

Reimagining Two-Eyed Seeing in the Age of AI: Indigenous Storytelling and Relational AI for Culturally Safe Youth Mental Health Tools

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Abstract

This paper reimagines the application of Two-Eyed Seeing (Etuaptmumk) in designing culturally responsive mental health apps for Indigenous youth, extending the original framework to incorporate artificial intelligence (AI) in an emerging technological landscape. From weaving together Design Thinking and Indigenous storytelling through participatory Design Circles, this paper introduces “Two-Eyed AI” – viewing AI through one eye with Indigenous knowledges (e.g., Medicine Wheel, reciprocity) and the other with AI’s scalable strengths (e.g., generative personalization). This approach aims to birth new beginnings in decolonized mental health supports amid colonial legacies. However, it confronts challenges: decontextualizing oral histories in AI systems, risks of storing traditional knowledge in open access spaces, and AI infrastructure’s environmental impacts, particularly data centers’ water consumption. Guided by Indigenous data sovereignty principles like CARE, this paper proposes Indigenous peoples governance mitigations to ensure ethical, sustainable AI mental health supports. This reimagination fosters abundance, relationality, and youth agency, aligning with themes of renewal for Indigenous peoples holistic wellness.

Background and Context

In an era where artificial intelligence (AI) is rapidly transforming mental health care, there is an urgent need to ground Indigenous knowledges to ensure cultural safety and equity for Indigenous youth. A previous study (Sam et al., 2022) applied Two-Eyed Seeing (Etuaptmumk) – a guiding principle co-developed by Mi'kmaq Elders Albert and Murdena Marshall and Dr. Cheryl Bartlett – to bridge Western Design Thinking with Indigenous storytelling practices for developing mental health assessment apps. Two-Eyed Seeing encourages viewing the world “from one eye with the strengths of Indigenous ways of knowing, and from the other eye with the strengths of Western ways of knowing, and to use both of these eyes together” (Bartlett et al., 2012). This approach was previously operationalized in a public health study through Design Circles at the Urban Native Youth Association (UNYA) in Vancouver, British Columbia, Canada involving eight Indigenous youth aged 20–24 to co-create personas and usability preferences grounded in holistic wellness (e.g., embedding Medicine Wheel teachings and Raven creation stories).

As AI evolves – with generative models enabling personalized narratives, pattern recognition for early mental health detection, and multimodal interfaces (text, image, voice) – it offers opportunities to scale these insights. However, without Indigenous peoples governance, AI risks perpetuating colonial harms like data extraction and epistemic erasure (Roher et al., 2021). This paper reimagines the Indigenous framework as “Two-Eyed AI,” extending Etuaptmumk to harness AI for culturally responsive mental health tools while addressing ethical challenges. Aligned with the theme of “Birthing and New Beginnings,” it explores how AI can foster renewal in Indigenous youth mental health, drawing on sovereignty frameworks like CARE Principles (Carroll et al., 2020). This paper outlines the reimagination, key challenges, and paths forward, emphasizing relational ethics and sustainability.

Reimagination: Two-Eyed AI for Indigenous Youth Mental Health

Two-Eyed AI builds on the original bridge between participatory Design Thinking (iterative, user-centered prototyping) and Indigenous storytelling (relational, oral, community-driven) by incorporating AI as a digital tool. One “eye” centers Indigenous strengths: holistic wellness via Medicine Wheel (balancing mental, physical, emotional, spiritual dimensions), relational reciprocity (knowledge as gift, not commodity), and land-based resiliency (e.g., connections to Raven as trickster/knowledge bearer or Sweetgrass for healing circles). The other “eye” leverages AI affordances: generative personalization (e.g., LLMs creating tailored stories), scalable access (24/7 support in remote areas), and multimodal engagement (voice synthesis in Indigenous languages, image generation of artwork).

In reimagined Design Circles, AI augments collective storytelling. Youth prompt generative AI (e.g., “Generate a narrative of navigating trauma using Two-Eyed Seeing, incorporating Heron for honesty”), then refine outputs collaboratively with Elders to ensure traditional protocols. These AI-enhanced Circles build directly on the three co-created personas from a past participatory study, which synthesized youth experiences of barriers and strengths; for example, “Sage,” an 18-year-old young woman rooted in her First Nations community yet fearful of clinics due to family stories of racism and harm (e.g., delaying STI care); “McLovin,” a 25-year-old young man trapped in cycles of systemic racism, judgment, and frustration while asserting his worth (“I have what it takes to survive”); and “Donald,” a youth heavily reliant on online searches for health information but encountering navigation and trust challenges. This evolves the personas into interactive, adaptive tools – AI chatbots suggesting Elder connections or land-based activities based on user patterns, with Indigenous sovereignty and consent.

Usability preferences from the previous study – embedding cultural teachings, oral inclusivity, balanced lifestyle – translate to AI designs: adaptive interfaces using Medicine Wheel dashboards for self-check-ins, or Raven-guided prompts for wellness reflection. AI pattern recognition may enable early detection, flagging stress via subtle cues while prioritizing privacy. This “Two-Eyed AI” births innovative pathways: decolonized apps fostering new beginnings in Indigenous youth wellness, reducing barriers amid colonial legacies like mistrust in healthcare (Sam et al., 2022).

Yet, this potential demands vigilance. AI’s extractive foundation – vast training data, resource-intensive infrastructure – risk amplifying harms if not governed by Indigenous ethics (Ray, 2024). The following challenges highlight tensions requiring relational resolutions.

Challenges and Ethical Considerations in an AI-Emerging World

As we reimagine Two-Eyed Seeing for AI-integrated mental health tools, profound challenges emerge from colonial legacies, epistemic tensions, and environmental inequities. These must be confronted through Indigenous-led frameworks like CARE Principles (Collective Benefit, Authority to Control, Responsibility, Ethics) to ensure AI advances sovereignty, not extraction (Carroll et al., 2020). The subsequent three interconnected issues demand particular attention.

Oral History and Language in AI Systems

Oral histories and Indigenous languages are living, relational knowledges, contextualized by ceremony and community. Generative AI could revitalize them – e.g., Indigenous youth prompting models to generate Tsilhqot’in stories for mental health reflection – but risks decontextualization. AI might disclose sacred elements without protocols, perpetuating epistemic violence (Maldonado, 2026). Language models, trained on biased datasets, can enact “linguistic colonialism,” misrepresenting underrepresented Indigenous tongues.

In Design Circles, Indigenous youth favored creation stories like Raven, but AI must use consented corpora. Refusal mechanisms – AI deferring to Elders or blocking restricted outputs – align with Two-Eyed Seeing, prioritizing relationality over efficiency (Indigenous Protocol and AI Working Group, n.d.). Without this, AI erodes oral traditions, commodifying them.

Should Traditional Knowledge Be Stored in Open Access Spaces?

Storing traditional knowledge (TK) in open access spaces enables sharing (e.g., Indigenous youth accessing Medicine Wheel teachings remotely) but invites appropriation. Open models like FAIR prioritize sharing, clashing with Indigenous authority and governance; TK like personas risks commercialization without consent (Carroll et al., 2021).

In contrast, CARE Principles offer balance: “as open as possible, as closed as necessary.” Platforms like Mukurtu offer tiered access with cultural labels, protecting restricted TK (Mukurtu CMS, n.d.). For mental health assessment apps, federated learning (local training without centralizing data) safeguards sovereignty. Indigenous people and communities must decide storage, fostering renewal through controlled knowledge-sharing.

Data Centers, Water Use, and Environmental Colonialism

AI infrastructure consumes vast amounts of water for cooling: hyperscale centers can withdraw millions of gallons daily, straining already vulnerable watersheds and Indigenous territories (de Vries & Gao, 2025). Projections indicate AI-related water use could reach 1,200 billion liters annually by 2030, exacerbating scarcity in sacred areas like the Ogallala Aquifer and Great Lakes Basin—regions tied to Indigenous lifeways, ceremony, and food sovereignty (Xiao et al., 2025; Joyce Foundation, 2025).

Indigenous water protectors and land defenders describe this as a new wave of environmental colonialism or data colonialism, where tech giants extract land, water, and energy from frontline communities—mirroring historical dispossession through pipelines, mining, and forced relocation (Honor the Earth & Indigenous Environmental Network, 2025; Harmon, 2025). For instance, in northern Alberta’s boreal forests and West Texas deserts, Indigenous nations resist data center proposals threatening treaty rights, sacred sites, and water security, arguing that AI’s “boom” prioritizes corporate profit over relational responsibilities to the land (Indigenous Peoples Push Back, 2026). Water protectors from groups like Honor the Earth and the Indigenous Environmental Network have launched coalitions such as “No Data Centers on Native Land,” demanding moratoriums on hyperscale facilities in Indian Country until full impacts on waters, sovereignty, and future generations are assessed (Honor the Earth, 2025).

From Indigenous perspectives, water is not merely a resource but a living relative deserving guardianship (kaitiakitanga in Māori frameworks; similar relational ontologies in many Nations) (Kereopa-Yorke, 2025). This clashes with AI’s extractive demands, where data centers—often sited on or near Indigenous lands for cheap power—compete with drinking water, agriculture, and ecological balance, while benefits accrue to distant tech corporations (Front and Centered, 2025). Free, Prior, and Informed Consent (FPIC) and Indigenous data sovereignty (CARE Principles) are essential: Indigenous peoples and communities must have authority to veto or co-govern projects, with transparency on water use and alternatives like edge computing (local processing to reduce cloud reliance) prioritized (Carroll et al., 2020; Indigenous Peoples and AI, 2025).

These challenges demand Two-Eyed resolutions: leveraging AI’s scalability for wellness tools while centering Indigenous peoples governance, land & water protectors’ leadership, and relational ethics to ensure reciprocity and sustainability. By confronting extraction head-on, Two-Eyed AI can birth truly decolonized futures rather than perpetuate harm.

A Path Forward: Operationalizing Two-Eyed AI Through Indigenous Sovereignty and Relationality

To move from conceptual reimagination to practical application, Two-Eyed AI must be operationalized through Indigenous-led governance that integrates the CARE Principles (Collective Benefit, Authority to Control, Responsibility, Ethics) with emerging AI ethics frameworks (Carroll et al., 2020; UNESCO, 2021). This ensures AI tools serve community-determined goals rather than external agendas, aligning technological scale with relational reciprocity and traditional protocols.

In practice, Design Circles—already central to the previous Indigenous methodology—should evolve to include Elders and knowledge keepers as co-facilitators of AI prompting and output refinement. For example, Indigenous youth could generate narrative prompts rooted in Two-Eyed Seeing, but Elders would guide review to uphold traditional protocols, ensuring outputs respect sacred protocols, seasonal contexts, and kinship responsibilities. Training datasets must draw from sovereign, community-curated sources—avoiding colonial archives—to prevent epistemic erasure and bias amplification (Lewis et al., 2020; Indigenous Protocol and AI Working Group, n.d.). Federated or edge computing approaches can

further localize processing, reducing reliance on distant data centers and upholding authority to control (Abundant Intelligences, 2025).

Policy-level actions are equally critical. Mandate comprehensive water and environmental audits for data centers sited on or impacting Indigenous lands, incorporating Free, Prior, and Informed Consent (FPIC) processes led by affected Nations and water protectors (Honor the Earth & Indigenous Environmental Network, 2025). Governments and funders should prioritize moratoriums on new hyperscale facilities in water-stressed or sacred watersheds until impacts on relational lifeways (ceremony, fishing, agriculture) are fully assessed and mitigated (Yakama Nation, 2025). Redirect resources toward community-owned AI infrastructure—such as localized language models for mental health supports or Indigenous youth-led prototyping tools—to build capacity and economic sovereignty (Cherokee Nation examples in AI governance, 2025).

Future research directions should expand testing of Two-Eyed AI prototypes with larger, diverse cohorts—including rural and remote Indigenous youth—to evaluate not only usability but also relational impacts: Does the tool strengthen connections to Elders, land, and community? Does it foster resiliency and holistic wellness without fostering dependency? Longitudinal studies, co-designed with Nations, could assess long-term outcomes on mental health access, cultural revitalization, and sovereignty (Sam et al., 2022 extensions). Funding should support Indigenous-led teams and knowledge mobilization back to communities.

This path births decolonized innovation: AI no longer as extractive force, but as relational ally amplifying abundance. By centering Indigenous peoples governance, youth agency, and reciprocity with land and water, Two-Eyed AI can contribute to genuine renewal—new beginnings where technology heals rather than harms, empowering future generations to thrive in balance.

Closing the Circle

Reimagining Two-Eyed Seeing through AI fosters new beginnings in Indigenous youth mental health: personalized, culturally resurgent digital tools that bridge knowledges for healing. Yet, addressing the challenges—oral decontextualization in generative systems, the risks of storing traditional knowledge in open access spaces, and the water-intensive infrastructure of data centers—requires more than technological optimism. It demands data sovereignty that places Indigenous peoples' authority, relational accountability, and reciprocity at the centre (Carroll et al., 2020). By prioritizing relationality over extraction, we ensure AI serves abundance rather than harm, aligning with Etuaptmumk's vision for collective benefit, mutual respect, and the well-being of all our relations (Roher et al., 2021).

This work returns to the breathwork and land acknowledgment that opened a 5th Annual Two Eye Seeing conference presentation and the foundational study (Sam et al., 2022). We began by acknowledging the traditional territories of the Indigenous peoples where each of us are located, and inviting three slow, deep breaths together. That same grounding practice invites us now to close the circle: to pause, to feel the weight of colonial continuities in digital and environmental domains, and to reaffirm our responsibilities as knowledge keepers, youth advocates, and allies.

The personas co-created in the Design Circles—Sage, McLovin, and Donald—were never abstract figures; they were living reflections of real youth navigating racism, delayed care, mistrust in systems, and resilient cultural ties. In an AI-emerging world, these stories must not become training fodder stripped of context, nor should the lands and waters that sustain them be drained to power distant servers. Instead,

they call us to build differently: tools that amplify Indigenous voices without appropriation, access without extraction, innovation without erasure.

Two-Eyed AI, when guided by Indigenous peoples governance, CARE principles, and the leadership of water protectors and land defenders, becomes a relational technology—one that learns from the Medicine Wheel's balance, Raven's trickster wisdom, and the guardianship responsibilities embedded in many Nations' laws. It can support Indigenous youth in reconnecting with Elders, land-based healing, and community networks, even across urban-rural divides. It can prompt reflection in Indigenous peoples languages, generate culturally grounded visuals, and offer low-barrier support without replacing human connection.

Ultimately, this reimagination is not about technology leading the way. It is about Indigenous youth, knowledge keepers, and communities leading the way—using AI only insofar as it serves the collective good, strengthens sovereignty, and honours the sacred responsibilities to future generations and to all our relations. In this way, the circle closes not with finality, but with renewal: new beginnings rooted in oral teachings, where healing is holistic, technology is accountable, and abundance is shared.

Sechanalyagh to the youth who shared their stories, to the Elders who hold the protocols, to the land and water that sustain us, and to the principle of Etuaptmumk that continues to guide this path.

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