Bridging Cultures in Distance Education: A Confluence of Critical Pedagogy of Place and Indigenous Education Philosophy (Case-Study Reference in Fiji and Vanuatu)

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Abstract:- This research explores the fusion of "Critical Pedagogy of Place" and "Indigenous Education Philosophy" to create a holistic pedagogical framework within Instructional Theory, focusing on its application in Distance Education, specifically within two Pacific Island cultures. The study's objectives included investigating culturally relevant instructional techniques, strategies, and technologies for the Itaukei (Indigenous Fijian) and ni-Vanuatu cultures, enhancing appreciation for culturally sensitive pedagogical methods. Methodologically, a qualitative inquiry phenomenological approach was employed within a constructivist paradigm, utilizing a comprehensive qualitative scoping review and online literature search. Key findings include the prioritization of cultural inclusivity and indigenous knowledge integration in both indigenous education philosophies and various instructional approaches. Learner-centered methods like constructivist andragogy and the learning cycle are applicable and effective in distance education within these cultures, aligning with indigenous learners' values and preferences. Place-based education and critical pedagogy of place are particularly pertinent, fostering a deeper connection between education, local environments, and social justice. Integrating digital technologies in culturally responsive education bridges geographical gaps and preserves cultural knowledge. Lastly, blending Western and Indigenous Science, influenced by a Two-Eyed Seeing approach, informs pedagogy by combining Western and Indigenous Science.

This research underscores the importance of acknowledging cultural diversity and respecting indigenous knowledge in distance education. It highlights the value of learner-centered approaches, place-based education, and technology integration. The study enriches the educational experience within the Itaukei and niVanuatu cultures and provides insights for educators and policymakers aiming to bridge cultural gaps in distance education.

I. DESCRIPTION OF THEORETICAL AND CONCEPTUAL APPROACHES

The author centered scholarly attention on the overarching amalgamation of "Critical Pedagogy of Place" and "Indigenous Education Philosophy" as a comprehensive pedagogical framework of particular significance to ongoing research in Fiji and Vanuatu. This interest is rooted in my present position as a Full-Professor of Sciences at the University of Fiji (Saweni Campus-Lautoka- Fiji Islands) as well as my ongoing research, as part of my Doctoral Research Award (2022/2023) funded by the International Development Research Centre (IDRC/IDRA); which focuses on indigenous Itaukei communities in Fiji and niVanuatu in Vanuatu. There are certain foundational elements that underpin this amalgamation, playing a pivotal role in elucidating its significance as practical pedagogical methodologies within the realm of Instructional Theory.

A. Aim:
The aim is to explore how current theory and research can inform Distance Education practice.

B. Objectives:
The assignments' objective is to investigate, analyse, and apply culturally relevant and significant instructional techniques, strategies, or technologies within the iTaukei (Fijian) and ni-Vanuatu cultures to improve understanding and appreciation of culturally sensitive pedagogical approaches in the context of these two Pacific Island cultures. I will also attempt to briefly highlight important theories and concepts that contribute to a stronger overall understanding of instructional approaches to distance learning.

C. Specific Objectives (SO):

➢ *Cultural Context Analysis and Literature review:*
To examine the cultural context and values of the iTaukei (Fijian) and ni-Vanuatu societies, with a focus on their educational and instructional practices. This will also include a brief, but comprehensive literature review, assessing the applicability and usefulness of the various theories, practices or research (studies) for informing DEP (distance education practice) and its practical application for educators.

➤ *Theoretical Foundations:*

To investigate relevant educational and instructional theories or frameworks that align with the cultural values and practices of iTaukei and ni-Vanuatu societies. This also includes relevant research in the area and its applicability within the Itaukei and niVanuatu cultures.

➤ *Practical Application:*

To explore practical ways in which instructional techniques, strategies, or technologies can be adapted and integrated into educational settings within these cultures while respecting their cultural heritage. This may also include some determination (s) of its applicability in terms of informing DE (distance education) practices.

➤ *Comparative Analysis :*

To compare and contrast the instructional approaches and technologies used within Itaukei and niVanuatu cultures, highlighting their similarities and differences.

These specific objectives will guide this brief research and analysis process, ensuring that the assignment addresses the theoretical and practical aspects of instructional techniques and technologies within the iTaukei and ni-Vanuatu cultures while promoting cultural sensitivity and relevance. Structurally, this report will provide a description of the theory and practice (highlighting the instructional techniques, strategies or technologies) of particular interest within the Itaukei and niVanuatu cultures. The literature review and discussion/assessment portion will be embedded within the structure of the description, with appropriate citations and references. Lastly, the report will look at the differences and similarities between these different theoretical and conceptual approaches and synthesis the findings in a conclusion.

D. Methods

I used a qualitative inquiry phenomenological approach (within Chilisa,'s[1] interpretive paradigm)as a research tool when examining background materials and re-assessing results (from previous cultural research) on indigenous Itaukei and niVanuatu.In this review, I aimed to further understand the essence of human lived experiences from the perspective of the participants (Joubert & Merwe, 2019). It involved exploring the subjective and interpretive understanding of data, taking a constructivist paradigm (Wang, 2012). This approach is particularly relevant in indigenous research as it allows for the exploration of indigenous knowledge, perspectives, and experiences (Lavallée, 2009). This review also used of a qualitative scoping review in addition to an in-depth online literature search. As part of this process, a preliminary assessment of the available literature on a specific subject was carried out with the intention of determining the breadth of the literature, its most important concepts, and the areas where additional research is needed. On the topic of traditional ecological knowledge and climate change, particular literature was gathered by searching electronic databases (e.g. Canadian Centre for Climate Services, IPCC AR6 (6th

Assessment Report), NOAA, Australian Climate Change Centre, Climate Change Adaptation, LK data and documents (reports, peer reviewed journals, and theses). An additional literature review and search of studies on policy issues and health due to climate impacts and extreme events, global policy research, LK research and policy implications, loss, and damage and at risks settlements was also done. This search included pertinent literature from The University of the South Pacific (USP), Fiji National University (FNU), The University of Fiji (UniFiji), University of British Columbia (UBC Vancouver, UBC Okanagan), Thompson River University Kamloops Library, LK literature searches worldwide, and the Web of Science database that focused on intergenerational trauma, IRS, climate change adaptation and resilience studies. After that, the information gleaned from the literature review and the qualitative scoping review was subjected to thematic coding with the help of the Nvivo qualitative analysis software. The research covered a wide range of topics, including traditional knowledge, distance education philosophy, Itaukei and niVanuatu cultural protocols, traditions, climate change, environmental law, policy and governance, collaborative learning, climate change impacts and vulnerabilities within the context of numerous communities and socio-cultural circumstances on a global scale.

The results of the review provided a comprehensive and systematic search strategy to identify all relevant literature, using an integrative or critical review approach, to evaluate, critique, and synthesize the literature on a research topic in a way that makes it possible for new theoretical frameworks and perspectives to emerge. The purpose of this review is to create initial or preliminary conceptualizations and theoretical models of developing or novel conceptual or theoretical insights.

II. LITERATURE REVIEW AND ASSESSMENT

A. Historical Background and Related Concepts and Theories

The Pacific region has three sub-regions, with the 15 PICTs (Pacific Island Countries and Territories) grouped as follows: Melanesia (Fiji, PNG,Solomon Islands and Vanuatu), Micronesia (FSM, Kiribati, RMI, Nauru and Palau) and Polynesia (CookIslands, Niue, Samoa, Tokelau, Tonga and Tuvalu) (UNESCO, 2023) . All of the PICTs, except Tokelau, are listed as SmallIsland Developing States (SIDS) by the United Nations Department of Economic and Social Affairs.SIDS have been described as having'similar development challenges', including small but growingpopulations, limited resources, remoteness, susceptibility to natural disasters, vulnerability toexternal shocks, excessive dependence on international trade and fragile environments'(Ahmed, 2018). SIDS were first recognized as a distinct group of developing countriesat the United Nations Conference on Environment and Development in Rio de Janeiro, 1992.Agenda 21, the outcome document of that conference, stated that SIDS 'are a special case bothfor environment and development. They are ecologically fragile and vulnerable. Their small size,limited resources, geographic dispersion and isolation from markets, place them at a disadvantageeconomically

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[1]Chilisa, B. (2012). Indigenous Research Methodologies. Sage. p.32.

and prevent economies of scale' (United Nations, 1992, Article 17.123).To assist the SIDS in their efforts towards sustainable development, in 1994 the United NationsGlobal Conference on the Sustainable Development of SIDS adopted the Barbados Programme ofAction. Nevertheless,'SIDS remain vulnerable to the vicissitudes of global markets, impeded in theirpursuit of sustainable development by small size, remoteness, and exposure to a broader rangeof climate change impacts. These adverse impacts have compounded the existing constraintson SIDS and have placed additional burdens on their narrow resource base'. More specifically,the challenges faced by SIDS have increased the vulnerability of their economies, and thereforehindered their development. These developments parallel UNESCO Strategic Goal 1: Investing in People; UNESCO in the Pacific will strengthen polices for education and lifelong learning; the professional development of teachers; a stronger role for technical and vocational training; strengthen intercultural competencies; improve science, technology and innovation policy while promoting the advantages of using intangible cultural heritage and traditional knowledge; enhance social inclusion with a specific focus on youth and women's empowerment; and support the fostering of an independent media in the Pacific. UNESCO Goal 3: Sustaining LivelihoodActivities under this strategic goal will foster policies and practices for the protection and safeguarding of cultural and natural heritage. The integration of modern technologies and tools will strengthen the preservation of heritage, the transmission of traditional knowledge and the promotion of the development of the creative industries.

According to Nakashima et al (2012), indigenous territories contribute to community resilience by offering alternative spaces and resources that serve when environmental surprises threaten disaster. Today however, many indigenous peoples around the world find their traditional territories increasingly hemmed in Nakashima et al (2012, p.66). Territorial integrity is disrupted by forestry, mine and mineral exploration, gold mining or hydroelectric projects, national parks, tourism infrastructure and urban expansion (Marin, 2010; Roué, In prep.). This encroachment on indigenous lands diminishes community resilience and adaptive capacity in the face of climate change. In many countries, formal education continues to contribute to the erosion of indigenous languages and knowledge. Compulsory schooling not only interrupts traditional channels of cultural transmission by removing children daily from family and community settings, but also inculcates children with external values that may clash with and even undermine

traditional teachings (Nakashima et al (2012). This loss of indigenous language and knowledge weakens the social capital of younger generations, which may result in diminished survival skills in the face of an increasingly uncertain Arctic environment (Ford et al., 2010); reduced knowledge of pastures and watering places that may place herds in sub-Saharan Africa at risk in times of drought (Ole Saibatu, see IPMPCC, 2011); or limited familiarity with cultivars that may reduce adaptation options for subsistence farmers facing increased climate variability in the Andes, Africa and Asia.Policies that promote 'bothways' education, nurturing indigenous language and knowledge alongside mainstream instruction, provide young generations with options and sources of innovation that may strengthen community resilience in the face of change (Fordet al., 2010). Without a doubt, therefore, we could partially conclude that Pacific Island culture(s) and people(s) are emersed in monumental change, not only in terms of there landscapes of tradition but also education and distance learning. As preamble to this and according to Dickie (2005), the Pacific Islands and their people;

> "survive within a reciprocal relationship held with the land and are aperfect representation of an interdependent existence. Not only does seeing nature as sacred become a view of life,but a way of life as well. This can be seen in their myths, traditions, ceremonies, speech, and respect for the sourceof life (nature).."(p.2):

They have a strong sense of identity because they believe people belong to the land, not the land to them. They also believe that the land nourishes, supports, and teaches, is the core of culture, and connects people to the past (ancestors' home), present (resources), and future (a legacy they hold and touch for the grandchildren). Nature and shamans/medicine (wo)men hold a lot of knowledge. Most trees and plants have medicinal properties, and indigenous medicine men find over 75% of the 121 plant-derived drugs (Heinrich, 2004). This highlights the importance of traditional knowledge and the potential of natural resources in drug discovery. Medicinal plants have been used for centuries in various cultures and have contributed significantly to the development of modern medicine (Thomford et al., 2018). The use of indigenous timber trees with high medicinal value is an area of interest and research (Bf et al., 2021). These trees, such as *Albizia zygia, Alstoniaboonei, Tetrapleura tetraptera, Newbouldialaevis*, and *Canarium schweinfurthii* (Table 1), have the potential to provide valuable medicinal compounds (Bf et al., 2021).

Table 1: Five selected underutilized indigenous timber species (Source:Awotedu et al, 2021).

Scientific Name	Family	Common Names
Albizia zygia	Fabaceae (Mimosoideae)	Silk tree or Siris
Alstonia boonei	Apocynaceae	God's tree or Stool wood [28].
Tetrapleura tetraptera	Fabaceae – Mimosoideae	Aidan tree or Gum tree
Newbouldia laevis	Bignoniaceae	Boundary tree or 'Tree of Life [29].
Canarium schweinfurthii	Burceraceae	Africa Elemi

Additionally, plants like *Moringa oleifera* have been studied for their phytochemicals and their nutritional, therapeutic, and industrial significance (Saini et al., 2016). Overall, the study of medicinal plants and their potential therapeutic applications continues to be an important area of research and holds promise for the development of new drugs (Heinrich, 2004; Bf et al., 2021; Saini et al., 2016; Thomford et al., 2018; Asadi-Samani et al., 2017; Nwodo et al., 2015).

Traditional forms of healing is about retaining or maintaining harmony with nature. When someone is ill, it's often because they broke their relationship with nature or caused a "taboo" or ill will. Moral transgressions can cause natural disasters due to the close relationship between supernatural beliefs and social behaviour ; which resonates with Dranseika (2016); where "Moral responsibility for natural disasters". Moreover, the spiritual world is upset by community discord, causing illness and misfortune, and sometimes spirituality is often associated with beliefs in a higher power or a spiritual realm. In the context of palliative care, for example, spirituality is recognized as an important aspect of well-being and can influence a person's experience of illness and suffering (Steinhauser et al., 2017). Shamans, Awa (Central and South America)', Witch -Doctors or Medicine-Men (USA American Indians and Canada First Nations), VooDoo Acolytes (Haiti) , generally seek some resemblance of cosmic balance. Awa's (Medicine men) such as in the BriBri/Cabecar and Shamans (*Shamanes)*in Central and South America, believe that illnesses and diseases are the result of imbalances in people's lives. They enter an altered state of consciousness to acquire knowledge about the cause of the illness and to identify appropriate remedies (Constantine et al., 2004). Similarly, in the Sundanese culture of West Java, Indonesia, the local people believe that imbalances in natural or environmental factors can cause illness. They seek the help of a shaman (*dukun*) to restore balance by giving offerings and performing cultural treatments (Iskandar et al., 2023).The concept of seeking cosmic balance and within the context of the theme of integrating pedagogy of place and indigenous education, refer to the importance of shamans, witch-doctors, and Voodoo practitioners in indigenous cultures and their belief in restoring cosmic balance. These practices are deeply rooted in cultural traditions and aim to address imbalances in individuals' lives and in the natural world. Maintaining positive relationships requires following natural laws, respecting sacred ecology, and performing appropriate ceremonies or creating carvings, paintings, songs, etc. Most indigenous myths explain the origin stories and remind people of their place in the cosmos and history. These myths give life meaning and explain the cycle of birth, life, and death in relation to the land. This life process is dynamic and evolving. Modern colonialism and Europeans had a major impact on indigenous people. Because of consumerism, colonisers brought invasion, disease, violence, homelessness, urbanisation, discrimination, and attacks on cultural, religious, and personal identity. Through transmigration, the impacts of climate change, disaster risk, deforestation, resource extraction, economic occupation, damming, logging, and mining, the land and sea suffered. Many Pacific Islanders believed environmental destruction

meant spiritual death. Invaders polluted the land and people, desecrated sacred sites, and violated cultural integrity. "You take an aboriginal from his land, you take him from the spirit that gives him life." 1990 (Borger, 2022). However, many Pacific Islanders still revere nature. They remain proud of their language, culture, and land and adhere to traditional myths and practises.

B. The tree of opportunity and linkages to types of learning

Contextually, the 'tree of opportunity is a philosophical (conceptual) pedagogical approach; which Pene et al 2021 describes as "Education, or the Tree of Opportunity", is firmly rooted in the cultures of Pacific societies. The strengths and advantages it gains from its root source will allow it to grow strong and healthy, and further permit the vi incorporation of foreign or external elements that can be grafted on without changing its fundamental root sources or the identity of each tree. It can accommodate the best of both old and newand can bear different fruits and be useful for a variety of purposes without destroying its roots or the new grafted elements. This is an interesting concept within the technology for teaching/learning activities described by Laurillard (2012); highlighting the acquisition, collaboration, discussion, investigation, practice and production; which intuitively describes individual learning while discussion and collaboration describes social learning. The social learning techniques or tactics as such, are embedded within the Pacific Island "Tree of Opportunity" (Figure 1). Each of the learning types described by Laurillard (2012), could technically be framed within the tree of opportunity and *vice versa*, depending on the cultural context but in general, this relationship has overlapping relationships with respect to education, learning attributes and pedagogical approaches that recognize the importance of connecting education to traditional knowledge.

➤ *Critical Pedagogy of Place (CPP):*

According to Kincheloe (2008), Critical Pedagogy of Place (or CPP) is an evolving critical pedagogy and a critical complex epistemology assert that both the physical and social universes are too multifaceted for us to arrogantly believe we have all the answers, that we have become all is humanly possible (p.2). The same author and Griffen reiterate, that " Humans in every period of Western history after the scientific revolution have believed that they know the universe in some type of final way. Those phenomena that significantly differ from the dominant power bloc's current "final truth" about the world are simply not recognized as existing.   Intellectual and socio-political evolution demands that we overcome such obstructionist dogmas" (Griffin, 1997; Kincheloe, 2003b). Moreover, rooted in the works of Paulo Freire, this approach advocates that education can be used as a tool for social justice and liberation. In the context of Indigenous cultures in Fiji and Vanuatu, this approach promotes critical thinking, dialogue, and reflection to challenge dominant narratives and empower learners to understand and address issues related to colonization, land, and identity. Within a CP and place-based concepts, *Critical Pedagogy of Place*:(CPP) combines critical pedagogy's challenge of assumptions, practises, and outcomes with place-based education to help students become aware of how their actions impact the social and

ecological places they inhabit (Gruenewald, 2003). CPPs a pedagogical approach that recognizes the importance of connecting education to the local environment and community. It emphasizes the understanding of the cultural, social, and ecological aspects of a particular place. CPP encourages students to explore their surroundings, engage in meaningful dialogue with their community, and develop a sense of ecological and social responsibility. At the center of CPP is the critique that land-based education and place-based education have largely ignored the narratives of Indigenous peoples and conceived of humans as mainly separate from nature (Tuck et al, 2014). Scholars focusing particularly on Indigenous perspectives argue that land-based education and place-based education should instead more fully consider Indigenous ideologies that incorporate humans as part of nature (Academic Accelerator, 2023). In order to do this, the colonial constructs inherent within placeand land-based education must be dismantled or decontextualized. In particular, land and place-education focused on areas settled by non-Indigenous peoples need to better incorporate the decolonization of the land and work to better center Indigenous narratives (Tuck et al 2014). This process can be best facilitated by focusing on disrupting the settler colonial narrative in modern contexts, considering land and Indigenous cosmologies in curriculum, and recognizing the significance of naming places and the land rights of Indigenous peoples (Tuck et al, 2014). Critical pedagogy often overlooks the fact that human culture is rooted in ecological systems, according to Greenwood, while promoting students' awareness of power structures (Gruenewald, 2003). He suggests balancing it with place-based education, which emphasizes the students' immediate social and ecological surroundings. He also focuses on urban as a place, which critical pedagogy lacked. He believes that critical pedagogy must include the urban space to be effective.
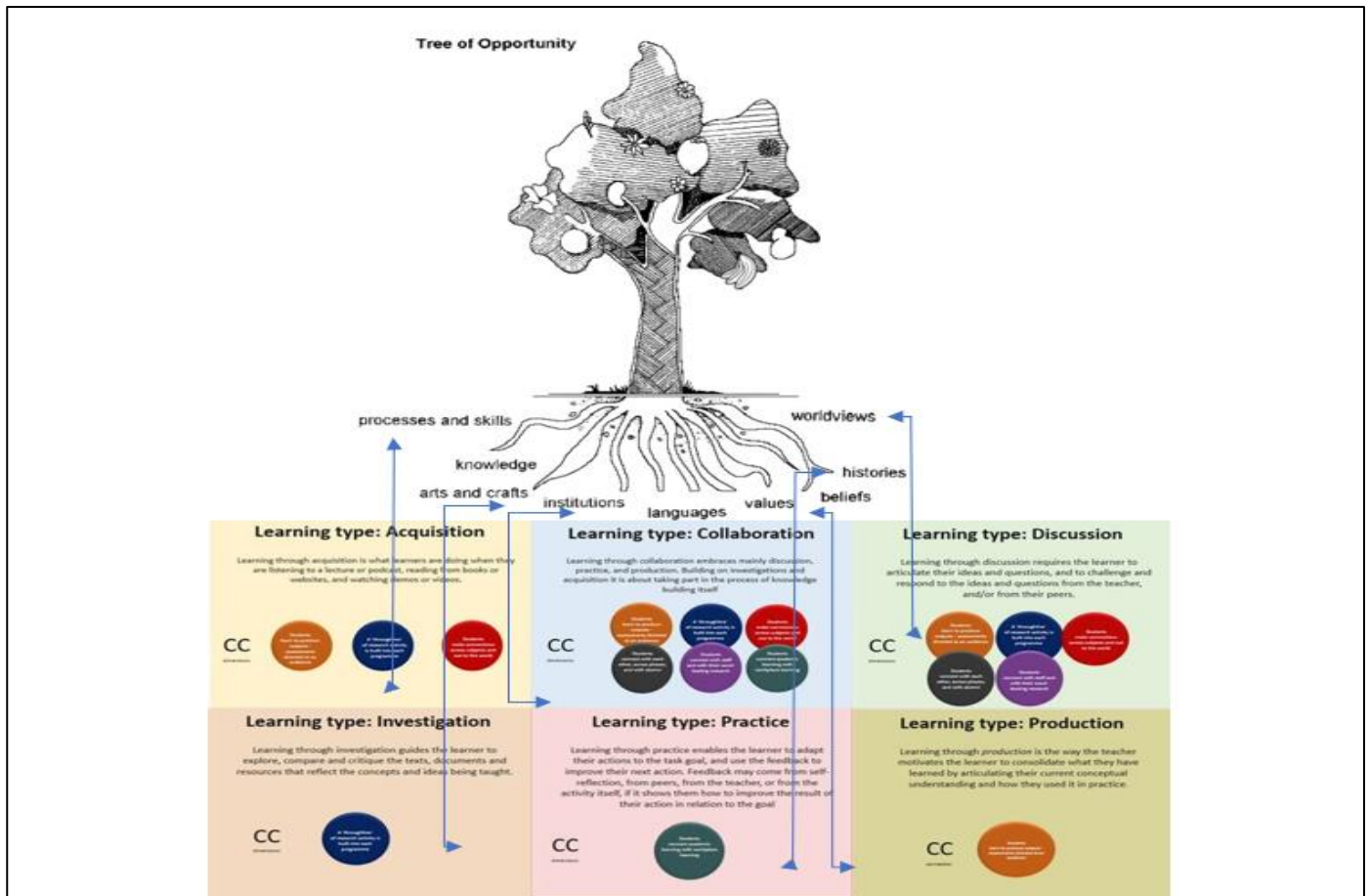

Fig. 1: Representation of tree of Opportunity as it intersects with Laurillards learning acquisition (types of learning). Arrows indicate (a) relationship(s) or thereotical overlap between tree of opportunity and learning acquisition
(Source: Pene, et al, 2021 and Laurillard, 2012)

➤ *Applicability and usefulness in terms of informing DE practice (responds to SO 2.3):*

Critical Pedagogy of Place is an educational approach that emphasizes the connection between education, place, and social justice. It encourages learners to engage with their local environments and communities to develop a deeper understanding of the world and its inequalities. While this pedagogical framework is often associated with traditional face-to-face education, its principles can be applied to distance education as well.

• *Contextualizing Learning in a Digital Environment:* CPP asserts that learning should be rooted in the local context to foster a sense of belonging and critical awareness" (Gruenewald, 2003). In distance education, learners are often geographically dispersed and in Fiji and Vanuatu, somewhat unconnected (low bandwidth or

difficulties getting WiFi). However, educators can adapt this concept by encouraging students to explore and engage with their local digital communities. Vodafone of Telecom Fiji established accessible repeater towers in rural and remote areas; which makes connectivity easier and more affordable. Similarly in Vanuatu, Digicel has a monopoly on the internet market and boasts of 4G connectivity at a reasonable rate. Improved connectivity allows for CPP to be engaged with local indigenous groups which in-turn facilities distance learning and education.

- *Fostering Critical Consciousness:* Freire (1970) argued that critical consciousness is essential for transformative education. CPP can help distance educators in promoting critical thinking and social consciousness among learners. By examining global issues through the lens of their local context, students can better understand how these issues impact their communities and develop a sense of agency in addressing them.

- *Utilizing Digital Technologies:* Digital technologies, such as online forums, video conferencing, and virtual reality, can facilitate the exploration of local environments in a distance education setting (O'Neil, 2018). These technologies enable learners to virtually visit local places, engage with local experts, and collaborate on community-based projects.

- *Social and Environmental Justice*: CPP encourages learners to consider the social and environmental implications of their actions (Gruenewald, 2003). Distance education can incorporate discussions and assignments that challenge students to explore how their online activities and consumption patterns impact their local and global environments.

- *Collaborative Learning and Community Building: CPP (ergo)* "Place-based education" can be adapted for online environments by creating virtual communities of practice where learners collaborate and share their local experiences" (Smith & Sobel, 2010). Educators can use online platforms to facilitate discussions, group projects, and peer-to-peer learning experiences, allowing students to connect with others who share similar local contexts.

- *Assessment and Reflection:* Distance educators can design assessment strategies that encourage students to reflect on their local experiences and connect them to course content (Hungerford & Volk, 1990). Reflective journals, digital (oral narratives) storytelling, life stories and online discussions can serve as tools for students to document and critically analyze their engagement with their local places.

As a partial conclusion, CPP can be a valuable framework for informing and enhancing distance education practice. By adapting its principles and integrating digital technologies, educators can create meaningful and socially conscious learning experiences that foster critical thinking, community engagement, and a sense of place even in virtual environments.

III. PLACE-BASED EDUCATION (PBE)

This theory recognizes the importance of local context and environment in learning. For Itaukei Fijians and Ni-Vanuatu, it involves connecting education to the land (and *visa-versa*) traditional knowledge, and cultural practices. It encourages a sense of belonging and stewardship toward the environment and has the following sub-components:

- *Cultural Relevance*: PbE emphasizes culturally relevant curricula and pedagogies that incorporate Indigenous knowledge, stories, and languages. It recognizes the wisdom of Indigenous elders and promotes intergenerational learning.

- *Indigenous Education Philosophy:* Indigenous education philosophy is rooted in the traditional knowledge and values of Indigenous peoples. It places a strong emphasis on holistic learning, the interconnectedness of all living things, and the importance of preserving cultural heritage. Indigenous education is often place-based, recognizing the deep connection between Indigenous cultures and the land they inhabit. This approach also included the notion of Cultural Continuity: An 'Indigenous Education Philosophy'; represented by a global Indigenous education tree (Figure 2), whichprioritizes the preservation and transmission of TEK/TK and cultural practices, and includes holistic nurturing guides, cultural well-being and sources and domains of knowledge (Yazon, 2022).Within the context of Itaukei Fijians and Ni-Vanuatu, it emphasizes the importance of maintaining connections to ancestral lands and heritage. [Some] attributes of the PbE approach(es) is (are):

- ✓ Emphasis on Oral Traditions: Both cultures have rich oral traditions. Indigenous education philosophy values storytelling, oral history, and oratory skills as a means of passing down knowledge and wisdom from one generation to the next.

- ✓ Focus on Holistic Learning: Indigenous education focuses on holistic development, incorporating spiritual, emotional, and physical aspects of life. It recognizes that learning is not limited to the classroom but encompasses the whole community and environment.

- ✓ Primarily Community-Centered: Education in Indigenous cultures is often community-centered, where elders and community members play a significant role in teaching and mentoring younger generations. It fosters a strong sense of community and interdependence.
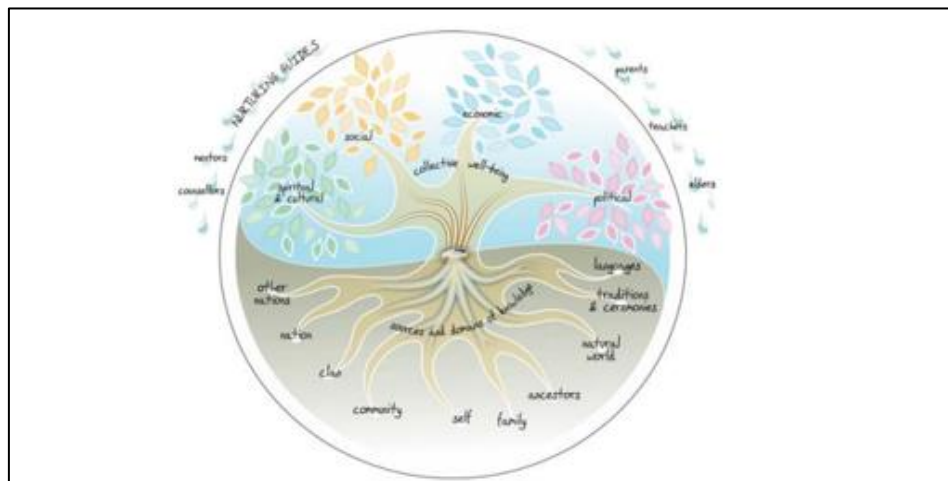
Fig. 2: The Global Indigenous Education Tree
Source: http://rguir.inflibnet.ac.in/bitstream/123456789/16347/1/9781774692905.pdf. In Yazon (2022)

➢ *Applicability and usefulness in terms of informing DE practice* (responds to SO 2.3):

• *Cultural Relevance:* Fijian (Itaukei) and ni-Vanuatu cultures are rich and deeply rooted in their respective lands, languages, traditions, and ways of life. PbE aligns perfectly with these cultural values, as it encourages the incorporation of local knowledge, language, and customs into the curriculum. By grounding Distance Education in the cultural context of these communities, it ensures that learners feel a stronger connection to the content, fostering a sense of identity and pride.

• *Environmental Awareness and links to Climate Smart Landscapes (CSL) or Nature Based Solutions(NbS):*

• Both Fiji and Vanuatu are islands with unique ecosystems and environmental challenges. PbE emphasizes the importance of understanding and preserving one's local environment. Integrating this approach into Distance Education allows students to develop a sense of social, cultural and environmental responsibility for their surroundings and encourages sustainable practices that are vital for the well-being of these island nations.

• *Community Engagement:* PbE encourages active participation and engagement within the community. In the context of Distance Education, this means involving local community members as mentors, resources, and partners in the learning process. By connecting learners with their communities, PbE promotes a sense of belonging and helps learners see the real-world applications of their education.

• *Holistic Learning:* One of the primary advantages of PbE is its ability to provide a holistic and interconnected view of knowledge. It encourages learners to see the relationships between different subjects and the practical relevance of what they are studying. This approach is particularly beneficial in Distance Education, where learners may struggle with isolation and disconnected learning experiences.

• *Language and Biocultural Diversity:*Both Fiji and Vanuatu have diverse linguistic landscapes. PbE encourages the use and preservation of indigenous languages, which is crucial for maintaining cultural identity. By incorporating local languages into Distance Education, learners can develop stronger language skills and a deeper understanding of their heritage.

• *Resilience and Adaptation:*Given the vulnerability of Island Nations to environmental changes such as climate change, teaching resilience and adaptation skills is also crucial. PbE fosters a sense of stewardship and adaptability by encouraging learners to address local issues and seek sustainable solutions. These skills are valuable for the long-term well-being of these communities.

IV. TRADITIONAL KNOWLEDGE AS AN EMERGENT PROPERTY OF CONTEXT, PRACTICES AND BELIEFS

According to Woodley and Wolfe-Keddy (2002), despite unprecedented interest over the last twenty years in local and indigenous ecological knowledge (IEK)[2], there is still a lack of awareness of the implicit complexity in IEK and the epistemological barriers to its effective use, especially within the education and learning disciplines. Woodley et al (2001) go on to indicated that:

"development professionals and project participants usually do not attempt to understand the social structures and biophysical features of the ecosystem that support the system of knowledge and how the process of change impacts that system. For researchers and development practitioners, both local and non-local, to have access to and to understand embedded knowledge that is undergoing change and adaptation, a new conceptual approach is required. The goal of this research process is to expand and refine the understanding of indigenous ecological knowledge as dynamic and place-based knowledge in order to inform contemporary resource management strategies" (p.1)

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[2]IEK is synonymous with Traditional Ecological Knowledge (TEK)

Woodley's research (Woodley, 2002) was carried out in the Solomon Islands (Southwest Pacific) and found that there are strong socio-economic, ecological and cultural influences or changes in terms of the interactions of humans within the local ecosystem. This research positions local ecological knowledge as an emergent property of a complex system of context, practice and belief (CPB). The widely used development practise of participatory consultation extracts knowledge, but this research examines local epistemology and change to understand human-ecosystem interaction. The research found that Uzamba and Valapata residents' relationship to ecosystems depends on the CPB complex and its changes. Place-based ecological knowledge considers biophysical environment, settlement patterns, population structure, and growth. Governance (Chief control and resource tenure), education (traditional vs. adopted), hunting, and agriculture are practises. The third subsystem is belief; where monotheism has replaced traditional beliefs (Woodley and Wolfe-Keddy, 2002).
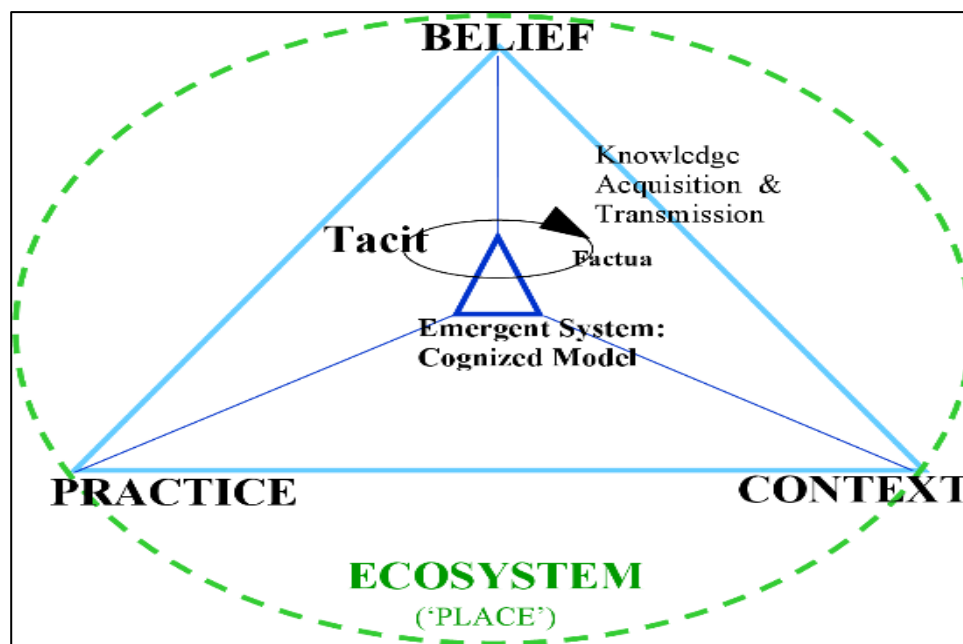

Fig. 3: Model of the emergence of IEK in a 'traditional' system showing emergence from place-based Context, Practice and Belief (CPB) complex and the dimension of time as the cycle of knowledge acquisition, construction and transmission.
Source: Woodley and Keddy(2002) and Woodley (2002).

➤ *Applicability and usefulness in terms of informing DE practice (responds to SO 2.3):*

As reiterated by Woodley (2002), traditional knowledge is an emergent property of context, practices, and beliefs (Figure 3) that can inform distance education practice (McPherson et al., 2016). Traditional ecological knowledge (TEK), practices, and beliefs have been recognized as significant determinants of conservation success (McPherson et al., 2016). Similarly, in the field of education, attention to teachers' beliefs and practices can inform educational practice in ways that prevailing research agendas cannot (Pajares, 1992).When it comes to distance education, understanding teachers' beliefs and practices is crucial. Teachers' beliefs about language learning, for example, can influence their practices in teaching grammar (Phipps & Borg, 2009). It is important to recognize that teachers' practices may not always align with their specific beliefs, but they may still be consistent with a more generic set of beliefs about learning (Phipps & Borg, 2009). This highlights the complexity of the relationship between beliefs and practices in distance education.Furthermore, teachers

actively mediate norms, belief systems, and practices in their own contexts, constructing and reconstructing them as they put them into place (Coburn, 2001). This emphasizes the importance of considering the dynamic relationship between the environment and teachers' internal social processes in distance education. Teachers' beliefs and values may not always align with wider institutional discourses and cultures, indicating the need for collective development and consideration in promoting teacher agency (Biesta et al., 2015).Beliefs about distance education for preschoolers can also influence (for example) its promotion potential for children's development (Singh et al., 2021). Understanding preschool educators' beliefs in this context is essential for designing effective DE programs. Similarly, studying teachers' beliefs and practices in the specific context of remote education during the COVID-19 pandemic was considered crucial for identifying factors that influence this system (Saadati et al., 2021). In DE, there is a tendency to focus on teachers' knowledge, beliefs, and skills, assuming that high-quality practice will naturally follow (Webel et al., 2021). However, it is important to recognize that beliefs

alone may not be sufficient to ensure effective distance education. Collective development, consideration of wider institutional discourses, and understanding the specific contextual factors are also crucial in informing distance education practice.In summary then, traditional knowledge as an emergent property of context, practices, and beliefs can be highly applicable and useful in informing distance education practice. Understanding teachers' beliefs and practices, recognizing the dynamic relationship between the environment and teachers' internal social processes, and considering the specific contextual factors are all important aspects to consider in designing effective distance education programs.

V. MOTIVATING AND ENABLING THE LEARNING CYCLE

As Laurillard points out in her chapter on "Motivating and Enabling the Learning Cycle" (Laurillard, 2012,p.96) of the types of learning and different types of conventional and digital learning technologies, most indigenous communities in Fiji and Vanuatu tend to be intermittently absent from the digital learning technologies, but quite 'present' in terms of practical, hands on, 'practice', 'production' , 'discussion' and 'collaboration'. The digital component of the learning process itself, may be quite different from the Western Science or developed country perspectives, but one can speculate that the types of learning and types of conventional and digital learning technologies are quite variable and especially in Fiji and Vanuatu.

A. Applicability and usefulness in terms of informing DE practice (responds to SO 2.3):

The learning cycle's applicability and usefulness in informing distance education (DE) practice can be understood by considering the learning preferences and cultural practices of indigenous communities in Fiji and Vanuatu. As Laurillard points out, these communities tend to be more present in practical, hands-on, and collaborative learning activities rather than digital learning technologies (Kara, 2020). The learning cycle, which typically consists of stages such as practice, production, discussion, and collaboration, aligns well with the learning preferences of indigenous communities. It emphasizes active engagement, experiential learning, and social interaction, which are integral to their cultural practices (Kara, 2020; Rice et al., 2016). By incorporating the learning cycle into DE practice, educators can create meaningful and culturally relevant learning experiences for indigenous students.

In DE, the learning cycle can be applied by designing activities that allow students to engage in practical, hands-on learning. This can include fieldwork, Church-based community projects, or traditional practices (e.g. basket weaving, Bure (traditional thatched house) construction, story-telling and oral narratives); that connect young adults or older adult (students) to their local environment and culture (Rice et al., 2016). By actively participating in these activities, students can develop a deeper understanding of their cultural heritage and strengthen their connection to their communities.

The production stage of the learning cycle can be facilitated through the use of digital technologies that allow students to create and share their work. This can include multimedia presentations, digital storytelling, or online discussions where students can showcase their knowledge and perspectives (Silva et al., 2010; Willox et al., 2012). By incorporating digital tools, educators can bridge the gap between traditional practices and modern technologies, providing a platform for indigenous students to express themselves and share their cultural knowledge.The discussion and collaboration stages of the learning cycle can be facilitated through online platforms and communication tools. This allows students to engage in meaningful dialogue, exchange ideas, and collaborate with their peers and educators (Kara, 2020). By creating a supportive online learning community, DE can foster social interaction and collective learning, which are important aspects of indigenous cultural practices (Mowatt et al., 2020).

In summary, the learning cycle's applicability and usefulness in informing DE practice lies in its alignment with the learning preferences and cultural practices of indigenous communities in Fiji and Vanuatu. By incorporating practical, hands-on, and collaborative activities, DE can create **culturally relevant and engaging learning experiences**. The use of digital technologies can further enhance these experiences by providing platforms for production, discussion, and collaboration. By embracing the learning cycle, DE can bridge the gap between traditional practices and modern technologies, promoting cultural preservation and meaningful learning for indigenous students.

VI. CULTURAL RESPONSIVENESS IN DIGITAL EDUCATION (CRDE)

Cultural responsiveness in digital education (or CRDE) refers to the practice of designing and delivering educational content, technology, and pedagogy that are sensitive and tailored to the cultural backgrounds, needs, and experiences of students. In terms of relevant theoretical proponents to CRDE, Gay's book (Gay, 2010) provides a comprehensive overview of culturally responsive teaching, which is a key component of cultural responsiveness in digital education. Gay (2010) explores the theoretical foundations of culturally responsive teaching and provides practical strategies for implementing it in the classroom. It also discusses the importance of considering students' cultural backgrounds, needs, and experiences in designing and delivering educational content. Ladson-Billings' article (Ladson-Billings,1995), presents a theory of culturally relevant pedagogy (CRP); which is closely related to cultural responsiveness in digital education. The author argues that education should be grounded in students' cultural and spiritual backgrounds and experiences in order to promote academic success. It discusses the importance of incorporating culturally relevant content, teaching strategies, and assessments in the classroom. Some may argue that the "classroom" may be outdoors or in an informal non-classroom based setting. Either way, CRDE aims to create an inclusive and equitable learning environment that

acknowledges and values the diverse cultures, spiritual beliefs, indigenous perspectives, and identities of students.

- *Culturally Inclusive Digital Content:* In the context of digital education, a critical aspect is the development of digital resources and platforms that respect and incorporate Itaukei Fijian and Ni-Vanuatu cultures. This includes the use of indigenous languages, traditional stories, and culturally relevant examples.
- ✓ Digital Storytelling: Indigenous Fijian Itaukei and NiVanuatu cultures have a rich tradition of storytelling. Digital education (and subsequent DEIs) can leverage this by incorporating digital storytelling techniques, enabling the sharing of cultural narratives and histories through multimedia formats.
- ✓ Community Involvement: Digital education should involve communities in the co-creation of content and the design of educational platforms. This ensures that digital initiatives align with local values and needs. The integration of these two approaches involves incorporating Indigenous perspectives, values, and knowledge into education that is closely tied to the local environment, fostering a sense of place-based identity and responsibility.

➢ *Applicability and usefulness in terms of informing DE practice (responds to SO 2.3):*

CRDE is crucial for addressing cultural sensitivity and inclusivity in online learning within the Fijian Itaukei and niVanuatu cultures, while respecting their cultural values and traditions. By incorporating culturally responsive teaching practices, educators can create an inclusive and supportive learning environment that acknowledges and values the cultural and spiritual beliefs of indigenous students "Culturally responsive teaching: theory, research, and practice" (Aronson & Laughter, 2016).Culturally responsive teaching involves (for example) recognizing and incorporating students' cultural knowledge, experiences, and perspectives into the curriculum and instructional strategies (Aronson & Laughter, 2016). In the context of digital education, this can be achieved by incorporating culturally relevant content, examples, and resources that reflect the cultural values, norms, traditions, and histories of the Itaukei and niVanuatu cultures (Kumi-Yeboah et al., 2020). This approach ensures that students "see themselves"in their own cultures represented in the learning materials, fostering a sense of belonging and cultural pride.Furthermore, cultural responsiveness in digital education involves creating opportunities for students to actively engage with their cultural heritage and traditions. Brant (2014) indicated that this is done through the integration of traditional practices, oral narratives/life stories, and community or Church-based projects that allow students to connect their learning to their cultural contexts (Brant, 2014). By incorporating these elements, educators can ensure that the learning experiences are meaningful, relevant, and respectful of cultural values and traditions.

Digital education (DE) also has the potential to bridge geographical gaps and provide access to educational resources in remote indigenous areas (Borger, 2022).

Through online platforms and technologies, students in remote areas can access educational materials, participate in virtual classrooms, and engage in collaborative learning with peers and educators from different locations (Idem, p.2). This can help overcome the limitations of physical distance and provide equal educational opportunities for students in indigenous communities.Additionally, DE can facilitate the reciprocal sharing and preservation of cultural knowledge and traditions. Online platforms[3] can serve as digital repositories for indigenous cultural resources, such as language materials, traditional stories, and cultural practices, ensuring their accessibility and longevity (Parra et al., 2023). This can contribute to the preservation and revitalization of indigenous cultures, while also promoting cultural exchange and understanding among diverse communities.

Therefore, cultural responsiveness in digital education is critical for addressing cultural sensitivity and inclusivity in online learning within the Fijian Itaukei and niVanuatu cultures. By incorporating culturally relevant content, practices, and resources, educators can create an inclusive and supportive learning environment that respects and values cultural values and traditions. Digital education also has the potential to bridge geographical gaps and provide access to educational resources in remote indigenous areas, while facilitating the sharing and preservation of cultural knowledge. In addition, With the growth of new digital communication, learningopportunities such as Collaborative Online International Learning (COIL), aimsto foster the development of intercultural competencies (ICC) in studentsfor future career advancement in an expanding global community. This is particularly relevant in the Fijian and niVanuatu case; as many of the online initiatives (social media, colleges, Universities or other education centres) are focused on collective (cultural) responsiveness to DE; even though these cultures are relatively new users and are learning as a simultaneous process of being educated.

VII. THE PHILOSOPHY OF CONSTRUCTIVIST ANDRAGOGY (CA) AND INDIGENOUS EDUCATION PHILOSOPHY (IEP)

Constructivist andragogy (CA) theoryand indigenous education philosophy (IEP) share some similarities, but they are not inherently linked based on the nature of its philosophical origins and/or theoretical interpretations. However, it is possible to draw connections between the two in certain contexts, particularly when considering culturally responsive and learner-centered approaches to education; as are most of the cultural and educational connectivity's (for example within the cultural contexts of Fiji and Vanuatu). If we unpack these two elements (ie. CA and IEP), their associated relationships can be explained;

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[3]These platforms need to be respectful of intellectual property, Indigenous property rights, TEK/IK and ethical protocols on access to traditional resources and/or sacred information.

➢ *Via Learner-Centered Approaches:*

Constructivist Andragogy: Constructivist andragogy is an educational theory that emphasizes the importance of adult learners actively constructing their knowledge and understanding through meaningful experiences and interactions. It recognizes the unique needs and motivations of adult learners and encourages self-directed learning.

- *Indigenous Education Philosophy:* this approach often places a strong emphasis on learner-centered approaches that respect and honor the cultural backgrounds, languages, and traditions of indigenous communities. It recognizes that education should be relevant and meaningful to the learners within their cultural context.

- *Via Cultural Relevance*: Constructivist Andragogy: While not inherently tied to any specific culture, constructivist andragogy can be adapted to incorporate culturally relevant content and teaching methods to make learning more meaningful for adult learners from diverse backgrounds.

- *Indigenous Education Philosophy:* Indigenous education philosophy prioritizes cultural relevance and seeks to integrate indigenous knowledge, traditions, and values into the curriculum. It acknowledges the importance of preserving and passing down indigenous cultural heritage through education.

➢ *Via Empowerment and Self-Determination*:

- Constructivist Andragogy: This theory emphasizes the importance of adult learners taking ownership of their learning and making choices about what, how, and when they learn. It promotes the empowerment of learners.

- Indigenous Education Philosophy: Indigenous education often aligns with the principles of self-determination and empowerment within indigenous communities. It recognizes the value of indigenous peoples having control over their education and the preservation of their cultural identity.

While these similarities exist, it's important to note that indigenous education philosophy encompasses a wide range of diverse approaches and perspectives, as indigenous cultures vary significantly from one another. The specific connections between constructivist andragogy and indigenous education will depend on the cultural context and the goals of the educational program.

In practice therefore, educators and policymakers working in indigenous education contexts may draw upon constructivist andragogy principles to **create culturally responsive and learner-centered programs** that align with the broader goals of indigenous education philosophy. However, it's crucial to approach this integration with sensitivity and consultation with indigenous communities to ensure that the educational practices are respectful and meaningful within their specific cultural contexts.

➢ *Applicability and usefulness in terms of informing DE practice (responds to SO 2.3):*

The philosophy of Constructivist Andragogy and Indigenous Education linkages is applicable and useful in informing Distance Education (DE) practice by promoting learner-centered approaches, cultural inclusivity, and active engagement in the learning process.Constructivist Andragogy emphasizes the learner's active role in constructing knowledge and meaning through hands-on experiences, reflection, and collaboration Biggs (1996) and Chuang (2021). This approach aligns with DE, as it encourages learners to take pride, ownership and exercise an active rolein learning and engage in self-directed exploration and problem-solving (Blaschke, 2012). By incorporating constructivist principles into DE, educators can create meaningful and interactive learning experiences that foster critical thinking, creativity, and deep understanding. Indigenous Education linkages recognize the importance of incorporating indigenous knowledge, values, and perspectives into the educational process (Gainsford & Evans, 2020). DE can benefit from this philosophy by integrating culturally relevant content, examples, and resources that reflect the cultural diversity and traditions of indigenous communities (Gainsford & Evans, 2020). This promotes cultural sensitivity, respect, and inclusivity, ensuring that indigenous learners see themselves and their cultures represented in the learning materials (books, brochures, manuals, documents, online Facebook, WhatsApp messages, links to USP, FNU, NUV and other education institutions in Fiji and Vanuatu).Furthermore, the linkages between Constructivist Andragogy and Indigenous Education emphasize the importance of active engagement, mutual (or collective) affirmations of truth and reconciliation, collaboration with nonindigenous agencies, church organizations and community involvement in the learning process (Grier-Reed et al., 2009; Gainsford & Evans, 2020). DE can incorporate these principles by providing opportunities for learners to connect with their communities, engage in real-world applications of knowledge, and participate in collaborative projects (Kassean et al., 2015). This promotes a sense of belonging, relevance, and social interaction, which are essential for meaningful learning experiences.Additionally, the philosophy of Constructivist Andragogy and Indigenous Education linkages can address the unique needs and contexts of adult learners in DE. Andragogy recognizes that adult learners bring their own experiences, motivations, and goals to the learning process (Neck & Corbett, 2018). By incorporating constructivist principles and indigenous perspectives, DE can cater to the diverse backgrounds and learning styles of adult learners, promoting personalized and relevant learning experiences.

As a partial conclusion to this section, the philosophy of Constructivist Andragogy and Indigenous Education linkages are highly applicable and useful in informing DE practice(s). By incorporating learner-centered approaches, cultural inclusivity, and active engagement, DE can create meaningful and interactive learning experiences that promote critical thinking, cultural sensitivity, and personalized learning. These approaches recognize the importance of learners' active role in constructing

knowledge, the integration of indigenous knowledge and perspectives, and the promotion of community engagement in the learning process.

VIII. ALIGNING COGNITIVISM AND INDIGENOUS EDUCATION PHILOSOPHY (IEP)

Cognitivism, as an educational theory, focuses on understanding and promoting cognitive processes, such as memory, problem-solving, and critical thinking, in the learning process. Indigenous education philosophy (or IEP), on the other hand, emphasizes culturally relevant, holistic, place-based approaches to education that are often community-centered. While there may not be a direct link between cognitivism and indigenous education philosophy, certain aspects of cognitivism can be integrated into indigenous education practices to enhance learning outcomes while respecting cultural traditions and values.

A. Applicability and usefulness in terms of informing DE practice (responds to SO 2.3):

If we further elaborate on Cognitivism; which focuses on the mental processes involved in learning (such as perception, memory, and problem-solving(Bell, 2021) and Indigenous Education philosophy (IEP) recognizes the interconnectedness of knowledge, the integration of cultural values and traditions, and the holistic development of individuals (Barnhardt &Kawagley, 2005; Morcom, 2017). By combining these perspectives (i.e. cognitivism and IEP), DE can promote meaningful and effective learning experiences. For example, in DE practice, the philosophy of cognitivism can contribute to or "inform the design" of instructional strategies that engage learners' cognitive processes. This can include activities that promote critical thinking, problem-solving, and metacognition (Bell, 2021). By incorporating interactive and reflective elements, DE can facilitate deep learning and the development of cognitive skills. IEP can guide DE practice by emphasizing cultural inclusivity, holistic (circle-approaches and and the integration of indigenous knowledge and perspectives. DE can incorporate culturally relevant content, examples, and resources that reflect the cultural diversity and traditions of indigenous communities (Barnhardt &Kawagley, 2005). This promotes cultural sensitivity, respect, and inclusivity, ensuring that indigenous learners see themselves and their cultures represented in the learning materials. In terms of the linkages between cognitivism and IEP highlight the importance of considering the holistic nature of knowledge and learning and the cultural context of the learner-mentor or leader relationship. DE can adopt a multidimensional approach that recognizes the interconnectedness of cognitive, emotional, social, and spiritual aspects of learning (White, 2022; Morcom, 2017). This can be achieved by incorporating activities that foster self-reflection, collaboration, and community engagement, promoting a holistic understanding of the subject matter.Table 2 (below) highlights salient points about the relationship between cognitivism and IEP; which can help to explain the integration of indigenous education and cognitivism.

Table 2: The relationship between cognitivism and indigenous education philosophy

Aspect	Cognitivism	Indigenous Education Philosophy	Alignment (%)[4]
Focus	Cognitive processes, mental structures, and learning	Culturally relevant, holistic, and community-centered	4
Learning Objectives	Emphasis on knowledge acquisition, problem-solving	Emphasizes cultural preservation, identity, and values	14.2
Pedagogical Approach	Often teacher-centered, structured, and individual	Often community-centered, experiential, and collaborative	16.3
Cultural Relevance	May not inherently consider cultural context	Prioritizes cultural relevance and traditional knowledge	25.9
Assessment	Focuses on cognitive skills and standardized testing	Emphasizes authentic assessment tied to cultural values	2.3
Learning Environment	Often classroom-based and formal	May include outdoor, experiential, and community settings	6.9
Role of Elders/Community	Limited emphasis on community involvement	Central role of elders and community in education	31

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[4]Using NVivo, SPSS qualitative software and Correlational Coefficients) the author was able to determine (via Qualitative and quantitative analysis) percentage(s) of alignment of cognitive processes with IEP within the Fijian Itaukei and niVanuatu cultures.

A. Applicability and usefulness in terms of informing DE practice (responds to SO 2.3):

Pedagogical Inquiry Framework (or PIF): Pedagogical inquiry is recognized educational approach that focuses on the process of inquiry, reflection and relational interactions to inform teaching and learning practices (Ciampa& Gallagher, 2016; Schnellert, el al, 2018;). These relational interactions are by their nature complex and interwoven. Relationality for all learningrequires partners to consider the needs of the other before our own needs, a concept intension with more neo-liberal, individualistic hierarchies of knowing and being. This theoreticalunderstanding of relational accountability is deeply informed by Indigenous wisdom, groundedin a tradition where understanding is about relationships with other people and ideas ininterconnected ways (Sanford, Williams, Hopper & McGregor, 2012; Wilson, 2008). Also, these PIF frameworks typically involve the following theoretical tenets:

- Inquiry-Based Learning: PIFs often emphasize the importance of inquiry-based learning, where educators and learners engage in questioning, investigation, and reflection to deepen their understanding of a topic.
- Reflective Practice: Pedagogical inquiry encourages educators to reflect on their teaching practices and make informed decisions based on evidence and feedback.
- Collaborative Learning: Collaboration among educators, students, and other stakeholders is often central to PIFs, fostering shared learning experiences and knowledge construction.
- Applicability to Distance Education (DE) Practice: Pedagogical inquiry can be highly relevant to DE practice as it promotes active engagement, critical thinking, and reflective teaching methods. In the context of DE, it can help educators adapt and improve their teaching strategies, develop online resources, and enhance student learning experiences. DE often relies on technology, and pedagogical inquiry can inform the effective integration of technology into the learning process.
- Relationship with Indigenous Itaukei and niVanuatu Cultures: To establish a meaningful connection between pedagogical inquiry and these indigenous cultures, it's essential to recognize and respect the cultural values, traditions, and knowledge systems of the respective communities. Here's how it might relate:
- Cultural Sensitivity: Pedagogical inquiry frameworks should be applied with cultural sensitivity, acknowledging the unique worldviews, languages, and knowledge systems of Indigenous Itaukei and niVanuatu cultures. Educators should collaborate with local community members to adapt teaching practices.
- Oral Tradition and Storytelling: Both Indigenous Itaukei and niVanuatu cultures often have strong oral traditions and storytelling as integral parts of their knowledge transmission. Pedagogical inquiry can incorporate these traditional methods into teaching and learning approaches.
- Community Involvement: Indigenous cultures often prioritize community involvement in education. Pedagogical inquiry can align with this by fostering collaboration among educators, students, families, and community members to collectively shape educational practices.
- Holistic Learning: Indigenous cultures often emphasize holistic approaches to education, including physical, emotional, and spiritual dimensions. Pedagogical inquiry can be adapted to incorporate these holistic aspects into DE practices.
- Respect for Elders and Traditional Knowledge: Indigenous cultures typically hold elders and traditional knowledge in high regard. Pedagogical inquiry can respect and incorporate the wisdom and experiences of elders in the learning process.
- In summary, the applicability and usefulness of a Pedagogical Inquiry Framework in DE practice depend on its adaptation to the specific cultural contexts of Indigenous Itaukei and niVanuatu communities. It should be implemented with respect for indigenous knowledge systems, cultural values, and community involvement to ensure that it aligns with and benefits these unique cultures while enhancing educational practices in the context of distance education. Specific PIFs may vary, and it's essential to work directly with the respective communities to develop culturally relevant and sensitive frameworks.

B. Two-Eyed Seeing and Indigenous Education Philosophy

According to Zeyer, 2022), a Two-Eyed Seeing approach provides not only an interesting theoretical framework for conceptual considerations of S|E|H. (Science, Environmental and Health Pedagogy). Zeyer (2022) reiterated that "it is a usefultool for practical applications in the field of science teaching, be it in the development of new teaching–learning content, or in the retrospective analysis of teaching sequences. In this sense, the concept will also be helpful in teacher education. It can provide us with a practical tool for the implementation of the findings of the last 10 years in S|E|H pedagogy. Furthermore, Two-Eyed Seeing could also become a useful research tool in the field (Figure 5).

A. Applicability and usefulness in terms of informing DE practice (responds to SO 2.3):

The concept of Two-Eyed Seeing involves viewing the world with one eye grounded in Indigenous knowledge and the other eye grounded in Western knowledge (Wright et al., 2019). It recognizes Indigenous knowledge as a distinct epistemological system that can coexist with mainstream (Western) science (Marsh et al., 2015). This approach acknowledges the strengths of both knowledge systems and promotes a more holistic understanding of complex issues (Hall et al., 2015). Within the context of distance education (DE) practice in Fijian Itaukei and niVanuatu cultures, the principles of Two-Eyed Seeing can be applied to **inform critical pedagogy.** By integrating Indigenous knowledge and perspectives into DE, educators can create a more inclusive and culturally responsive learning environment (Wright et al., 2019). This can involve incorporating Indigenous ways of knowing, storytelling, and traditional ecological knowledge into the curriculum (Proulx et al., 2021). By doing so, DE can become a platform for promoting Indigenous education philosophy, which emphasizes the holistic development of individuals and the interconnectedness of all aspects of life (Wright et al., 2019).

IX.   COMPARATIVE ANALYSIS (SIMILARITIES AND DIFFERENCES)5

The act of unpacking, integrating and making-sense of these culturally relevant and/or significant theories, concepts, instructional techniques, strategies or technologies within the Itaukei and niVanuatu cultures is very challenging. There are some coincidental areas of overlap and/or 'integrativness'6.If we compare and contrast these approaches (Table 3), we can clearly see that the relevant similarities and differences and practical applications for educators or in DE.

Fig. 5: Two-Eyed Seeing (Bartlett et al, 2012)and retrospective analysis of teaching sequences (Zeyer, 2022).

Table 3: Contrasts and comparisons (similarities and differences) of Instructional Approaches and Technologies in Itaukei and niVanuatu Cultures

Approach/Technology and/or Theoretical Underpinning	Description	Similarities	Differences	Comments (practical applications for Educators
Laurillard's learning acquisition (types of learning)	Focuses on different types of learning, such as acquisition, inquiry, discussion, practice, and collaboration (Armbruster, 2006). The Tree of Opportunity is also important	Both[7] emphasize the importance of different types of learning experiences	General model, while indigenous education may have specific cultural contexts and practices.	Utilize The Tree of Opportunity philosophy and integrate Laurillard Learning Acquisition Framework (in practice) in Fiji and Vanuatu.
Critical Pedagogy of Place (CPP)	Emphasizes the connection between education, place, and social justice, promoting critical thinking and action (Armbruster, 2006)	Both emphasize the importance of critical thinking and action in education.	CPP specifically focuses on the connection between education and place, while other approaches may have broader scopes.	By incorporating CPP into education recognizes the value of local knowledge, practices, and technologies, including those of indigenous cultures like the Itaukei and ni-Vanuatu. It promotes a more inclusive, context-specific, and empowering approach to learning and community development.
Place-based Education (PbE)	Focuses on connecting learning to the local environment, culture, and community (Armbruster, 2006).	Both emphasize the importance of connecting education to the local context	PbE specifically focuses on the connection to place, while other approaches may have broader focuses.	By incorporating Place-based Education, students can gain a deeper appreciation for indigenous technologies, their cultural significance, and their practical applications. This approach promotes a more holistic and context-specific form of learning, aligning with the values and traditions of Itaukei and ni-Vanuatu cultures[8]
Traditional Knowledge as an Emergent Property of Context, Practices, and Beliefs	Recognizes traditional knowledge as a product of cultural context, practices, and beliefs (Woodley, 2001; (Armbruster, 2006).	Both recognize importance of traditional knowledge and cultural contexts for learning and education. CPB at the centre of learning and knowledge acquisition	Traditional knowledge specifically focuses on the emergence of knowledge from cultural practices and beliefs, while other approaches may have broader perspectives.	Incorporating traditional knowledge as an emergent property of context, practices, and beliefs not only respects the cultural heritage of indigenous communities but also offers valuable insights for addressing contemporary challenges, sustainability, and fostering a deeper understanding of the interconnectedness of people and the environment[9]
Motivating and Enabling the Learning Cycle	Emphasizes the importance of motivation and enabling factors in the learning processinPbE (Armbruster, 2006).	Both recognize importance of motivation and enabling factors in learning	Motivating and enabling the learning cycle specifically focuses on the cyclical nature of motivation and enabling factors,	Incorporating these indigenous technologies into education not only motivates students by offering hands-on, culturally relevant, and interdisciplinary learning experiences but also enables the learning cycle by allowing

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[7] Within this context, "Both" is referring to instructional approaches and technologies from a Western or Eurocentric Science perspective vs. from an Itaukei or niVanuatu indigenous perspective.

[8] OpenAI, personal communication (October 18, 2023).

[9] Idem, October 18, 2023.

Approach/Technology	Description	Similarities	Differences	Comments (practical applications for Educators
			while other approaches may have different frameworks.	students to apply their knowledge to practical, real-world situation[10]
Cultural Responsiveness in Digital Education	Focuses on incorporating cultural knowledge, values, and practices into digital education (McLoughlin, 1999).	Both emphasize the importance of cultural inclusivity in education	Cultural responsiveness in digital education specifically focuses on the integration of culture into digital learning environments, while other approaches may have broader focuses.	Digital education in both Itaukei and NiVanuatu cultures, is evolving, and internet connectivity is improving progressively in rural and remote areas.
Philosophy of Constructivist Andragogy and Indigenous Education linkages	Emphasizes learner-centered approaches, cultural inclusivity, and active engagement in learning (Cataldo et al., 2018). Constructivist andragogy encourages learners to think critically and reflect on their experiences. Incorporating traditional knowledge systems prompts learners to question, analyze, and understand the cultural and ecological significance of these practices and Holistic Learning: Constructivist andragogy and indigenous education linkages enable a holistic approach to education, where students engage with the entire cultural and environmental context. This aligns with the indigenous perspective that sees knowledge as inseparable from culture, spirituality, and the environment.	Both emphasize learner-centered approaches and cultural inclusivity	The linkages specifically highlight connection between constructivist andragogy and indigenous education, while other approaches may have different linkages.	Traditional Navigation Techniques Incorporating Constructivist Andragogy and Indigenous Education Linkages: Using traditional navigation techniques as a starting point, learners can construct their understanding of astronomy, meteorology, and marine science through hands-on experiences and mentorship from knowledgeable elders. This aligns with the constructivist approach, where learners actively build their knowledge through direct engagement and indigenous education linkages, respecting the wisdom of the community. Opthjer traditional ways of knowing are: • Sand Drawings and Sandwriting (Ni-Vanuatu): • Traditional Agricultural Practices: • Experiential Learning; Community Involvement and Engaging with indigenous elders and community members to learn these traditional technologies fosters a sense of community and respect for indigenous knowledge. This connection aligns with the principles of indigenous education linkages, where knowledge is

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[10]Idem, October 18, 2023.

				passed down through generations; Critical Thinking and Reflection:
Cognitivism and Indigenous Education Philosophy	Focuses on cognitive processes in learning and the integration of indigenous knowledge and perspectives (Uum et al., 2016).	Both recognize the importance of cognitive processes and indigenous knowledge.	Cognitivism specifically focuses on cognitive processes, while indigenous education philosophy emphasizes the integration of indigenous knowledge	By incorporating cognitivist principles and respecting the indigenous education philosophy, education becomes a cognitive and culturally enriched experience, allowing learners to engage with the intricate mental processes involved in indigenous technologies while valuing their cultural heritage and traditions.
Pedagogical Inquiry Framework	Emphasizes inquiry-based approaches to teaching and learning (Kim et al., 2007).	Both emphasize the importance of inquiry-based learning	The framework specifically provides a structured approach to pedagogical inquiry, while other approaches may have different frameworks.	By incorporating a pedagogical inquiry framework, education becomes an active and inquiry-driven experience that encourages students to explore, understand, and appreciate the complexities of indigenous technologies while respecting their cultural heritage and traditions[11]
Two-Eyed Seeing approach	The Two-Eyed Seeing approach is a concept developed by Mi'kmaq Elder Albert Marshall and Dr. Cheryl Bartlett in the context of Indigenous knowledge and Western science. It emphasizes the importance of blending traditional Indigenous knowledge and cultural perspectives with Western scientific knowledge to address complex issues and create a more holistic understanding of the world.	By integrating Indigenous knowledge and perspectives into DE, educators can create a more inclusive and culturally responsive learning environment (Wright et al., 2019).		The two-eyed seeing brings Instructional Approaches and Technologies to inform Critical Pedagogy

Note: The similarities and differences mentioned in the table are general observations and may vary depending on specific cultural contexts and practices within Itaukei and niVanuatu cultures.

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[11]OpenAI, personal communication (October 18, 2023).

X. CONCLUSIONS & RECOMMENDATIONS

- There is a strong emphasis on cultural inclusivity and the integration of indigenous knowledge and perspectives in both indigenous education philosophies and various instructional approaches. This highlights the importance of recognizing and valuing the cultural diversity and traditions of these communities in educational practices.

- Learner-centered approaches, such as constructivist andragogy and the learning cycle, are applicable and useful in distance education practice within Itaukei and niVanuatu cultures. These approaches promote active engagement, critical thinking, and personalized learning experiences, aligning with the cultural values and learning preferences of indigenous learners.

- Place-based education and critical pedagogy of place are particularly relevant in these contexts, as they emphasize the connection between education, local environments, and social justice. These approaches promote a deeper understanding of the local context, cultural heritage, and community engagement, fostering a sense of place and social responsibility among learners.

- The integration of digital technologies in culturally responsive education can bridge geographical gaps and provide access to educational resources in remote indigenous areas. It also offers opportunities for the preservation and sharing of cultural knowledge and traditions, ensuring their accessibility and longevity.

- TEK/IK play an important role in DE via a Two Eyed Seeing approach; whichessentially informs pedagogy by blending coincidental areas of Western (or Eurocentric) Sciences with Indigenous Science.

- The philosophy of cognitivism, with its focus on cognitive processes, can be integrated with indigenous education philosophy to enhance learning experiences. By recognizing the holistic nature of knowledge and learning, incorporating cognitive engagement, and integrating indigenous knowledge, DE can provide a comprehensive and culturally relevant educational experience.

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