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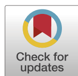

The forest and the trees: Theorizing a Culturally Sustaining Pedagogy for medical education

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ABSTRACT

The explicit purpose of medical education is frequently defined as to educate and train physicians who can serve as leaders in providing high-quality, equitable health care for society. Hidden in this explicit purpose is an implicit premise of extraction: those who become physicians are valuable assets who must be separated from society and assimilated into their roles as leaders. Applying Culturally Sustaining Pedagogies as a lens, the authors use Story Cycle methodology to weave personal and literature-based narratives that illuminate, interrogate, and challenge extraction. Finally, they imagine alternative, non-extractive, possibilities for medical education. In doing so, the authors articulate Culturally Sustaining Pedagogy for medical education.

1. Introduction

1.1. *Prologue: La ceiba*

Long ago, in the heart of the forests where rivers whispered songs, the magnificent ceiba trees grew. Their roots delved deep into the earth, touching the secrets of the underworld, while their branches stretched high into the sky, a ladder for souls on their journey to the heavens above.

When the world was young, and the forests were vast and untouched, the ceiba trees grew as tiny saplings under the watchful eye of the forest, who imbued them with nutrients and strength. As the ceiba trees grew, their branch canopies and strong trunks became a protector of life, providing shelter and sustenance to all the creatures of the forest.

But as time passed, people came with their axes and their fires, hungry for land and profit. They cut, cleaned, and consumed the life of the forest, leaving behind barren fields. They built new structures from the wood of the trees and re-routed the rivers. They planted new plants there and watered and fertilized them. Yet, amidst the destruction, the people marveled at the ceiba trees, for ceibas were no ordinary trees. "These trees," they said, "are one of the great trees." And so, whenever they came to clear new land, they would spare the ceiba tree, leaving it standing alone in the midst of a cleared field, or digging it up as a sapling to take to other regions of the world.

Isolated from the forest it came from, strange things could happen to the ceiba trees. Sometimes, the ceiba tree would wither in a strange new climate. Sometimes, it would grow all alone in an empty field, but, isolated, it would falter. Its branches would grow short and, no matter how hard it tried, it could not grow a canopy. And sometimes a lone ceiba tree survived and pushed through to thrive, its branches defiantly spreading over barren fields as a rebuke, a testament to its past-still providing much-needed shelter and sustenance to all near it.

As the years passed, the ceiba became a symbol of resilience. To this day, if you wander through the fields, you may come across a ceiba tree, its branches reaching for the sky, a beacon of persistence in a world that has violently isolated the ceiba and forgotten the forest it came from.

He aqui
lo que estaba dicho en el libro de los profetas de Chumayel:
<<se alzéra Yaax-imixché, la verde Ceiba, en el centro de
la provincial
como señal y memoria del aniquilamiento.>>
This is what was said in the book of the prophets of Chumayel:
"Yaax-Imixché, the green Ceiba, will rise in the center of
the province as a sign and memory of the annihilation.

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-Pablo Antonio Cuadra (1910–2002)[1]
Mayan folktale, re-told by the authors.

1.2. Background

The explicit purpose of medical education in North America is often stated as to educate and train physicians who can serve as scientific leaders in providing high-quality, equitable health care for society (Schumacher et al., 2023). The roots of this purpose can be traced back to the beginning of the 20th century (Enea et al., 2022). William Osler and Abraham Flexner, among many others of their circle, articulated dual scientific and clinical roles of physicians (Ludmerer, 2010). Informed by contemporary models of medical education from Germany, Flexner argued that the core goal of medical education was intellectual training (Barzansky, 2010). Medical education was not only teaching a set body of medical knowledge, but also about training students to acquire, analyze, and apply medical knowledge through scientific reasoning and critical thinking skills (Irby et al., 2010; Riggs, 2010). Flexner further aimed to professionalize the field of medicine, i.e., to make it an organized, self-governing authority (Halperin et al., 2010). He saw medical education as the path to do so; setting a rigorous, lengthy, exclusive, standardized training process would ensure that medicine's members were vetted, tested, and intellectually trained (Flexner, 1910). Standardizing medical education via accreditation and regulation would ensure that medicine across the West was a socially trusted, professional authority on matters of health and science (Ludmerer, 2005).

This vision was largely successful. Medical education across North America was formalized according to standards of intellectual clinical training (Barzansky, 2010; Duffy, 2011). Programs that did not meet these standards were shuttered (Harley, 2006; Campbell et al., 2020). Medical education today, although shifting in content and delivery, continues to rely on formal structures such as regulations (e.g., medical school accreditation) and standards (e.g., technical standards) (Bauchner et al., 2015). Yet, since Flexner's era, many have wondered whether medical education relies on formal structures alone (Doukas et al., 2010). In particular, sociologist Hafferty highlighted the critical role of the "hidden curriculum" – the unwritten, unofficial, and often unintended lessons that underpin medical education (Hafferty and Franks, 1994). This hidden curriculum, transmitted through institutional culture, role modeling, and informal interactions, constitutes a kind of "moral training" that underlies medical education's formal, explicit curricula, teaching values, norms, and ideals that are not or cannot be explicitly taught (Hafferty and Franks, 1994; Mulder et al., 2019; Kinghorn, 2010). Just as medical education has formal curricula with a hidden curricula behind it, medical education also proclaims an explicit purpose but has a hidden premise. The explicit purpose of medical education - to educate and train physicians who can serve as scientific leaders in providing high-quality, equitable health care for society - relies on an implicit premise: physicians must be selected from society and cultivated into their role as scientific leaders. Physicians are thus valuable assets, distinguished and set apart (from society and from other healthcare providers) by intellectual training, trained to be self-governed authorities on health (Brill et al., 2019; Nora et al., 2015). This premise has largely gone unquestioned; in fact, it is often reinforced in modern literature (Buja, 2019).

In other areas of education, including primary, secondary, and higher education, scholars have gone beyond critiquing their fields' hidden curricula to illuminate and question the hidden, implicit purposes of their fields through critical lenses. These lenses include Culturally Sustaining Pedagogies (CSP), which are ways of seeing and being in education that are particularly useful for their emphasis on looking at the historical origins of education, examining and interrogating why education exists (Paris, 2012). Research on higher education shows that the field aims to cultivate opportunities and learning, yet this explicit purpose of higher education relies on an unspoken premise; opportunity and learning is individual, competitive, and based on external markers of success (e.g., grade point average) (Burk, 2007). This premise, while familiar in the West, is quite unique to dominant white settler culture and conflicts with collectivist norms of global majority cultures (Tierney, 1999). For example, Indigenous students must navigate between their cultural identities and the dominant culture of higher education institutions, often feeling pressure to assimilate to unfamiliar, hyper-individualized way of being in order to succeed (Guillory and Wolverton, 2008; Waterman, 2012). In primary and secondary education, CSP researchers demonstrate education is a settler colonial project, which has an ostensibly magnanimous purpose of educating and improving the future of Indigenous, Asian, Latine, and African American children - while assimilating children (often violently by disciplining and expelling those who do not conform) into white settler English language, accents, mannerisms, and appearance (Alim, 2001, 2023; Lomawaima and Ostler, 2018). This lingers to today (Marshall, 2023; Lees et al., 2021). Thus, CSPs trouble (i.e., disrupt and complicate) assumptions that education is a magnanimous, beneficial, or at least neutral, process (Kulkarni et al., 2024).

As these examples show, it can be simultaneously sobering and useful to question the purposes and premises of education, yet CSPs do not stop at critique. They further imagine how education can instead support a multicultural, multilingual, pluralistic society (Paris, 2021). As society becomes increasingly diverse, education must sustain a purpose that does not seek to assimilate an infinite diversity of peoples into homogeneity (Calabrese Barton and Tan, 2020). CSPs defend the creation and sustainment of many possible lives, lifeways, lands, and futures (Román et al., 2022). CSPs do this by explicitly centering existing marginalized people, communities, and cultures, and defending their experiences, values, ways of being, and hopes for the future (Chui et al., 2023). This disrupts the notion that dominant groups and classes have the default, norm, or the only ways of knowing, speaking, thinking, and being (Kulkarni et al., 2024; Chui et al., 2023; Sembiante and Tian, 2021; Troyan et al., 2021; Padía et al., 2024). CSPs ask: what are the multiplicities of experiences, knowledges, languages, wisdoms, and ways of being that are marginalized? How might they be centered and sustained (Samy Alim et al., 2020)? In doing so, CSPs demand and create space for not just one dominant group, or even for a few select marginalized groups, but for ever-increasing diverse histories, contributions, lifeways, and futures of people, communities, and cultures (Kulkarni et al., 2024).

CSPs have effectively uncovered hidden assumptions in education and generated future possibilities. Applying CSP to medical education could help examine question potential assimilationist practices. Beyond questioning, we could imagine a medical education that sustains a pluralistic society. This paper uses CSP in other educational fields to 1) question medical education's implicit premise and 2) imagine a CSP for medical education.

Notes on terms.

1) Throughout, we use both "medical education" and "medicine:" to be clear, we see medical education as the process by which medicine, as a profession, cultivates its members. Thus, we intentionally use these terms to indicate when we are speaking either of the process (medical education), the profession (medicine), or both.
2) We use the term "dominant" to refer to values, ideas, stories, and people which are accepted as default, normal, acceptable, or correct, and therefore exert control, knowingly or unknowingly, over other ideas, values, and groups; likewise we use the term "marginalized" throughout to refer to how the values, ideas, stories, and peoples of oppressed groups are perceived as other, abnormal, atypical, or unacceptable and therefore are excluded, diminished, silenced, minoritized.

2. Materials and methods

2.1. Author positionalities

We, the authors, are two early career researchers (authors 1 and 2) and a clinician (author 2). We are graduates of diversity pathway programs, university, graduate school (authors 1 and 2), and medical school (author 2). We grew up in different urban centers of the United States in the Midwest and northeast; both of us come from families of low-socioeconomic class. Although we have different gender identities, we share a common experience of living in disabled bodies and minds that are highly stigmatized. Our races, ethnicities, and sexual orientations are different, yet we share the common experience of marginalization because of these identities.

As researchers interested in troubling the norms of education, we situate this paper in the critical tradition of Culturally Sustaining Pedagogies (CSPs). CSP scholars posit that authentic understanding comes from honoring and exploring marginalized lived, linguistic, historic, personal, familial, cultural, and ancestral experiences to create a "collective vision of a future world." (Paris, 2021; Samy Alim et al., 2020) By explicitly centering life, language, history, personhood, family, culture, and ancestry as valuable sources of knowledge, we challenge supposedly universal or objective truth claims, which often perpetuate dominant knowledge. Instead, "we sustain what we love by decentering the white gaze." (King et al., 2023) By white gaze, we mean dominant white settler norms demanding objectivity, "rigor," and logic to persuade readers to understand and adopt ideas. We cannot claim unbiased objectivity on the ideas of this paper, nor do we wish to. We seek the rich epistemic, scientific advantage that comes from deeply, transparently, lovingly, and critically exploring human experience (Harding, 2004, 2017).

2.2. Method

To center and explore experience, we used the method of Story Cycle. Pulling on the narrative tradition, Story Cycle involves constructing narratives of experience through spoken dialogue and/or written conversation. Story Cycle is an iterative process of sharing stories, then analyzing those shared stories to deepen the next "cycle" of storied conversation. Thus, with each turn, storied conversations are abstracted, refined, and re-constructed over and over to create a rich, overarching understanding of lived, personal, familiar, and ancestral experience (Feinauer et al., 2022).

To address the aims of this study, we went through three broad Story Cycles. We centered each Story Cycle on key questions derived from Culturally Sustaining Pedagogies. In a cyclical pattern, we moved between writing *generative* and *reductive* narratives. Each Story Cycle began with each author constructing *generative* narratives, including personal stories, familial/ancestral stories, and literature reviews. We met to discuss bi-monthly. We asked each other clarifying and critiquing questions about our generative narratives. After discussing, we wrote *reductive* narratives to distill and find common meaning. Throughout, we assembled all generative narratives and reductive narratives into one online collaborative document, then re-assembled during our discussion meetings based on ideas we synthesized.

In Story Cycle 1 "Illuminating," we asked, *"what is the hidden, implicit purpose of medical education?"*

We began by searching literature on medical education's purpose with a librarian's assistance. We reviewed this literature and shared reflections. During discussion, Author 1 shared a relevant familial/ancestral story, and after further discussion, Author 1 wrote a generative narrative. Using this generative familial/ancestral narrative to prompt reflection, both authors then wrote personal narratives about experiencing medical education's purpose during training. We discussed our narratives, identifying common and disparate experiences. After each discussion, we co-wrote reductive narratives to synthesize ideas.

In Story Cycle 2 "Questioning," we asked, *"why does medical education sustain this purpose?"*

In this Story Cycle, we returned to independently read the literature identified in Story Cycle 1, but this time, we looked for evidence that would test, challenge, and/or add explanation to the ideas we abstracted and synthesized in Story Cycle 1. We wrote generative narratives on what we saw in literature, then returned to discussion. Using CSP literature on why education sustains purposes to guide our reflection, we identified ideas for further exploration. We re-read selected papers then co-wrote a reductive narrative abstracting and synthesizing ideas.

In Story Cycle 3 "Imagining," we asked, *"what might be an otherwise purpose for medical education?"*

In this Story Cycle, we began by discussing the literature from CSP on imagining otherwise purposes for education. Through discussion of this literature, we generated central ideas for further exploration. We each then wrote a generative narrative of our personal experiences in medical education seeking to explore these ideas. We read each other's generative narratives, looking for how these central ideas did or did not surface in our personal experiences. We discussed and then co-wrote a reductive narrative abstracting and synthesizing ideas.

We repeated the cycle of narrative-writing and discussion until reaching a shared understanding of each Story Cycle question. We then synthesized our narratives and memos into final aggregate narratives for each cycle. This process spanned 15 months. The Results section presents these final aggregate narratives.

3. Results

3.1. Story Cycle 1 "Illuminating"

In this Story Cycle, we, the authors, illuminate the implicit premise of medical education as extraction: selecting individuals from society and assimilating them into medicine. To achieve its explicit purpose, medical education selects and socializes intellectually exceptional individuals through specific mechanisms. Examples can be found in Table 1.

Throughout each stage, there are mechanisms by which trainees are separated from their communities and socialized into medicine.To examine extraction further, we return to the story of *la ceiba,* a familial/ancestral story from author 1, re-told at the beginning of this manuscript. Stories of *la ceiba* come from the Indigenous peoples of Central and South America where native ceiba trees are revered. Tales of ceibas have been retold for unknown generations, with lessons both encouraging and disturbing. We, like ceibas, have been isolated, sometimes uprooted, from our families and our communities and yet survived. As we left home in pursuit of higher education, our communities celebrated our uprooting even knowing that we may never return home: our future authority and salary was worth the cost to our communities. We, too, have been called "resilient" for our success despite the odds. We have worked hard to serve as mentors and role models for other individuals in medical education, spreading our branches to shelter others. But by participating in this process of separation and socialization, we too, like many marginalized individuals, now serve as extractors. Our intention is not to deny or denigrate the endurance, resilience, and courage of so many marginalized physicians and trainees who have survived, and are surviving, extraction. Rather, we wish to ask: Are we, as medical educators, encouraged that we have a select few marginalized physicians still standing tall like lonely ceiba trees? Are we impressed by their resilience? Or do we grieve the annihilation they survived?

I love being a doctor … but at what cost? - Author 2

I grew up in Detroit, where almost everyone around me was Black. But to my friends, I was the oreo: I talked white and ran cross country. The city in which I completed both my medical school and residency training was liberal and racist, LGTBQ friendly, but unequivocally not Black. This reality began to sink in the third time I got pulled over on my bike by the police - in only my first six months in the city. The police did not seem to see me as an oreo.

Table 1
Extraction in medical training.

Stage of Training	How Extraction Occurs
Pre-medical Basic Science Coursework and Clinical/Research Opportunities	Often described as classes that "weed-out" less capable, intelligent, or motivated individuals; (Michalec and Hafferty, 2023) selects for individuals with the means to access restricted academic, clinical, and research spaces. (Michalec and Hafferty, 2023; Richardson et al., 2014)
Diversity 'Pipeline' or Pathway Programs	Selects intellectually high-performing marginalized students and provides socialization and training to make them more acceptable applicants to medical schools. (Metz, 2017)
Medical School Admissions	Selects students based on various criteria, and despite recent holistic review efforts, many schools have historically used cut-off scores on standardized tests or other markers of academic prowess to select for higher-scoring applicants who perform higher intellect. (Lucey and Saguil, 2020; Gay et al., 2016)
Medical School Basic Science Coursework	Provides the intellectual training described by Flexner and functionally selects for characteristics such as intellectual aptitude. (Finnerty et al., 2010)
Medical School Clinical Clerkship	Introduces learners to ways of being in the profession of medicine (Cohen-Osher et al., 2023) and reinforces the performance of intelligence as valuable and necessary for advancement. (Lee et al., 2007; Connor et al., 2023; Madrazo, 2020)
Residency Match and Training	Frequently physically removes trainees from their place of origin and/or family ties and, via costly, long-term, taxing demands, assimilates trainees into the ways of being and expectations of their given specialty of medicine. (Doja et al., 2016; Van Deven et al., 2013; Fogel et al., 2018; Berg et al., 2019; Hasnie et al., 2022; McManus et al., 2020; Field et al., 2021)
Fellowship Training	Acculturates trainees more fully into the standards and ways of being in their given specialty of medicine. (Karpinski et al., 2017)

I was proud to get world class training at a top tier academic institution. Early in medical school, I learned about how adverse childhood experiences were linked to countless negative health outcomes. 'High' was considered four or more; I had seven. Yes, I grew up with trauma, but I equally grew up in a community of love, of community organizations, of Black doctors, teachers, and cashiers. When I came home for holidays, people would shout things from their car like, "Gon' head my Black brotha. I see you!"' as I trained for college track, running in the snow. Over time, I came home less often. Meanwhile, in medical school and residency, I found my picture plastered on the library computers, institutional pamphlets and videos. My face became a recruiting tool. "Don't they have any other Black people to be the poster child?" my mother once asked. She worried that the higher I was placed on the pedestal, the further I could fall. Eventually, I had a deep, public fall. My bipolar disorder, and in particular a suicide attempt, did not fit with medicine's ideals. The support I once had, and skills I had developed to deal with my past trauma, were not effective in the face of this new white-collar trauma of institutional betrayal. Still, I wanted so badly to be a physician - I stayed for two more years of training.

I did not fully grasp the cost of staying until years after leaving this old city. I moved to a new city for fellowship, and one day returned to the old city for a med school classmate's wedding. As I walked down the streets, a dark tunnel vision closed in on me. I was trapped, tears streamed down my face as I experienced what I can best describe as a panic attack with tears. I was brought back to the years of suffering when I subjected myself to these feelings. I did not leave then because I would have rather died than jeopardize my ability to practice medicine. I love being a doctor, but at what cost?

Authors 1 and 2: Like forests, communities of people have collective resources and collective strength. When individuals experience trauma within the protection of a community, the collective can help mitigate the impact of that trauma. This communal buffering effect is crucial. Conversely, trauma experienced in isolation, without the support of a community, is often exacerbated. Our communities provide emotional support, financial resources, and a sense of belonging, all of which are critical for overcoming systemic obstacles. Without connection to the forest, these resources can and do run out. When we go back to our communities, we begin to feel that we are not as much like them anymore. There is a profound sense of disconnection when we return to our communities, feeling out of place and estranged from our roots. Medicine benefits from a diverse workforce, using diverse faces to attract patients. This comes at a significant cost: broken communal bonds and psychological toll. Communities lose members, individuals lose belonging, and medical education perpetuates exploitation under the guise of diversity.

Those of us who have been extracted … we also extract - Author 1

My childhood revolved around church – twice on Sundays and prayer service on Wednesday nights. It was at church that I first came to identify myself - not as a girl, Latina, or disabled - but as a Christian. As I aged and started bucking against the confined safety of my evangelical world, I began to think of my education as an emancipatory project. College was my ticket out. In high school, I found a pathway program that promised academic tutoring and clinical experiences for kids who wanted to enter health care fields. I studied, I worked, I volunteered. I changed my clothes and my vocabulary, and I spent countless hours learning a musical instrument. In the end, it was music and academics that earned me a full scholarship to an elite university. My dad was an HVAC repairman with a high school education; he was proud of my financial aid package and angry - incredulous - that I wanted to leave home at 17.

In college, I dyed my hair blonde and brown to fit in with the girls around me who came from wealthy suburbs in cities where I had never been. Meanwhile, my parents sent prayer requests to their church about me. To them, I was becoming "a different person." While I could change my hair, I couldn't change everything about me. When I went to a pre-med advisor at our school, she said, "They won't allow you in medical school with a service dog. Patients won't let you take care of them."

I changed my major to education. But I learned I couldn't change everything about me - again - shortly after. During a teaching practicum, I was observed and evaluated by a supervisor. In the comments of her evaluation, the supervisor remarked that my presence posed a safety threat to the children I worked with because I was disabled. I remember thinking: many of the children I worked with had the same disabilities as I did, so why would it be unsafe for them to be around me? She also warned me that it was unprofessional to develop such close relationships with "the staff" - all women whose hands looked like my mom's - calloused and warm, the fingerprints rubbed clean off from years of manual labor. I feel ashamed that I purposefully distanced myself from them after that evaluation.

I persisted and pushed through college. I went to grad school. I refused to disclose my identities - particularly my disabilities - whenever possible. I developed a well-crafted persona that was able, professional, neutral, inoffensive, safe. I got a job in medical education - working at the same pathway program where I began my own academic career many years prior. The program was funded as an opportunity for underrepresented students to enter the medical profession. We mostly taught "professionalism" - how to act, speak, and look like an acceptable pre-med. One afternoon, a disabled and racially minoritized student was reported by a lecturer for "unprofessional dress." I was tapped to talk to the student about her clothes. She was wearing a simple t-shirt and

slacks. Her t-shirt had some words on it, but they weren't remarkable or offensive to me. She was immediately tearful, angry. "I don't understand why this breaks the rules," she said. I explained that no language was allowed on clothing, and t-shirts were explicitly not allowed. "Some other students wear t-shirts. Why isn't it okay?" She asked. I was unfazed. I said, "Because you have to understand that we are under the microscope. Everyone watches and waits for us to mess up because we are different. We have to be twice as good to get just as far. It's okay for those students to wear t-shirts sometimes, no one would really notice. It's not your fault it's not fair. That's just how the world works."

Authors 1 and 2: Those of us who have been extracted from our communities to enter the elite world of medicine are not passive victims. We become complicit in a system that exploits us. Our hard-won admission into the halls of medical education earns us power over others, even while we are marginalized. Yet even as we are extracted, we also extract from the communities that nurtured us. By definition, in order for us to make it inside the system, we must play by their rules, socialized to their norms. The very act of our presence in these halls is held up as proof of their openness to diversity, while the true barriers and inequities remain entrenched. We can use our marginalized identities as tokens to portray an illusion of diversity and access, all while continuing to replicate harm, to encourage others to endure extraction, and extract themselves. The "lucky few" who survive defend and support the extraction that elevated them, even as violence continues.

3.2. Story Cycle 2 "Questioning"

In this Story Cycle, we return to the literature of medical education, questioning: why does medical education sustain extraction? This Story Cycle is a literary criticism that uncovers how extraction, as described in Story Cycle 1, is not necessarily an obvious, intentional scheme; extraction is perpetuated and justified because it uplifts and benefits medicine as a profession.

We return first to Flexner, who popularized the notion that medicine was a domain reserved for the intellectual elite which required cognitive ability and refinement. Flexner was not the only historical influence on medicine; his ideas were sourced from existing European ideals of medical education, and his ideas were further expanded, supported, and spread by powerful forces of North American philanthropic capital and other physicians (Kanter et al., 2010). This vision of medical education as an intellectual pursuit has two lingering legacies, both of which help support and justify extraction.

First, this vision of intellectual rigor was exclusionary, reflecting beliefs that certain groups were intellectually inferior and therefore unfit for medical training (Steinecke and Terrell, 2010). Marginalized communities, particularly Black Americans, were presumed to lack cognitive ability (How Should We Respond to, 2021). Flexner's recommendation to train Black physicians as "sanitarians" was a manifestation of this belief, predicated on the assumption that Black people lacked the intellectual capacity for the more esteemed and demanding roles of a trained physician. Flexner recommended that Black medical students be trained in hygiene rather than surgery, noting that "The negro must be educated not only for his sake, but for ours [whites]." (Flexner, 1910) This recommendation reinforced the idea that Black physicians were to serve a utilitarian purpose – to limit the spread of disease from Black communities to the white population – rather than being recognized as equal contributors to the medical profession.

Despite dramatic shifts in medical education since Flexner, the underlying motivations and narratives surrounding marginalized physicians reveal a paradox. Medical education programs tout the benefits of a diverse physician workforce, citing the advantages of racial concordance between providers and patients, as well as the pressing need for healthcare providers in underserved communities (Irby, 2011; Marrast et al., 2014).This presents marginalized physicians as desirable and beneficial assets to be extracted, capable of addressing disparities and enhancing the quality of care for diverse populations. Yet, this is a deficit-based perspective, implying that marginalized physicians are primarily valuable for their ability to serve marginalized patient populations. It reinforces the notion that our presence is necessary as a means to an end – addressing the healthcare needs of underserved and historically neglected communities. This is exemplified by the experiences of international medical graduates (IMGs), who are often required to serve in rural and underserved communities to comply with U.S. visa laws (Malayala et al., 2021). The price of joining American medicine is steep: IMG's experience complex marginalization (Smith and Parkash, 2023). While IMG's skills and qualifications are valued for addressing healthcare shortages, the underlying assumption is that their presence is a stopgap measure, a temporary solution to address the shortages and reluctance of American medical graduates (AMGs) to practice in these settings. Even further, we continue to see marginalized physicians, including women and physicians with disabilities, subjected to lower compensation, overrepresented in diversity/equity/inclusion roles, and underrepresented in leadership positions (Samuel et al., 2023; Kakara and Venkataramani, 2023). Thus while our value and utility to the profession is praised, equal stature or authority remains out of reach. Diversity may benefit the profession, but at a high cost to the profession's marginalized members.

Second, this vision of medicine as an intellectual pursuit upholds hegemony. Hegemony, as defined by Antonio Gramsci, describes the social dominance which arises when a single group controls both the economic means of production and the intellectual thought of a society (Morton, 2015). Gramsci argued that the economic ruling class and the intellectual elite become indistinguishable through education. Critiqued through this lens, medicine as a profession upholds itself as a dominant class through intellectual means and economic means. Medicine is a self-governing profession who controls medical knowledge and its dissemination (intellectual means). This authority ensures that physicians are viewed as indispensable, justifying the extensive and intensive training that medical education demands to enter the profession. It also ensures that the high cost of medical education is justified by the financial benefit that physicians receive as income once they enter the profession (economic means). Even those individuals from marginalized backgrounds who enter elite academic spaces are separated from their original class and socialized into the norms and values of the dominant class.

Finally, we questioned why individuals, especially marginalized ones, support extraction. While many of us may believe that we serve as the voices for the marginalized groups from which we come, the further into education we go, the further we are distanced from our communities. Once ensconced in medicine, the reproduction of hegemony becomes second nature. Extraction is unintentional but serves as a means to an end. We may accept it as required for admission into a dominant class that promises prestige. However, we internalize the idea that medicine values us – and yet requires us to separate from our communities and even our own humanity.

3.3. Story Cycle 3 "Imagining"

After examining extraction as medical education's implicit premise in Story Cycles 1 and 2, we imagined alternatives. We asked: What if medical education sustained a multicultural, multilingual, pluralistic society instead of benefiting medicine as a dominant profession and class? We reflect on this question and highlight key assertions that follow.

We are so excited to have you* - *Author 1

I received an invitation to a small medical conference held in the fall of 2022. The conference registration form, like most, had a small box that said something like: "If you have any accessibility requirements or need accommodations to participate in this meeting, please indicate that here." I checked that box with familiar dread in my heart.

Conferences are a liminal space for me. Everything about

conferences – dim meeting rooms, poor signage, inaccessible programs – isn't designed for me. Conferences are designed for people who can see, hear, and get around just fine. No one expects a disabled and deafblind attendee to come. From the grumbles of the staff, I usually get the feeling that no one really *wants* me to be there, either. If I'm lucky, the organizing staff offer a limited set of disability accommodations.

They say,

"We have automated captioning. It's as accurate as professional captioners." *(It's not)*

"We have an app with the meeting program on it. It's accessible." *(It's not)*

"Can your caretaker guide you around the meeting?" *(Why do they assume I have a caretaker?)*

In the end, I am left behind in hallways and lost in basements of hotels. I sit in rooms, listening to a wash of dull sound while my colleagues freely speak, debate, and network. They share graphs and figures that I cannot see. They talk over each other, clamoring to ask each other questions I can't hear. I am there but I'm not really there. I'm breathing the same air as them, but I have no access to the world they occupy.

I had no reason to believe this conference would be any different, but almost as soon as I submitted the registration form, I received an email from the organizing staff.

"Would you be willing to have a short meeting with us? We want to talk about what we can do to make this conference accessible. We are so excited to have you attend."

I found myself in an unfamiliar situation. Accommodations were provided, of course – they listened to what I needed and provided it. No assumptions, no last-minute solutions. But they did more. They had guidelines for the conference attendees – for everyone – on how to speak, ask questions, and network in an accessible way, not just for me, but also for those who had other kinds of bodies and minds.

When I arrived at the conference, I was liberated from that liminal space.

For the first time in my professional life, I asked questions of presenters. I knew what graphs were being shared. I could debate the key points and raise new ideas. I also learned accessibility habits that were new to me so that my colleagues could join me in that freedom. What could easily have been a set of accommodations for me alone became a living practice of seventy plus people all caring for each other.

That conference taught me much about myself and my inherent value. Once I had the spaces and tools I needed, I could contribute the ideas I wanted to share. My value just needed to be seen. This experience also taught me that liberating and sustaining people, communities, and cultures is not an individual, heroic effort, but a practice of somewhat unglamorous, collective care.

Authors 1 and 2: A Culturally Sustaining Pedagogy for medical education first asserts that people, communities, and cultures are inherently valuable, therefore they must be sustained in and by medical education. Value is inherent, not created. Extraction via selection and socialization is unnecessary; medical education can and should be reimagined without extraction as its premise. Culturally Sustaining Pedagogy for medical education further asserts that our roots our intertwined: collective care and interdependence are vital to sustain people, communities, and cultures. We do not have to go the way of the solitary, extracted *ceiba*. Our liberation emerges through connection. We keep each other alive. We sustain each other.

We must critically evaluate which aspects of our cultures to sustain - Author 2

Below I share a series of lightly redacted emails chronicling an exchange with a physician who challenged my stereotypes and supported me in a dark moment, in a time where my experiences in medicine led me to not ask for help.

"Hi [name]

I'm one of the internal medicine residents from [training institution]. You may not remember me but I am writing to let you know that you had an important, very positive impact on me.

Back when I was an intern, you were the [surgery] fellow on during my month on [surgery service] as you were finishing up fellowship. [This month] was my first month back in the hospital after I had attempted suicide, and I faced a lot of barriers trying to get back into the hospital. I had a diagnosis of bipolar disorder many years before and despite being quite transparent with my program, I was drug tested, personality tested, forced to release all my psychiatric records to be allowed to work again by the institution. I was very anxious about everything upon starting again and I felt like if I made any mistakes, I would lose my ability to practice medicine.

One day I was feeling defeated, and you asked me "Are you okay?" I said, "yeah, I'm fine." And you replied, staring at me, "No, really. Are you okay??"

I told you that the other fellows thought that I was incompetent, and you said "you're doing fine. I'm serious. You're fine."

I was not okay in that moment and it took everything I had to not burst into tears. But your comments to me made that moment okay. You are the only person that I've interacted with who did not know about my mental health history who has ever asked me in a serious way if I was okay (before or after my suicide attempt). The time following a suicide attempt is incredibly isolating but somehow that short interaction made me feel seen and less alone. It helped me step back from leaving [my residency program] and from attempting suicide again. I still remember your words a year and a half later. I told myself in that moment that one day I would thank you, so I wanted to cash in on that promise.

I'm glad to see that you are at [new institution], and I hope you are thriving. You actually impacted my life that day in a meaningful way and showed me kindness and love when I needed it. I really am grateful to you."

*"Hi [*name*],*

Yes, of course *I remember you. Thanks so much for your note. I'm so sorry to hear you were suffering and I feel fortunate that my small gesture had such a positive impact. I lost a friend to suicide when I was in my early 20s and I have always wondered how I could have helped. So thank you for sharing your experiences. On the other hand, I am disappointed to hear that you haven't experienced similar gestures from others in medicine. Your experiences are a good illustration about how we need to show compassion and care for those around us!..*

Please be in touch if I can help with anything and hopefully our paths will cross again one day soon."

Not everything that comes from marginalized individuals or communities can or should be unquestioningly sustained. We must take an intentional inward gaze: lovingly interrogating and sustaining those aspects which promote collective humanization, while rejecting those aspects which dehumanize ourselves and others. Reflecting on this encounter years later to make a loving critique of myself, I identify at least two thought processes worth critiquing. I was working on a service which had internal medicine and surgery doctors working together. I remember feeling shocked that it was the surgery fellow, a white heterosexual man, who checked in on me. Given our differing identities combined with the professional stereotypes that I held, I unconsciously dehumanized an entire being - he wasn't a person, he was a surgeon. I had never made a conscious decision to count him out. Yet, despite my subconscious dehumanization of him, he humanized me when I was at my lowest. Taking an inward gaze forces me to lovingly critique myself and my discounting of other humans.

A self-critique though the inward gaze examines my tendency to not seek support even when struggling. Before feeling harmed by medical education, I encouraged many other people to seek help. In the face of trauma and feeling the risk of more harm, I did not ask for help. I do not critique remaining quiet in the aftermath of trauma. I do however critique my prioritization of my professional career over my own life. I had worked so hard to become a doctor. I carried the hope of my entire community. I have done many things which demonstrate that I would

rather have remained a doctor, even if it risked me taking my own life. Even in the months following me trying to end my life, all I wanted was to be able to be a doctor. I was sympathetic to myself 'the doctor' but never gentle with myself 'the human.' This dehumanizing aspect of my culture is deep-seated, and I continue to fight to liberate myself from it.

Authors 1 and 2: A Culturally Sustaining Pedagogy for medical education pursues an "inward gaze," or the loving critique of one's own person, community, and culture. This introspective approach recognizes that culture is dynamic and fluid, and that identities are shifting, intersectional, and complex. It challenges static, essentialist views of culture, instead embracing a more nuanced understanding of human diversity. Acknowledging growth, death, and revival within people, communities, and cultures is crucial, for nothing in nature remains static, especially people. Medical education must therefore attend and respond. We continually ask: what dehumanizes, what liberates?

3.4. Epilogue: La ceiba re-remembered

When the world was young, and the forests were vast and untouched, the ceiba trees grew up as tiny saplings under the watchful eye of the forest, who imbued them with nutrients and strength. As the ceiba trees grew, their branch canopies and strong trunks became a protector of life, providing shelter and sustenance to all the creatures of the forest.

But as time passed, people came with their axes and their fires, hungry for land and profit. They began to cut and clear, ready to consume the life of the forest. Yet as they approached the first ceiba tree, an elder placed her palm against its massive trunk.

"This tree is not alone," she told her people. "It is a part of the forest, and the forest speaks through it. If we destroy the forest, we destroy ourselves."

The people listened and made a new agreement with the land. Instead of clearing vast areas, they built within and around trees rather than cutting them down.

As generations passed, the ceiba trees grew even taller, their roots interconnecting with the entire forest. In drought, the ceiba's deep roots drew water from hidden aquifers to nourish surrounding plants. In floods, their massive root systems held the soil in place, protecting the entire forest from devastation.

To this day, if you journey through these lands, you will find flourishing forests where ceiba trees tower among companions, their branches spreading wide above a diverse ecosystem. The people will tell you that their prosperity comes not from taking from the land, but from becoming part of its sacred balance. For they learned what the ceiba trees had always known—that true progress comes not from weathering the storms alone, but from keeping one's roots connected.

4. Discussion

In this paper, we first illuminated and questioned how medical education relies on extraction to uplift medicine as a dominant profession. Extraction winnows the immense diversity of knowledge, wisdom, and practices of an entire forest of interdependent people, communities, and cultures by plucking a few individuals who are deemed suitable for medicine according to ideals of intellectual aptitude. It separates these individuals from their forest of origin and socializes them into the class of medicine. Individuals may willingly participate in the extraction of themselves and others, largely because of the tantalizing promise of being accepted into an intellectually and economically dominant class. After interrogating extraction, we then began to imagine how medical education could instead sustain a multicultural, multilingual, pluralistic society. In doing so, we theorize a Culturally Sustaining Pedagogy (CSP) for medical education.

It is only by imagining the potential would-be futures that we are able to grasp the ramifications of extraction. adrienne maree brown, activist and author, writes about fractals, which are never ending patterns made of simple repeating subunits which underlie numerous structures throughout nature (Brown, 2017). We apply brown's concept of 'fractal futures' to describe the endless potential futures which could arise from diverse, pluralistic, culturally sustaining communities. Extraction, on the other hand, is a depleting force which creates fixed futures, eliminating fractal futures. This depletion harms both the extracted community–the community being extracted from–and the extractive community–the community performing the extraction. While the extracted community may have awareness of that which they lost through their "memory of the annihilation," the extractive community - in this case, the profession of medicine - may proceed unaware that their future is in fact limited by extraction. 'La ceiba re-remembered' is a demonstration of the process of re-imagining fractal futures. By dreaming an otherwise future, we force ourselves to reflect on the impact of our actions in the present.

A CSP for medical education argues that people, communities, and cultures are inherently valuable, interdependent, and fluid, negating the need for extraction. The possibility that people need not be extracted from their communities and cultures makes the distinction between personal, cultural, and professional identity(ies) somewhat artificial. Opening the possibility that value is also not determined by intellectual aptitude but is rather inherent pushes us to ask, how can medical education be transformational, protective, and additive? We also then cannot prioritize the health of patients at the human cost of physicians but recognize instead that the health of the patient is connected to the health of physicians … and connected to the health of their communities and indeed the health of our society. Sustaining people, communities, and cultures, rather than medicine as a profession, is a sharp departure from historical precedent and current hegemony, and from the current protection and self-governance that physicians as a dominant class are afforded. Yet this departure has tremendous possibility; medical education could nurture, foster, and perpetuate the "roots" and soil from which one emerges, ensuring that medical education is not just ostensibly about the knowledge or skills one *gains* through training, but also about what one *keeps*.

In this research, we have theorized a Culturally Sustaining Pedagogy for medical education. This research does have limitations. We do not claim to have the final say, or anywhere near a complete articulation. Indeed, it is likely that we and others will return to rearticulate and imagine other possibilities. We invite the possibilities for more philosophical tenets than the few we included in Story Cycle 3 (Table 2). We are also aware of the parallels that CSP for medical education might have with existing research into extracting practices and sustaining practices; for example, research into white supremacy culture (extracting practice) and approaches such as emergent strategy, care work, and design justice (sustaining practices). We as authors intentionally have resisted listing specific culturally sustaining solutions. For our medical education community(ies) which have not had a chance to meaningfully engage with CSP as a philosophy, this would limit the fractal futures of CSP in medical education. The intention in this work is to provide the readers a few foundational blocks to spur deep and diverse conversations. These conversations will be made richer by people of all identities - patients, trainees, providers, educators - all of whom, we believe, have intrinsic value to our community(ies). We invite others to expand on this beginning.

CRediT authorship contribution statement

Hannah L. Kakara Anderson: Writing – review & editing, Writing – original draft, Project administration, Methodology, Investigation, Formal analysis, Conceptualization. **Justin L. Bullock:** Writing – review & editing, Writing – original draft, Investigation, Conceptualization.

Ethical approval

Ethical approval not required: no human subjects involved in this research.

Table 2
Examples of extractive practice contrasted with examples of sustaining practice, aligned with philosophical tenets of Culturally Sustaining Pedagogy.

Examples of extractive practice	Examples of sustaining practice	Tenet of Culturally Sustaining Pedagogy
Tenuous inclusion: Inclusion is optional and exceptional; inclusion may not be made, or only made when an individual requests access. A leader or other person in power decides if and how that individual may be included. Examples: *"No one expects a disabled and deafblind attendee to come. From the grumbles of the staff, I usually get the feeling that no one really wants me to be there, either."*	**Rightful presence:** Education begins with the premise that marginalized individuals and communities have an inherent right to be present, participate, and shape spaces and institutions - not as guests who are graciously accommodated, but as rightful members with legitimate and valuable contributions. Example: *"'We are so excited to have you attend … ' Once I had the spaces and tools I needed, I could contribute the ideas I wanted to share. My value just needed to be seen."*	*People, communities, and cultures are inherently valuable, therefore, medical education must sustain them.*
Individual focus and responsibility: Accommodations are adaptations to activities/preferences which are made at the level of the individual; the group's activities/preferences remain "normal," unchanged. Individuals who require accommodations are responsible for ensuring their needs are met. Example: *"Everything about conferences – dim meeting rooms, poor signage, inaccessible programs – isn't designed for me … If I'm lucky, the organizing staff offer a limited set of disability accommodations … In the end, I am left behind."*	**Collective focus, collective responsibility:** As a group cares for each other, they are responsible for adapting to each others' needs. When needs are not met, the group is accountable to each other for finding a solution(s). Example: *"They had guidelines for the conference attendees – for everyone – on how to speak, ask questions, and network in an accessible way, not just for me, but also for those who had other kinds of bodies and minds … What could easily have been a set of accommodations for me alone became a living practice of seventy plus people all caring for each other."*	*Sustaining occurs through collective care and interdependence of people, communities, and cultures.*
Either/or thinking: Viewing others as either wholly marginalized or wholly dominant; right or wrong; similar or different. Example: *"Given our differing identities combined with the professional stereotypes that I held, I unconsciously dehumanized an entire being - he wasn't a person, he was a surgeon."* **Perfectionism:** Professional norms requiring superficial contact, limiting tension or mistakes; Prioritizing and maintaining the image of one's professional 'self' over other selves, communities, and cultures, including one's own. Example: "I felt like if I made any mistakes, I would lose my ability to practice medicine … I was sympathetic to myself 'the doctor' but never gentle with myself 'the human.'"	**Curiosity:** Embracing the multifaceted nature of people, cultural expressions, and knowledge systems without reducing them to dehumanized or superficial categories. Accepting that non-closure is natural and generative. Example: *"I said, "yeah, I'm fine." And you replied, staring at me, 'No, really. Are you okay?' …* *[time passes] …* *That short interaction made me feel seen and less alone … '* [He said], *'I lost a friend to suicide when I was in my early 20s and I have always wondered how I could have helped …"* **Inward gaze:** internalized oppressive beliefs must be lovingly critiqued, even when they come from marginalized communities or cultures. Example: *"… lovingly interrogating and sustaining those aspects which promote collective humanization, while rejecting those aspects which dehumanize ourselves and others."*	*Growth, death, and revival within people, communities, and cultures is natural and naturally dynamic; not everything [that comes from communities or cultures] is humanizing or liberatory.*

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Data availability

The data that has been used is confidential.

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