 2011). In the Smangus Village, for example, the positive morphological features of plants have been used in the names of children and are also used in mental healing via a name-exchange ceremony (Chao and Hsu 2011).

However, colonization by the settlers—Japanese and Han Chinese—have forcefully alienated Tayal people from their environmental connections and, hence, with their own senses of well-being, which are rooted in their traditional ethnobotanical and related biocultural knowledge. Colonization additionally manifests in the Taiwanese elderly care system where Indigenous perspectives are excluded in favor of a one-dimensional and narrowly biomedical interpretation (cf. Lin et al. 2020; Gao 2021). In this context, reconnecting and reclaiming the Tayal-centered way of speaking and thinking is crucial. This is the decolonization process, which entails Indigenous Peoples taking control of knowledge and subjectivity, reclaiming land, languages, cultures, knowledge systems, and relationalities (cf. Mignolo 2007; Wilson 2008). What does the wholistic relationship look like from the Tayal perspective, and what does this perspective teach us about the complex relationship between humans and nature? We explore the answer to these questions based on the stories shared by Bnkis (the plural form of Bnkis is Bbnkis, for coherent readability, we use Bnkis referring to both singular and plural of Elder in Tayal), the Tayal Elders, to better understand the layers of meanings embodied within the wholistic concept in the Tayal context.

Method

Study design, recruitment, and data collection

To shed light on the wholistic perspectives of Indigenous Peoples, a qualitative research design was developed, in combination with an Indigenous research paradigm grounded in Tayal

conceptualization, Tayal hermeneutics. Hermeneutics here means the theory and methodology of interpreting, so Tayal hermeneutics simply means a research agenda built on the knowledge standpoint that is privileging Tayal epistemology (Gao 2021, p. 107). We employ Tayal hermeneutics to strengthen the relational commitment to exploring two sets of relations at once, namely, our relations with the Tayal Elders and a cultivated dialogue with other research paradigms. We are cognizant of the paper's qualitative writing that aims to uphold Tayal hermeneutics may be hindered by the scientific format—that is, introduction, literature review, methods, results, and discussion. Nevertheless, we regard this writing a starting point for more decolonizing synergies and perspectives across disciplines, as well as the basis for future creative formats that can better reflect the Tayal hermeneutics.

Primary sources include storytelling, interviews, group discussions, and fieldnotes based on participant observation with the Bnkis, Tayal Elders, who live in a mountainous area in Northern Taiwan. The duration of the research was from March to July 2015, with follow-ups from 2016 to 2018. The primary locale was the Day Club, a day care center for the elderly in Wulai, a rural village at the periphery of Taipei. The Day Club, funded by the Council of Indigenous Peoples (CIP), was touted to be the solution for the elderly care problem in Indigenous communities. The Day Club was a state institution in the Indigenous community and the state controlled the Day Club through its funding requirement (Gao, 2021), in so doing, the Day Club experience can reveal the dynamics between the ruling gaze and the Bnkis' stories of resistance.

Methodological reflections

The Tayal Elders who were attending the Day Club were asked to talk about themselves and their families, their feelings about attending the Day Club, and their concepts of good health and good care. The Bnkis interviewed were active Day Club goers or Tayal who had grown up in the village, including the first author's grandmother. All the participants knew each other, and they were willing to share their stories when they learned that the first author was the granddaughter of their childhood friend, and thus laqi' na Tayal (a child of the Tayal). With her grandmother, the first author returned home and embarked on the journey of learning through active processing of tribal knowledge and experiences shared by the Elders. This research is about reclaiming their relationships and Tayal values and cultures, thus it is a decolonizing journey both for the first author and her grandmother, to reconnect and to heal.

Ethical considerations

Ethical considerations have been grounded in two ways. First, the research process was validated through multiple layers of relationships, as the first author is from the community and has developed her research identity of "in-between-ness" and Tayal-based cultural protocols while returning to the ancestral home. (For a more complete reflection of in-between-ness as positionality, see Silan and Mataira 2019). Second, ethical approval for this study was obtained through the CIP in Taiwan. In addition, because written consent has a history related to intellectual theft and this engendered trauma in the community (Gao 2021, cf. Smith 2012), informed verbal consent was obtained from all the participants.

Analysis

To analyze the data, we transcribed all recordings, and did thematic analysis (Braun and Clarke 2006). We met to discuss the preliminary findings while drawing strength from decolonizing methodologies (Denzin et al. 2008; Kovach 2009; Smith 2012). Research involving Indigenous Peoples needs to be decolonizing (see methodological reflections above, as well as Discussion). This is the only way that Indigenous perspectives can be elevated and relevant to solve the global challenges we face today.

Grounded in relational accountability (Wilson 2008), we explain how we adapt the Tayal hermeneutics in the thematic analysis below, which was based on the first author's dissertation (Gao 2021, p. 163–166). First, the first author grounded herself in the cultural protocols, read the transcripts of the interviews, and summarized the key issues they reflected. Second, through a collaborative writing workshop, the three authors created and developed the conceptual space in the context of Tayal elderly care when engaging with other knowledge systems and paradigms. We discussed different potential theoretical perspectives and decided that the relations with people and relations with land and spirituality seemed to resonate with the voices of our Bnkis.

Research team and division of tasks

We are a team of researchers who have complementary backgrounds to explore the relationship of Tayal ways of knowing, elderly care, sustainability, and the view of wholism. The first author has Tayal heritage and specialized in Indigenous methodologies and elderly care, the second author specialized in plant science and the interface between traditional and modern medicine, and the third author has an expertise in sustainable sciences. While the first author collected and transcribed the data and did the primary job of analyzing the data, the other authors participated in the phase of analyzing data and contributed to the manuscript.

Results

Conceptualizing wholistic relationships from the Tayal perspective gives us clues as to how relationality works among people, land/territory/environment, a sense of sacredness, and the generations before and ahead of us. All these point to a clear direction of how to decolonize care.

Relations with people: Cisan and Sli'

The Tayal Bnkis explained that the central reason for their participation in the Day Club lies in their strong relationships within the community. Most of the Bnkis grew up in the community and, consequently, knew each other; everyone is related in one way or another. Several Bnkis explained that they greatly valued the chance to maintain relationships, gather together and reconnect, speak with one another, go for visits, and exchange stories of hardship and joy. Upon being asked why it is important to gather, one Bnkis responded that, "To Cisan, of course! We can chat and be happy. We talk about everything. Indigenous people are like this. Cisan. We talk about absolutely everything." In Tayal, the term Cisan means "talk story" or simply to go for a visit, and Sli' means "gather". Both were identified as Tayal alternative care concepts in defining what wholistic relationships meant to them.

Cisan entails telling stories about all important elements in life, and in doing so, it also fosters an ability to uphold, strengthen and revive relationships. In fact, the main purpose of attending the Day Club for some of the Bnkis is the opportunity to Cisan. We can observe similar trends from the field notes where the first author asked what her grandmother, Huzi, liked the Day club:

"So grandma, what do you like about the Day Club?" I ask. ... Grandma widens her eyes and responds in Tayal, "muha kyokay ga, bya ga sli'." She turns to me and explains in Mandarin "Sli' means to be together." She explains to me that the Day Club is good because she can get together. Not because of the church. "Sli', not kyokay." (Interview with Huzi Amuy, 11December 2018.)

Huzi noted the importance of social wellness for her experience of aging through the Tayal care concepts Cisan and Sli'. This social wellness entails reconnecting with people, which is essential to heal the wounds caused by the colonization. Huzi was a successful business woman in the Tayal community and was one of the few who could compete with the Han Chinese people on the Wulai

commercial street. This came at a price, however: she was further distanced from the Tayal community. The Day Club presented an opportunity for her to reconnect to the community, where she revived Cisan and Sli', and in doing so a sense of care rooted in the Indigenous knowledge was cultivated and flourished.

Another Bnkis, Yutas Tamu, echoed the importance of reconnecting with people:

"[The Day Club] activities are all good, especially for the aged people. We can move our bodies and train our brains via hand-making toys. I think all activities are the same, I like them all the same. *As long as there are activities for groups, I have taken part in them all.*" (Interview with Yutas Tamu, 13 December 2018; emphasis added by the authors.)

The narrative from Yutas Tamu described his experience with the Day Club as positive because of the groups and group activities. Another Bnkis agreed that the reason that the groups matter is that "everybody knows each other and *stays together*" (interview with Yaki Atay, 13 December 2018; emphasis added by the authors). Knowing each other, talking, and telling stories about "who is from who from what place" plays a key role in their conversations, and it shows that the Tayal experience care most effectively through the lens of relationality, including with place ("who is who and from what place").

In addition, Cisan and Sli' are experienced by the Bnkis in Day Club to form meaningful relationships and to heal by sharing their feelings about death, dying, and pain. The Bnkis used humor to lighten the topic and comfort each other and also organized visits by themselves after the Day Club to send final farewells and pray for a family. For example, on the death of one Day Club member, four Bnkis decided to send their farewell to the deceased and pray for the grieving family (fieldnotes, 13 May 2015).

Cisan and Sli' are about reconnecting people, which are the key components for understanding the wholistic care concept of the Tayal. They are embedded in the Bnkis' everyday living as Tayal. The matter of how the Bnkis experience care in the Day Club, therefore, should be discussed broadly: the formal and informal exchanges, the storytelling in and out of the spotlight, as described in the first author's reflective notes:

The Day club was teeming with activities. Many conversations happening at the same time. The Bnkis exchanged animatedly news about their lives in Tayal while buying clothes from the vendor; the chicken seller marched in the church, asking in Taiwanese Hoklo does anybody want to purchase a hen; a mailman hopped off his noisy scooter while he shouted the receiver's name on the package in Mandarin. At the front of the dais, three Bnkis followed the music and danced aerobics for which instruction was mainly in Chinese—the "official activity" organized by the Day Club. Other Bnkis just remained seated and stared at the sky with an empty expression; still other Bnkis sauntered slowly around the church; or were just casually chatting under their umbrellas on the stairs to avoid the sunlight. The Day Club is not a rationalized, military-like coherent collective that has only one thing happening at one time. Instead, it contains life. It is a complex, living and breathing organism. (Fieldnotes, 8 December 2017.)

Much was happening at once. The activities, rather than neatly planned and transcribed on a sheet for submission to the state, were teeming, flourishing, and embedded in the life of the community. Among the many things happening in the Day Club, lies Cisan and Sli'—the power of reconnecting people—in the middle of the teeming wellness.

Cisan and Sli' are closely tied to the community and sense of belonging. Yutas Tali, an agricultural specialist employed in the public sector, explained what kind of care is needed for his mother:

“The government has been promoting elderly care and long-term care. They have been trying hard. But honestly speaking, no matter how hard they try, without close kin on her side, [my mother] will die regardless of how much money or food she has. [My mother] will die, because she misses her home.” (Interview with Yutas Tali, 18 August 2018.)

Yutas Tali noted the importance of grounding in the relationships. Good care should go beyond government subsidies and emanate from one's home and community. In other words, for him, the idea of good care for him is amending, reinforcing, and upholding relationships through one's everyday practices.

In addition to Cisan, another form of storytelling is strongly associated with the environment, which usually takes place on the Tayal land where Tayal people sit around a campfire. One Bnkis shared how he remembered storytelling in a hunting group.

“[The leader of the hunting group] talked about the encounter of people who took part in hunting: how the group interacted, how to catch animals, the feelings about hunting. He sang with a sophisticated formulation of the Tayal language. Not a random singing. Themes were spelled out. There must be a reason . . . The story would describe the natural scenery in the mountains, how stones and trees are formed. The feelings in your heart. How he caught animals and dealt with them—boars, muntjacs, monkeys, deer—and the scene after the hunting.” (Interview with Yutas Tali, 18 August 2018.)

For Tayal, to Cisan and Sli' is fundamental to understanding their natural world and social experiences. The stories give us important clues as to what Malahang (“care” in Tayal) entails in the Tayal worldview, and it provides invaluable information that shapes Tayal cultural identities and understanding. Moreover, as the note above showed, the role of storytelling is linked to land and other land-based practices. It is the basis of everything, including story-telling, the relationality of people, care and how to live well.

Relations with the land and spirituality: following Gaga

Wholistic relationships, from the Tayal perspective, are not restricted to interpersonal ties, but extend to relationships with the land and with spirituality, as voiced by many Bnkis. Tayal understood this relationality with more-than-human entities through Gaga, the Tayal law. One Bnkis noted,

“Gaga was good for us Tayal. Gaga was good like the Bible's Ten Commandment[s], it held us together.”

The Bnkis expressed that Gaga is the source of order and is linked to what care means to a Tayal at a profound level. Back in the days, when the Gaga was still strong in the community, Tayal people's living and working are supported by the Tayal societal structure that links to the surrounding environment. One Bnkis recall with nostalgia:

“Our lives were really simple back then. We planted rice, sweet potatoes and taros, and we ate simple food. Life was simple, yet we lived happily with ease. If I wanted something, I planted or I hunted. Boys went hunting and placed traps, so we had fish and game meat at home. If we got money, we exchanged soy sauce and salt with merchants from Xindian. I remembered once young people got a bear. He sold it to Xindian at a regular spot with the merchants. So we needed not to worry about life.” (Interview with Yutas Tamu, 13 December 2018.)

These ties to land were reflected in the old Tayal lifestyle and food (rice, sweet potato, taro, game, and fish). Land-based relations were the essence of the Tayal way of life, as experienced directly by the Bnkis. The familiarity brings a sense of living well and care that was rooted in belonging and spirituality attached to the Tayal community. Through the passage above, Yutas Tamu invites us to consider how, in the past, the land was intricately linked with the practice of everyday living. Echoing Yutas Tamu, the first author's grandmother explained that she remembered living with her grandparents on land where they used to grow food and bamboo (fieldnotes, 20 November 2017). Relationships were strong and they led lives of simplicity and satisfaction. This sense of living well exemplifies a way of being connected to one another out on the land.

The importance of land brings us to explore more complex aspects of relationships between people and the environment. The land, the environment, and the surrounding ecological aspects cannot be omitted from the web of relations that sustain living well.

To uphold Gaga means to uphold the relationships with the land, which is key for the well-being of the Bnkis. The stories told by Silan Tali how Gaga constitutes the wholistic concept of care for the Bnkis. Ever since Silan Tali's family house in the mountains was destroyed by a catastrophic typhoon and mudslide, potential danger has prevented his mother from going back to her land. This deprivation of connection to the land led to Silan Tali's mother refusing to leave her own house, which was located on the commercial street of Wulai. She complained about her legs and settled for staring at the television. Silan Tali was stunned at the change in her when he brought her up to the family's land in the mountains. Although the house was in ruins, she contently walked around and occasionally moved around flowerpots as a way to revive the place—in doing so, she “came alive” and revived her well-being (personal communication with Silan Tali, 21 June 2019). For the Bnkis, looking after the mountains, rgyax, and the forest, lahuy is key for them to live well and happily. This interconnected sense of well-being for the Tayal can be contextualized in the relationship between Tayal and Gaga na Cinnunan Cinbwanan (“the woven world”).

It is important to stress, also, the aspect of spirituality when we talk about living well for the Bnkis. The reason why spirituality is important for Indigenous Peoples is not only because it is functional *per se* in promoting their health. It also serves as a way to transmit knowledge intergenerationally. Spirituality is not just an item on a scale or index, but should be understood as a way of thinking and an integral part of a wholistic system of living well. For the Tayal, dreaming carries spiritual weight. Dreaming is a form of communicating with Utux, the omnipresent Spirit. Yaki Piñas recalled one of her dreams, in which the relationship within her family was embedded in the web of land and spirituality.

“My mother had never been dependent on others. She farmed everything. She made banana rice and soup from her own bananas and mung beans. She was always cutting and working very diligently. My father also worked hard. They were a good couple. Even today I dream of them together. They were never separated [in my dream]. Their love was profound and they are always together in my dream.” (Interview with Yaki Piñas, 12 December 2018.)

The Tayal believe that one's life on earth continues into the afterlife. In the world of spirits—or the realm of Utux—one needs to commit to their labor, and when they do so, their existence in Utux overlaps with the human world. From Yaki Piñas' dream experience, we can see that Tayal life is embedded among living humans/individuals and between humans and Utux. The same applies to care and living well: they are always embedded in this fluid sociality and spirituality.

Discussion

This paper has addressed how the concept of wholism permeates the Day Club Tayal Bnkis' perceptions of living a good life. Here we discuss the ways in which the Bnkis' conceptualization of care through Cisan, Sli' (relations with people), and Gaga (with the land and with spirituality). These concepts are significant and are not only limited to elderly care but are also for mapping out an even broader well-being and, in so doing, teaching us ways to overcome and reverse the environmental crisis.

First, the Bnkis experienced care through the Tayal concepts of Cisan (storytelling), Sli' (relations with people), and Gaga (relations with land, and spirituality) are central. In other words, they indicated the gap existing between the current elderly care system in place and the genuine care needs of the Tayal communities. In the current system, do the elderly care resources reach everyone in need? Does the current elderly care system provide what Bnkis truly need for their well-being? As for the first question, we found that more Yaki (Tayal older women) than Yutas (Tayal older men) attended the Day Club, with the implication that the elderly care resources fail to reach some Bnkis. To answer the second question, it is clear that the connections to nature, land, and spirituality are completely missing in the current elderly care system (see the components of current elderly care system in Fig. 1), and that this lack of connections diminishes the well-being of Bnkis. In other words, the

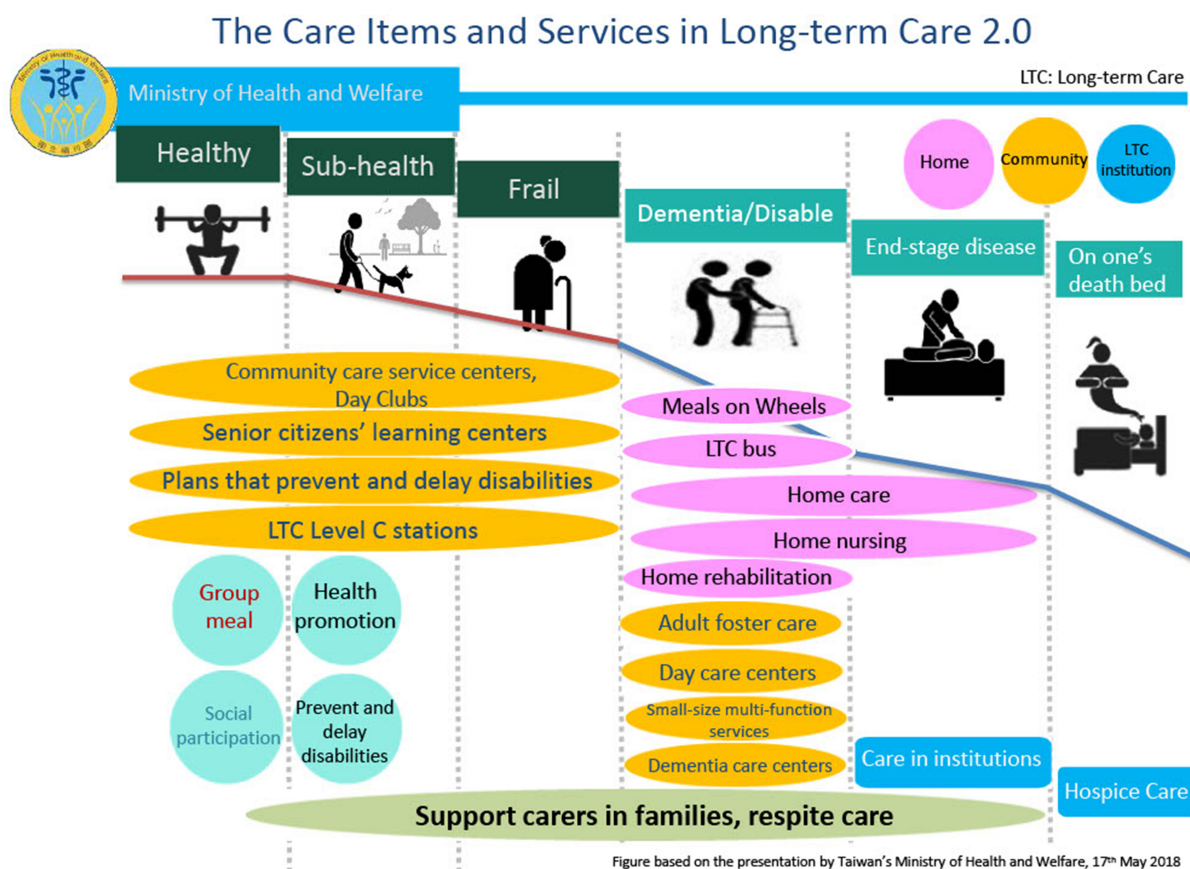


Fig. 1. The components of Taiwan's current elderly care system (revised from the presentation "10 year results of Long-term Care Policy" from Taiwan's Ministry of Health and welfare, presented at Executive Yuan 3600th Sitzings 17 May, 2018).



Fig. 2. Bnkis engaged in the Day Club activities. Photo by Wasiq Silan.

absence of conceptualizing elderly care in the Tayal way at a collective level affects their mental and psychological health. Therefore, a further question should be asked: how can the wholistic concept and approach help to overcome these deficiencies in the current elderly care system?

We found out that the wholistic concept of well-being in the Tayal context lies in the notion of Gaga. Indeed, the word Gaga was not directly used by Bnkis when referring to care in the Day Club. Yet, through reading the Bnkis' stories, we come to understand that Gaga exists in everything. Both the "relations with people" and the "relations with the land and spirituality" observed in the fieldwork fall in line with the scope of Gaga. We observed that the success of gathering Bnkis to the Day Club was based on the Bnkis' relationships with other Bnkis (see Bnkis gathered in the Day Club in [Fig. 2](#)). The reason for emphasizing the relations with everyone they know and staying together is likely rooted in the style of societal organization in traditional Tayal communities. Traditionally, qutux gaga (a group of co-worshipping ancestors), qutux mlata or qutux phaban (a group for co-hunting, co-working, and sharing), and the Gaga relative group (a group following same Gaga and regulation) are three types of self-governing societal structures in Tayal communities ([Yen and Chen 2013](#)). Even though tourism, economic colonization, and capitalism disrupted this self-governing societal structure in Wulai, the relations established in the days past continue to influence the Bnkis' motivation to attend the Day Club (cf. [Hsia 2010](#)). Recentring the concept of Gaga and involving the Indigenous idea of care, Malahang, in the elderly care system would undoubtedly improve the Bnkis' overall well-being.

The Tayal alternative care concepts—Cisan, Sli', and Gaga—constitute a wholistic view of what form of care is more relevant for the Tayal. In particular, Gaga is a cosmology that grounds the connections in Tayal culture. These key terms make up a wholistic vision of care—instead of delaying the decline, it is more about reconnecting. For example, the idea of care within the Tayal Gaga for the Tayal is Malahang. It pertains a custodianship and is the key to reconnecting and consolidating the Indigenous community at multiple levels from myriad perspectives. Such reconnections provide meaning to the community beyond just linking the care resources to the people who need them

and, rather, makes the Indigenous community and Bnkis the center of the care system. Therefore, the first perspective of Malahang is to reconnect the Tayal community, entailing a linking back to the keepers of distinct Indigenous ways of knowing the world, such as Bnkis. When thinking about Malahang—care—for the Bnkis, it is important to think beyond people's bodily care and extend the concept to topics such as how to live one's life to the fullest. In addition to the predominant care-giving in a biomedical sense which merely addresses the physical and psychological, it is imperative to construct an Indigenous-informed long-term care system. We emphasize that the idea of Malahang is not to reject the biomedical paradigm, but instead, to construct a more complete and multi-faceted approach to giving and receiving care. For that, it is important to develop culturally grounded strategies to be used side by side with biomedically oriented practices. To achieve this, we must prioritize Indigenous community voices at the grass-roots level. The participation of the Bnkis themselves is particularly meaningful when it comes to reconceptualizing what caring and living well mean in their everyday context. Connecting to the Indigenous community, in this sense, contributes to the aim of rebuilding relations through empowering Indigenous people.

An excellent example of why we need to adapt decolonizing perspective in gerontology is this: our fieldwork shows that a care system that excludes connections to nature, land, and spirituality can be damaging. Studies have investigated how exposure to nature can improve the mental and physical health of humans (e.g., [Barton et al. 2009](#), [Nisbet et al. 2011](#); [Ives et al. 2017](#)), implying a disadvantage in human health and well-being when linkages to nature are absent. Tayal Bnkis have a long history of living close to nature and the land where their spirituality is rooted. Gaga reveals how such important components of Tayal life should be included in the elderly care system for Bnkis. Here is a passage from a Bnkis who shared his knowledge about how the wholistic concept of Gaga constitute the main thread of being a Tayal:

Gaga has versatile meanings that underpin multiple layers of relations in Tayal culture. We say Gaga gnxan, meaning Gaga forms the principles of life, and gluw Gaga, everyone should follow Gaga. Gaga for us is important because it teaches us the boundaries, morality and balance, for example Gaga na sqliq means the rules for a balanced relationship among people. Gaga also includes how to act in nature and on the land, for example, hunting is only allowed after smlkotas in autumn, the harvest season. Hunting is prohibited in spring when the animals are breeding. Gaga also shows us how to behave in ceremonies, such as smlkotas, so we appreciate the protection from ancestral spirits with humility. For instance, Talyal would ask for help from Siliq, a kind of bird that has spiritual power, before going hunting, sowing or new lands. (Personal communication with Maray Pasang, 29 May 2021)

Therefore, thinking within the concept of Gaga, care in the Tayal way, Malahang, should also include reclaiming a spirituality, which is closely related to connecting with nature. The notion of Malahang addresses not only meaningful interpersonal relations and societal participation but extends beyond them to sacred commitments with animals, mountains, water, land, and other-than-human beings (cf. [Virtanen et al. 2020](#)). Recentring spirituality to achieve a wholistic conception of care and living means that we need to incorporate multiple layers of relationalities into care. In the end, it is about validating the knowledge embedded in the Gaga na Cinnunan Cinbwanan (the woven world in harmony with the moral order of Gaga) (cf. [Sundberg 2014](#)). Malahang can further initiate the transformation of knowledge paradigms by drawing strength from collective Indigenous identity and reclaiming spirituality. Critically reflecting on the dominant narratives derived from colonial legacies helps us to formulate strategies when engaging with the state. Claims from colonialist researchers such as “Gaga is nowhere to be seen,” or “they [the Bnkis] don't know their own culture” are the typical narratives that reflect the imbalanced relations between the Indigenous Peoples and the Taiwanese state. The dominant methodologies behind these claims threaten Indigenous Peoples because

Indigenous Peoples may lose their cultures and knowledges to dominant colonial ways of thinking (Datta 2018), that is why decolonizing work is important. Malahang is an example of such decolonizing work. By elevating Malahang, spirituality has the potential to play a central role in countering the claims that label Indigenous Peoples as a sick and vanishing race. Also, Malahang requires us to reclaim spirituality actively in the process of knowledge production and, in so doing, to pose questions about existing knowledge and interpretations about Indigenous Peoples produced by the majority society. The ability to pose good questions about relationships with other people, nature, and spirituality is much needed, as it brings Indigenous knowledges and epistemological standpoints into the dominant discourses of elderly care more broadly. With this in mind, a visualization is made to illustrate our understanding how Tayal hermeneutics, the Tayal epistemological and methodological toolkit, may help us move towards the transformative goal (see Fig. 3). This research sees itself rooted in the goal of self-determination and Indigenous resurgence (purple column in Fig. 3). At the same time, it engages in decolonization through giving voice to the community, building sustainable relationships, and returning to the social order embedded in the Indigenous sovereignty.

The wholistic relationships between people, nature, and spirituality, as inherited and practiced in Tayal communities, can help to resolve the paradox inherent to modern society. In fact, many important-sounding concepts that appeared as panaceas in social–environmental movements speak to a similar concern, echoing the wholistic ways of being and knowing embedded in the onto-epistemology of Indigenous Peoples. For example, Rachel Carson’s *Silent Spring*, published in 1962, started an environmental movement that calls to recognize human behavior and influence on the environment (Carson 1962). Since the 1980s, the concept of “sustainability” has had a much wider application, describing balance, resilience, and interconnectedness, indicating that human society can meet its needs without exceeding the capacity of ecosystems to support us (Scoones 2007; Morelli 2011). Sustainability scientists should listen to Indigenous voices, rather than trying to re-invent the wheel (e.g., Fabritius and Silan 2020). For example, Rgyax, mountain in the Tayal language, has the same stem words as time (ryax), eternity (krryax), and usual (gryax); the idea of land and the mountains carries a sense of eternity and unity (Watan 2019, p. 184). In Tayal culture, people have a strong sense of faith and reverence for mountains and forests. Sbalay, a ceremonial prayer for reconciling relationships, needs to be said before one enters Tayal’s traditional territory (Chao and Hsu 2011). Many Indigenous languages reflect the actual lifeways, thinking, and ways of knowing in Indigenous communities, which already include the comparatively recent Western concept of ecology. In addition to English, the use of multiple languages in decision-making around sustainability will help to expand the way we think and understand the world (Trisos et al. 2021).

Indigenous knowledge inspires people to recognize another way of living, and facilitates reconsideration of relationships across various dimensions. Ecopsychology, as an interdisciplinary field between ecology and psychology addresses rethinking of the human–nature relationship in which the two are emotionally bonded. Based on a similar concept, there are various movements and projects being developed, such as Horticultural therapy and Forest Therapy, that aim to improve people’s health using the healing powers of nature and the environment. Unlike the recreational activity of “just going to nature” these therapies demand intentional participation. As John Muir pointed out, “most people are on the world, not in it—have no conscious sympathy or relationship to anything about them—undiffused, separate, and rigidly alone like marbles of polished stone, touching but separate” (Muir and Wolfe 1938, p. 320). These therapeutic methods are related to psychological and spiritual healing, and stress the importance of wholeness care.

Maslow’s theory stresses that humans have different needs; thus, it can be said that care of the elderly cannot succeed if it focuses only on the physiological part of health. Wholistic care within the structure of Tayal culture requires the integration of various components of well-being, including physical,

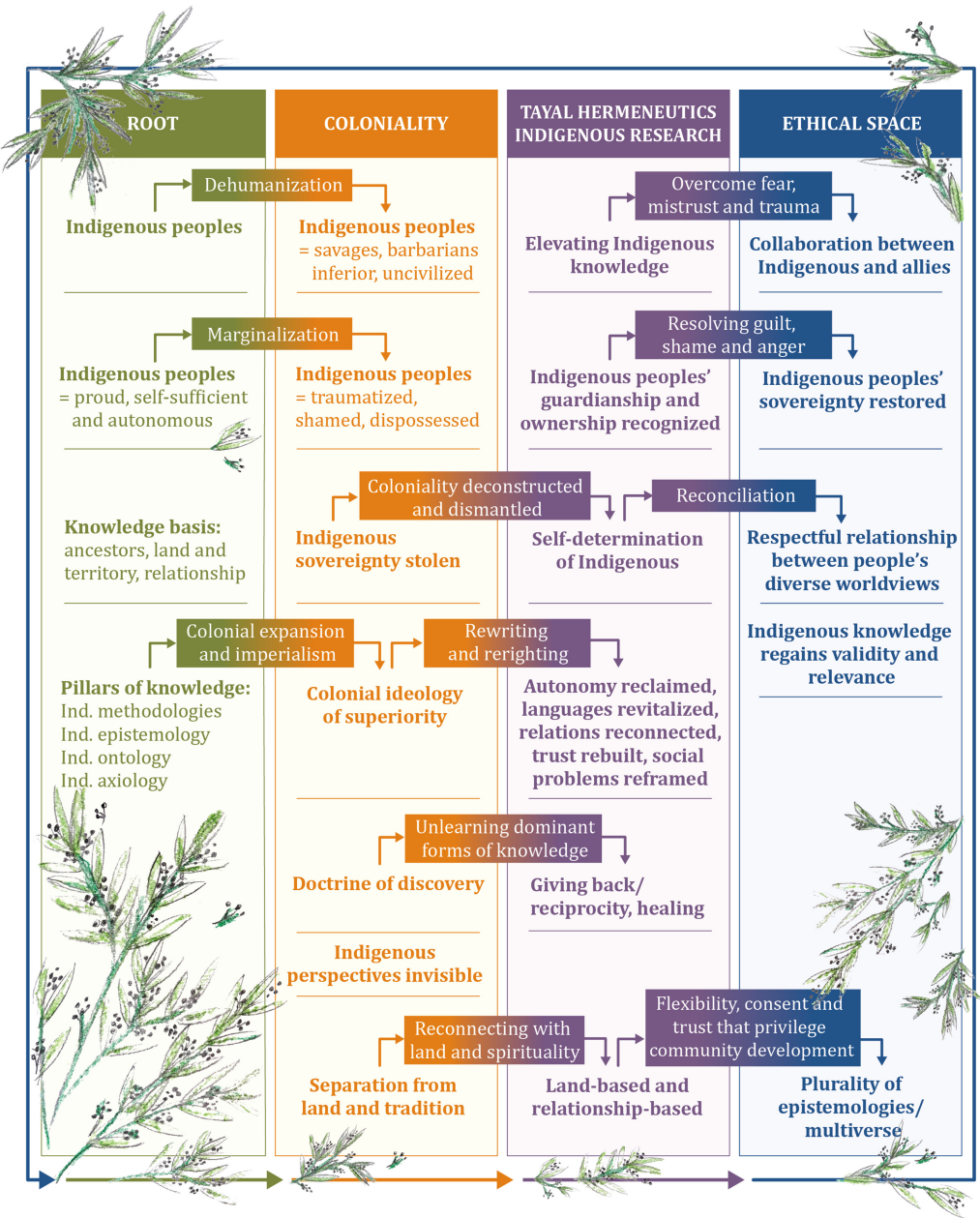


Fig. 3. Tayal hermeneutics and its position in decolonization. The preliminary mindmap was developed through a collaborative effort during a workshop on Indigenous methodologies in Inari, Finland, together with Emily Höckert, Pia Siirala, and Vesa Matteo Piludu, as well as discussion with Māori scholar Peter Mataira. First published in [Gao \(2021, p. 111\)](#). Designed by Pei-Yu Lin.

emotional (with people, land/environment), and spiritual. The expression of spirituality in the Tayal community includes ceremonies, a belief in the afterlife, and connections reflected through dreaming, although these aspects are not usually recognized in the dominant Western-based medical system. Spirituality is also an important part of healing and care. In fact, one study of more than 20,000 people

who had near-death experiences revealed the afterlife as a return to wholeness of spirit (Kübler-Ross and Myss 2008). This result led to a new perspective supporting not only patients approaching death but also their families. To our knowledge, only a small segment of the Western-based medical system, for example hospice care, frequently applies such wholistic care, with recognition of life's spiritual and relational aspects, and this is far below what it should be.

Active aging or aging well is a relatively new domain of research in the field of geriatrics (Fernández-Ballesteros et al. 2008); its development has the potential of approaching wholistic care. Studies reveal that aging is a long process across an individual's life span. Genetic traits account for about 25% of the ways and rates at which individuals age, while the influence of interactions across socio-environmental conditions accounts for about 75 % of the aging trajectory (Fernández-Ballesteros et al. 2013). Various aspects of active aging include not only physical health (e.g., low probability of illness and disability), but also mental and spiritual satisfaction and overall well-being (e.g., high cognitive functioning, positive mood, being engaged with life, having family members and friends accompanying). This consensus on traits that influence active aging implies the importance of wholism for elder care (Fernández-Ballesteros et al. 2008, 2013). Since increased numbers of aging people is a global phenomenon for human populations, many countries are facing the challenges of an increasingly aged society, such as escalating societal costs and allocation of limited medical resources (Sado et al. 2018). New strategies for the effective care of elderly people, such as applying the wholistic concept, may help to mitigate this ongoing or upcoming pressure.

The Tayal wholistic concept is also applicable beyond the health care system and caring for the elderly. It also has profound implications for sustainability, since Gaga covers the principle of how to engage with nature and land. Tayal Elder and Mrhuw (leader) Icyeh reminded us that: "Puqing hiyal Bnkis—laxiy pyari, si inlungan mlahang 'son qnxan laqiy ana knwan kryax (Our homeland was established by our ancestors, it is our root. Do not leave her. Protect her with your heart, so our children's future can be continued.)" (Hsiao 2016, p. 85). Qnxan is simultaneously a Tayal way of living and Tayal culture, extending from the past to the future. Stemming from the wholistic concept and Gaga, a land-based governance system of self-determination can be developed. For example the Tayal in Cinsbu, Taiwan, have a successful self-governance experience following Gaga that transformed food production from conventional farming to natural farming through applying the wisdom of the ancestors (Yen and Chen 2013). Recentering the Gaga is the key to linking a specific case in the small Indigenous community to more general considerations of sustainable development globally.

Conclusion

This study has examined how Tayal Elders, Bnkis, understand the idea of a good life through reconnection to relations with people on the one hand and reclaiming relations with land and spirituality on the other. The findings indicate that the Tayal Gaga, as underpinned in the wholistic relations above, is central to care and well-being of the Bnkis. The Tayal concept of care, Malahang, encompasses well-being that goes beyond individuals, and extends to the ecological system. Based on the results and discussion, we provide the key lessons learnt as follows:

1. The current long-term care system should be reformed with the substantial participation of members in the Indigenous community at the grass-roots level, in particular Indigenous women who have been working as care workers in the communities. Also, the mode of participation should reflect Tayal's values, that is, Cisan and Sli'. The vision of a good life—Cisan, Sli', Gaga, and Malahang—from the Bnkis should be included in the elderly care system. In doing so, we may transform the current elderly care system that only aims at alleviating inevitable disabilities into an Elder care system that grounds in reciprocity, where Bnkis may give and receive care and continue to be leader to share their wisdoms. Currently, the CIP has mainly adopted

policies that emulated the mainstream welfare logic. In other words, it merely treats Indigenous perspectives as “add-ons” to dominant systems. This ignores the inherent sovereignty of Indigenous Peoples and overlooks the true meaning of Gaga. To solve the problem, we need structural shift that prioritizes Indigenous sovereignty and jurisdiction on the local level, for example, through co-management projects.

2. Bnkis should be decision-makers in devising the Elder care program. There is an Elder Committee in the Sámi parliament, whereas the CIP in Taiwan do not have it. We suggest that the Elder committee should be established and be involved in the core of the policy making process. The Bnkis should consult when designing the elderly care system. In doing so, a land-based wholistic care system that centralizes the genuine needs of the Bnkis constructed independent from Taiwan’s elderly care system may be possible.
3. Utilizing the Tayal hermeneutics and carving the space for ethical space in the care system grounded in the wholistic perspectives from the Bnkis should not be limited in one field only. Rather, this decolonizing project should be applied to other fields pertaining to sustainable development. Taking this elderly care case as a foundation, the application of the wholistic approach to other fields of sustainable development is also worth exploring in the future. Wholistic relationships and the Tayal onto-epistemology are highly relevant to the development of new emancipatory theory, practice and knowledge.

Indigenous Peoples should be treated with equal footing and their ways of knowing should be accepted as valid. The vision for the future is shown from the Bnkis’ perspective: instead of seeing them as disabled care recipients, they taught us to appreciate the beautiful woven world, Cinnunan Cinbwanan. It is the ability to smell the freshly cut ramie and feel the peace from sitting at the fire-place. It is being able to appreciate the hearth of Tayal knowledge and cultural landscape. Seeing the woven world is not only about looking at the community in a different light, but also recontextualizing their experience in the cultural landscape. The spiritual forces are with us.

Acknowledgements

We are deeply grateful to those who helped make this article possible. To Bnkis, the Tayal Elders, we have had the privilege of knowing and citing in this work, we are deeply indebted. We thank the Finnish Cultural Foundation and the Research Council of Norway (grant number omitted) for their financial support.

Author contributions

WS returned to her ancestral home and upon (re)connecting and reclaiming the belonging to the place, she also made space for immersing into the stories of the Bnkis. It is under this returning that WS conceived, designed, and collected the data. WS, C-CC, and T-YL took part in the analysis process and in writing and revising the article.

Data availability statement

All relevant data are within the paper.

Glossary

Bnkis:	Elder (plural Elders: Bbnkis).
Cinbwanan:	the world and cosmos
Gaga:	sacred law, taboo and cosmology of the Tayal People
Gaga na Cinnunan Cinbwanan:	the woven world
lahuy:	forest
rgyax:	mountain (plural: rrgyax)

rhzyal:	land
mita:	to look, to look after
musa' rgyax:	or musa' lahuy, meaning go up to the mountain, go do hill work
Utux:	omnipresent spirit(s)
Yutas:	older Tayal men
Yaki:	older Tayal women

References

- Absolon K. 2010. Indigenous wholistic theory: a knowledge set for practice. *First Peoples Child & Family Review*, 5: 74–87. DOI: [10.7202/1068933ar](https://doi.org/10.7202/1068933ar)
- Absolon KE. 2016. Wholistic and ethical: social inclusion with Indigenous Peoples. *Social Inclusion*, 4: 44–56. DOI: [10.17645/si.v4i1.444](https://doi.org/10.17645/si.v4i1.444)
- Acabado S, and Kuan D. 2021. Landscape, habitus, and identity: a comparative study on the agricultural transition of highland Indigenous communities in the Philippines and Taiwan. *In* *Indigenous knowledge in Taiwan and beyond*. Edited by S Shih and L Tsai. Springer Singapore, Singapore, pp. 139–161. DOI: [10.1007/978-981-15-4178-0_7](https://doi.org/10.1007/978-981-15-4178-0_7)
- Barton J, Hine R, and Pretty J. 2009. The health benefits of walking in greenspaces of high natural and heritage value. *Journal of Integrative Environmental Sciences*, 6: 261–278. DOI: [10.1080/19438150903378425](https://doi.org/10.1080/19438150903378425)
- Berdai Chaouni S, Claeys A, van den Broeke J, and De Donder L. 2021. Doing research on the intersection of ethnicity and old age: Key insights from decolonial frameworks. *Journal of Aging Studies*, 56: 100909. PMID: [33712097](https://pubmed.ncbi.nlm.nih.gov/33712097/) DOI: [10.1016/j.jaging.2020.100909](https://doi.org/10.1016/j.jaging.2020.100909)
- Berkes F, Colding J, Folke C. 2020. Rediscovery of Traditional Ecological Knowledge as Adaptive Management. *Ecological Applications*, 10(5): 1251–1262. DOI: [10.2307/2641280](https://doi.org/10.2307/2641280)
- Blackstock C. 2019. Revisiting the breath of life theory. *The British Journal of Social Work*, 49: 854–859. DOI: [10.1093/bjsw/bcz047](https://doi.org/10.1093/bjsw/bcz047)
- Blundell D, ed. 2009. *Austronesian Taiwan: Linguistics, history, ethnology, prehistory*. Taipei, Shung Ye Museum of Formosan Aborigines and Phoebe Apperson Hearst Museum of Anthropology, Berkeley, CA.
- Bowers KSPR. 2014. A Mi'kmaq First Nation cosmology: Investigating the practice of contemporary Aboriginal Traditional Medicine in dialogue with counselling – toward an Indigenous therapeutics. *Asia Pacific Journal of Counselling and Psychotherapy*, 1(2): 111–124. DOI: [10.1080/21507686.2010.493205](https://doi.org/10.1080/21507686.2010.493205)
- Bowling A. 2005. *Ageing well: quality of life in old age*. Open University Press, Maidenhead, UK.
- Braun KL, Browne CV, Ka'opua LS, Kim BJ, and Mokuau N. 2014. Research on Indigenous Elders: from positivistic to decolonizing methodologies. *The Gerontologist*, 54: 117–126. PMID: [23841952](https://pubmed.ncbi.nlm.nih.gov/23841952/) DOI: [10.1093/geront/gnt067](https://doi.org/10.1093/geront/gnt067)
- Braun V and Clarke V. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3: 77–101. DOI: [10.1191/1478088706qp063oa](https://doi.org/10.1191/1478088706qp063oa)

Carson R. 1962. *Silent spring*. Houghton Mifflin, Boston, Mass.

Chao C-L, and Hsu P. 2011. Learning about the development of eco-tourism in the context of the Smangus tribe's traditional ecological knowledge. *Geojournal of Tourism and Geosites*, 7: 7–21.

Childs BG, Durik M, Baker DJ, and Deursen JMA van. 2015. Cellular senescence in aging and age-related disease: from mechanisms to therapy. *Nature Medicine*, 21: 1424–1435. PMID: [26646499](#) DOI: [10.1038/nm.4000](#)

Chilisa B. 2012. *Indigenous research methodologies*. SAGE Publications, Thousand Oaks, California.

Datta R. 2018. Decolonizing both researcher and research and its effectiveness in Indigenous research. *Research Ethics*, 14(2): 1–24. DOI: [10.1177/1747016117733296](#)

Degnen C. 2012. *Ageing selves and everyday life in the north of England*, 1. Publ. ed. Manchester University Press [u.a.], Manchester [u.a.].

Denzin NK, Lincoln YS, and Smith LT. 2008. *Handbook of critical and Indigenous methodologies, international advisory board*. SAGE Publications, Thousand Oaks, California.

Fabritius N and Silan W. 2020. Sustainability science is more about listening than re-inventing the wheel – Indigenous voices for sustainability. *Voices of Sustainability*, Helsinki Institute of Sustainability Science (HELSUS) and Master's program of Environmental Change and Global (ECG) Sustainability in University of Helsinki.

Fernández-Ballesteros R, García LF, Abarca D, Blanc L, Efklides A, Kornfeld R, et al. 2008. Lay concept of aging well: cross-cultural comparisons. *Journal of the American Geriatrics Society*, 56: 950–952. PMID: [18454758](#) DOI: [10.1111/j.1532-5415.2008.01654.x](#)

Fernández-Ballesteros R, Robine JM, Walker A, and Kalache A. 2013. Active aging: a global goal. *Current Gerontology and Geriatrics Research*, 2013: 1–4. DOI: [10.1155/2013/298012](#)

Gao IA. 2021. *Social policies and Indigenous Peoples in Taiwan: ederly care among the Tayal*. Faculty of Social Sciences. University of Helsinki, Helsinki.

Gray M, Coates J, Yellow Bird M, and Hetherington T. 2013. *Decolonizing social work*. DOI: [10.4324/9781315576206](#)

Greenwood M, De Leeuw S, and Lindsay NM. 2018. *Determinants of Indigenous Peoples' health: beyond the social*. Second edition. Canadian Scholars 2018, Toronto.

Harding R. 2014. Dementia and carers: relationality and informal carers' experiences. In *The law and ethics of dementia*. Edited by C Foster, J Herring, and I Doron. Hart Publishing, Oxford. pp. 379–392.

Hsia H. 2010. Shīshén de jiǔ yǐ jiǔ wèi jiàn chūtàn yuán zhùmín shèhuì zībēn zhǔyì huà guòchéng [The De-Spirited Drink Exploring the Capitalization Process of Indigenous Societies in Taiwan]. *Taiwan: A Radical Quarterly in Social Studies*, 77: 5–58. DOI: [10.29816/TARQSS.201003.0001](#)

Hsiao S. 2016. grgyax Hlahuy-Ptbqyun bnhun: Tminun phaga qnxan cinbwanan Tayal nqu zik Papak waqa [Rgrgyax Hlahuy-Decolonizing forested mountains: Tayal people's spatial reconstruction under the vision of Mt. Papak Waqa]. National Taiwan Normal University, Taipei, Taiwan.

Ignace M, and Ignace RE. 2017. *Secwépemc People, Land, and Laws: Yeri7 re Stsq'ey's-kucw* (Vol. 90). McGill-Queen's Press-MQUP.

- Ives CD, Giusti M, Fischer J, Abson DJ, Klaniecki K, Dorninger C, et al. 2017. Human–nature connection: A multidisciplinary review. *Current Opinion in Environmental Sustainability*, 26–27: 106–113. DOI: [10.1016/j.cosust.2017.05.005](https://doi.org/10.1016/j.cosust.2017.05.005)
- James C. 2020. Through the looking glass: Politics of language and nature, and the disqualification of vernacular forms of knowledge. *Language, Culture and Society*, 2. DOI: [10.1075/lcs.00024.cos](https://doi.org/10.1075/lcs.00024.cos)
- Konttinen H, Jang HS, and Silan W. 2021. Collective experiences of the Indigenous writing retreat. *Dutkansearvvi diedalaš áigečála*, 4: 66–79.
- Koons R. 2019. Becoming Avian in the anthropocene: performing the feather dance and the Owl Dance at Pvlvcekolv. *Humanimalia: a Journal of Human/Animal Interface Studies*, 10: 95–127.
- Kovach M. 2009. *Indigenous methodologies: characteristics, conversations and contexts*. University of Toronto Press, Toronto, Ontario.
- Kuan D-W. 2010. Gaga de kōngjiān xìng: Yǐ mǎlǐ guāng (Mrqwang) liúyù tàiyǎ bùluò de jīngyàn wéi lì [The spatiality of Gaga: taking the experience of Tayal communities in the Mrqwang watershed as an example]. 2010 Third Forum of Indigenous Peoples in Taiwan and Japan.
- Kuan D-W. 2016. Multiculturalism and Indigenous Peoples: a critical review of the experience in Taiwan. In *Multiculturalism in East Asia: a transnational exploration of Japan, South Korea and Taiwan*. (Asian cultural studies: transnational and dialogic approaches). Edited by K, HM, H-C. Rowman & Littlefield Publishers, Lanham, Maryland. pp. 203–220.
- Kübler-Ross E, and Myss CM. 2008. *On life after death*. Celestial Arts, Berkley, CA.
- Kuokkanen R. 2000. Towards an “indigenous paradigm” from a Sami perspective. *Canadian Journal of Native Studies*, 20: 411–436.
- Liao H-Y, Tseng Y-H., Tzeng H-Y. 2012. Ethnobotany on Atayal of Meiyuan Tribe in Nantou County, Taiwan. *Quarterly Journal of Forest Research*, 34: 1–12.
- Lin Y-R, Tomi P, Huang H, Lin C-H, and Chen Y. 2020. Situating Indigenous resilience: climate change and Tayal’s “Millet Ark” action in Taiwan. *Sustainability*, 12. DOI: [10.3390/su122410676](https://doi.org/10.3390/su122410676)
- Meyer M. 2008. Indigenous and authentic: Hawaiian epistemology and the triangulation of meaning. In *Handbook of Critical and Indigenous Methodologies*, 217–232. DOI: [10.4135/9781483385686](https://doi.org/10.4135/9781483385686)
- Mignolo WD. 2007. Delinking : the rhetoric of modernity, the logic of coloniality and the grammar of de-coloniality. *Cultural Studies*, 21: 449–514. DOI: [10.1080/09502380601162647](https://doi.org/10.1080/09502380601162647)
- Monastersky R. 2015. Anthropocene: the human age. *Nature*, 519: 144–147. PMID: [25762264](https://pubmed.ncbi.nlm.nih.gov/25762264/) DOI: [10.1038/519144a](https://doi.org/10.1038/519144a)
- Morelli J. 2011. Environmental sustainability: a definition for environmental professionals. *Journal of Environmental Sustainability*, 1: 1–10. DOI: [10.14448/jes.01.0002](https://doi.org/10.14448/jes.01.0002)
- Muir J, and Wolfe LM. 1938. *John of the mountains: The unpublished journals of John Muir*. Houghton, Mifflin, Boston, Mass.
- Naeem S, Chazdon R, Duffy JE, Prager C, and Worm B. 2016. Biodiversity and human well-being: an essential link for sustainable development. *Proceedings of the Royal Society B: Biological Sciences*, 283: 20162091–20162091. PMID: [27928039](https://pubmed.ncbi.nlm.nih.gov/27928039/) DOI: [10.1098/rspb.2016.2091](https://doi.org/10.1098/rspb.2016.2091)

- Ness TM, and Munkejord MC. 2021. Being connected to nature, reindeer, and family: findings from a photovoice study on well-being among older South Sámi people. *International Journal of Circumpolar Health*, 80: 1936971. PMID: [34256684](#) DOI: [10.1080/22423982.2021.1936971](#)
- Nisbet EK, Zelenski JM, and Murphy SA. 2011. Happiness is in our nature: exploring nature relatedness as a contributor to subjective well-being. *Journal of Happiness Studies*, 12: 303–322. DOI: [10.1007/s10902-010-9197-7](#)
- Porsanger J. 2004. An essay about Indigenous methodology. *Nordlit*, 0. DOI: [10.7557/13.1910](#)
- Sado M, Ninomiya A, Shikimoto R, Ikeda B, Baba T, Yoshimura K, and Mimura M. 2018. The estimated cost of dementia in Japan, the most aged society in the world. *PloS One*, 13: e0206508–e0206508. PMID: [30418983](#) DOI: [10.1371/journal.pone.0206508](#)
- Scoones I. 2007. Sustainability. *Development in Practice*, 17: 589–596. DOI: [10.1080/09614520701469609](#)
- Shih S, and Tsai L. 2021. Indigenous knowledge in Taiwan and beyond, Sinophone and Taiwan studies. Springer, Singapore.
- Silan W, and Mataira PJ. 2019. Insights into positionality and the voicing of Indigeneity in research: Towards a critical theory of inbetweenness. *Dutkansearvvi dieđalaš áigečála* [Periodical of the Sámi Language and Culture Research Association], 3: 108–124.
- Smith LT. 2012. *Decolonizing methodologies: Research and Indigenous Peoples*. Otago University Press, Dunedin, New Zealand.
- Suliman S, Farbotko C, Ransan-Cooper H, Elizabeth McNamara K, Thornton F, McMichael C, and Kitara T. 2019. Indigenous (im)mobilities in the anthropocene. *Mobilities*, 14: 298–318. DOI: [10.1080/17450101.2019.1601828](#)
- Sundberg J. 2014. Decolonizing posthumanist geographies. *Cultural Geographies*, 21: 33–47. DOI: [10.1177/1474474013486067](#)
- Tansikian T. 2021. Indigenous knowledge in Taiwan: a case study of the education sector. *In* *Indigenous knowledge in Taiwan and beyond*. Edited by S. Shih and L. Tsai. Springer Singapore, Singapore, pp. 3–34. DOI: [10.1007/978-981-15-4178-0_1](#)
- Timonen V. 2008. *Ageing societies: a comparative introduction*. Open University Press, Maidenhead.
- Trisos CH, Auerbach J, and Katti M. 2021. Decoloniality and anti-oppressive practices for a more ethical ecology. *Nature Ecology & Evolution*. DOI: [10.1038/s41559-021-01460-w](#)
- Tronto JC, and Fisher B. 1990. Toward a feminist theory of caring. *In* *Circles of care*. Edited by E. Abel and M. Nelson. SUNY Press, Albany, NY. pp. 36–54.
- Umek ERA. 2004. *Tsawalk: a Nuu-chah-nulth worldview*. University of British Columbia Press, Vancouver, BC.
- Umek ERA. 2011. *Principles of Tsawalk: An Indigenous Approach to Global Crisis*. University of British Columbia Press, Vancouver, BC.
- UN. 2015. *Transforming our world: the 2030 agenda for sustainable development A/RES/70/1*. UN Publishing, New York.

Vaara E, Haapola I, and Seppänen M. 2016. What is wellbeing for the elderly? *In Ageing, wellbeing and climate change in the arctic: an interdisciplinary analysis*. Edited by P Naskali, M Seppänen and S Begum. Routledge, London, pp. 133–146.

Virtanen PK, Keskitalo P, and Olsen T, eds. 2021. Indigenous research methodologies in Sámi and global contexts. Brill | Sense. Leiden; Boston, Mass.

Virtanen PK, Siragusa L, and Guttorm H. 2020. Indigenous conceptualizations of “Sustainability”. *Current Opinion in Environmental Sustainability*. DOI: [10.1016/S1877-3435\(20\)30044-0](https://doi.org/10.1016/S1877-3435(20)30044-0)

Watan T. 2019. Kinhulan na hmali: qwas lmuhuw Tayal, kahul ke tayal hmkangi kinmhgan [Root of the tongue: oral tradition of Tayal, tracing Tayal context through language]. National Central Library, Taoyuan.

Westendorp Rudi GJ, and Kirkwood TBL. 2007. The biology of ageing. *In Ageing in society: European perspectives on gerontology*. Edited by J Bonds, S Peace, and F Dittmann-Kohli. SAGE Publication Ltd. pp. 15–37. DOI: [10.4135/9781446278918.n2](https://doi.org/10.4135/9781446278918.n2)

Wilson S. 2008. Research is ceremony: Indigenous research methods. Fernwood Pub, Winnipeg, MB.

Wilson S, Svalastog AL, Gaski H, Senior K, and Chenhall R. 2020. Double perspective narrating time, life and health. *AlterNative: An International Journal of Indigenous Peoples*, 16: 137–145. DOI: [10.1177/1177180120920774](https://doi.org/10.1177/1177180120920774)

Yen I, and Chen Y-A. 2013. Self-governance on Indigenous community for sustainable development: a case study in Tayal community in Taiwan. *OIDA International Journal of Sustainable Development*, 6: 55–70.