



## **A Diffractive Reading of Multiliteracies, Participatory Teacher Action Research and Cultural Historical Activity Theory: Entanglements and Insights in Indigenous Language Teaching**

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### **Abstract**

This article examines the onto-epistemological-methodological grounding of a conceptualization of praxis in the context of Indigenous language teaching for maintenance and revitalization. We conduct a diffractive reading (Barad, 2007) of cultural historical activity theory (Vygotsky, 1978; Engeström, 2001) and PTAR (Kemmis & McTaggart 2005; Siekmann et al., 2019) and pedagogy of multiliteracies (Cazden et al., 1996; Cope & Kalantzis, 2009) to gain new insights into the commensurability of their ontological assumptions and epistemological underpinnings. First we contextualize of our work with-in Indigenous educational communities. Next, we explain Barad's diffractive methodology and discuss our three insights: 1) the entanglement of being-knowing-doing grounds theory-practice or praxis; 2) cyclic and iterative design cycles in PTAR foster teacher agency; 3) recognizing tensions and contradictions are necessary to facilitate the transformative action of praxis. Our conclusion explains the entanglement of theory-practice in terms of praxis that is based in intra-action. In our conclusion, we propose using a diffractive methodology to read theories through rather than against one another makes visible the intra-theoretical conceptualizations as an alternative to discussing these as inter-actions among theoretical concepts.

*Keywords:* praxis, participatory teacher action research, multi-literacy, indigenous languages

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## **Introduction**

In the literature on language loss and revitalization, schools are often cited as a key factor in language and cultural loss through language and culture suppression and pressure to assimilate to using the English language and “western” ways of knowing and doing (Marlow & Siekmann, 2013). Schools are also viewed by some Indigenous communities and scholars as having the potential to support language maintenance and revitalization efforts by teaching Indigenous languages through a variety of program types. In Alaska, some communities have established immersion or dual language programs, which deliver instruction through the medium of the local Alaska Native language at the elementary school level. However, these Indigenous language programs face many challenges, such as a lack of certified teachers who are highly proficient in the target language and who are trained in language pedagogy as well as a lack of language teaching materials (Siekmann et al., 2019; Fortune et al., 2008; Hermes, 2007; Iokepa-Guerrero, 2016; Met, 2008; Siekmann, et al., 2017; Wilson & Kamanā, 2011).

Despite these efforts, schools continue to perpetuate a monolingual “standard academic” English ideology, lacking teaching practices that are linguistically and culturally sustaining (Barnhardt & Kawagley, 1999; Kawagley, 1995; Siekmann et al., 2017). In addition, many Alaska Native students are classified by the state of Alaska as Limited English Proficient (LEP), because they come from a family / community where an Alaska Native language is still used and / or because they speak one of the regional varieties of English (Umanski, Itoh & Carjuzaa, 2022).

In our ongoing collaborations with Indigenous teachers, a primary goal is to bring together multiple cultural, theoretical and methodological perspectives in order to gain greater understanding of the commonalities and differences across diverse knowledge systems. In our view, including this diversity of perspectives offers the potential to alleviate the tension often expressed by Indigenous communities that western onto-epistemologies-methodologies are privileged over Indigenous ways of being-knowing-doing in Indigenous language pedagogy.

This “bringing together” is also critical, because in much of educational curricula there seems to be a distinction (be it explicit or tacit) between the cultural curriculum and its goals on the one hand, and the more general academic curriculum on the other hand. As Hermes (2007) points out, this distinction is problematic, in that students interpret the split in curriculum (i.e., culture-based curriculum versus academically or discipline-based curriculum) as an identity choice or dichotomy (Hermes, 2007).

Similarly, in our teacher education context, this dualism of western/Indigenous academic tradition is often framed in terms of hierarchical positioning. This presents an ethical dilemma engendered in a dualistic view in which the western academy, representing certain onto-epistemologies-methodologies, is privileged over Indigenous ways of being-knowing-doing (Parker Webster & John, 2010). Therefore, it is imperative to bring into conversation both Indigenous and

western academic perspectives in order to conceptualize theory-practice for Indigenous language pedagogy.

### A “Diffractive” Methodological Approach

In *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*, Barad (2007) explains the need to “understand in an integral way the roles of human and nonhuman, material and discursive, and natural and cultural factors in scientific and other practices” (p. 25). Drawing from scientific and social theories, she presents a “diffractive” methodology, whereby insights from different areas of study are read through one another, “building new insights, and attentively and carefully reading for differences that matter in their fine details” (Barad interviewed in Dolphijn & van der Tuin, 2012, p. 50). This notion of “reading through” rather than reading against is integral to her diffractive methodology. The former is based in the notion of entanglements of matter and meaning; the latter presumes a set of dualisms that, in Barad’s view, places nature on one side and culture on the other, resulting in a separation of matters of fact and matters of concern and care. This is manifested in the separation of academic disciplines “whereby the division of labor is such that the natural sciences are assigned matters of fact and the humanities matters of concern” (p. 50). As such, this cordoning off of academic domains makes it difficult to see patterns of diffractions, or patterns of differences that make a difference that make entanglements visible. For Barad, the Humanities and Sciences have not “grown up separately from one another”, rather they are always already entangled. This notion of entanglement is at the center of Barad’s diffractive methodology and provides her rationale:

My aim in developing such a diffractive methodology is to provide an approach that remains rigorously attentive to important details of specialized arguments within a given field, in an effort to foster constructive engagements across (and a reworking of) disciplinary boundaries. (Barad, 2007, p. 25)

The importance of looking for diffractive patterns of differences that make a difference in reading through western disciplinary concepts (literacy, applied linguistics) and theoretical perspectives (CHAT, participatory action research, multiliteracies) became apparent to us when we started working together 15 years ago in a series of interdisciplinary projects supporting Alaska Native (language) education through teacher professional development. Initially we saw our disciplinary background as complementary: [Author 2] a multiliteracies and cultural studies scholar; [Author 1] an applied linguist and language teacher. We discovered that even though we came from what the western academy defines as different disciplines, we had both read Vygotsky and were using his concepts in our work with-in Alaska Native educational communities. We felt further connected through teaching and researching at the intersection of language and literacy development and pedagogy. Over time, we started to rearticulate the relationships within our disciplines, and also recognize the onto-episteme-methodological frameworks as entangled with each other. Through our work with-in Indigenous communities and Indigenous scholars we also became aware that this perceived incommensurability

also occurs between related concepts in Indigenous ways of being-knowing-doing and western onto-epistemologies-methodologies.

Our recognition of their entangled historicities has made visible to us that they share an orientation towards transformative action and illustrate the interconnectedness of these conceptual frameworks. This initial insight provided the entry point for our diffractive reading.

In order to read multiliteracies and participatory action research through CHAT, we first present the basic tenets and development of CHAT. Specifically, we will utilize Engström's third generation activity theory in our diffractive reading, and will contextualize it through first and second generation cultural historical activity theory (CHAT).

### **Brief Historicity of CHAT**

"CHAT views human activity as goal-directed, collaborative and transformative practices, mediated through culturally shaped tools" (Siekmann & Parker Webster, 2019, p. 3). According to CHAT, humans do not act directly on the world, but use culturally shaped mediating artifacts to enact change.

In his original formulation of his sociocultural theory of mind, Vygotsky used a triangle to illustrate the mediated relationship between a subject and its object, the goal of the action. In this model, the subject is the socially situated actor engaging in goal-directed actions. The object represents the subject's motives, or reasons for her actions. The actions are mediated by tools, which can be either physical (such as a hammer) or psychological (such as language) and are viewed as shaped and reshaped over generations through joint goal-directed practices. In this way, tools carry with them traces of those who used the tools before them (both in the ways they are used and in the purposes for which tools are used). Tools transform the way humans act on the world, but tools can also be transformed through each new person using the tool. In this view, language is also a tool, used to mediate not only the outside world, but one's own cognition as well (Parker Webster & Siekmann, 2015).

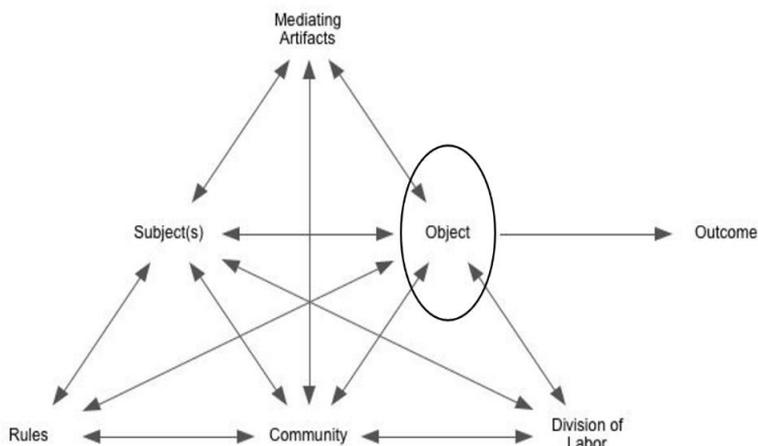
Vygotsky's primary interest was the development of higher mental functions such as attention and memory in learning and cognition, which, contrary to some of his contemporaries (for example Piaget), he viewed as progressing from the social to the individual. Countering the conduit metaphor, which posits that meaning is transmitted directly and remains static and unchanged, Vygotsky viewed the process as transformative appropriation. Unlike the transmission model, which is similar to what Freire (1970) calls the banking metaphor, in which meaning is deposited or given to the passive learner, when engaging in appropriation, the learner is the active creator of her own meaning. This transformative action is mediated by physical and psychological tools.

While Vygotsky did not himself formulate a cohesive activity theory framework, many scholars have built on his ideas so that multiple schools or generations of activity theory have been developed. Vygotsky clearly articulated the relationship between the social nature of mediated artifacts and the socially situated

subject’s developmental processes; however, as Engeström (2001) points out, in Vygotsky’s first generation CHAT, the unit of analysis was individually focused. In order to emphasize the collective nature of human activities, Engeström situated Vygotsky’s original triangle at the top of the expanded model and added the lower level of “rules”, “community”, and “division of labor” (Figure 1).

**Figure 1**

*2nd Generation Activity Theory Model (Based on Engeström, 1987, p. 78).*



The community node, which highlights the relationship with others participating in the activity system, results in additional connections to all other elements of the activity system. As Engeström (1987) explains:

The relations between subject and community are mediated, on the one hand by the group’s full collection of “mediating artifacts” and, on the other hand, by “rules” (the norms and sanctions that specify and regulate the expected correct procedures and acceptable interactions among the participants). Communities, in turn, imply as “division of labor” the continuously negotiated distribution of tasks, powers, and responsibilities among the participants of the activity system. (p. 7)

In Engeström’s (1987, 1993) expanded model, an activity system, therefore, is usually represented through a network of interrelated elements (see Figure 2), which are held together by a shared orientation of the activity, represented by the object node. Engeström (1993) explains that the “object refers to the “raw material” or “problem space” at which the activity is directed and which is molded or transformed into outcomes with the help of physical and symbolic, external and internal tools” (p. 67). In other words, objects are what drive the actors acting within an activity system and are shaped by the subjects’ goals and motives. Engeström also expanded the notion of the object by representing it as an oval, which illustrates

the potential for movement within the confluence of all the nodes rather than a fixed point in the network. In this way, “object-oriented actions are always, explicitly or implicitly, characterized by ambiguity, surprise, interpretation, sense making, and potential for change” (Engeström, 2001, p. 134).

Another important contribution of 2nd generation CHAT is the recognition that activity systems are also inherently characterized by internal contradictions and tensions. As Yamagata-Lynch (2010) puts it: “The contextual systemic contradictions and the nature of each individual component in an activity system can create tensions within a system. . . . Tensions arise from the influences that systemic contradictions have on an activity” (p. 2).

Despite the expanded notion of activity theory developed in second generation CHAT, it nonetheless had important limitations, primarily identified as a “deep-seated insensitivity toward cultural diversity” (Engeström, 2001 p. 135), which became the impetus for developing the third generation CHAT. Engeström also introduced the addition of multiple or networks of Activity Systems that are connected and interact with one another. Within these networks, tensions and contradictions can exist between the nodes of activity systems and also between the systems themselves (Engeström, 2001).

While other scholars have contributed to the development of third generation CHAT (Bakhtin, 1981, 1986; Engeström & Escalante, 1996; Gutierrez et al., 1995, 1999; Latour 1993, Wertsch 1991), we use Engeström’s five principles of CHAT (2001) in our diffractive methodology of reading multiliteracies and PTAR through CHAT. This diffractive methodology allows us to develop “conceptual tools to understand dialogue, multiple perspectives, and networks of interacting activity systems” (Engeström, 2001, p. 135), which Engeström identifies as the goal of 3rd generation CHAT.

### **Reading Through Engeström’s Five Principles**

Engeström’s first principle states that the primary unit of analysis is a “collective, artifact-mediated and object-oriented activity system, seen in its network relations to other activity systems” (Engeström, 2001, p. 136). This principle emphasizes the joint actions and motives present in the activity systems and their interconnectedness with cultural tools. This conceptualizes human activity as mediated by tools, which shape and are shaped by the collective; the culturally object-oriented activity is a constant in all formulations of CHAT.

Vygotsky is often quoted as viewing language as a tool of tools, the multiliteracies framework expands the conceptualization of language and tools in two important ways: multilingualism and multimodality. The dimension of multilingualism explicitly values all languages, including varieties in the meaning-making process, rather than favoring one named language (English) over another named language (Yugtun), nor favoring one variety of a language (Standard Academic American English) over another variety (South West Regional English).

Similarity to Vygotsky contextualizing human activity as situated within genetic domains, and views mediational tools as being shaped by actors and

communities over time, the pedagogy of multiliteracies is predicated on the notion that literacy and literacy practices are always socially situated and ideologically formed (Gee, 2014; Luke, 2000; Cazden et al., 1996). As such, being citizens in today's social, cultural, political, and economic worlds requires negotiation of a variety of multimodal texts that utilize a multiplicity of socially situated Discourses / discourses (see Gee, 2014). From this perspective then, the concept of multiliteracies is a socio-semiotic approach through which meaning is constructed using multiple sign systems (e.g. images, gestures, music, mathematical symbols, etc.); not relying solely on the linguistic sign system to construct meaning (see Cope & Kalantzis, 2000; Street, 1995). This concept of multiliteracies reflects an ever-expanding notion of what a text is and what form it takes.

Multimodality assumes that all modes have, like language, been shaped through their cultural, historical and social uses to realize social and cognitive functions (Jewitt, 2011). According to Jewitt:

The concept of a semiotic resource offers a different starting point for thinking about semiotic systems and the role of the sign-maker in the process of making meaning. . . . A person (sign-maker) "chooses" a semiotic resource from an available system of resources. They bring together a semiotic resource (a signifier) with the meaning (the signified) that they want to express. (p. 23)

She further explains that "where a mode 'comes from', its history of cultural work, its provenance, becomes a part of its affordance or meaning potential" (Jewitt, 2011, p. 24).

Within the multiliteracies framework, the Design Cycles is viewed as the process through which actors make meaning by drawing on an array of Available Designs, "found representational forms" to agentively engage in Designing "the work you do when you make meaning, how you appropriate, revoice, and transform available designs" the Redesigned "how, through the act of designing, the world and the person are transformed" (Cope & Kalantzis, 2009, p. 10).

Within the design cycle as conceptualized by the multiliteracies framework, modes are available designs, which can also be viewed as physical and psychological tools that also carry with them affordances. Actors bring with them a wide array of available designs, but do not necessarily use them all at the same time. When assembling available designs actors need to consider the affordances of the tools and modes in relation to the goal-directed activity. In our context of Indigenous language teaching-learning and teacher education, available designs could include Indigenous and western pedagogical tools and modes, which are assembled and utilized in instructional designs. When designing and implementing instructional designs, available designs can be reshaped or replaced with a different available design.

In teaching-researching, research methodologies are conceptual tools that shape and are shaped over time by researchers depending on the wonderings, purposes and rationales of their inquiries. Similar to the notion that different

physical tools have different affordances, different research methodological tools also have different affordances.

Recognizing what conducting research in Indigenous contexts is presents ethical, epistemological, and methodological concerns in the literature from the perspective of both university-based researchers and the peoples and communities being researched (Battiste, 2008; Brayboy, 2000; Deyhle & Swisher, 1997; Lipka, 1998; Parker Webster & John, 2010; Swisher, 1996. Thorne et al., 2015; Tuhuwai-Smith, 1999), we understood that the approach to research had to allow for the involvement of all participants in an ongoing process of collaborative learning through inquiry. To counter the historical dualism of a western / Indigenous relationship of academic theories and research often shaped by hierarchical positioning, the approach would need to re-conceptualize the use of established theories and methodologies sanctioned by western onto-epistemologies and methodologies of the university academic tradition alongside those of Indigenous ways of being-knowing-doing that privilege a “methodology” of storytelling and the “doing” of cultural activities (Brayboy, 2000).

These factors led us to participatory teacher action research (PTAR), as the most ethical and appropriate choice of approach for our inquiries. PTAR stems from action research (Lewin, 1946) participatory action research (Kemmis & McTaggart, 2000) and teacher action research (Cochran-Smith & Lytle, 1993). PTAR is not as an a priori set of methodological steps or techniques; but, rather it as an interplay of tools and modes, which are ontologically and epistemologically driven. If the unit of analysis is at least two interrelated activity systems, then it could be argued that in the case of teacher-research, teaching and researching are two interrelated activity systems.

The second principle of multivoicedness states “an activity system is always a community of multiple points of view, traditions and interests,” (p. 136) which situates the actor within a community of other actors engaged in the same goal-oriented activity. Each actor carries with them their own points of view, traditions and interests. With this principle, Engeström places activity systems into larger personal, social, and political networks by recognizing that actors can participate in interrelated activity systems, each of which has its own goal-related orientation. This means that actors carry their personal, social, and political voices with them as they participate within an activity system and across multiple activity systems.

Within the multiliteracies pedagogy, multilinguality and multimodality are conceptualized as social semiotic resources that learners access to create meaning and communicate with others. Importantly, a pedagogy of multiliteracies argues for using learners’ full linguistic repertoires that include multiple named languages as well language dialects in the meaning making process. In this view, multiple languages and dialects are available designs that carry with them their own affordances, which are enacted through socially situated D / discourses (Gee, 2014). Gee’s (2014) theoretical framework explains a holistic notion of language that includes not only language-in use, or discourse (lowercase d), but also non language

aspects, or Discourse (capital D), which include “gestures, clothes, actions, interactions, symbols, tools, technologies, values, attitudes, beliefs and emotions” (p. 7). These aspects of Discourse associated with language-in-use allow us to enact our multivoicedness through multimodalities that expand meaning-making beyond the multilinguality of the linguistic mode.

The principle of multivoicedness can also be used to describe and explain the array of available designs actors assemble and utilize throughout the design cycle. Our multiple points of view, traditions, and interests, which shape and are shaped by each actor’s theoretical assumptions, experiences, stories, physical and psychological tools, etc. are all part of the array of available designs accessible to actors as they engage in the design cycle. As with available designs, “the participants carry their own diverse histories, and the activity system itself carries multiple layers and strands of history engraved in its artifacts, rules and conventions. The multi-voicedness is multiplied in networks of interacting activity systems” (Engeström, 2001, p. 136).

PTAR shares the principle of multivoicedness through its stance that views all participants (e.g. teachers, students, parents, administrators, etc.) as stakeholders and collaborators in inquiry. With-in this stance, each actor enacts her multiple and culturally situated positionalities using different voices, which are shaped by “multiple points of view, traditions and interests”, and can also be shaped and reshaped by the rules and division of labor within the community.

Historicity, the third principle, states that “Activity systems take shape and get transformed over lengthy periods of time” (Engeström, 2001, p. 136). Vygotsky grounded his theory of mind by conceptualizing four genetic domains of development: phylogenesis (human development as a species); sociocultural genesis (cultural development over generations); ontogenesis (personal development over the lifespan); microgenesis (moment-to-moment development of concepts) (Vygotsky, 1978). Engeström highlights the significance of the historical development of all nodes in his expanded model of CHAT. Specifically, the ontogenetic development of the actors can be viewed within the subject node as they act as individual subjects and as they interact with other subjects within the community node. Actors also contribute to the sociocultural development within and across all nodes (mediational artifacts, rules, and division of labor) over time and from generation-to-generation. Importantly, the historicity of all nodes is multivoiced (see principle 2) and relates not just to actors and objects, but also to theoretical ideas and mediational artifacts (see principle 1).

Similarly, design cycles, such as those used in multiliteracies pedagogy and PTAR are shaped by the historicity of their ontogenetic and sociocultural development. When designing inquiries, teacher-researchers utilize socially and historically situated available designs.

This means that activity systems, such as teaching-learning and teaching researching, can only be understood through the historicity of each element involved within the activity system. For teacher-researchers, this means reflexively analyzing the processes and products of teaching-learning-researching in a systematic and

recursive manner throughout the inquiry. As Engeström explains, the problems and potentials of activity systems “can only be understood against their own history. History itself needs to be studied as local history of the activity and its objects, and as history of the theoretical ideas and tools that have shaped the activity” (Engeström, 2001, pp. 136-137).

The fourth principle addresses the central role contradictions play in activity systems. Contradictions are “historically accumulating structural tensions within and between activity systems” (Engeström, 2001, p. 136), and can lead to change and development within the system. As such, contradictions are embedded in the historicity and multivoicedness of each node within an activity system and also in the activity system as a whole. Engeström also explains that activity systems are open systems, rather than closed or static. This means that the addition of a new element can result in contradictions “where some old element (for example, the rules or the division of labor) collides with the new one” (p. 136).

In a pedagogy of multiliteracies, the element of new technologies is what Cope and Kalantzis (2009) refer to as contributing to “new literacies”. As they explain,

With these new communication practices, new literacies have emerged. They are embodied in new social practices—ways of working in new or transformed forms of employment, new ways of participating as a citizen in public spaces, and even perhaps new forms of identity and personality. (p. 167)

When this new conceptualization of new literacies collided with that of old literacies, the multiliteracies pedagogy extended literacy beyond the linguistics mode to include multimodalities and ruptured the notion monolingualism as the norm, embracing the learners’ full linguistic repertoire, including multiple languages and dialects (see principle 2). Similarly, PTAR ruptures the hegemonic principle and practice of research being “done to” rather than “done with” participants. PTAR allows for the multivoicedness of all stakeholders as collaborators in the creation of theory-practice. According to Engeström (2001), it is precisely these kinds of contradictions that can “generate disturbances and conflicts, but also innovative attempts to change the activity” (p. 137).

The fifth principle states that activity systems are shaped through previous goals, motives, outcomes and contradictions, activity systems and are also capable of undergoing “expansive transformations” (Engeström, 2001, p. 136). As Activity systems move through cycles of transformation, they shape and transform future goals, motives, and outcomes. Accumulating contradictions can prompt “individual participants to question and deviate from [the system’s] established norms” and reconceptualize and “embrace a radically wider horizon of possibilities than in the previous mode of the activity” (p. 137).

In a pedagogy of multiliteracies, transformative action is situated in the being-knowing-doing of all aspects of a pedagogy, which is not just a “methodology” of teaching-learning activities. Multiliteracies is focused on “new

learning” which implies transformative action rather than transmission and the reproduction of knowledge. This is exemplified by the processes enacted within all aspects of the design cycle resulting in the redesign which can become new available designs for future design cycles.

In PTAR, transformative action is also situated in being-know-doing, and within a holistic conceptualization of teaching-researching. In addition, within PTAR, research is not just about analysis and description or a set of methodological steps. Rather, in this stance, the cycle of action research should lead to a transformative change related to teaching-researching-learning. As Herr and Anderson (2005) explain:

Action research is oriented to some action or cycle of actions that organizational or community members have taken, are taking, or wish to take to address a particular problematic situation. The idea is that changes occur either within the setting and/or within the researchers themselves. (pp. 3-4)

The notion of change and transformation within Activity Systems, such as those within the related frameworks of multiliteracies and PTAR may be viewed as “a collective journey through the *zone of proximal development* of the activity (Engeström, 2001, p. 137), which “is the distance between the present everyday actions of the individuals and the historically new form of the societal activity that can be collectively generated as a solution” (Engeström, 1987, p. 174).

### **Insights**

Our work with teachers of primarily Alaska Native students has led us to realize that despite its important contributions, third generation CHAT still does not fully address the locus of agency and the role it plays in teaching-learning-researching and the development of theory-practice. We also agree with Stetsenko (2020) that CHAT still has to “reckon with the long-lasting legacy of passivity, and . . . capture the dynamism of transformation,” and focus more on “theorizing agency within complex relationships between the social constitution of human subjectivity and the possibility of social justice” (p. 6). As we have argued previously “this more expansive conceptualization of Vygotsky’s (1978) cultural-historical activity theory (CHAT) provides a critical stance centered on social justice, which can lead to practices that question the hierarchy of the dominant culture and rupture the norm” (Siekman & Parker Webster 2019, p. 3). Questioning the hierarchy of the dominant culture from a critical stance, necessitates detailed explorations of the locus of agency within activity systems and how hegemonic theories-practices influence teaching-learning research. Our diffractive reading of multiliteracies and PTAR through CHAT made visible three principle insights, which we understand as entangled and intra-acting with one another: 1) The entanglement of being-knowing-doing grounds theory-practice or praxis, 2) Agency, and 3) Recognizing tensions and contradictions are necessary to facilitate the transformative action of praxis.

We first present the principle insight, which is followed by a discussion of the “differences that matter in their fine details” (Barad interviewed in Dolphijn & van der Tuin 2012, p. 50).

**Insight 1: The entanglement of being-knowing-doing grounds theory-practice or praxis**

The first principle insight is that being-knowing-doing or onto-epistemological-methodological are always already entangled and cannot be separated. Further, theory-practice is always grounded in onto-epistemology-methodology, and disrupting these entanglements can result in incongruencies, which can have adverse consequences. Theorizing without practical implications, calls into question the applicability to practitioners, thereby inhibiting the potential for transformative action or praxis. Praxis is a dynamic and entangled relationship within theory-practice, which, therefore, cannot be separated or exist apart from one another. However, this conceptualization has not been widely taken up by (language) teachers. For example, while the academic discipline of second language acquisition has an over 40 years’ history, there is a well-documented gap between second language acquisition theory and language pedagogy as enacted in language classrooms (Ellis & Shintani, 2014; Johnson, 2004; Kumaravadivelu, 2008; Lantolf & Poehner, 2014). This is also the case when sociocultural theory first entered the conversations within the second language acquisition field. The scholarship at that time focused on relating the key theoretical tenets of CHAT to second language acquisition processes and changing the overall framework for understanding language development. However, at the outset there were few attempts at conceptualizing a language pedagogy based on these principles and “Vygotsky-based is a long way from becoming part of the mainstream of educational practice in the Western world” (Lantolf & Poehner, 2008, p. 1). As a result, language teachers either felt excluded from the conversation or simply conflated the new CHAT terminology (such as the zone of proximal development) with the old and familiar cognitive concepts, such as the  $i+1$  (for a discussion see Dunn & Lantolf 1998). In essence, because this incongruence equated the two without recognizing their onto-epistemological-methodological differences, the pedagogical impacts were ineffectual. While some efforts have been made to offer a pedagogical framework based on CHAT through concept based instruction (see for example Negueruela, 2008, Williams et al., 2013) and dynamic assessment, (see for example, Lantolf & Poehner, 2014, Poehner, 2007, 2010), they have not taken root in publisher created materials or language teacher education in a meaningful way. Recent work in the language teacher education community has made attempts to address this both through the developing specific pedagogical models that are aligned with the main tenets of sociocultural theory, (for example, the PACE model Adair-Hauck & Donato) and through teacher education textbooks (Glisan & Donato, 2017). We view these developments as critical in recognizing the connectedness of entanglements of onto-epistemological-methodological and theory-practice.

Similarly, disrupting entanglements can also result in the foregrounding of the methodological, reducing it to a series of steps, and thereby limiting and even obfuscating the connection to its entangled onto-epistemological-methodological roots. This disruption can occur when putting multiliteracies and PTAR into practice, and can result in adverse effects. For example, PTAR is characterized by its cyclic, iterative and recursive processes. However, in practice, novice teacher-researchers often focus on the key phases of observation, reflection, planning, and action, primarily because in textbooks these are presented as the salient and concrete aspects that define teacher-research. This often results in a primarily researcher-centered inquiry that often confines observation, reflection, planning, and action to discrete steps, thus flattening recursivity. Because of this focus on methodology as a stepwise procedure, which is incongruent with the onto-epistemology-methodology underlying the PTAR approach, not all classroom based inquiries lead to transformative action or change.

### **Insight 2: Cyclic and Iterative Design Cycles in Participatory Teacher Action Research Foster Teacher Agency**

Disrupting entanglements by reducing instruction or research to a predetermined set of methodological steps takes away the agency of the actors. Kumaravadivelu (2008) discusses degrees of agency that are reflected in three “roles” in which teachers are positioned and act: passive technician, reflective practitioner and transformative intellectual. He draws from other scholars (for example Dewey, McLaren, Kinchloe, and Giroux) to describe these roles.

Kumaravadivelu (2008) describes “passive technicians”, as those whose “primary role in the classroom it to function like a conduit channeling the flow of information from one end of the educational spectrum, i.e. the expert, to the other, i.e the learner without significantly altering the content of information” (p. 8). Dewey (1933) proposed a more action based position that situated teachers as “reflective practitioners”. In this stance, he argued that teachers should not be passive transmitters of received knowledge but should be problem solvers who possess “the ability to look back critically and imaginatively, to do cause-effect thinking, to derive explanatory principles, to do task analysis, also to look forward and to do anticipatory planning” (Kumaravadivelu, p. 13).

While the role of “reflective practitioner” envisions a higher degree of agency on the part of teachers, it “has not paid adequate attention to the socio-political factors that shape and reshape a teacher’s reflective practice” (Kumaravadivelu, 2008, p. 12). Furthermore, by focusing on the role of the teacher without situating it within the social-political influences, “the reflective movement tends to treat reflection as an introspective process involving a teacher and his or her reflective capacity, and not as an interactive process involving the teacher and a host of others: learners, colleagues, planner, and administrators.” (Kumaravadivelu, p.

12). From these limitations emerged the role of teachers as “transformative intellectuals”, which according to Giroux and McLaren (1989), views teachers as

Professionals who are able and willing to reflect upon the ideological principles that inform their practice, who connect pedagogical theory and practice to wider social issues, and to work together to share ideas exercise power over the conditions of their labor, and embody in their teaching the vision of a better and more humane life. (p. xxiii)

As Giroux (1988) further explains:

. . . the role that teachers and administrators might play as transformative intellectuals who develop counter-hegemonic pedagogies that not only empower students by giving them the knowledge and social skills they will need to be able to function in the larger society as critical agents, but also educate them for transformative action. (p. xxxiii)

Using the design cycle as a conceptual tool to understand the connectedness of teaching-researching-learning, we apply this to the notion agency as described embodied in our work with teachers of Indigenous students. Like “passive technicians”, when first stepping into their inquiries many of the teacher-researchers we have worked with over the years have expressed feeling constrained to implement mandated curriculum and instructional practices that are based on a transmission model of education. Even if they recognized incongruencies between the available designs of the mandated pedagogy and their specific learning contexts, they did not feel positioned to seriously question or change expected classroom practices. Through designing their inquiry, which was based in the pedagogy of multiliteracies and PTAR, teachers in our programs began to reflect upon and analyze their theory-practice. Like “reflective practitioners”, they began to include alternatives to the pre-determined curriculum and instructional practices. In our work we have noticed that becoming a transformative intellectual begins to emerge as the “redesigned” in both process and product. But we also recognize that these trajectories of agency that occur, as in PTAR and the design cycle, are cyclic, iterative, and recursive as well as dynamic—always in motion and ongoing.

**Insight 3: Recognizing Tensions and Contradictions are necessary to facilitate the transformative action of praxis**

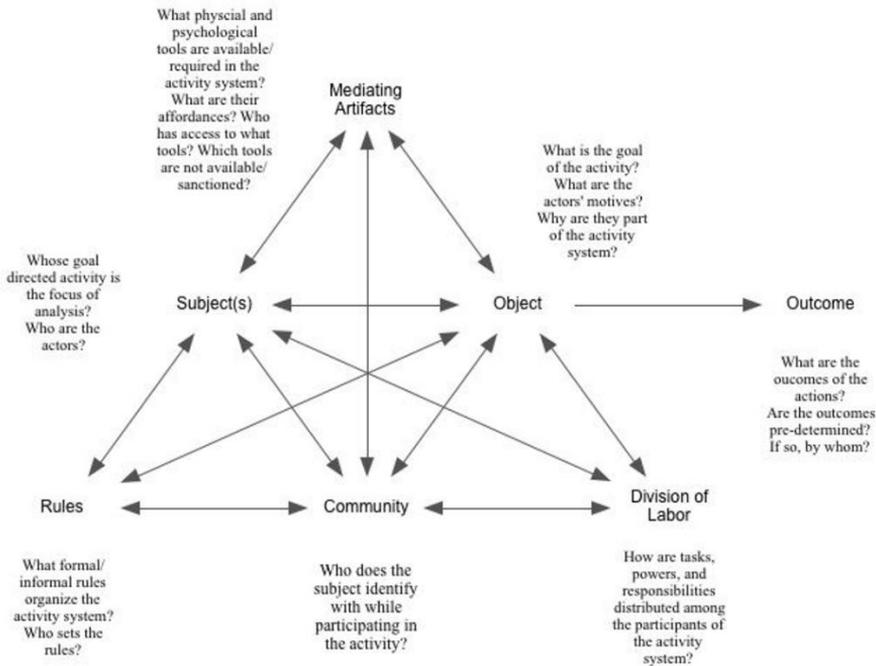
Engeström’s fourth and fifth principles state not only that tensions and contradictions are inherent in activity systems, but also that these tensions and contradictions are necessary for change within the system. Therefore, tensions are not to be avoided or ignored. Rather, they need to be made visible and acted upon. One way to make these visible is through Activity Systems Analysis (ASA), an analytical framework, which provides ways to recognize and address the need for systemic change (Yamagata Lynch, 2010). ASA helps us recognize the complex nature of the real-world human experiences of actors and their actions while

pursuing a shared activity. Considering each of the nodes that “constitute and are constituted by the activity system with an emphasis on their complex interconnectedness”, provides opportunities for researchers and practitioners to engage in “concrete analysis and discussion of tensions, opening opportunities not only for identifying tensions and contradictions, but also finding solutions for those involved in the activity system” (Siekmann & Parker Webster 2019, p. 6).

In using ASA as an analytic framework for our work, first each node is identified and described through asking a series of questions (Figure 2).

**Figure 2**

*Guiding Questions for Researchers Applying Activity Systems Analysis as an Analytic Framework (Siekmann & Parker Webster, 2019, p. 6)*



As we have previously explained, during this analytic process systemic tensions and contradictions are uncovered and made visible. For example, the subjects-actors might have different and even conflicting motives (object) for participating in the activity system.

Analysis of the nodes is always situated within their entangled relationship. In other words, foregrounding one node does not mean that the other nodes drop out of the relationship. These temporarily backgrounded nodes are only blurred (Rogoff, 1995) and held in suspension, which makes it possible to examine the complexities, contradictions and tensions that take place within and among nodes in fine detail. In the following discussion we are zooming in on the nodes of “rules”, “division of

labor” and “community”. We selected these nodes because, as Engeström (2001) points out, within CHAT the unit of analysis should not be limited to an individual subject, but rather recognize the collective nature of human activity. The addition of the lower level provides the important connectedness of the subject(s) to the community. This situates the individual within larger social networks, which are organized by “rules” and “division of labor”. While we are zooming in on these nodes, because we view all nodes within an activity system as always already entangled, they also reflect tacit intra-actions with the other nodes.

Our graduate programs were designed to improve and build capacity for local control of (language) education for Alaska Native students. In our work, we discovered that when building any program, being able to identify and locate the tensions and contradictions within and across activity systems is necessary in order to continuously facilitate improvements and institute changes. Without an intentional examination of the tensions and contradictions, an activity system, particularly those with an orientation toward praxis, may become stagnant and result in reproducing rather than transforming educational policies and practices.

Our discussion is framed by the questions related to the three nodes—“community”, “rules”, “division of labor”—as suggested in Figure 2: *Who does the subject identify with while participating in the activity? What formal and information rules organize the activity system? Who sets the rules? How are tasks, powers, and responsibilities distributed among the participants of the activity system?*

While the question related to community reflects Engeström’s view of the subject as acting with and in a community of other subjects, here we expand this concept by arguing, as does Gee (2014), that actors participate in activity systems from multiple situated positionalities. Positionalities are shaped by the actor’s ontogenetic (personal life history) and socio-cultural (development of cultural groups over generations) domains (Vygotsky, 1978). Positionalities can shift from moment-to-moment (microgenesis) as actors participate with-in and among multiple networks of activity systems. In our work, recognizing the socially situatedness of positionalities in this way, has made visible tensions and contradictions that program participants experience as subjects acting within the community of our praxis-oriented activity system.

In our programs all members of the graduate student communities were also university or school district employees. This often implied relationships with multiple educational institutions, each embedded with tensions and contradictions associated with hierarchies of power. School districts, as part of the public education system, are governed by the rules of federal, state and local policies. These “rules” are carried out through a “division of labor” that require teachers to deliver the adopted curriculum that is often defined by a prescribed pedagogy as part of their contracted terms of employment. The graduate programs, while committed to grant related goals and objectives, were also governed by the university’s mission and the “rules” of higher education in general, which are built on a commitment to academic scholarship and freedom of thought. These layers of rules influenced the

responsibilities and expectations (division of labor) of faculty and students in different yet related ways. For example, at the outset of the graduate program, faculty explicitly prompted graduate students to critically engage with language pedagogies and to question existing hierarchical structures and ideologies that overtly and covertly govern teaching, learning and researching within Indigenous educational communities.

Upon entering into our programs, many participants viewed themselves primarily as “teachers” with a goal to improve their practice and advance learning for their students. Stepping into the newly required task of becoming novice researchers complexified the relationship of teaching and researching and the “rules” and “division of labor” associated with the entangled positionalities of student-teacher-researcher. By engaging in classroom-based inquiry (PTAR), which was a core research approach supported by the coursework, they developed the tools to ask questions and plan and implement practices based on onto-epistemological and methodological frameworks that offered alternative approaches to the mandated district curricula.

Because our activity system was oriented towards improving (language) education in schools serving Indigenous student populations in Alaska, the community node included both the Indigenous teachers and non-Indigenous teachers as well as their students. The community also included non-Indigenous university faculty. All members of the community were shaped by their sociocultural historicities of western and Indigenous onto-epistemologies-methodologies. These historicities added additional and layered positionalities to those of student-teacher, teacher-researcher.

The added layers of Indigenous and non-Indigenous to the positionalities of the community influenced how different members enacted their multiple positionalities as Indigenous-teacher-researcher and nonIndigenous-teacher-researcher. In our context, Indigenous is further identified as Alaska Native, specifically Yup’ik, Alutiiq, Ahtna, Dena’ina and Gwich’in; and nonIndigenous is identified as white. Zooming in on the formal and informal “rules” and “division of labor” organizing the activity system of the graduate programs, we noticed that the most salient tensions and contradictions occurred in relation to theory-practice, particularly in the area of pedagogy.

The primary tension for Indigenous-teacher-researchers was how to work within the “rules” and “division of labor” set by the western educational institutions of both the school district and university. Within the school districts, the western curriculum and its prescribed instructional practices are seen as the academic content and pedagogy. The teacher’s responsibility and task is to deliver the disciplinary content, which is separated into instructional blocks such as science, math, social studies, language arts, etc., primarily through teacher directed instruction. All other activities, such as *yuraq*, skin sewing, and beading are viewed as non-academic and extracurricular. This is counter to how Alaska Native cultures approach teaching-learning, in which the content, situated in being-knowing-doing, is embedded in cultural activities. Knowledge is passed on through demonstration and storytelling

rather than the western concept of direct instruction. Within this approach to teaching-learning, the learner is expected to watch and listen and when ready, participate in the activity through doing. This is very different from being expected to respond verbally to direct questions posed by the teacher and during classroom discussions or to read a chapter in a textbook and answer multiple choice questions on a worksheet, which is often the practice in western pedagogy.

For both Indigenous- and nonIndigenous-teacher-researchers, the overarching tension stemmed from the gaps in the western curriculum and pedagogy, which were not addressing the needs of their Indigenous students, and they did not know how to improve it. Because they had been apprenticed into the “rules” and “division of labor” associated with western educational system, many were expecting to be “presented” with concrete techniques or strategies by the faculty that would help them make small adjustments to their instruction, while allowing them to stay within the comfortable and familiar “formal rules”. This is embedded within their expectation that the “division of labor” in education is based on the transmission model of teaching-learning, in which university faculty “tell” students what they should know and how to teach this to their students, and teachers then “tell” their students what they ought to know and how they need to do it. However, at the beginning of their graduate programs, Indigenous- and nonIndigenous-teacher-researchers alike, were not yet able to articulate that the formal rules (associated with western schooling) and informal rules (associated with cultural knowledge) were in tension. It was only by stepping into the teacher-researcher design cycle that the tacit rules were made visible, which allowed them to recognize these tensions, ultimately creating opportunities for change.

Using ASA as an analytic framework, examining each of the nodes, we have come to understand that tensions and contradictions are necessary for activity systems to undergo what Engeström (2001) calls expansive transformation:

Activity systems move through relatively long cycles of qualitative transformations. As the contradictions of an activity system are aggravated, some individual participants begin to question and deviate from its established norms. In some cases, this escalates into collaborative envisioning and a deliberate collective change effort. An expansive transformation is accomplished when the object and motive of the activity are reconceptualized to embrace a radically wider horizon of possibilities than in the previous mode of the activity. (p. 137)

We take this to mean that it takes multiple inquiry cycles to locate, examine and understand the tensions and contradictions within and among activity systems. Our goal for our graduate programs was an orientation toward praxis. Multiple cycles of inquiry reveals tensions and contradictions that were constantly negotiated and renegotiated. Recognizing and engaging with these tensions over multiple inquiry cycles allowed us to make changes to our graduate programs in significant ways, which in turn influenced the related and what Engeström would call interconnected activity systems of the school districts.

### Conclusion: From Intertheory to Intratheory

Engeström views nodes as interconnected within Activity Systems, and Activity Systems as interacting with each other. In terms of Engeström's principle of multivoicedness,

The division of labor in an activity creates different positions for the participants, the participants carry their own diverse histories, and the activity system itself carries multiple layers and strands of history engraved in its artifacts, rules and conventions. The multi-voicedness is multiplied in networks of interacting activity systems. (2001, p.136)

However, through our diffractive methodology we have come to recognize the nodes with-in activity systems and multiple among related activity systems as being entangled that intra-act, rather than inter-act with each other. Following Barad, we argue that theoretical conceptualizations are *intra-actively* entangled, rather than *a priori* sets of theories that interact with each other. Therefore, entanglement is not to be thought of as the intertwining of distinct theories, but rather the absence of such distinctions.

Further, we take this to mean that action with-in multivoiced discourse communities is not unidirectional – by which we mean it is not subject (faculty / western academic) acting on object (student / Indigenous teachers). Rather, it is characterized by reciprocity and what Vygotsky calls intersubjectivity (subject acting with subject) (Vygotsky 1978) through joint collaborative activity (Rogoff, 1995; Webster & Siekmann, 2013). In our work, this was brought together through a praxis-oriented research methodology carried out through PTAR.

Dennis (2018) takes up the concept of praxis-oriented research by articulating praxis in terms of the researcher's Self / identity and the concept of position-taking with Others to establish validity through the research process. For Dennis, the Self is “intrinsically intra-active (always already connected with others)” and as such, it is important to think of “praxis as part of an intra-action” (111). Further, she explains that as we listen to the claims of others, our meaning-making processes rely on our ability to intersubjectively position-take with the Other, and at the same time intrasubjectively examine our own positionings and assumptions. This intra-actively constructed Self then is “always dialogically constituted through its openness to difference” (Dennis 2018, 112).

While we agree with Dennis's notion of praxis as part of an intra-action, we would also suggest a praxis that collaboratively builds new insights through intra-action with-in activity systems. We would argue that within these goal-oriented activity systems all actors are already entangled, through the historicity of all nodes. Therefore, in our view, building on Barad's concept of intra-action, participants within an activity system act intra-subjectively with other members of the activity system (community) as well as themselves.

Drawing from Dennis' (2018) notion of “praxis as collaborative insight”, which “involves the development of new perspectives through conversations . . . praxis is associated with the emergent insight as co-produced . . . (T)he becoming of

a new idea is simultaneously the becoming of those engaging with the ideas” (p. 115).

While we agree with the editors of this special issue in principle that “it is crucial that we examine the intertheoretic commensurability of the distinct theoretical approaches to second language learning”, we would propose that using the term inter-theory is grounded in conceptualizing disciplines and by extension theories as existing *a priori* from one another and as having evolved separately. Taking seriously the idea of entanglement leads us to propose the use of a diffractive methodology to read theories through rather than against one another, thereby making visible the intra-theoretical conceptualizations as an alternative to discussing these as inter-actions among theoretical concepts.

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