

T⁴ = Teaching to the Fourth Power: Transformative Inquiry and the Stirring of Cultural Waters

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Teachers explore a theoretical framework to support their vision of becoming transformative practitioners who promote social change.

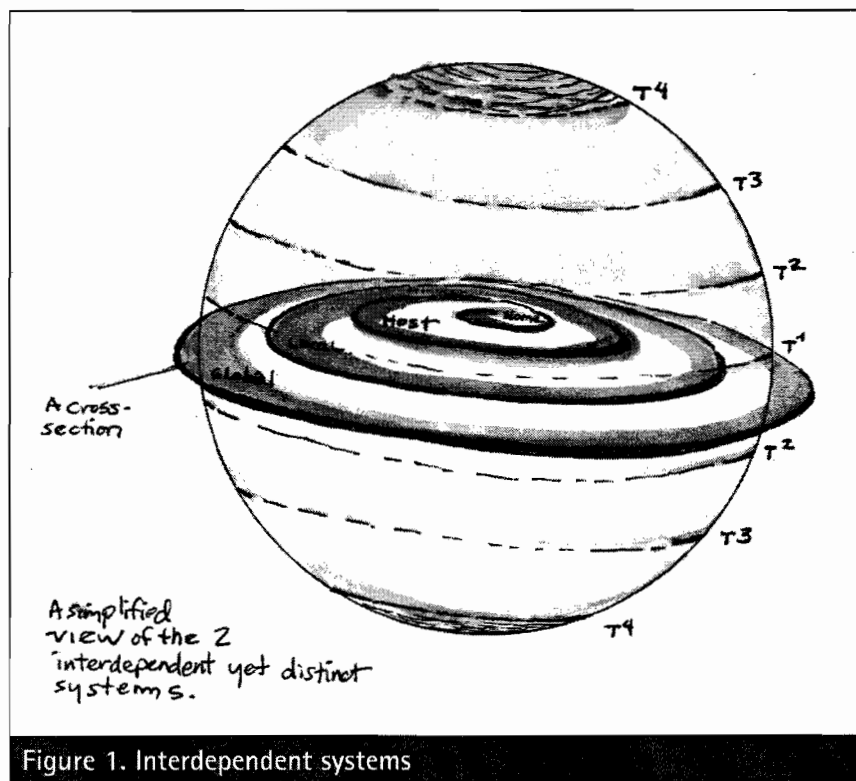


In the Hawaiian language, the word *a'o* is used for both “teaching” and “learning.” Fundamentally, it is a continuous reciprocity of learning where one tries something new, gets

feedback, and learns from the experience. Harste (2001) describes this interdependent relationship, “education as inquiry and inquiry as education” (p. 5). This interface of

intellectual inquiry is exercised by staff members of Kamehameha Schools, Extension Education–Literacy Enhancement Department in Honolulu, Hawai'i. Consisting of ten teachers, a cultural arts specialist, and ten educational assistants, we work in partnership with the Hawai'i State Department of Education in six high-poverty, low-performing public schools, and Native Hawaiian charter schools with concentrations of 50% or more Native Hawaiian students.

Currently, Native Hawaiians constitute 26% of the total enrollment in Hawai'i's public schools making them the single largest ethnic group in the statewide system (Kana'iaupuni, 2003). Unfortunately, Native Hawaiian learners significantly lag behind statewide averages in reading and math, and this achievement gap widens as students progress to higher grades (Kana'iaupuni, Malone & Ishibashi, 2005). By providing professional development, instructional materials, tutoring support, and parent education workshops, our goal is to find culturally relevant pedagogical methods that intrinsically motivate lifelong learning



and literacy achievement among K–12 learners and their families.

The first section of this article focuses on a multidimensional, theoretical framework we call T⁴, or Teaching to the 4th Power, which is based on the pedagogical processes of T¹ransmission, T²ransaction, T³ransmediation, and T⁴ransformation. The second half shows how these processes work as a system, rippling through the educational waters of learners' home culture, host culture, local culture, and global culture (see Figure 1).

In the past, educational practice has focused primarily upon a transmission—"fill the empty vessel"—model of education dealing with dominant, mainstream, Western ideology. This model often alienates student learners due to the absence of cultural relevance. The process of *a'o*, or teaching and learning, is the pursuit of creating relevant knowledge, inspiring insight, and cultivating relationships in order to

achieve academic success for the learners we serve. We envision education as moving toward active, lively work that engages students in applying knowledge and hands-on experiences that connect them to their cultural roots in order to affirm their identity, native language, and sense of place, or the *'āina* (land), from which they come. It is a vision where teachers, students, and families become agents of social change.

TEACHERS AS INTELLECTUALS VS. TEACHERS AS TECHNICIANS

Giroux (1988) poignantly describes the political climate as one in which reform movements ignore the role of teachers as intellectuals. Instead, teachers are reduced to high-level technicians delivering scripted reading programs, crowding out their role in preparing students to be active and critical citizens.

As educators working in the contexts of scripted reading programs, we exercise intellectual inquiry as a process of self-critique to question our own thinking about teaching and learning. If we promote a curriculum in which students do not feel engaged and successful, are we not complicit in a kind of social injustice that disenfranchises the learners whom we wish to serve? If we are not empowered to think more critically and envision a critical educational democracy, how can we support students in empowering themselves to liberate their own thinking and to become more thoughtful, active citizens in their global and economic futures? What role should literacy serve in this ongoing debate? What is education for and whom should it benefit?

During the 2003–2004 school year, as Director of the Extension Education–Literacy Enhancement Department, Anna Sumida was enrolled in a doctoral program at the University of Hawai'i in the area of curriculum studies. This led to discussions and readings on culture, critical theory, and critical literacy at our monthly staff meetings on Friday afternoons. At the time of this writing, our conversations continue, as we seize opportunities to collectively organize and discuss the core nature and purpose of the school systems in which we work.

We feel that a dominant, mainstream school curriculum is important but not sufficient because it provides only one view of the world. Privileging Western, white, middle class values and beliefs often alienates students due to the absence of cultural relevance, resulting in disengagement with schooling, comprehension/vocabulary gaps, and high dropout rates. Dominant, mainstream curricula fails to honor students who come to school socialized and prepared with a different,

yet equally important set of cultural values and beliefs. In this light, the insights we share about Native Hawaiians have broad application to any group of learners, such as Native Americans, Mexican Americans, African Americans, Asian Americans, alienated youth, learners in low economic social class, and other global communities in which Western, mainstream ideology inundates them.

Rather than serving Hawaiian students from a deficit paradigm, our professional development inquiry focuses on uncovering the root causes of underachievement and productive ways to rectify it. Unless these causes are critically identified, analyzed, unpacked, and deconstructed, we have found that systemic, educational reform and success cannot realistically occur.

Cumulatively, the destruction and erasure of Hawaiian governance, social relations, and language has had devastating effects—lack of self- and cultural-esteem, ethnic stereotyping, breakdowns in the family unit, alcohol and substance abuse, increased criminal acts, high rates of suicide, child and spouse abuse, over-representation in special education, over-representation in low-status service occupations, lower life expectancies, high teen pregnancy rates, and higher rates of diabetes, heart disease, hypertension, and cancer (Benham & Heck 1998). Poets have expressed this demise as “*Pua i ‘ako ‘ia,*” meaning “a flower has been plucked” (Benham & Heck, 1998, p. 1) and “*Malihini no nā keiki o ka lākou ‘āina pono ‘i iho,*”—the children of the land are

We believe that the longest war in history has been the war against indigenous peoples. Modern industrial countries have dominated, enslaved, and colonized, thereby defining the native role and place at the bottom of the socioeconomic hierarchy. In these primarily capitalistic economies, value is placed on property and economic gain, and the health of a society is measured by its gross national product, gross domestic product, and income level. (p. 3)

The rhetoric of “solving” social problems by reinventing schools and policies and promoting educational reform blinds the public to the macro levels of economic, social, and political structures that create the basic oppression, malfunction, and inequality within a society. There is an urgent need to recognize how education is situated within these contexts. Growing relationships between governments and multi-billion dollar transnational corporations forming capitalist global economies will drive the need for more McJobs with little or zero benefits and cheap labor. These deregulated environments focused on consumption economies will continue to inextricably shape educational, social, and cultural relationships to an even larger scale in the future.

Reading the work and learning from the intellectual inquiry of scholars in the area of culture (Kaomea, 2003; Benham, 2000), critical theory (Giroux, 1988; Freire, 1970), and critical literacy (Luke, 1988; McLaughlin & DeVogd, 2004), we share evolving theoretical underpinnings from our study group discussions. Undergirding this inquiry is the valued belief that if we awaken our intellectual growth as teachers, we in turn will do the same for our students and for the larger educational community of learners. Freire (1970) stated that genuine learning occurs when students are actively involved through praxis in controlling their own education.

Blaming an educational system striving to improve is a red herring.

THE ERASURE OF CULTURE IN EDUCATION

Native Hawaiians have been historically marginalized and educationally disenfranchised through the process of colonization in the islands. Benham and Heck (1998) explain that Hawaiians were among the most literate people in the world in the 1840s. Hawai‘i had the highest literacy rate west of the Rockies (Kamehameha Schools, 1991). Hawaiian was the official language used in government, schools, and the home. Nearly 100 newspapers were printed in Hawaiian. However, in 1893, the Hawaiian government was overthrown by Western colonizers. Additionally, in 1896, language and culture were stripped away by forbidding the use of Hawaiian as the medium of instruction in its public schools.

strangers in their own land (Benham & Heck, 1998, p. 122). Often, the finger is pointed at the educational system calling for greater accountability, insistence on standards, “fail-proof” scripted curricula, and well-trained, highly qualified teachers. Although many of these concepts are necessary, most of them have been in existence in various shapes and forms since the 1950s but have not resulted in large-scale improvements for native people, minorities, or students from low socioeconomic classes in the United States. Blaming an educational system striving to improve is a red herring. It distorts reality and distracts the public’s attention from revealing a complex constellation of overarching issues and root causes that *do not* get revealed. Benham and Heck (1998) write:

T⁴ = TEACHING TO THE FOURTH POWER

Our self-reflexive examination began with a sorting of pedagogical processes of teaching and learning that resulted in defining four broad categories. When multiplied together, the net effects become: TRANSMISSION × TRANSACTION × TRANSMEDIATION × TRANSFORMATION = T⁴. We offer this heuristic as a “theoretical think piece” to readers in an academic endeavor to view the landscape of education from a macro lens of praxis. Additionally, this landscape as characterized by T⁴ works as an interdependent system with an additional cultural context. Although each process and its examples will be characterized and defined separately, we make clear an important caveat—we feel that these processes are *not* linear and should *not* be viewed as non-intersecting planes. Instead, each process is deeply interdependent and layered, integrated within an educational *sphere of shared space and time*. We use the designation T⁴ because each layer is nested or *inclusive* of the others. All 4 “Ts” exponentially increase the power of teaching and learning when they interdependently coexist as a system. To capture the complex and important dynamic of this intricate model, we utilize a valuable metaphor embedded within Hawaiian culture.

Stirring of the Waters for *Kai* and *Wai*

Along Hawai‘i’s coastal shoreline are protected ecosystems called *loko i‘a*, or fishponds (see Figure 2), where the fresh water (*wai*) system from the mountains flow into the saltwater (*kai*) system of the sea. The stirring of these waters creates a delicate balance of 97 elements—identical to the life-giving blood within our human bodies (Machado, 1999). These waters of the *loko i‘a* harvest a rich and diverse

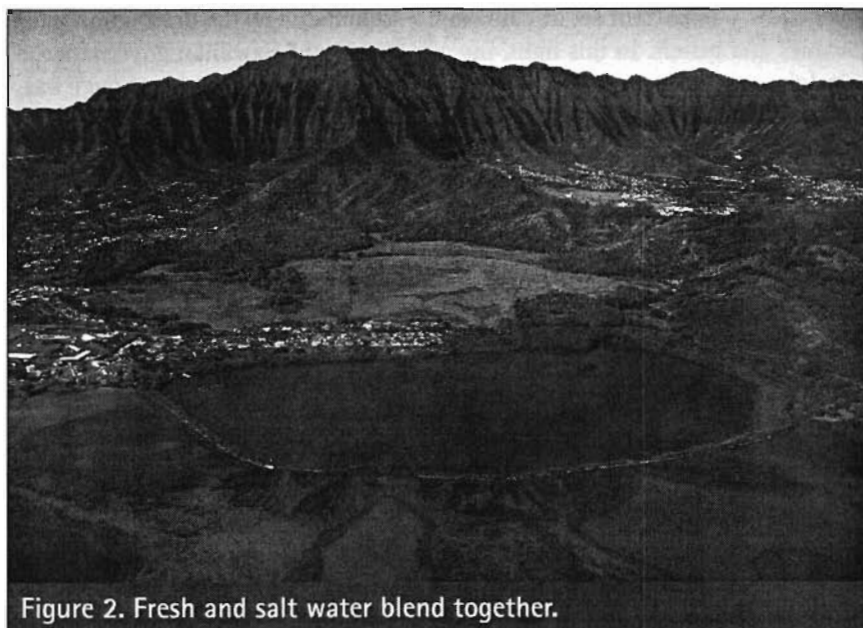


Figure 2. Fresh and salt water blend together.

abundance of marine life such as shrimp, crabs, fish, seaweeds, and plants to sustain a part of the local food supply for islanders.

Using the ecosystem of a healthy *loko i‘a* as a cultural metaphor, we liken the T⁴ processes as necessary elements for a healthy environment of learning and working within cultural contexts. Like all ecological systems, relationships are interdependent, contingent, and not strictly hierarchical. Most important, all elements of pedagogy and culture are valuable and critical to produce healthy and thriving environments. Similarly, as in educational contexts, teaching and learning communities are complex ecosystems and environments with multiple entry/exit points. They have the dynamic ability to change and respond relative to the context and to the learner’s needs or educational situation.

For the sake of readability, the following matrix graphically illustrates the T⁴ processes in a linear format (see Figure 3) and each will be explained in further detail.

Although depicted as a matrix, it is

important to reiterate that the four processes are *not* linear in design. They are interdependent and inclusive like the stirring of waters in Hawai‘i’s *loko i‘a* ecosystems.

T¹ (Teaching to the 1st Power) = Transmission (Learners Consuming Knowledge)

The Transmission process focuses on building a teacher’s professional toolkit. Teachers usually acquire instruction on the “what” and “how” of essential practices through education courses at universities or staff development inservice workshops. These workshops include various degrees of transmission or direct instruction about teaching methods and strategies, such as reading aloud, phonics, language experience, craft lessons in writing, conventions, skills, spelling, shared and guided reading, comprehension strategies, literature circles, reader response, training on computer software, and the list goes on. Usually taught by a highly experienced instructor, multiple techniques are used, including lectures, videos, training manuals, handouts, articles, textbooks, and software.

T⁴ = TEACHING/LEARNING TO THE FOURTH POWER for ALL AGES				
T_xT_xT_xT	T¹RANSMISSION ←	T²RANSACTION ↔	T³RANSMEDIATION ↔	T⁴RANSFORMATION →
LEARNER CHARACTERISTICS	<ul style="list-style-type: none"> Consumers of knowledge 	<ul style="list-style-type: none"> Users of knowledge 	<ul style="list-style-type: none"> Interpreters of knowledge 	<ul style="list-style-type: none"> Producers of knowledge
TEACHING AND LEARNING PROCESSES (As a dynamic and interdependent system, T _x T _x T _x T exponentially increases the power of teaching and learning.)	<ul style="list-style-type: none"> Tools in a teacher's "toolkit" of best practices Instructional kits Training videos Basals, textbooks, teacher guides Workshops, lectures, books, journal articles Content area FACTS and INFORMATION 	<ul style="list-style-type: none"> Collaborative social contexts Involves interactive dialogue Application Inquiry Goal setting Reflection and self-evaluation Builds capacity and lifelong learning 	<ul style="list-style-type: none"> Interdisciplinary (bridging and connecting content areas and domains) Multiple intelligences Multiliteracies Multiple ways of knowing Different learning styles 	<ul style="list-style-type: none"> Agents of social change Real-life applications beyond the walls of the classroom Culturally relevant Involves critique (critical literacy, Freire's "reading the world") Liberate thinking Service and stewardship oriented Spiritual
TEACHING & LEARNING STYLE	<ul style="list-style-type: none"> Teacher as expert Direct Instruction Behaviorist Skill and drill Rote memorization 	<ul style="list-style-type: none"> Teacher as facilitator Process oriented Constructivist Structured or guided inquiry Cognitive engagement with others Social interaction 	<ul style="list-style-type: none"> Interpretive Use of metaphors Creative New perspectives Negotiate meaning-making Uses intuition Instinctive Emotional sense of spirituality 	<ul style="list-style-type: none"> Teacher as co-learner Critique to analyze relations of power Dialogic (enables voices to be heard) Allows access to change
TEACHING AND LEARNING CONTEXT	<ul style="list-style-type: none"> Classroom-based Usually homogeneous (age, ability grouping, etc.) 	<ul style="list-style-type: none"> Classroom-based/home connections Heterogeneous Multiage 	<ul style="list-style-type: none"> Personal ownership of meaning-making w/ seamless boundaries between home and school 	<ul style="list-style-type: none"> Makes an impact or contribution to the social conditions of the world. Real world (home, host, local, global cultures) Funds of knowledge Cross-age; inter-generational
ASSMT & EVAL	QUANTITATIVE <ul style="list-style-type: none"> Timed tests Chapter tests Multiple choice tests Mastery learning Letter grades or numerical scores Norm-reference tests (SATs) 	QUALITATIVE <ul style="list-style-type: none"> Open ended responses Student generated rubrics and criteria Observation; anecdotal records Narrative reports Learning logs Portfolios, self-evaluation Criterion reference tests 	<ul style="list-style-type: none"> Based on student strengths and potential Performance based 	<ul style="list-style-type: none"> Social impact and public contribution to society New knowledge Invention and innovation Creative change

Figure 3. Exponential power of teaching and learning as an ecological system

The larger the repertoire of a teacher's toolkit, the better. In this context, competing debates of phonics or meaning become irrelevant because both are necessary for readers. Based on experience and practice with various tools, the teacher as an intellectual skillfully differentiates and appropriates instruction to meet the needs of a range of learners.

Within a classroom context, a brief snapshot of transmission as a pedagogical process would look like drill and skill on blends and digraphs using practice worksheets. Other examples would include direct instruction on spelling, conventions of grammar, paragraphs, and the use of dictionaries, glossaries, tables of contents, and indexes.

These are important "tools" for students to acquire; however, although tools in a toolkit are necessary, they are not sufficient. Without a practical, working knowledge of how to use these tools, authentic, productive, and sustaining work cannot go on. Transmission, representing the "what" of teaching, sets the stage for the second eddy of this educational pooling—the process of Transaction.

T² (Teaching to the 2nd Power) = Transaction (Learners Using Knowledge)

Transaction is the application of knowledge within a social context of learning based on social constructivist theories of language and literacy (Wells, 1986; Vygotsky, 1978; Scribner and Cole, 1981). The Transactional process fosters a fluid, *collective* relationship with others as well as a *self-reflective* relationship with oneself. We borrow the term "transaction" from Rosenblatt's Transactional Theory (1978/1994), stating that any reading event is a back-and-forth transaction between a reader and text to make meaning. Dewey &

Bentley (1949) believed that learning is a transactional process, a mutual interplay of reciprocity and relationship to others, whether it be in the classroom, family, or broader society. In constructing knowledge, social engagement, dialogue, and communities of practice (Lave & Wenger, 1991) are at the heart of the process and are the portal to a culture of learning. Historically, educational models focused on Transmission, positioning learning as an individual process with the goal of mastering facts, information, and skills. Learners are placed in comparative or competitive environments with ability tracking determined by test scores, and learners are viewed as empty vessels to be filled.

written, "I love my dog and his chest is pure white." Immediately after the sharing, Joshua asked, "What's your dog's name and does he do tricks?" This interaction between writer and audience enabled Kristi to revise and write a more detailed and interesting piece with her audience in mind. Later that morning, she added, "His name is Kea because Kea means white in Hawaiian. He plays with me and my sister and sometimes I hold out a biscuit and make him bark three times and roll over. We think he is very smart." Her writing and illustration were eventually published and displayed in the classroom library. This interactive process of peer conferencing enhanced writing quality and, because Kristi *used* her emerging

The Transactional process fosters a fluid, *collective* relationship with others as well as a *self-reflective* relationship with oneself.

Learning is enhanced when *applying* and *using* information and factual knowledge. Therefore, T²ransaction is inclusive of and animates the "what" of Transmission. Examples include literature circles where students discuss various perspectives and may even have differing opinions about a character or solution in a story. It is about access and is dialogic, where making sense of disparate points of view allows voice to emerge. It fosters educationally democratic principles that engender and support diverse worldviews.

Examples of transactional learning experiences include writing conferences. In one classroom, where writing workshops are held each day, Anna observed Kristi, a first grader, share a one-sentence story she had written about her new puppy with her classmate Joshua. Kristi had

skills and concepts of print to write a more descriptive story that was shared with her classmates, encapsulates the dual relationship of T¹ransmission nested within T²ransaction.

Transactional learning is wide ranging and could include group projects to write a class play, an anthology of family stories, a letter or e-mail to pen pals in another state or country, or interviews of elders for a community oral history project. Inherently, transactional learning within a social context frequently includes hands-on experiences, engagement with problem-based inquiry, goal setting, dialogue journals, reflections, and peer debriefing/feedback loops for evaluation. In this way, learners have access to learning communities and networks established through an experience-based, reflective process that opens pathways for creative and collaborative innovation. Transaction

expands teaching and learning into contexts ranging from *individual* to *communal* processes of expression, which is much more culturally congruent in many non-Western educational models.

T³ (Teaching to the 3rd Power) = Transmediation (Learners *Interpreting Knowledge*)

We define Transmediation as an interpretive process where knowledge is reconstructed by learners in order to take *personal ownership* of their learning based upon their potentials, strengths, or multiple intelligences (Gardner, 2000). Expressed through a variety of forms, Transmediation opens interpretive spaces that bridge and connect knowledge as a meaning-making process to personal experiences. One such example by Hawaiian Cultural Arts Specialist Meleanna Meyer incorporates an additional point of view that allows for a sixth sense, being the *na'au* or intuition/emotion. This gives us the permission to go beyond the limitations of one cultural canon. The potential then, is not only to *reunite* the Cartesian mind-body split, but to demonstrate that the foundation of an educationally democratic point of view has the freedom to include a third point of triangulation, that of an animated spirituality. In this way, knowledge is not always objective, tangible, or easy to measure. In many ways, it is more powerful than numbers or words can tell because it liberates creative imagination, fosters a passionate voice, and nurtures soulful contemplation. We feel that transmediating knowledge comes from a different place, has a language of its own, and isn't always located exclusively in the mind. It is full-bodied and includes the *na'au*, or intestinal "gut" feelings. It is multifaceted but, for the purpose of this article, we have

highlighted only a few examples. Leland and Harste (1994), write about their definition of transmediation:

The movement between and among sign systems is known as transmediation. Transmediation occurs when meanings formed in one communication system are recast in the context and expression planes of a new sign system (for example, we take something we know verbally and recast it in art). We see transmediation as a fundamental process in literacy. Movement between and among sign systems provides the opportunity for new perspectives on our knowing and, hence, for the expression of an expanded range of meanings. Transmediation encourages reflection and supports learners in making new connections. (p. 340)

For example, as part of an open house at the beginning of the year, students painted self-portraits and wrote about themselves and what their Hawaiian names meant to them. Iaone, an eleventh grader, wrote a piece (see Figure 4) that was mundane, but when interviewed about his painting, he realized that the art form (see Figure 5) took him beyond the assignment in terms of his cultural sense of identity. Here are excerpts from his interview:

I started with the hair—two different styles. Up and then down. I was having a conversation with myself and this drawing reads all sorts of ways. This piece touches lots of things and shows different aspects of me. I wanted to show the dif-

IOANE KAHUAPONO GOODHUE

My name is Ioane Kahuapono Goodhue. Ioane was given to me by my mother because she liked the name. My middle name, Kahuapono, means the strong and righteous foundation. My grandmother gave me this name. And finally my last name. Goodhue, the name I got from my father.

Figure 4. Ioane's writing

ferent sides of me. In a traditional sense, on the right expresses more the internal feelings I have now. How I'm unhappy with the way much of society is, how it ruins us, and this is the state of being for lots of Hawaiians. I'm weeping, I was going to put tears. The background is empty, kind of buried or gone. And then on the left a



Figure 5. Ioane's self-portrait

more full side—the background, representing 3 piko, or centers of past, present, and future [note the three rainbow arches in drawing]. The environment and family things are at the center of me; both right and left represent the full sides of me.

When Meleanna asked how he got to this consciousness of himself, he replied, “You and me, we got there together, you were willing to trust me to take it and go—I was willing to go there.” The sign system of “arting” encouraged reflection and transmediated the essence of the writing assignment to communicate and convey his feelings, thus expanding his sense of identity beyond words.

Interdisciplinary learning can also be a part of a transmediation process. For example, fourth-grade students produced a play on endangered Native Hawaiian birds for an integrated science and social studies unit. Students researched information and transmediated the information into a story utilizing *mele* (song), *hula* (dance), and *hula ki'i* (puppetry). In this way, learning is not fragmented into discrete disciplines in the Aristotelian sense. The power of teaching is exponentially enlarged because Transmission and Transaction are *nested* within T³ransmediation. Assisting our young to make connections creates open opportunities for pleasure and passion and allows for a real exchange of communication to take place beyond words and numbers, amongst divergent groups, across difference.

Anna's nephew, a kindergartner at a local elementary school, learned to read iconic visuals and initial consonant sounds through his interest and fascination with a chart of 50 Pokémon characters' names and their defensive/offensive combat techniques. His high interest

enabled him to navigate and decode this highly sophisticated genre of literacy that is not accepted as a sanctioned literacy of schools (in fact, in many schools it is censured). Cope and Kalantzis (2000) explain this as “crossing linguistic boundaries” through an “ever broadening range of specialist registers and situational variations, be they technical, sporting, or related to groupings of interest and affiliation” as a form of meaning making and form of literacy (p. 6).

An educated citizen is viewed as one who can “read the world,” think critically, question relationships of power, and become an agent of social change.

It is important that educators expand upon their own homegrown notions of literacy in order to build bridges that better connect to specialized literacies, or multiliteracies, that are relevant to today's learner. These should accompany school-sanctioned literacies so that learners feel engaged in meaningful ways that have application to their lives. However, the process does not stop at Transmediation. T⁴ intends to engage learners in a relevant educational experience that supports moving toward a transformative process where learners empower themselves to create new knowledge and become agents of social change.

T⁴ (Teaching to the 4th Power) = Transformative (Learners Producing Knowledge)

Transformative pedagogy has the broadest application to the *real* world, and is inclusive of T¹ransmission, T²ransaction, and T³ransmediation. Exponentially, it is the most powerful when all four elements interact as a dynamic sys-

tem of interdependence. Transformative pedagogy, based on the work of Paulo Freire (1970), connects the classroom to the political, economic, historical, cultural, ecological, and social issues of *real life*. At the heart of teaching and learning, an educated citizen is viewed as one who can “read the world,” think critically, question relationships of power, and become an agent of social change.

Reflecting upon our traditional school experiences as a staff, we

knew that we had never been fostered to learn and think in this way. As a learning community, we needed to learn and experiment with the process ourselves. Drawing upon readings from critical literacy (Fehring & Green, 2001; Lankshear & McLaren, 1993; Muspratt, Luke, & Freebody, 1997), we saw that popular culture (movies, TV serials, toys, fashions, MTV) and the media (magazines, commercials, newspapers) were obvious starting points because we are constantly bombarded and saturated with images and messages attempting to influence and construct our identities and desires. Our reading allowed us to view the world through a lens of critique, questioning who benefits, who is marginalized, whose voice *is* and *is not* represented, and for what reasons.

For example, the following reflective questions and comments indicate the growing critical consciousness within our staff while looking at demographic data, literature, and Web sites for various research purposes.

- “The word ‘minority’ gives the impression that certain ethnicities are minor vs. major, creating the connotation that a minority is less important.”
- While examining oil paintings by Herb Kane (1997) in his book, *Ancient Hawaiians*, depicting life in Hawai‘i during the late 1700s, Malia exclaims, “Heh, here’s Captain Cook and other European sailors but they don’t call them ‘ancient Europeans’? Why are only the Hawaiians ‘ancient’? They were living at the same time.”
- “Can you believe that the only information I found on the Internet pertaining to Queen Kapi‘olani was about the hotel in Waikikī, discount rates, and fly ‘n drive vacation packages? As a famous Hawaiian monarch, it’s so shameful that she is not represented as royalty and embodied only in economic tourism and commercialization.”

These are just a few examples revealing how Hawaiian history, culture, and racial identity *is* and *is not* represented in various forms of “texts,” such as population census data, print, electronic, and visual media. They illustrate how we as teachers and educational assistants are learning to unpack, or deconstruct, dominant social, political, and cultural ideologies that are often embedded in language, go unquestioned, infiltrate our psyche, and silently shape our social identities, cultural beliefs, and political relationships with one another. Although these examples are specific to Native Hawaiians, there is direct applicability to other groups where negative stereotypes are often interpolated through media and texts.

We began to understand how words such as “ancient” erase a cultural heritage as if it were nonexistent and buried, as ancient civilizations of Greece and Egypt. We helped

each other to reveal or deconstruct how negative stereotypes and racism are often projected and reified in dominant mainstream texts and forms of media. We have found that Native Americans are stereotypically depicted as savages, Chinese as kung-fu experts, Hawaiian males as primitive cavemen, Hawaiian females as hula dancers in grass skirts entertaining tourists, and African Americans as criminals.

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Transformative praxis urges us to deconstruct these stereotypes and reconstruct them by researching, interviewing, reading, writing, illustrating, and producing culturally relevant instructional materials to offer the world positive and realistically authentic representations to use in classrooms. This position allows multiple voices and worldviews to enter the picture. Transformative processes produce the most powerful exponential effects of praxis because of their broader application beyond the walls of the classroom. The T⁴ process does not exist in a vacuum, nor can it function successfully without its animating principle—culture—and all that this rich word conjures for various groups in divergent settings. While T⁴ explicates a pedagogical framework that defines the *form* of teaching

and learning, we want to define the *function* of teaching and learning, thus reinstating a cultural context.

C⁴ULTURE AS EDUCATION

All learning environments have a unique blending of cultures, which we refer to as a spiral of culture. Because systems are infinitely complex as they overlap with one another, culture as an educational foundation plays a central role within a successful 21st-century education. Culture as four key elements (C⁴ulture) can be the interface rippling through the T⁴ process as holistic influences move towards a democratic education of understanding local and global systems of interdependence.

“Culture” originates from the Latin root *cultus*, to care for and to cultivate. Many of the most experienced caretakers of our children understand what it means to cultivate and care for the unique gift in every child. Therefore, culture is really getting into the deepest part of our educational waters. The word “educate” originates from the Greek root *edos*, meaning to “educate” or “draw out.” Culture as education is about caring for our children in order to *draw out* their potentials and acknowledge the deepest wellspring from which our children create and make meaning. As social beings, our need to interact—to be in relationship with one another and our environmental context—is critically important, not only to the success and flourishing of our species, but to a broadening appreciation of views of the world that may be different from our own.

Home Culture. The home is the first and immediate part of the spiral. It is the compelling origin of who the learner is and where s/he comes from. It is about self and family, as well as the learner’s ethnic identity, cultural

heritage, genealogy, family background, and home language. A curriculum based on democratic principles begins with *what learners know* in such a way that affirms their identity, family stories, and cultural resources, or what Moll, Amanti, Neff, & Gonzales (1992) call “funds of knowledge.” This opens the door to schooling where each learner comes to the educational conversation fully able to participate.

Host Culture. Second, spiraling continuum leads into a relationship of place. Each locale around the world has a host people or native/indigenous culture. Native and indigenous peoples of a particular geographic location are the original “hosts” of a geographic locale in which others are “guests.” The host culture of Hawai‘i is Hawaiian. The host cultures within the continental U.S. are the various Native American tribes. Host cultures were defined by a sentient knowledge of the land, its bodies of water, and the heavens above.

Historically, colonizers and settlers have not had the distinction of maintaining equitable and just relationships with the host cultures they have come into contact with, and in no way would be considered hosts of any place other than the home ground from which they came. Perhaps host cultures by nature were too hospitable, too gracious, as hosts tend to be. To respect and acknowledge the existence of a host culture is critical because it sets into motion a mutually defined relationship of caring that should have been maintained and never erased. The hope for the future is that it will become reinstated and supported as foundational to educational curriculum for the continuing health of the world.

For some, the notion of being a “guest” is awkward. However, if understood in its proper context as

guests, perhaps a more equitable and sustainable rapport with the host culture and environment would necessitate a dramatically different kind of centrism and relational orientation that would mutually benefit all of society.

Local Culture. Local culture, or the third evolution of the spiral, honors questions such as Who are your neighbors? Who do you go to school with? Who do you work with? What “clubs” or social groups do you belong to? Local culture is about hybridity and defined by the dynamic, blended mixtures of people, ethnicities, and associations that are unique, intimate, and personal. It is a multifaceted community within a geographic region, city, island (as Hawai‘i), or even smaller settings such as schools, neighborhoods, work places, interest groups, chat rooms, learning teams, churches, clubs, etc.

A wider cultural lens interdependently framed as Home, Host, Local, and Global cultures envisions an educational center that is not dominated by any one group.

Local culture sets the stage for understanding relationship and interdependence, cultivating a mindset of respect, compromise, and exchange. Local culture is an extraordinarily rich amalgam defined by purpose, place, and the people within that community.

Global Culture. Finally, the fourth circulation of the spiral is what lies beyond our shores, the culture of our global community. This intersection is also one of myriad differences, yet the notion of a global culture sets all of us in some kind of inter- and intra-dependent relationship orchestrated on a larger scale. Through honoring each distinct culture as having value, no

more or less than any other, we can arrive at a deeper appreciation for what each of us has to contribute to the rich tapestry of the world.

Honoring Culture Honors Diversity. Conventional education often privileges a dominant Euro-American or Western cultural frame of reference. A wider cultural lens interdependently framed as Home, Host, Local, and Global cultures envisions an educational center that is not dominated by any one group but held open—where discussion is invited and where all are asked to participate.

Multiple views of the world reside upon the contingent intersection of the T^4 processes with this cultural spiral. The absence of culture is the absence of diversity, therefore honoring culture is honoring difference, and, as in all of nature, healthy ecosystems such as the *loko i‘a* thrive on a rich tapestry of diversity as an interconnected spiral of humanity.

$T^4 \times C^4$ (CULTURE TO THE 4TH POWER)

What does it look like when T^4 is multiplied by the effect of culture, or mathematically speaking: $T^4 \times C^4$? An example of $T^4 \times C^4$ process comes from Kanu O Ka ‘Āina, a Native Hawaiian Charter School in Waimea, Hawai‘i. As you will see, all the elements blend together as a fluid, nonlinear, responsive system to the teaching and learning environment. To make each element within the system visible, it is notated as an italicized word.

A combination of elementary, middle, and high school students

became *producers of knowledge* when they published *The Fish and Their Gifts* (Stender, 2004) for a *global* community (see Figure 6).

The story was written by Joshua Kaiponohea Stender, based on his experiences of fishing with his father from a very young age, and draws upon his *home, host, and local* cultures. It is about a young boy named Kekoa who is swept into the sea by a large wave while gathering shellfish. Kekoa is rescued and brought to the safety of his father by various fishes of the ocean. In return, Kekoa and his father pray to the god, Kanaloa, Protector of Fishermen, to bless the fishes. In answer to their prayers, Kanaloa grants each fish a gift of protection to keep them safe from their respective predators.

In order to write the book, Joshua made sure he had accurate and factual information by interviewing local fishermen and conducting research on the Internet and through books. In this way, he was *consuming knowledge* and illustrating *T¹transmission* in action. *T¹transmission* was embedded and visible throughout the writing process by

attending to skills, convention, and mechanics, such as spelling, punctuation, vocabulary, organization, and story elements. This was a requirement in English as well as in Hawaiian because the book is published in a bilingual format. As a *T³ransmediational* process, Joshua drafted and crafted his story by *interpreting knowledge* and his experiences into narrative form. In a collaborative, *T²ransactional*, multiage learning environment, a team of elementary, middle, and high school students worked with Joshua and Meleanna to *use their knowledge* in order to illustrate the book. Once again, through the process of *T¹ransmission*, they researched the physical characteristics of the fishes and their environment. In addition, they learned about the indigenous palette (coral-white, turmeric-yellow, charcoal-black, and dirt-red) and techniques of collage. This book was then submitted and accepted for publication in order to touch a *global* community.

This example demonstrates the dynamic, responsive movement between *T¹ – T⁴* as interfaced with *C⁴ulture*. Like the waters of the *loko i'a*, all the elements are inclusive of each other and blend into a responsive, rich, healthy, learning environment working as a complex, interdependent system.

IMPLICATIONS FOR TEACHING AND LEARNING

What are we learning? How have we moved from theory to practice in order to make a difference? We find that theory attempts to name and figure things out before actual practice and application. Often times, theory prefigures word or text because it comes from a different place—intuitively, emotionally—that is pregrutler. Theory thinks,

and action makes thought concrete and expressive. Action comes from purposeful inquiry. For this reason, we are still in the initial stages of conceptualizing the impact of this ecological, theoretical framework but share what the journey has revealed thus far.

First and foremost, we realized that we had to first “name” and articulate what *T¹, T², T³, and T⁴* looked like. Based upon our personal experiences, the classroom practice of others, and through professional readings, we saw glimpses of good practice but never as a cohesive, conceptual heuristic. The examples in this article helped us piece together and “see” or recognize what each “*T*” looked like, how it was important, but also that it was not sufficient in and by itself—as a stand-alone.

Breakthroughs came when teaching and learning were connected to the outside world, where students and teachers were really making a difference or contribution in authentic ways, as *producers of knowledge* as in *The Fish and Their Gifts*. All of the *Ts* became evident as a nested, cumulative phenomenon. The great thing about *T⁴* is once you get there, you often never want to go back; you want to know how to get there again, and perhaps be able to take others along! We feel that this is an exploration of possible futures. For us, it shifted our consciousness about the purpose of schooling.

Second, *C⁴ultural* relationships are organic and cannot be categorized as a one-size-fits-all. The form and function of democratic, educational spheres must not be void of the valuable contexts of the world’s richly nuanced and complex cultural arena. Therefore, we have synthesized our educational inquiry into an integrated systems theory expressed through a sign system of

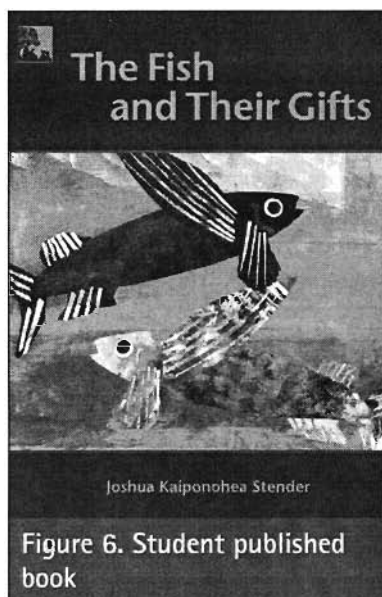


Figure 6. Student published book

$T^4 \times C^4$ in order to shift our consciousness and to keep us mindful of the exponential power of interdependent, dynamic systems. The cultural metaphor of the nutrient rich *loko i'a* assists us in remembering the importance of this coexistence, much like its blending of fresh and saltwater systems. As teachers, we will continue to question and search for ways to envision an interconnected global community as related to cultural sensitivity and diversity in the global future of our students. Thus far, our inquiry helps us to see that literacy in its myriad forms, curriculum, and instruction must serve broader functions beyond that which is rendered from sterile, scripted programs.

Third, we are learning that allowing students to make connections between disciplines as interpretive spaces complicates testing and assessment of learning beyond what exists in quantitative terms. Evaluation is no longer neat and contained within the boundaries of a single domain. A creative and liberated mind is not necessarily measurable. Measurement works effectively on mechanical objects so they can be replicated. If the purpose of education is to create thinkers, lifelong learners, and future leaders—as educators, administrators, and policy makers—the gaze of accountability and surveillance should be recast upon those who thwart the exponential powers of teaching, creativity, and liberated thinkers.

Last, as we share and present this multidimensional, ecological framework with other educators at research conferences, there has been broad interest from university through elementary levels, as well as from practitioners from all disciplines. Although we first conceptualized the theory for social justice

purposes and for the need of culturally relevant pedagogy, we have received encouraging feedback that this heuristic is a life model with broad and far reaching ramifications. $T^4 \times C^4$ is helpful and relevant to any life context, applicable for all learners, including those in dominant, mainstream educational contexts.

CONCLUSION

In these social ties that bind us and make us uniquely human, lively and meaningful educational interface remains illusive as education is mired in maintaining a rigid status quo through measurement, accountability, and punitive sanctions. Across the country, pressures from the No Child Left Behind (NCLB) policy are changing schools with high populations of minorities and low socioeconomic status into scripted instructional environments and test preparation factories. This deprofessionalizes, dumbs down, and suffocates teaching and learning into sterile uniformity. The assembly line McDonaldization of schools functions upon an unspoken motto of *minimally satisfying the maximum number of people*. Education must not mimic or mirror the fast-food industry. Otherwise, we must ask ourselves if this is yet another smoke and mirror guise of Benham and Heck's (1998) notion of domination, enslavement, and colonization.

When students and teachers are forced to stay within the narrow confines of T^1 ransmission as praxis, it crowds out the exponential power and healthy educational nutrients of T^2 ransaction, T^3 ransmediation, and T^4 ransformation, the foundation of a pedagogy set within the rich, spiraling contexts of Home, Host, Local, and Global cultures. If we hope to prepare thoughtful students for global

futures, all of these elements are necessary, forming an interdependent ecological system like the fresh and saltwater systems of the *loko i'a*. Learning of this nature requires scheduling longer blocks of time to work on projects, intergenerational/family participation, multiage groupings, and a seamless, purposeful flow between in-school and out-of-school learning.

**The assembly line
McDonaldization of
schools functions upon
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The source from which teachers are energized to create a meaningful educational experience is the care for and cultivation of the human potential of their learners, thus providing learning opportunities that are relevant, connected to real life, authentic, and engaging. C^4 ulture interfaced within the T^1 - T^4 processes exponentially expands rather than narrows curriculum. An essential understanding of C^4 ulture draws from the deepest educational waters, harvesting respectful relationships between humankind and the environment. A true embrace of this worldview allows for an appreciation of context, wherein the value of events, language, history, and culture become educational potential for personal and communal empowerment and growth.

Seen in its totality, the meaning of *a'o*, teaching and learning, are profoundly about transformative inter-

relationships. Educators engaged in searching for ways to sustain healthy learning environments and supportive points of view nurture unique voices and contributions that are central to education as positive social change. One of our staff members, Ku'ulei Laumauna, commented that perhaps the next "T" is "Transelevation," the place from which revelation and wisdom emerge. Such thinking is an indication that our conversations will continue to keep us on our journey. Herein lies our humanity and hope for the future.

Author's Note

We gratefully thank the Kamehameha Schools Extension Education Literacy Enhancement Department for their thoughtful discussions and input on the initial drafts of this manuscript.

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