

Ecological Assessments: CLCD Promising Teacher Practice

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May 2, 2021

ECED 803

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Introduction

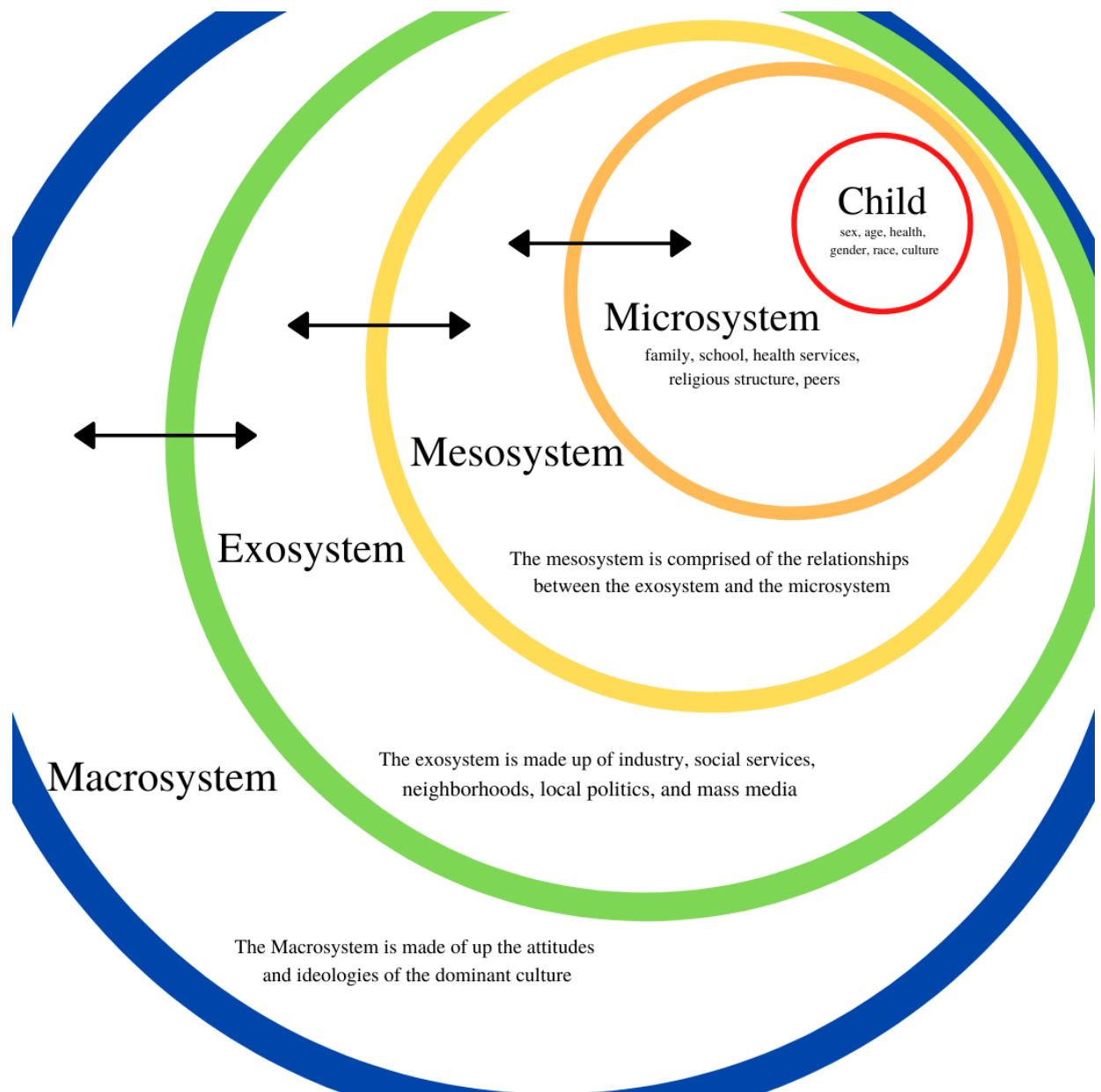
The thoughtful and intentional, formal or informal, Ecological Assessments that educators conduct when learning about their students are crucial for building community in a Culturally Linguistically and Cognitively Diverse (CLCD) teaching environment. Ecological Assessments are a promising teacher practice as they enable the educator to position themselves in a space of observation and data collection in order to best serve their students. In whatever setting educators find themselves in, they are there serving as a facilitator for learning, not judgement or criticism of students or family. When judgement and assumption enter conversations around students and their families, the student's learning is removed from the center of the conversation. As educators, it is imperative that the conversation stays focused on the student, as opposed to critiquing culture, language, familial structure, socio-economic status, or any other element of that student's life that is beyond the educator's business. Those factors must always be acknowledged as they impact the student's development and understanding of the world, and educators must strive to continue to observe, adjust, and respond with the data they are privy to.

Review of Literature

Ecological assessments are grounded in the Ecological Systems Theory put forth by Bronfenbrenner (1979). Ecological Systems Theory (EST) is the theoretical framework that considers a person as being at the center of nested structures of the ecological environment: the micro-, meso-, exo-, and macrosystems (Boonpleng et. al, 2013). Each person has a unique ecological environment that involves their immediate family, the people they are physically and emotionally closest to, their place of employment or study, the city and town they are physically living in, along with the rules of the city, town, county, state, or country of residence. In order to

deeply know and support students in the classroom, EST suggests collecting individualized data on the patterns and interconnectedness between these multiple layers of a learner's social structure (Bronfenbrenner, 1979). Figure 1 shows the interaction and interconnectedness of relationships among each system.

Figure 1. Diagram of Ecological Systems Theory



The Ecological Systems Theory is the foundation of the promising teacher's practice of ecological assessment. By assessing the different layers of a student's ecological system and environment that they are developing in, educators can contribute support and expertise that is grounded in data -- rather than assumption of lived experience. An example of an ecological assessment that could be used when planning a lesson is available in *Appendix 1*. The assessment of an ecological system does not follow a standard protocol or list of questions, but rather creates the opportunity for questioning and consideration of environmental, physical, and social structures. Questioning and considering who is represented in materials, what message is reinforced, the resources available, the background knowledge, culture, language, and societal implication of the reinforcement of these factors is the foundation of ecological assessment. The use of ecological assessments and the development of ecological assessments by educators support the theories of social constructivism and disability critical race theory (DisCrit).

Social Constructivism is rooted in the theory that learning is like building blocks; previous knowledge (schema) helps learners to make sense of new information (Branscombe, 2013). When schema is unavailable for learners to pull themselves up on, disequilibrium occurs. Within Social Constructivism, students can move out from a state of disequilibrium into equilibrium through communication and socialization with peers. Learning from peers through participatory association is seen as apprenticeship (Mallory & New, 1994). EST shows the interconnectedness between each layer of society that learners are developing in, and highlights the grandness of societal structure that learners are working to grapple with. Within each nested layer of the EST there are rules, social norms, and expectations that children are learning to navigate. When the social norms or rules for participation in each environment are explicitly

taught, students are able to move through phases of disequilibrium as they take in new data (people, lived experiences, tasks) on a daily basis.

Within social constructivist theory, learners operate within a Zone of Proximal Development, and add new insight into previously held ideas and knowledge (Mallory & New, 1994). By participating in collaborative learning activities, knowledge is developed through participatory association. This is a form of apprenticeship, as skills are demonstrated, discussed, and modeled. Social Constructivism is beneficial in inclusive classroom settings for students who are differently abled (Mallory & New, 1994). When students work in heterogeneous groupings, Sivian (1986) asserts that motivation is a naturally occurring factor, where students are forced to adapt and assimilate through peer interactions. Conversation allows for reciprocal influence and knowledge development (Sivian, 1986). When connecting this to EST, educators can begin to develop an understanding of the sheer magnitude of data that children are working to organize in their minds. Each time a child works with, communicates with, and creates with someone else, they are exposed to an entirely different ecological environment. The embedded structures of macrosystem and exosystem impact children in the learning environment differently due to each child's unique micro- and mesosystems. The more children interact with others from different structures, the more global their understanding of their world becomes.

By observing, participating in, contributing to, and internalizing the norms of a social group, people are able to access new information and become more mature members of society (Sivian, 1986). Social Constructivist Theory promotes guided learning (Mallory & New, 1994) in which the most mature learners facilitate modeling and active participation in new concepts. Within a home or school microsystem setting, families and teachers are the facilitators for guided learning (Branscombe, 2013). This privilege to design and sustain an environment

(microsystem) for learning is an immense privilege that can be intentionally leveraged to promote understanding, unity, and critical thinking, or it can be a space where patterns of thought can be continually bred and reinforced. Conducting periodic informal (or formal) ecological assessments on the classroom environment (the literature offered, images used, partnership structure, language, open-ended dialogue) allows educators to assess what they are reinforcing as the person responsible for creating and sustaining a level of a child's ecological system. The privilege embedded within the role of educator is discussed further within the DiCcrit framework.

As there are multiple modalities for learners to socially construct knowledge, it is important to note that the internet has played a significant role in promoting social interaction and knowledge development, especially in home-schooling and higher education (Salleh et al., 2012). Within a school setting (virtual or in-person), buddy classrooms allow students to co-create knowledge in content areas (Branscombe, 2013), and play based experiences provide the least restrictive environment for learning and exploration (Mallory & New, 1994). In terms of motivation, Sivian (1986) asserts that students develop a natural motivation to assimilate to peers, and conversational experience promotes this feeling no matter if the learning space is in-person or virtual. Mallory & New (1994) explain that the more diverse the population is within a setting, the greater likelihood there is for meaningful interactions. When humans are exposed to a variety of thoughts and ways of knowing, then they are asked to grapple with a variety of complex ideas. This lends itself to conversations around what is being reinforced in un-monitored spaces in the classroom and in the virtual environment. By critically assessing the messages reinforced through these micro-, meso-, exo-, and macro- systems educators can determine if learners are being exposed to diverse thinking. From here though, it is important to

note that being exposed to diverse thinking does not ensure that learners understand the implications of what is being said or seen. Certain resources on the internet reinforce harmful stereotypes and hate-speech towards other members of the global community. Allowing learners free reign to explore the internet is similar to opening the front door and allowing children to learn by running free; exposure does not ensure critical thinking. Messages repeated or reinforced by unknown members of a new digital microsystem could have alternative agendas, other than the education and best interest of the child. Conducting an ecological assessment of a digital space is the first step in ensuring that the information and messages being directed at children is in support of their understanding, and not an opportunity for propaganda reinforcement.

Disability Critical Race Theory in Education (DisCrit) is a framework that fosters a critical perspective of inclusion education in postcolonial countries (Elder, 2020). The DisCrit framework comes from Critical Race Theory (CRT) and Disability Studies (DS) combining for a theoretical framework that incorporates a dual analysis of race and ability. Globally, inclusive education has been recognized as one of the best principles to address issues of equity and diversity. The DisCrit framework and theory in education has seven components that ensure all humans are considered, not just those from the current dominant culture.

First, DisCrit theory highlights how racism and ableism are interdependent and normalized within society (Elder, 2020; Collins, 2011). Ableism and racism appear in schools where special education classrooms are separate from other students in their own hallway, and in academic institutions where departments of Special Education can sometimes be found detached from the educational schools of Curriculum and Instruction (Annamma et al., 2013; Young 2011). Systemic social constructs and interpersonal biases are often unspoken and invisible, yet

are upheld and reinforced in order to restrict notions of normalcy or to marginalize those perceived as ‘different’ in society, as well as in schools (Elder, 2020). As soon as a child is ‘identified’ and perceived as different from the social or cultural ‘norm,’ the narrative constructed is that they are less capable in academics and behavior.

Secondly, DisCrit values multidimensional identities. DisCrit as a theory is inclusive of all systemic constructs such as class, gender, sexuality, religious affiliation, etc (Annamma et al., 2013). As students come to a learning environment from their unique microsystem, the mesosystem could be a space for grappling and working through disequilibrium. If a student’s microsystem reinforces that gender is a binary construct (male and female are the only two acceptable genders), and the classroom microsystem reinforces that gender is fluid and malleable, the interaction between these two spaces in a student’s mesosystem can lead to questioning and disequilibrium. This space of grappling is where critical conversation comes in, and is the exact reasons why ecological assessment is such a valuable tool for educators. With knowledge that a student could be, or is, working through this phase of disequilibrium, educators can provide resources, literature, attention, and opportunities for discussion. Without knowledge of a student’s microsystem, opportunities for learning are missed.

A third tenant of disability critical race theory is the understanding that the social construction of disability has been exposed, and highlighting the ableist and deficit oriented perspectives of disability are the first steps in navigating and reforming the educational system (Elder, 2020). Keeping in mind that the definition of ‘intellectual disability’ has been changed numerous times since the 1900’s. The AAMD (American Association of Mental Deficiency) revised the definition of mental retardation in 1973; the definition went from those individuals with measured IQ score of 85 being considered to be ‘mentally retarded,’ to an IQ score of 70

(Annamma et al., 2013). The moment this definition and policy changed, many people who had been unfairly carrying the label of ‘mentally retarded’ were instantly ‘cured.’ This change was a result of special education services in public schools being criticized for the optics of over-representation of black, indigenous, people of color (BIPOC) in programs for special needs (Annamma et al., 2013). The educational or medical deficit mindset of ‘lesser than’ is also upheld in film and media, publications on dis/ability, as well as in sports and recreation. How members of each child’s micro-, meso-, exo-, and macro-system talk about and treat those who are perceived to be differently abled matters. Ecological assessment of learning space provides a lens for educators to notice where different abilities are being embraced or stifled. Are resources and time allocated to scaffolding and supporting, or are different abilities viewed as cumbersome, intrusive, or slowing the pace of learning? Differently abled does not mean lesser than, and learners at the outlier position of bell-curves still hold the same weight and take up as much space as those in the center.

The fourth and fifth tenants of DisCrit revolve around the promotion the voices of oppressed and marginalized populations, and requirement that educators consider how, historically and legally, whiteness and ability have been used to deny rights to those who have had their ethnicity, race, ability, or any other social choice used against them in an attempt to discredit their personhood and lived experience as lesser than or disabled (Valencia, 1997; Elder, 2020). The sixth tenant of DisCrit recognizes whiteness, as well as the ability and privilege that come with being born into that. Over 75-percent of the world’s population has had their lives impacted by colonialism, with the other 25-percent being the colonizers; power and privilege are abundant features of a life for someone white, or lighter skin (Elder, 2020). This imbalance of representation and power contributes to a dominant culture that is not reflective of global

society. Conducting an ecological assessment is the first act of initiating conversations in which educators are forced to confront the power and privilege of systemic structures being embedded in whiteness and colonial culture.

Finally, DisCrit requires activism and supports resistance of the continuation of colonialist practices. Ecological assessment provides teachers with a first step in assessing what was reinforced to them and taught in their teacher educator training. The realization and recognition of systemic oppression, as well as the social construction of ‘differences’ from the ‘norm,’ leads to advocacy for change. Teaching is an active process because every single day teachers make decisions to dismantle oppressive systems, or reinforce them, with what they say, do, read, and how they teach. There is nothing more active than searching for, or creating methods to teach content that is accessible and equitable to culturally, linguistically, and cognitively diverse students. The goal of being an active educator, is to ensure the classroom does not perpetuate socially constructed systemic racism and ableism. Educators have the power to disrupt the cycle of marginalization and oppression and by working to serve as an observational data collector when conducting Ecological Assessments, educators can begin to understand the circumstances that impact their children and their whole development as a human first, then student.

Ecological assessment as a promising teacher practice begins the conversation of “Who is represented? Who is not?” and “Is this the message I want my students to receive?” The amount of time, attention, and energy that educators put into their craft does not go unnoticed by the people who are being represented, validated, and celebrated. Ecological systems theory and ecological assessments have supported research across content areas.

Implications for Future Practice

In Hope and Spencer's (2018) chapter within the *Handbook on Positive Development of Minority Children and Youth*, EST and ecological assessment was used as a framework when identifying adaptive coping strategies. The study found that racial minority youth use civic engagement to drive inclusive change amongst the political imbalance of whiteness as the dominant culture. Action toward the intentional identification of the lack of representation in media, society, and law is an outcome of conducting an ecological assessment. As minority youth (and youth of the dominant culture) begin to unpack the layers of society and the *why* behind decisions made in the past, there is space created for conversation and critical questioning.

Paat's (2013) study in partnership with immigrant families utilized EST and ecological assessment to highlight that immigrant families sustain more social pressure to conform and fit into mainstream or dominant culture. Paat (2013) found that even when parents and their children hold differing world views, the severity of intergenerational clashing and cultural dissonance are less extreme or more infrequent when parents share the same pace of acculturation as their children. Acculturation being the forced assimilation into a new (and often dominant) culture. When children maintain their family cultural tradition or beliefs, and learn to navigate and engage within the dominant culture structures at the same rate that the adults do in the meso-, exo-, and macrosystems, the microsystem of support of the family remains intact and unfractured. The study reminds scholars that although the children of immigrants, and the immigrants themselves, are strong in their microsystem, the outer layers of the EST do not cease to impact the growth and development of the humans involved. The dominant culture radiates and impacts the daily decisions, implications, and actions of whoever is in the smallest layer of the ecological system. A strong microsystem ensures support when navigating the world, *and*

this study highlights how the outer levels details in EST never cease to impact the most inner layers and perception of self.

In the field of health and nutrition, EST and ecological assessment has been used to study the Ecological Influences of Early Childhood Obesity (Boonpleng et al., 2013). Within preschool settings Sheridan et al. (2013) leveraged EST and ecological assessment to develop understanding and discovering whether and in what ways preschool has contributed to children's learning and what children have learnt by being in that specific learning space. Within the Sheridan et al. (2013) study, findings suggest that the *process* of documentation and evaluation, the *focus* of documentation and evaluation, and the *cause* for documentation contributed to the understanding of how and why children learned. Although this study was conducted in early childhood education settings in Sweden, the findings are critical to pinning down 'intentionality' as a keyword for the learning environment. When educators are working to develop their future practices, critical reflection on the process, focus, and cause for documentation *and* an ecological assessment have the power to advance practice towards supporting culturally, linguistically, and cognitively diverse learners. The practice of providing support based on lived experience and ecological data is preferable to systemic racism and ableism that has been constructed through years of colonization, forced acculturation, and societal response to the industrial revolution's development of production line methodology that trickled into educational culture.

Ecological assessment of self-practice is a place where educators can begin. Jie-Qi Chen et al. (2011) explains that activity is the most foundational part of child development, as children interact with their environment at home and at school, they are expanding their Zone of Proximal development, working through disequilibrium, and developing their schema. Critically

assessing the environment with culturally, linguistically, and cognitively diverse learners in mind opens the door to creating a supportive and embracing classroom environment for safe exploration, questioning, and learning. *Appendix I* provides examples of ecological assessment questioning based on physical environment and assumptions made around culturally, linguistically, and cognitively diverse (CLCD) learners.

For classroom environment consideration, Wollman-Bonilla (2000) shares that literacy development is not only situated in the cognitive development realm, but also the sociocultural, and EST should be considered when choosing literature to highlight during a learning experience. In terms of written literacy, as students are developing their writing skills, they are not doing so in a vacuum. Writing as communication is done for a purpose and happens through learning within social interactions (Wollman-Bonilla, 2000). In order to support the growth and development of students learning to encode, it is vital that the cultural norms of literacy tools are modeled (Sivian, 1986), and also questioned. As teachers are modeling and inviting children into the writing process, they are providing scaffolding for the internalization of letter formation and the concept that letters together create words, and words carry meaning and message (Sivian, 1986). Culturally, a range of uses could be acceptable for one tool. In order to support students in their development of writing with peer and teacher support, Jones (2015) highlights the inclusive method of interactive writing (IW). IW, a group effort to write a meaningful message, involves students taking turns writing letters, words, and sharing the writing utensil (Jones, 2015). When students are a part of the development of the message, and an active part in the learning, students become more than just a conduit for information (Mallory & New, 1994), but rather a model, an exemplar, a creator, and a messenger. Imagine the questioning and conversation that could be overheard in a classroom with CLCD learners as they navigate the

steps in producing a symbol (letter/word) for meaning. The shared experience of grappling during IW allows that peer to peer apprenticeship, and naturally allows educators to observe students mirroring their ecology through learned words, patterns, and communication styles.

In many school settings, there are students who are participating in lessons in a language that differs from their first language (de Araujo et al., 2018). To et al., (2012) celebrates this situation by sharing that learning more than one language does not have a detrimental effect on students growing in their first language, even if students have a diagnosed language development disorder. When looking at the reasoning behind educator or school system choice to solely use English as the Language of Instruction (LOI) (de Araujo et al., 2018), Guiterrez (2013) found that the choice to use a student's nondominant language reflected socio political ideology around immigration policy and colonial histories. However, tapping into the student's ecology of other languages known creates an experience for peer-to-peer apprenticeship and shared learning. Vomvoridi-Ivanovic (2012) explains that hesitation to acknowledge and integrate languages beside English is thought, by some, to be detrimental to students developing English Language proficiency. With 80% of the English Language Learners in the United States speaking Spanish as a home language (McFarland et al., 2017), the methodology of inviting student's first language from their microsystem into predominantly English classrooms are called into question. Bautista Verzosa and Mulligan (2013) share that students' proficiency in first language (L1) *and* second language (L2) is related to mathematical success and performance in the classroom. Having a teacher who only communicates in a student's L2 creates a sense of emotional disengagement for both student and teacher alike (Kasule & Mapolelo, 2005), and the mathematical identities of learners are impacted, just as their racial and linguistic identities are as well (Zavala, 2014). This supports the notion that educators should be conducting ecological

assessments to tap into the strengths of student's microsystems. If educators reject L1, they begin to disengage from pupils, and this can call professional commitment into question, and has been shown to reduce tolerance for learners who are not grasping concepts at the same speed as peers (Kasule & Mapolelo, 2005). Educators are tasked with creating an atmosphere conducive for modeling, scaffolding, grappling, and learning. An ecological assessment (Appendix 1) allows ecological factors that impact development of understanding to be considered in addition to content delivery and pedagogy.

Implications for Future Research

In terms of future studies, researchers and educators alike can create endless conversations and spaces for the development of environments that support CLCD learners. Liu (2019) has begun the conversation around *Cultivating Generosity and Sustainability in Elementary Youth and Student Teachers via Children's Books*, and the impact of literature promoting values and practices for ecological diversity. An ecological assessment of a library, curriculum, or syllabus is a reflective practice that any educator can begin with. When looking at the functionality of an environment and the accessible nature, ecological assessment can be used to identify common, daily, functional tasks of persons with and without physical or intellectual disability are required to perform (Moshin, 2014). Headstart programs were created to "alleviate educational disadvantage in areas of social exclusion" (Martin, 2010), and future research could address the implications of classroom ecology and the impact on student feelings of acceptance and belonging. By critically questioning existing environments, by understanding the ecological system that our individual students are embedded in, and by taking action against reinforcing outdated, ableist, and racist systemic structures, educators can create a space for authentic learning. By ignoring the ecology of students and their microsystem is to participate in the

continuation of stifling of CLCD learners, the acculturation into a dominant colonist culture, and hinder global citizenship.

Conclusion

Taking time to learn about, synthesize, and process understanding around the different levels of a student's current and former ecological system is a grand undertaking. Educators' are often introduced to ecological systems theory (Bronfenbrenner, 1979) in their beginning classes with their pre-service teaching program because, from day one, the notion that everyone's lived experiences are dissimilar is a foundational element of truly knowing what it means to educate and engage in the learning process. The validation of lived experience, the acknowledgement of living within a macrosystem (and exo-, meso-, and microsystem), and the pressure to perform or grow or thrive creates pressure on the individual learner. Questioning the system, noting flaws in development, and planning to support students to navigate these flawed structures empowers them to move forward. Removing barriers to success in understanding is part of the job of an educator, and barriers cannot be removed if we do not know they are there. My personal upbringing in a predominately white city, followed by my experience as a pre-service teacher at a predominantly white college, and my introduction into education at a predominately white school led me to believe that the way I was raised was the correct way. However, after traveling, moving, and expanding understanding of my micro, meso, exo, and macro-systems, I have developed the skill of critically assessing.

If people do not know differently, they cannot do differently. If there is no conversation, modeling, learning around, or explicit teaching around how to support CLCD learners, how will educators disrupt problematic structures? Ecological assessment, rooted in EST, is a promising educator practice because it has the power to disrupt dominant culture norms, and empower the

students to contribute to and control their learning environment so it is not only reflective of self, but responsive to changes in their lives. As a whole, the shared human experience and our macrosystem is in constant flux due to the actions of individuals making changes in the micro-, meso-, and exo- systems. The classroom should be a reflection of the children and learners who enter the space, and the macrosystem shifts in understanding. Ecological assessment begins the conversation around shifts that need to happen to support the development of CLCD learners in meeting the standardized requirements set in place by the macrosystem. In order for change to happen, and the empowerment of all learners, students must first learn how to navigate the system.

Appendix 1

Classroom Ecological Assessment

Educational Setting:

Accommodations/Modifications:

Skill/standard/domain assessing:

Topic	Considerations
Critical ecological assessment of a lesson and physical location	1. What spaces are available for this lesson? 2. What no-cost resources exist for teaching this lesson (ex. Physical or digital teaching materials, curriculum, natural learning opportunities)? 3. What potential distractions or barriers are in each location? 4. What natural opportunities for learning are available in that setting? 5. What supports are already in the setting(ex. Technology, embedded behavior supports, word wall)? 6. What does my district/content leader/principal require for this lesson? 7. How do students transition into and out of the lesson?
Critical ecological assessment around CLCD learners	1. Describe how interactive techniques for English language learners look in your classroom. 2. What are some strategies are you currently using for promoting oral language development with students who have limited English proficiency? 3. What is the difference between oral language and academic language? 4. Describe the various levels of oral language development for an English Learner. 5. Think about an English language learner in your classroom and describe the student's level of proficiency. What techniques are you using to promote that student's oral language proficiency?

	6. What types of language prerequisites are necessary to enable an English language learners to access the curriculum? 7. What roles do vocabulary and background knowledge play in studying a content area? How can a teacher ensure anti-bias educational content, or work to eliminate bias? 8. To better prepare English language learners for academic content, what cues and other study aids might you use in your classroom? 9. Describe literacy development techniques that can be effective with both English Learners and English speakers. 10. Do you believe students need to develop literacy skills in their first language before they can develop them in English? Why or why not? If you believe this is true, how are you supporting students in their first language.
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