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Notes from the Editors

Fall 2019 Edition

Welcome to Volume 31 of *Educational Leadership and Administration: Teaching and Program Development: The Journal of the California Association of Professors of Educational Administration (CAPEA)*. The members of CAPEA come from many different universities throughout the state of California. While the demographics of the faculty, students and the communities we serve may differ, the members of CAPEA share the common goal of preparing educational leaders who are committed to ensuring an equitable education for California's diverse students. After a blind and rigorous submissions review process, the editors accepted a set of contributions that advance this goal. The papers accepted for Volume 31 consider not only the ecological lens of examining the challenges within the complexity of educational organizations and their approaches to understanding leadership, but also attempt to improve and embrace a culture of meeting the needs of ALL students through acceptance, awareness, and understanding that individual needs are diverse, unique, and as complex as the organization in itself.

In a world where much of the literature about education is based on the voices and perceptions of primarily White and middle class school adults, the first article, *What Administrators Need to Know: Latinx Students, Equity, and the Normative Secondary Transition,* takes a different approach. Dr. Ellen K. Edeburn and Dr. Greg Knotts center the voices of twenty-six Latinx students who have undergone secondary transition (i.e. the transition from elementary to secondary school) in the 8th and 9th grades. Interviews and focus group conversations with Latinx students, school adults—teaching and counselors—form the data for this rigorous treatment of the socio-emotional transition to middle and high school. We hope that educational leaders who read this study will be moved to "develop a sense of urgency and act upon it" (p. 11) to eliminate the emotional conflicts, "confusion… and feelings of unease and distress due to a perceived lack of care by teachers and counselors" that result from negative school transition experiences (p. 5).

In the second article in this volume, Dr. Andrea Somoza-Norton, and Shawna Whitfield, M.A., offer *Biomimetic Leadership: From Theory to Practice*, a new way to think about educational leadership. Biomimetic Leadership is based on the idea that educational organizations are complex ecosystems that share many elements of ecological systems found in the natural world. Set in a summer leadership synthesis course, the study considers the ways in which exposure to tenets of biomimicry affect the participants' student leadership behaviors. Readers interested in learning strategies of creative problem-solving, the practices of compassionate, and sustainable leadership, or "nature-inspired solutions to organizational challenges" (p. 25) will find transformative ideas for reinvigorating their leadership practices.

Intersectional Reculturing for All Students: Preparation and Practices for Educational Leaders, Preparation and Practice for All Students is the third article in Volume 31. Authors Dr. David Whitenack, Dr. Andrea Golloher, and Dr. Rebeca Burciaga introduce

the term *intersectional reculturing* to the study of educational leadership. Intersectional reculturing is "the ongoing process through which administrators, teachers, and other educational service providers identify diverse student characteristics, including but not limited to race, and synthesize what they ascertain about each student to support their learning" (p. 37). Although this concept isn't new to the field of Special Education, this alternative way of thinking is in alignment with the ecological approach that poses a unique way of meeting the needs of diverse students.

In conclusion, the articles in this volume tackle the complexity of human identity and human relationships. For educational leaders to understand students as 'whole' entails acknowledging that their identities (and the social situations they exist in) bear an intricacy that is meaningful to those individuals. It follows, then, that solutions to educational issues must take into account, rather than try to simplify, that complexity. This may manifest in prioritizing academic and personal demands, where students feel forced to navigate their commitments to their families and communities in negative opposition to school commitments (Edeburn & Knotts). The complexity also lies in the challenges of students who simultaneously are English learners and experience disabilities, who exist in educational discourse on a single axis of either/or. Recognizing students in the both/and of their identity reqiures that educational leaders descend from their silos to engage collaboratively with teachers, parents, and administrators towards equitably addressing the needs of their students (Whitenack, Golloher & Burciaga). Finally, the articles rightfully call us to be apprehensive of less useful forms of complexity—we may mislabel or misjudge our *students* as obstacles rather than recognize the obstacles in the systems around us. By observing nature, we might understand how the natural world collaborates, communicates, adapts, and innovates (Somoza-Norton & Whitfield). Likewise, by recognizing the lived experiences of our students, educational leaders may better locate and target the challenges that are presented when students bring their full selves into the classroom. Today's educational leaders would do well to consider the insights offered by the authors of Volume 31 for ensuring an equitable education for California's diverse students.

This volume would not have been possible without the efforts of numerous people. We thank all of the authors who contributed manuscripts. A very special thank you is offered to the editors, reviewers and copyeditor who worked tirelessly in the review and editing of all submissions. In addition, we would like to thank former editors, Noni Mendoza-Reis, and Gilberto Arriaza, for their assistance with the review process. Finally, this journal would not exist without the support of ICPEL and ICPEL Publications, especially Brad Bizell, who has been an invaluable member of the team.

Table of Contents

What Administrators Need to Know: Latinx Students, Equity, and the Normative Secondary Transition

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Abstract

Although there is substantial research that has guided middle school reform, there is insufficient support of Latinx students during their normative secondary transition (middle school to high school). Current research emphasizes that students who are not prepared when entering high school will face grim academic futures. The study explores the experiences of eighth and ninth grade Latinx students, their teachers, and counselors in order to help educational leaders understand how to better address the structure, culture, and organization of agency within the transitional learning environment. Suggestions for responding to inequities, and increasing educational opportunity for Latinx students during the normative secondary transition will be explored.

Keywords: equity, secondary transition, Latinx students, educational leadership, educational opportunity

Students make a critical decision regarding the direction of their educational trajectory within the first few weeks of the transition from eighth to ninth grade (McIntosh & White, 2006). Studies reveal that this time of vulnerability is compounded for minoritized students due to a lack of educational opportunity (Benner & Graham, 2009; McIntosh & White, 2006; Prelow, Loukas, & Jordan-Green, 2007; Smith, 2006; Vasquez-Salgado & Chavira, 2014). The normative secondary transition is recognized as a benchmark, milestone, and a significant barrier to the academic success of Latinx[1] students in high school (Black, 1999; Niesel & Griebel, 2005; Vasquez-Salgado & Chavira, 2014). According to Niesel and Griebel (2005), transitional competence is not an inherent quality or a characteristic of "the individual child alone, but a function of communication and interaction of all participants" (p. 7), where participants refers to the various constituencies that operate within the system of education or even within a given school site. Since educational leaders play a significant role in student achievement (Sun, & Leithwood, 2015), it is important that they are aware of all their students' trajectory of success, and be prepared to address the significant hurdles for, and offer a more significant response to, their Latinx students who are more vulnerable during this time of transition. Prior research has focused on overall academic achievement via school accountability, policies, and mandates such as the No Child Left Behind Act (NCLB); NCLB's more recent reauthorization, Every Student Succeeds Act (ESSA) signals the necessity for educational leaders to address equity, access, and high academic standards for all students (U.S. Department of Education, 2017). Flores (2007) reported the need to shift from examining student academic outcomes to examining student school experiences.

This study responds to the gap in the literature and investigates the school experiences of Latinx eighth and ninth grade students during the middle and high school transition periods. It explores the following research question: What can educational leaders learn from Latinx students, their teachers, and counselors about the structural and environmental factors that affect the normative secondary transition of eighth and ninth grade Latinx students?

Conceptual Framework

The study explore~~s~~ the transitional learning environment (eighth grade year of middle school and ninth grade year of high school), including the perceptions and experiences of Latinx students, their teachers, and counselors, in order to assist administrators in addressing the complex needs of their Latinx students. The theoretical framework is based on former studies grounded in sociology, which target the school learning environment and social network exchange between Latinx students and their teachers and counselors. The framework that informs the study is drawn from two sources: (a) the ecological framework developed by

[1] Latinx- used as a gender-neutral alternative to Latino/a (Salinas & Lozano, 2017). According to the California Department of Education, "the federal definition of Hispanic/Latino ethnicity is a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race" (cde.ca.gov/ds/dc/es/refaq.asp#q8).

Bronfenbrenner (1979) and (b) the structure-culture-agency framework utilized by Brown and Rodriguez (2009) which originated from ethnomethodology (Garfinkel, 1960; Mehan & Wood, 1975). These two frameworks are helpful for this study due to the focus on the relationships, social supports, and exchanges within the structure of the school learning environment between eighth and ninth grade Latinx students and their teachers and counselors. According to Alfaro, Umaña-Taylor, and Bámaca (2006), educational researchers utilize an ecological framework to explore the combination of developing student characteristics with academic outcomes and the influence of the environment. Social ecology emphasizes the relationship and influences the environment has on a developing person (Bronfenbrenner, 1979; Vygotsky, 1987). Educational leaders need to be prepared to understand and then lead in this complex ecological environment.

For this study, the transitional school learning environment (or mesosystem of students, teachers, and counselors) was emphasized due to the influence on developing adolescent Latinx students' experiences and academic trajectory (Bronfenbrenner, 1979). Components of the transitional learning environment include structure, culture, and agency. Examples of school structure include rules and regulations, protocols, and policies, multiple types of schedules (i.e. bells, and assigned classes); culture is representative of beliefs, including perceptions regarding authoritative figures such as teachers, counselors, administrators, and norms of behavior within the learning environment; and agency represents adult actions, exchanges, inter-connectedness, and the contextual relationships with Latinx students. According to Datnow, Hubbard, and Mehan (2002) school culture fluctuates between structure (i.e. policies) and agency (i.e. actions), suggesting that a teacher's personal beliefs or values can affect a student's educational trajectory. More specifically, the interconnections between structure, culture, and agency influence Latinx educational opportunity. As personal values merge into a collective shared value, a school culture is developed (Kouzes & Posner, 2007; Senge, 2006). The school culture transforms policies to reflect the shared beliefs that only administrators through their leadership can interrupt. Wang (2017) argues,

> School leaders' professional responsibility centers not merely on the improvement of students' achievement to meet the requirement of accountability policy. They have additional important mandates, that is, to serve as change agents to promote social and economic justice in increasingly culturally diverse schools (p. 324).

Thus, educational leaders need to recognize the connection between the learning environment and agency. For example, a student's response to a teacher is dependent upon how the teacher responds to the student. Brown and Rodriguez (2009) clarify this as they explain that "the 'effect' of being poor and Latina/o on dropping out of school cannot be isolated from the ways in which schools respond to poor, Latina/o students" (p. 222).

Method

This qualitative multisite case study explores the experiences of eighth and ninth grade Latinx students, their teachers, and counselors in order to assist educational leaders

with understanding how to better address the complexity of the structure, culture, and agency within the transitional learning environment, respond to specific inequities and increase educational opportunity for their Latinx students during the normative secondary transition. Hearing the voices of Latinx students may enable educational leaders to transform school culture and promote social justice for their Latinx students within the transitional learning environment. Using interviews as the primary data source for this study provides access to Latinx students' perspectives and experiences of the learning environment during secondary transition.

The study examines a middle school that feeds into a high school. Although they share students, the two schools are in different school districts. The feeder 6-8th grade middle school, (N=1,152) is part of a suburban-rural elementary school district. The zoned 9-12th grade high school (N=1,895) is part of a suburban secondary school district. Relevant demographic data includes 28% Latinx middle school students with 7% designated as English learners, and 22% Latinx high school students with 5% designated as English learners. At the time of the study, the teacher ratio was 46 White, Non-Hispanic teachers to 2 Hispanic/Latino teachers out of the 53 total teaching staff at the middle school and a ratio of 77 White, Non-Hispanic teachers to 12 Hispanic/Latino teachers out of the 98 total teaching staff at the high school site.

Initial inclusion criteria for student participation entail enrollment in eighth grade at the feeder middle school site and identification as Hispanic/Latino. To help identify diverse experiences and perspectives a stratified sampling strategy was then utilized, reflecting participant academic achievement levels of high, medium, or low. The criterion sampling strategy include two measures of achievement proficiency levels: (1) the California Standards Test (CST) in English Language Arts and Mathematics achievement proficiency levels of proficient, basic, below basic, and (2) the California English Language Development Test (CELDT) achievement proficiency levels of early intermediate, intermediate, and early advanced. Incorporating achievement data helped in the selection of students' voice regarding perspectives and perceptions of the transitional learning environment. The Latinx student participants had 60% classified as limited English proficient (LEP), which includes levels from high basic to intermediate, while 33% had been reclassified from limited English proficient to English proficient, and 7% of students were designated as English only speakers.

The primary data source include 15 semi-structured interviews of 15 Latinx students within the transitional learning environment during the spring semester of their eighth grade year, and then 11 of the former students participated in one of four focus groups during the fall semester of their ninth grade year. Secondary sources include two semi-structured interviews of two eighth grade (MS) teachers, two semi-structured interviews of two ninth grade (HS) teachers, two semi-structured interviews of two eighth grade intervention/guidance counselors, and two semi-structured interviews of two ninth grade intervention/guidance counselors. Additionally, two school observations were conducted to assist in the exploration of the organizational structures and protocols within the transitional learning environment. The utilization of interviews, focus groups and observations helped to

provide rigor and trustworthiness due to the triangulation of multiple data sources (Miles & Huberman, 1994; Rossman & Rallis, 2003).

The initial approach to data analysis was deductive. Categories were developed based on themes from the literature review and reflected in the conceptual framework (Rossman & Rallis, 2003). Figure 1 illustrates the situational context of the school learning environment as: structure (e.g. policies and organization), culture (e.g. beliefs), and adult agency (e.g. individual actions and exchanges) within the situational context of the school learning environment. Analyzing the data through the lens of structure, culture, and agency helps to maintain the focus on the contextualization and reflexivity of the exchanges between Latinx students and their teachers and counselors.

Figure 1. Situational Context of the Transitional Learning Environment

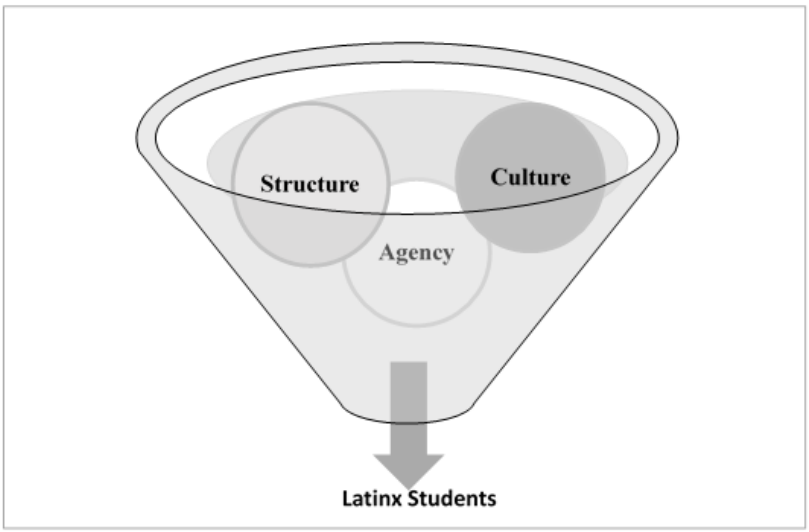

Figure 1. Representation of the Latinx transitional learning environment as structure (policies), culture (beliefs), and agency (individual actions and exchanges) as components of the Latinx eighth and ninth grade transitional learning environment (Brown & Wood, 2009).

Results

This study provides additional evidence of ideological incongruence between teachers and counselors, and Latinx eighth and ninth grade students within the transitional learning environment. The analysis revealed the following three findings:

(1) Deep and personal internal conflicts and confusion which affect *access to social capital or resources and educational opportunity*;
(2) Feelings of unease and distress due to a *perceived lack of care by teachers and counselors*; and
(3) Personal anguish due to *varying structural systems* of tracking.

Access to social capital or resources and educational opportunity

The analysis reveals that Latinx students experienced internal conflict between their home environment and the transitional learning environment. This includes a conflict between school and family obligations, especially in the hours after school. The conflict was often described as a struggle between respecting one's parents and family and respecting one's teachers and counselors. Pilar (ninth grade) expressed this internal conflict. "There are problems over here [at school] and problems at home, helping our parents. Well, at times, when my parents aren't at home, I have to take care of my brother and sister. Sometimes cook, sometimes clean." When asked whether she ever explained her circumstance to either the counselor or to her teachers, she replied, "No, not really… I don't think they [teachers and counselors] have interest in our families."

Other students described a similar conflict. Angel, who was a ninth grade participant explained, "I have to help my brother. He has his own little company, he lets people rent his chairs, tables, and my dad wants me to help him. He usually gets four or five calls or orders [a night]." Lupe, also a ninth grade participant, described a similar experience,

> Maybe it's like trying to explain certain things, like the way people do different things, as like in our home. There's certain things, like, oh, some people have to go to work with their parents, or they have to help them with other things, or they just have to take care of others [siblings]. Yeah, then like you have it's really late, and you have homework, and you try to do it, but you can't. You don't have time. No, I just leave it as [responding to the teacher in class the next day] I didn't do it. I just let them think I'm just too lazy to do it. Well, there's no point because I didn't turn it in either way. It's late, you know. It would be like [mimicking with sarcasm, a teacher's response] well, you should have done it before.

When asked why she would rather let her teachers think she was lazy instead of revealing that she cared about her education, Lupe shared how she did not want her teacher to embarrass her in front of her classmates. In fact, some participants felt that their teachers would just view their personal struggle as an excuse.

Eighth grade student, Sylvia, explained that mutual respect was important and that embarrassing moments in class just made her upset, angry, and ultimately caused her to find a way to leave class. Sylvia confessed that whenever she was uncomfortable in class she would deliberately not comply with school rules in order to extricate herself from the room. At times she would verbally fight back when a teacher humiliated her. Sylvia acknowledged that it was wrong to disrespect a teacher, but said she could not remain in class when a teacher made her feel bad, ashamed, or embarrassed in front of her classmates.

> I don't let teachers talk to me in a rude way and I guess that upsets them which I should [not] disrespect them I understand [that]. But they shouldn't be rude in the first place. If they don't, I don't know. I shouldn't be talking or doing or messing around but they shouldn't be saying rude comments in front of the whole class. Saying things about my grade to the whole class, that's embarrassing. Yelling at me

> in front of the whole class, and I talk back and then they send me out or they call up to the office for someone to get me [remove me from the class].

In this excerpt, Sylvia revealed a personal "they versus us" belief, exposing tension within the transitional learning environment.

Another manifestation of tension was the conflict between academic priorities and social responsibilities at school. Angel explained that although he did not have very good grades, he chose to spend time with his friends rather than go to an intervention (help) session during lunchtime. Angel highlighted the conflict between spending time with friends and accessing academic support many struggle with, when he explained,

> Sometimes when I am having trouble at home then they [counselors] are wanting me to do good, I have trouble between home and school. Sometimes they will give me advice, like try for homework [club] tell me to try to go before school, nutrition, or lunchtime. It feels good [to do the work] but then, it feels like you are ditching your friends, and you are almost losing them. Yeah, like some people do, [go to homework club] 'cause they want to have their grades up, but also they want to spend time with their friends, to see if something's happened in their family.

Angel's explanation reveals his internal frustration, and is an example of what some students experience when they have to choose between academic priorities and social priorities. Manolo, a ninth grade student echoed Angel's sentiment,

> Well for a lot of teenagers, like I think it would be – a lot of points [for teachers] to look and see through our eyes, our perspective, you know kid eyes. So, they could understand us better. Like my mom doesn't speak English so sometimes I get frustrated at home. I can't get help to do my stuff [schoolwork] and I get so frustrated. And then we get frustrated [at school] because we have to come in at nutrition to do stuff.

Moreover, Angel and Manolo shared an additional problem: their frustration with homework due to their parent's unfamiliarity with the curriculum and inability to help them. To summarize, Latinx students experience tension, and conflict which becomes a barrier to accessing resources and educational opportunity.

Perceived lack of care by teachers and counselors

A second finding was that Latinx students perceived teachers and counselors as uncaring. The Latinx students in the study yearned for genuine, caring teachers who would be there to assist them both academically and social-emotionally. Although the students wanted genuine care, they did not trust the adults at the school to provide it. Some Latinx students felt shame, anger, or both, and most did not want to reveal their personal home life to their teachers or counselors, especially since they did not believe their teachers and counselors were interested in and cared about them. Angel explained "They [teachers should] have to care about our grades and like pull us aside and talk to us. See what's happening. Why aren't [you] doing your homework? If you are, then congratulations. They [should] encourage you." Pilar echoed his sentiment. She explained,

> Yeah, willing to stay with us. Like if I need help on them [schoolwork]. If I need help on something, you [the teacher] would stay with us. Like study with us for like a little bit, or talk to us about what's wrong with our grades [Explain it].

Nine out of fifteen Latinx students cited differential treatment from their teacher as an indication of a lack of authentic caring and understanding. Examples of differential treatment ranged from inappropriate attention, such as teachers belittling and embarrassing their students in front of their classmates, to inattention such as overlooking Latinx students who requested assistance.

Lupe described inappropriate attention by teachers towards Latinx students when she explained that eighth grade teachers routinely made negative judgments, assumptions, or both about Latinx students. Lupe described an interaction between herself and one of her teachers. She was not able to complete the previous night's homework assignment, and according to Lupe, her teacher reacted sarcastically to her missing assignment. Lupe wanted her teacher to understand that there was a problem at home. "Like ask, 'are you doing good?' Like at home, 'is it okay?' They just like don't even ask. They're just like, 'Ah, she didn't turn it in,' they just assume that you don't care."

Diego was not comfortable with the teachers or counselors. He felt isolated, alone, and lonely because he did not believe that the white teachers understood what it was like being Latinx or being an English learner. Diego was afraid to participate in class because he did not want to be embarrassed. When asked what he wished for he stated that he,

> Wanted them to understand just the way we are, the way we act, and how we feel about something. Just like the way we feel, sometimes we just like, how we feel, just like we're scared to say something. That somebody will make fun.

Diego's expressions of fear, perceived lack of care, and overall feeling of shame was not unique. It was prevalent in all student responses.

Anguish due to organizational structure

Many of the Latinx students in the study believed that they were "locked" into low-level tracked courses. Eighth grade Neva, explained that, "It's just sad sometimes, they [teachers] make me feel like I am not good enough." When asked if the teachers believe Latinx students can be successful, Javier stated, "they might say it, but I don't think some people mean it. Certain people think that we're going to get far. But some don't."

Nieto (2006) reported tracking as an example of bias and a barrier to equitable access of educational resources and opportunities for students of color. As an organizational structure, 11 out of 15 Latinx students perceived tracking as a cause for personal anxiety, and were distressed about their potential placement in low-level ninth grade courses. Moreover, they had a continual unease that if placed in low-level courses they would have difficulty moving into more rigorous courses. Figure 2 illustrates students' perceptions of their ability to exit tracked classes.

Loss of Educational Opportunity

Seven out of eleven ninth grade Latinx students participating in focus groups wished they could go back and change their eighth grade priorities. They categorized any personal experiences with low achievement with a personal lack of focus or effort and a remorse that they acted in fear of asking for help. This was expressed by Manolo when he said, "I wish I would have focused more on teachers, when teachers told us 'do you have any questions?' I wish I would have raised my hand and asked." Moreover, they revealed a deep regret due to their perceived lack of understanding of the transitional learning environment, such as the connection between middle school grades and high school course options. This was conveyed by Mercedes who thought deeply for a moment, then shared how she wished she had taken advantage of all the extra help that the teachers provided when she stated "because I regret now not promoting from middle school. I wish I could go back." Now in ninth grade, both the experiences of Manolo and Mercedes illustrate how their perception of adult agency were linked to their apprehension within the transitional learning environment during eighth grade. Their perceptions resulted in a loss of educational opportunity.

Figure 2. Latinx Student Perceptions

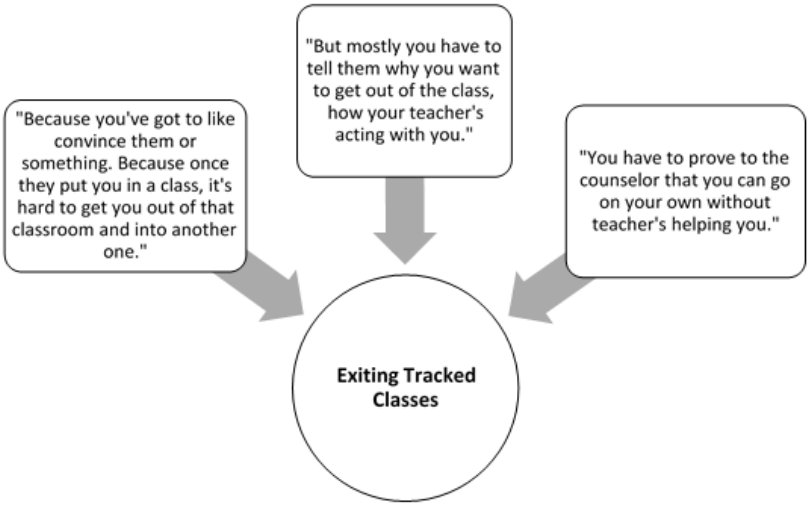

Figure 2. Latinx eighth and ninth grade student perceptions of counselor expectations when requesting transfers from low level tracked classes into more rigorous classes.

Adult Perceptions

While Latinx students yearned for authentic care by the teachers and counselors within their transitional learning environment, the teachers and counselors professed frustration with their Latinx students. Our analysis of adult perceptions based on transcripts from the focus group reveal that teachers and counselors associated with the transitional learning environment expected eighth and ninth grade Latinx students to assimilate within the transitional learning environment in order to access resources and educational opportunity. Moreover, the teachers

and counselors within the transitional learning environment believe that for a relationship to occur with their Latinx students, the students must be self-advocating and initiate assistance when struggling. The adults perceived self-reliance and self-advocacy as in integral component for transitional competence but did not discuss providing skills-training for Latinx or any other students. For example, a ninth grade counselor described a conversation she had with a mother of a Latinx student that was going to be involuntarily transferred to a continuation high school due to credit deficiency:

> I say, 'well you know, Johnny has failed this class and this class, and unfortunately he's a semester behind. We have to look into transferring to a continuation school.' [The parent will respond 'Well, you know, he told me he was fine. He's doing his work.'] There has been no communication with the counselor; there has been no communication with the teachers. They just kind of trusted the kid that they were doing what they were supposed to do.

The findings reveal that the Latinx students and their parents were not aware of the protocol for removal from the comprehensive high school after an unspecified number of failed classes. Yet, most teachers and counselors expected students and their parents to have knowledge of the protocol. While counselors were frustrated by students' lack of awareness of the specific organizational structure within the transitional learning environment, it was not clear if they provided information regarding the protocol during any of the eighth or ninth grade transitional activities. The lack of communication from the counselors to the students in addition to the lack of awareness of their role in the confusion likely contributed to students' lack of knowledge and perceptions of counselors' lack for them.

Conclusion

The occurrence of ideological incongruity within the contextualization of the components of structure, culture, and agency reveals an ideological chasm between Latinx student perceptions and adult perceptions within the transitional learning environment. Findings revealed that the Latinx students' learning experience linked to the transitional learning environment exposed:

(1) Deep and personal internal conflicts and confusion which affect *access to social capital or resources and educational opportunity*; (CULTURE)
(2) Feelings of unease and distress due to a *perceived lack of care by teachers and counselors*; (AGENCY) and
(3) Personal anguish due to *varying organizational systems* of tracking. (STRUCTURE)

These findings have implications for practice.

We provide four recommendations for educational leaders. 1) Offer professional development targeting the value, utility, and voice of students who are calling for a more clear understanding of their identity (culture) within the school context, 2) Offer opportunities for students, teachers, and counselors to create context-specific practices that address social scripts (demonstrating care), and cultural understanding so that students can (re)claim their

agency, 3) Offer explicit trainings for students on how the school system/structure operates to make practices transparent and avoid unintentional consequences, and 4) Offer teachers and counselors data analysis training targeting the structural (structure and agency) and institutional (culture and agency) causal factors within the transitional learning environment with a focus on the impact on Latinx students. Additionally, institutions of higher education that provide administrative credential programs should educate their candidates about the perception of educator bias. Such preparation would enable educational leaders to effectively respond to the institutional and structural factors that obstruct the achievement of Latinx students in their transitional learning environment. An important element of their preparation would include data informed leadership such as conducting equity gap analyses at their school sites to inform a plan for school improvement, and equity (especially for their Latinx students) in the transitional learning environment.

The dissonance between Latinx student perceptions and adult perceptions regarding the structure and culture in the transitional learning environment must be resolved. This will not only improve the overall effectiveness of teachers and counselors when serving their Latinx students but will also increase the social capital of Latinx students and promote equitable educational opportunity. Fine and Weis (2003) state that a barrier exists within the learning environment regarding the social network exchanges between students and teachers, which they call silencing. The lack of explicit communication regarding protocols leads to institutional power (Nieto, 2006) and what Yosso (2006) claims as an example of institutional neglect. Educational leaders are integral to the process of change (Fullan, 2014; Sun & Leithwood, 2015). Educational leaders have the power to effectively change the transitional learning environment of eighth and ninth grade Latinx students. It is time to develop a sense of urgency (Kotter, 1998) and act upon it.

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Biomimetic Leadership: From Theory to Practice

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Abstract

Biomimetic leadership is a pioneering framework viewed through the ecological lens, in which every living system reveals practical applications and sustainable solutions to systemic challenges. Extended office hours and stressful environments have distanced administrators from nature-inspired activities and practices. This mixed methods study explored the impact that teaching biomimetic leadership principles has on educational leadership graduate students. The results indicate an increase in awareness of nature's Life Principles: adapting to changing conditions, integrating development with growth, and being locally attuned and responsive. We found that simply being introduced to biomimetics led to inspiration for aspiring educational leaders.

Keywords: biomimetic, education, leadership, nature, strategies

Biomimetic Leadership: From Theory to Practice

This research project aimed to promote awareness of nature's value through biomimetic thinking, supplement participants' leadership skills, and impress the significance of sustainability upon participants. Specifically, the study's rationale was to determine any differences in students' knowledge and applications of biomimetic leadership principles from pre- to post-test. Second, the data collected and analyzed from this project serve to refine professional development planning for educational leaders and to contribute to the emerging study of biomimetic leadership. The following literature review provides the reader with a theoretical background.

Literature Review

Leaders, in any context, are actors who operate in complex organizational ecosystems (Bolman & Deal, 2013). Indeed, organizations share many elements of ecological systems including self-organization, advancement, and networking. As in nature, organizations' rules and policies can generate intricate behavioral patterns, and system dynamics leading to deterministic chaos, "a phenomenological behavior of chaos—i.e., sensitivity to the tiniest changes in initial conditions or seemingly random and unpredictable behavior that nevertheless follows precise rules" (Solé & Bascompte, 2006; Bishop, 2017). Organizations are active communities; as such, individuals' efforts, interactions, and teamwork undoubtedly mirror phenomena encountered in nature. Recognizing the parallel that exists between organizational and biological ecosystems would benefit 21st century leaders and managers.

The field of biomimicry, also known as biomimetics, has encouraged a view of learning from the lens of nature, a strategy that enables us to live more resourcefully (Benyus, 1997). Inventions like solar panels, Velcro, and corrugated paper are among the many designs inspired by nature. Biomimicry is "an approach to innovation that seeks sustainable solutions to human challenges by emulating nature's time-tested patterns and strategies" (Biomimicry Institute, 2018). Likewise, *biomimetic leadership* refers to the ability to lead effectively by applying nature's proven strategies to initiate growth, optimal interconnection, interdependency, and positive outcomes in an organization. Its conceptual foundation lies at the intersection of various disciplines such as: *a) nature's six Life Principles, b) biomimicry thinking elements for social innovation (Ethos, Emulate, rEconnect), c) sociobiology, d) systems thinking, e) professional standards for educational leadership and f) contemporary leadership theories* (Figure 1).

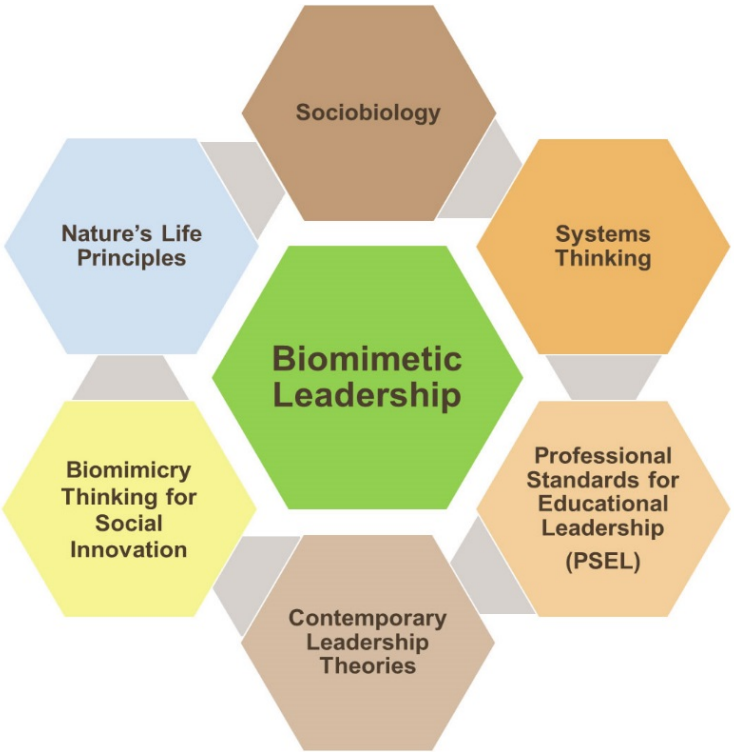

Figure 1. Biomimetic leadership conceptual framework

Nature's Life Principles (Biomimicry Institute, 2018) are designs nature offers to humankind. The principles are an invaluable combination of approaches and patterns found among the species living and flourishing on our planet. In studying these well-researched strategies, nature becomes a mentor and can assist leaders in optimizing the lives of their organizations. For instance, the principle *adapt to changing conditions* has been explored in the area of change leadership and management for decades. Nevertheless, except for a few authors (Hutchins, 2013; Tazzi, 2016; Woolley-Barker, 2017), the literature is mostly silent on the application of biological examples to leadership. The principle of *evolve to survive* points to replicating strategies that have worked in the past: learning from the unexpected to inspire new ideas and vigilance about new information in order to reorganize and generate options. In nature, the results of reshuffling information can be seen in the genetic modification of offspring, which may improve chances for survival. A human example of this method is when employees change jobs and cross-pollinate information across organizations (Baumeister, 2014).

The principle *integrate development with growth* suggests approaches for maintaining stability and prevailing under complex circumstances. With self-organization, an element of this principle, we observe birds, ants, fish, and many other species employ graceful and uncomplicated survival techniques. For example, "[f]locks of birds dance across the sky, as if following choreography. Without a director, these birds self-organize with simple rules that effectively result in emergent, aligned community" (Biomimicry for Social Innovation, 2018). These examples can generate rich discussion on alignment and self-organization.

In the midst of our daily routines, it is easy to withdraw and forget to be in sync with our natural surroundings. To *be locally attuned and responsive* addresses the value of clear communication and unobstructed feedback loops that nurture cooperative relationships and

focus on local supplies and energy. In the case of feedback loops, nature offers plentiful representations. White clover, for example, "use feedback loops to fend off herbivores. When eaten by a caterpillar, they chemically adjust their leaves so they are harder to chew, which the caterpillar interprets as a signal to feast elsewhere" (Biomimicry for Social Innovation, 2018).

As society demands more ecologically responsive leaders, the principle of *be resource efficient* serves as a standard for the competent and sensible use of limited resources and opportunities within an organization, i.e., sustainable practices, managing a team's time and using low energy processes in long-term projects.

The last principle, *use of life-friendly chemistry,* reminds us to streamline processes and break products down into non-threatening components, innovate, and make use of a small and selective subset of elements in projects. Figuratively speaking, this notion can inform those in charge of intricate ventures of the advantages of breaking apart processes whenever possible. Each of these principles and their descriptors presents exceptional opportunities for applications in leadership and management.

Biomimetic leadership does not purely search for leadership models in nature, it also seeks to understand how certain species collaborate as communities to achieve goals. Sociobiology is "the systematic study of the biological basis of all forms of social behavior, in all kinds of organisms, including man" (Wilson, 1978, p. 16). Sociobiology's examination of various species' modes of organization, principal forms of communication, and division of labor informs biomimetic leadership. Sociobiology aims to predict a species' social organization by examining its unique population factors combined with information on its behavioral limitations (Wilson, 2000). From an evolutionary perspective, leadership is associated with species' leader-follower patterns and not necessarily with a leader's traits and attributes. Wilson clarifies that "[w]hen zoologists speak of leadership, they usually mean the simple act of leading other group members during movement from one place to another" (p. 311). However, the question among those examining these actions is how members reach an agreement to relocate as a collective. According to Vugt (2006), "Usually, this can be solved if one individual takes the initiative, and the rest acquiesce and follow. Leader-follower patterns may have emerged in many social species to solve coordination problems such as these" (p. 256).

Honeybees, for example, have shown remarkable leadership signals beyond what we see in any other non-human vertebrates. In *The Smart Swarm: How Understanding Flocks, Schools, and Colonies Can Make Us Better at Communicating, Decision Making, and Getting Things Done,* Miller (2010) describes the insects' indirect collaboration, self-organization, and networking. The well-known hive waggle dance and buzzing are autocatalytic reactions to get bee workers airborne. Similarly, the preflight actions of flocking Canadian geese also reveal behaviors that trigger the rest of the group to fly (Wilson, 2000). In the same manner, individual termites respond to environmental variations that exemplify a biological collaborative behavior. If a termite worker carrying a grain of soil, for example, comes across a small pile of dirt left by fellow workers, it will drop its grain on the pile. That action, in turn, stimulates other workers to do the same and soon, if there are enough termites, the small pile of dirt grows into sizable pillars. Termites and other insects, such as ants, have ingenious communication structures that allow them to efficiently collaborate regardless of the size of their colony (Bogatyreva & Shillerov, 2015). Human leaders can learn valuable lessons from these mound-building termites. For example, it only takes one motivated employee to spark a collaborative trend in an institution. This action is called *stigmergy* and it is ubiquitous in

superorganism societies (Woolley-Barker, 2017). We see stigmergy when humans contribute to a wiki; an initial post triggers the rest of the users to contribute to the site.

Biomimetic leadership is also fundamentally coupled with systems thinking, as there are boundless systems archetypes present in nature (i.e.; isolation and relationships, and reinforcing, balancing, and feedback loops). The systems thinking model has been influential in the field of organizational learning since the latter part of the 20th century. Experts in systems thinking and dynamic models, such as Capra (2014), Senge (2014), Forrester (1980, 2009), Ackoff (2005), and Deming (2000) have promoted its principles for decades. Nature is a colossal system that can test assumptions, identify leverage points as needed, and transform its elements in order to survive. The forms and functions of organizations mirror living systems. As such, they are always adapting, generating pockets of energy, self-organizing by the system's own internal rules, and crafting new order in times of uncertainty. Systems thinking allows individuals to distinguish how systems interact and make meaningful connections, but most importantly, it supplies the lens to "see the forest for the trees,"—in other words, to see the big picture:

> Systems thinking utilizes habits, tools, and concepts to develop an understanding of the interdependent structures of dynamic systems. When individuals have a better understanding of systems, they are better able to identify the leverage points that lead to desired outcomes. (The Waters Foundation, 2017)

Systems thinking has been introduced in education with some success. Benson and Marlin's (2017) fourteen habit-forming activities book on becoming a systems thinker is an example of the efforts to educate teachers and students on the value of systems thinking. The book's exercises include information about how a system's structure generates its behavior, how elements of the system change over time and generate patterns and trends, and information about feedback loops and delays in the system. Application of systems thinking and understanding the relationships that make up an organization is a cardinal skill for leaders. As a result, this theory aptly complements biomimetic leadership.

The Professional Standards for Educational Leadership (PSEL) (NPBEA, 2018) and four contemporary leadership theories (Adaptive, Situational, Transformational, and Servant), present unique elements in common with nature's designs. Each of the ten PSEL interdependent standards and key indicators outline the expectations educational leaders must meet to initiate and sustain student success. For instance, one Life's Principle*, integrate development and growth*, and *ethos* (essential element) can inspire and give ideas to leaders to better implement PSEL 1: Mission, Vision and Core Values. PSEL Standard 10: School Improvement, specifies, "employ situationally-appropriate strategies for improvement, including transformational and incremental, adaptive approaches and attention to different phases of implementation" (NPBEA, 2018). The Life's Principles can supply leaders with models to create a cyclic information flow in their institutions which can assist managing stakeholders' reactions appropriately in times of change. Appendix A illustrates the viable intersection of the Life's Principles and its related design and strategies (i.e., using feedback loops, building from bottom up, incorporate diversity) and the three essential elements of biomimicry thinking (*Ethos, rEconnect and Emulate*) with PSEL.

Adaptive leadership hinges on the theory that technical solutions cannot solve people problems (Glover et al., 2002). Instead, systems are adapted to accommodate the unexpected without a single leader controlling an expected outcome. Within the organization is intentional redundancy, a willingness to work with opponents, and encouragement to celebrate and incorporate diversity. This dynamic environment is made safe through deliberate transparency, integrity, and a safe space to reshuffle information. The theory of

adaptive leadership fittingly exemplifies four of Life's Principles: *adapt to changing conditions, be locally attuned and responsive, use life-friendly chemistry,* and *evolve to survive*.

A situational leader possesses the tendency to adapt to the changing conditions of a specific environment by also incorporating the fundamental principles of *being locally attuned and responsive* and especially making it a priority to *be resource efficient*. Also, a situational leader is aware that power should be given to followers, who in turn determine the power of the leader (Hersey, 1988).

A third theory, transformational leadership, is characterized by growing and elevating the goals of followers (Bass, 1997). As with situational leadership, transformational leadership exemplifies the principle of *evolve to survive*, due to the fact that the decentralization of power centers around providing motivation that extends to followers beyond their own self-interests. Transformational leadership also reflects three other principles: *be locally attuned and responsive, integrate development with growth,* and perhaps most importantly, *adapt to changing conditions,* as the leader must act, be transformative, and respond to dynamic contexts.

Finally, servant leadership embodies relational integrity and respect throughout all levels of an organization. The object of servant leaders is to integrate development with growth. They also incorporate the principles of *adapt to changing conditions* and *be locally attuned and responsive*. Followers of devoted servant leaders are inspired to become servant leaders themselves (Newman et al., 2015). In this model, strong service-based relationships must be accompanied with a focus on intentionality and efficiency. Similarly, Life's Principles intertwine to generate a state of mind that produces conditions conducive to a sustainable and healthy organization. Just as earth's geosphere continually filters, layers, recycles, and incorporates all matter, so may Life's Principles be flexibly applied to these contemporary leadership theories.

Methodology

The purpose of this study was to examine and better understand the effects of introducing biomimetic leadership principles to educational leadership and administration students. Specifically, we were curious to know whether there was a significant change in student awareness of biomimetic leadership principles after the instructional activities were implemented.

Setting: Leadership Synthesis Course. The data were collected in a five-week, intensive summer leadership synthesis graduate level course. The instructional activities included a seminar on the conceptual and operational frameworks of biomimetic leadership, group sharing and reflection, bio-inspired leadership application examples, and a group nature walk in a nearby green path. This four-unit graduate course is required to complete the masters in educational leadership and administration. It is designed to provide integrated experiences and to maximize the application of the roles and responsibilities of school leaders. The teaching methodology incorporated experiential learning, gamification, storytelling, and dialogue (Robinson & Moraes Robinson, 2014). All of these pedagogical approaches aided the students to link theory to practice and have a deeper understanding of the subject.

Population. The convenience sample consisted of working professional students enrolled in a graduate educational leadership program at a state university in California. Two cohorts of 17 and 24 students respectively participated in this study. Participant age ranged from 24-51 years with 96 percent between the ages of 28-51. Thirty out of the 41 students were pursuing the preliminary administrative credential which requires a minimum of 5 years of successful teaching experience. Eighty-five percent of the students were female which is representative of the teaching profession (NCES, 2018). The study was completed during the 2017 summer quarter. The number of required credits taken during this quarter was 12 units. Students' summer quarter grade point averages (GPA) ranged from 3.80 to 4.0, with an average student GPA of 3.90.

Instrument. Because no pre-existing tool was available to measure self-perceptions in this emerging field, an instrument was developed based on the Life's Principles. The survey questions were categorized into the three biomimicry essential elements: *Ethos*, *rEconnect* and *Emulate*. The survey contains 28 items, 7-point Likert scale questions ranging from 1 = strongly disagree to 7 = strongly agree. The post-survey includes two open-ended questions. The same inventory was used in the pre- and post-administration. Overall, the full inventory was found to be reliable (28 items; $\alpha = .88$). In addition, responses were grouped and evaluated by principle. Internal reliability for each principle ranged from .56 and .80. Participants were homogeneous in age, ethnicity and years of professional experience. Therefore, demographics did not influence the biomimetic leadership surveys results.

Procedure. In this study, the fundamental reason for selecting a convergent mixed-methods design was the ability to compare different perspectives from quantitative and qualitative data. The strength of this methodology is that both types of data are collected during one phase of the research at the same time (Creswell & Clark, 2007). The pre-survey was administered immediately before the introductory lesson and outside activities. The post-survey responses were collected just before the end of the summer quarter. The objective of the two open-ended questions in the post-survey (see Appendix B) was to interpret the effects of introducing biomimetic leadership principles on participants' leadership behavior and to ask the participants for feedback on the pedagogical approaches used throughout the experience. First, each data set was analyzed independently and, later, through the procedures of a side-by-side comparison by simultaneously displaying pre- and post-quantitative data. Paired t-tests and Wilcoxon test were used to evaluate any difference between the pre- and post-surveys. The open-ended survey questions were analyzed using WordStat (Provalis, 2018) content analysis software program to determine emerging themes. Supplementary analysis also included descriptive statistics to obtain frequencies, means, and standard deviations of response items.

Results

Quantitative results. Paired t-tests (parametric) were used in this study to observe any differences between the pre- and post-survey scores. The results indicated a moderate increase in mean scores across most of the 28 items. However, items 18 through 21 showed a significant increase (Figure 2). These items (see Appendix B) measured the level of new biomimetic awareness and its impact on participants. The value of t was -3.021. The value of p was 0.005. The result was significant at $p \leq 0.05$. Wilcoxon (non-parametric) test was also performed resulting in a W-value of 39. The critical value of W for N = 28 at $p \leq 0.05$ was

116. Therefore, the result was significant at p≤ 0.05. The Z-value was -3.734. The p-value was 0.0002. The result was also significant at p≤ 0.05. Furthermore, the correlation value for the pre- and post-surveys was R: 0.72 which is a moderate positive correlation.

Descriptive statistics also showed an overall moderate increase in means and a decrease in variance and standard deviation in the post-test (Table 1). The decrease in variance and the standard deviation is an expected output as participants' responses become less reactive after each additional treatment.

Table 1.
Descriptive Statistics Pre- and Post- Survey Scores

	Mean	Variance	Standard Deviation
Pre scores	4.56	2.43	1.56
Post scores	5.19	1.66	1.29

Items such as "I embrace unexpected situations," "I use readily available materials rather than generating/purchasing new ones," "I accomplish big goals by starting with the big picture and top-level decisions," and "I accomplish big goals by building from the bottom up" exhibited a significant increase compared to the rest of the items. The latter statements illustrate the participants' flexibility to assess organizational situations from both ends of the spectrum. Items 18 through 21 showed an increase of 3.19 mean average (Figure 2). These four items dealt explicitly with self-assessing new concepts; i.e., "I am aware how biomimetic leadership can help me with decision-making and problem-solving in organizations" and "I am aware how biomimetic leadership can help with innovation in organizations."

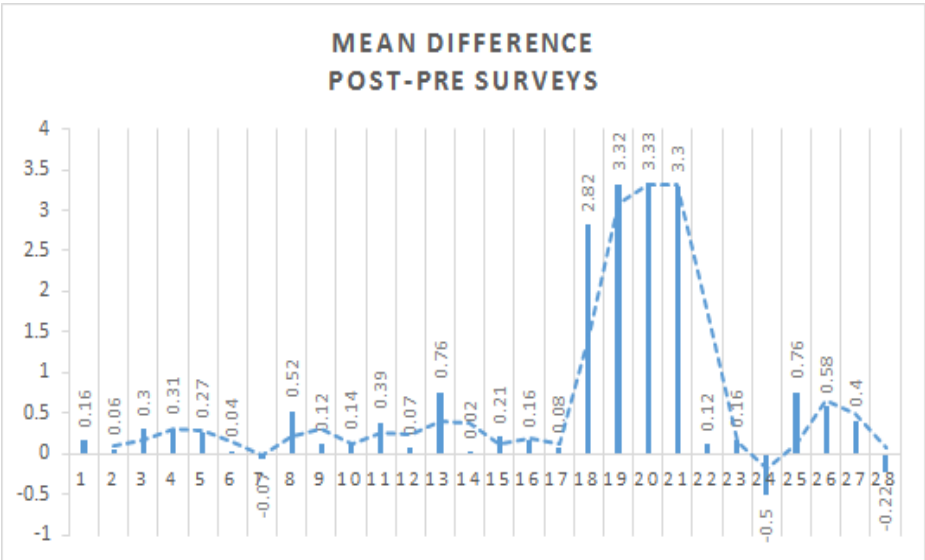

Figure 2. Mean difference pre-post surveys

Finally, six items out of the 28 are considered reverse worded items, and were analyzed by correlating the negatively worded items with their reverse-coded correspondent items, to verify that correlations were in fact r = −1.00. These items were constructed to reduce or prevent any potential acquiescence bias.

Qualitative results. The power of qualitative data is that it provides rich insights and gives an extra dimension to the quantitative data. The post-survey included two open-ended and reflective questions (see Appendix B) which allowed students to share their opinions about the usefulness of biomimetic leadership principles, and ways to improve the delivery of the instructional activities. A content text analysis was conducted using WordStat (Provalis, 2018) software. After inputting the definitions of each category in the text analytics program, displayed themes were extracted, relationships, and trends which may not be apparent when content analysis is executed manually. The program identified the frequency with which specific categories and terms appear in the students' open-ended responses. Four areas, as seen in Figure 3, were detected to have the most effect on student leadership behaviors: *discover nature's value, adapt to changing conditions, be locally attuned and responsive, and evolve to survive.*

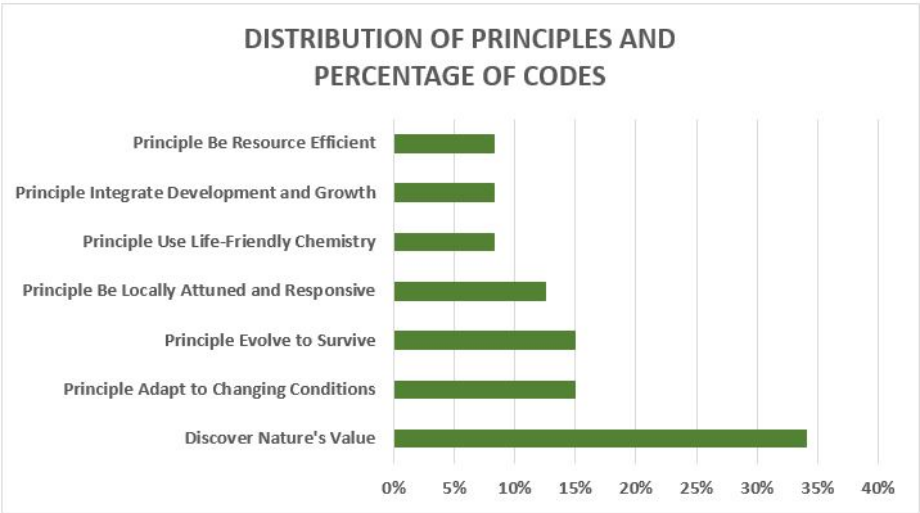

Figure 3. Distribution of principles and percentage of codes

When asked if the instructional activities helped them to acknowledge the role biomimetic leadership could play in organizational leadership, 89 percent of the students responded "Yes." A student further clarified:

> I have always felt that we could learn from nature, one of my favorite examples has always been learning from animal adaptations, like a lizard that loses its tail in an effort to escape capture or the oil on a duck's feathers. I see where we can, in fact, parallel our behaviors and adaptations from nature to be more successful (Participant 20).

The code with the most significant frequency proves to be *discover nature's value*. The narratives within this code revealed that students yearn for outdoor activities, time to ponder outside the constricted environments of their organizations, and are curious about how nature creates conditions conducive to life.

> Humans are always learning something new about nature so we will never tire of learning about biology and its application to our lives. Being able to apply these concepts to organizational leadership is thought-provoking and commonsensical (Participant 13).

This behavior indicates the innate attraction all human beings have towards nature or what Wilson (1995) called *biophilia*. Students reiterate that more time was needed outdoors, to deeply analyze and synthesize the concepts learned.

There is also a sense of rediscovery which is linked to the element *rE-connect* of biomimicry thinking, as well as an acknowledgment of the principle *be resource efficient*. Moreover, the term "sustainability," which is "to create and maintain the conditions under which humans and nature can exist in productive harmony to support present and future generations" (U.S. EPA) appeared to be a consistent underlying topic in classroom discussions and narratives. It refers to participants' deep thoughts regarding current global environmental issues and the preservation of limited natural resources, as one articulated:

> This biomimetic concept has forged a new lens of understanding, metaphorically and concretely. There are many facets to nature as well as leadership, and I agree that all systems should be engineered with sustainability in mind. Nothing (resources, energy, organisms) is wasted in nature, and that is an important concept to extend to all aspects of life (Participant 14).

Another student commented that the topic of biomimetic leadership brought a renewed awareness to search for answers outside of our typical surroundings: "It reminded me to use the world around me to look for answers" (Participant 34). One aspect repeatedly mentioned was the notion of using biomimetic examples as a metaphor to engage others in organizational and policy change. Students expressed the belief that these representations can aid leaders in making ideas tangible to stakeholders.

> I thought that the activities and discussions were an interesting metaphor for how organizations operate. Leaders could use these metaphors and explanations when describing an organizational shift or a new policy (Participant 10).

Additionally, the principle *adapt to changing conditions* strongly resonated with students; mainly, because administrators must adjust swiftly to unexpected events and outcomes. One of the students remarked that the discussions with peers, combined with the instructional materials, were beneficial to connect Life's Principles with leadership practices:

> The informational cards helped me to see how nature and leadership are similar. For example, when we were discussing how the octopus adapts to situations in nature it made me realize as a leader, I must be willing and able to adapt and be flexible (Participant 4).

Furthermore, it was evident that students easily connected with the principle of *evolve to survive* which accentuates the concepts of reshuffling information, integrating the unexpected, and replicating strategies that work (Baumeister, 2014). Another student stated, "The activities brought about the importance of communication, collaboration, and flexibility to reach an organization's goals" (Participant 24). The theme of persistence was also prevalent in the students' comments. Leadership attributes such as perseverance and endurance are necessary to overcome challenging circumstances. These elements reinforce the idea of looking at the "big picture" when confronted with complex situations. A student shared that "Recognizing the choices, patterns, and cycles that create the greatest natural growth and persistence in a flourishing ecosystem or organism" (Participant 27).

Additional comments affiliated with Life's Principles are depicted in Appendix C. A final question in the survey asked students to provide suggestions to improve the overall

instructional activity. Their input will be used to enhance future activities and curriculum. Overall, both the quantitative and the qualitative data revealed that students recognized that nature's ingenuity and strategies are motivational and offer promising leadership tools.

Discussion

According to the results of this study, four areas of knowledge and practice revealed considerable growth and seemed to have influenced student leadership and managerial skills: *adapt to changing conditions, be locally attuned and responsive, integrate development with growth and discover nature's value*. Students' interest in, and observations of, biomimetic leadership were inspiring and informative, as well as their willingness to further explore these new theoretical and practical approaches. Comments such as, "It was interesting to learn how differently some of my classmates interpreted the questions compared to my interpretation. We created meaning together," (Participant 18) show that students began to make meaning by relating to nature and comparing their own experiences with the biomimetic leadership examples provided in the leadership cards exercise. As Densten and Gray (2001) noted, "The aim of reflective learning that integrates previous experiences with new learning should be to assist future leaders to adopt more sophisticated self-monitoring behaviors" (p. 121). Several students shared that they will employ this new knowledge at their school sites.

At the onset of the study, students' perspectives were focused on seeing the dangers of nature and how humans must control it in order to survive (i.e., the power and danger of predatory species and other violent aspects of nature). They also resisted the idea that nature has anything to offer their professional lives and assumed that leadership is an inherently human ability. In the end, students acknowledged the value of biomimetic leadership practices in leading and managing today's complex organizations. They discovered an approach that employs time-tested execution. Aspiring leaders must be prepared for the challenges that lie ahead; i.e., the impact of the climate crisis on students and communities, lack of resources, and equity gaps. Educating with nature-inspired, regenerative, sustainability, and social justice practices will offer them with the skills to advance their organizations and communities in their future endeavors. Biomimetic leadership reframes the current narrative in the leadership curricula by endorsing respect for ecological and cultural systems and promoting equitable access and well-being of all (Santone, 2019).

Limitations

There is a lack of previous studies on this subject. However, this particular limitation is an opportunity to identify new gaps in the literature. The sample population for this study included the graduate students at one educational leadership and administration program therefore the results cannot be generalized to other student populations. The design did not incorporate a control group; further iterations of this study should include a control and an experimental group. This design protocol would provide baseline data for the tested group, as well as exclude alternate reasons for any observed outcomes which will strengthen the reliability and validity of the project. While we are not aware of a specific biomimetic leadership assessment tool, other instruments may be available to evaluate student leadership behaviors and nature-inspired practices. As a final point, a longitudinal assessment may have provided data on the lasting effects of this leadership training after the participants completed the summer leadership synthesis course.

Implications for Practice

Results of this study present a guiding vision for a novel and stimulating leadership ideology. Biomimetic leadership inspires a mindset of conscientious possibility; this clarity enhances existing models of effective and ethical leadership even as it initiates principles for radical personal and organizational innovation. This approach contributes to the improvement of aspiring leaders' dispositions in the areas of systems thinking, empathy, social consciousness, critical thinking, equity-literate communication skills, self-efficacy and agency, creativity, and local and global ecological sustainability. The narrative describing the interdependence of ecology, social justice, and leadership is absent in the current leadership curriculum and national administrators standards. Introducing students to biomimetic leadership opens the space needed to discuss the connection among these topics.

As a first step, we recommend to include sustainability development in educational leadership programs. Three essential elements exist for sharing the biomimetic framework: *Ethos,* (*rE)connect*, and *Emulate* (Baumeister, 2014). *Ethos* refers to a leader's desire for a sustainable plan for the future. It encourages us to identify and promote the seeds of vision in others while making ethical and environmentally conscious choices. An educational leader that exemplifies a strong *Ethos* is someone who exudes appreciation for the resources, the spaces, and the people within the organization. This humble attunement allows a leader to anticipate and avoid unintended consequences. In the spirit of equity and diversity, all contributors are championed; the archetype for this behavior is drawn from a sustained study of the natural world. In the hands of educators, the disciplined and conscientious mindset of the *Ethos* framework has the potential to transform an entire culture.

The second essential element *rEconnect*, proposes that we must appreciate the reciprocal relationship between humankind and nature. Educational leaders may also create opportunities for community members to connect with nature through curiosity and observation. Reconnecting with nature can also minimize linguistic and cultural boundaries and provide restorative experiences. Kaplan (1995) adds, "Experience in natural environments can not only help mitigate stress; it can also prevent it through aiding the recovery of this essential resource" (p. 180). Therefore, we advise adding outdoor instructional activities to foster leaders' relation to nature, respect for natural systems, and attention to their own and their communities' well-being.

Lastly, *Emulate* establishes the literal and metaphorical relationship between leadership and biomimetics. Observational and scientific study generates "the how" for organizations to design nature-inspired solutions to organizational challenges. *Emulate* provides a fluid framework for sustainable, solution-oriented engagement as participants ask, "What would nature do?" As an example, a school district looking to advance student achievement must "evolve to survive" by "replicating strategies that work." Local Educational Agencies (LEA) are in the position to use district-wide data and "resource efficient" strategies to "build from the bottom up." Communication with Professional Learning Communities (PLCs) needs to be "locally attuned and responsive" as expectations are "broken down into benign units," with "life-friendly chemistry" for variance and autonomy. Charles (2004) points out that biological metaphors are alive and regenerative. In comparison, mechanical metaphors are dead and require energy and external force. Students' reaction to biological metaphors in the course of this study was enthusiastic. Consequently, we encourage the use of organic, living, dynamic metaphors to ignite creative problem solving.

To optimize biomimetic leadership is to incorporate all three elements—*Ethos,* r*Econnect*, and *Emulate*—into one's personal and professional lives. Such leadership empowers individuals to create sustainable organizations. Just as earth's atmosphere, geosphere, hydrosphere, and biosphere all work in harmony, biomimetic leaders utilize the inherent innovative strengths within the dimensions of Life's Principles and *Ethos, rEconnect*, and *Emulate*. Biomimetic awareness precedes compassionate and sustainable leadership.

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APPENDIX A: Intersection of PSEL, Life's Principles and related designed lessons/strategies, and Essential Elements of Biomimicry Thinking

PSEL Standard	Life's Principles and related designed lessons/strategies	Essential Elements of Biomimicry Thinking
1. Mission, Vision, and Core Values Effective educational leaders develop, advocate, and enact a shared mission, vision, and core values of high-quality education and academic success and well-being of each student.	Integrate development with growth	*Ethos*
2. Ethics and Professional Norms Effective educational leaders act ethically and according to professional norms to promote each student's academic success and well-being.	Maintain integrity through self-renewal	*Ethos*
3. Equity and Cultural Responsiveness Effective educational leaders strive for equity of educational opportunity and culturally responsive practices to promote each student's academic success and well-being.	Incorporate diversity	*Ethos*, *Emulate*, *(rE)connect*
4. Curriculum, Instruction and Assessment Effective educational leaders develop and support intellectually rigorous and coherent systems of curriculum, instruction, and assessment to promote each student's academic success and well-being	Incorporate diversity Combine modular and nested components	*Ethos*, *Emulate*, *(rE)connect*
5. Community of Care and Support for Students Effective educational leaders cultivate an inclusive, caring, and supportive school community that promotes the academic success and well-being of each student.	Replicate strategies that work	*Emulate*

6. Professional Capacity of School Personnel Effective educational leaders develop the professional capacity and practice of school personnel to promote each student's academic success and well-being.	Cultivate cooperative relationships	*Emulate*
7. Professional Community for Teachers and Staff Effective educational leaders foster a professional community of teachers and other professional staff to promote each student's academic success and well-being.	Use feedback loops Use readily available materials and energy	*Ethos*, *Emulate*
8. Meaningful Engagement of Families and Community Effective educational leaders engage families and the community in meaningful, reciprocal, and mutually beneficial ways to promote each student's academic success and well-being.	Cultivate cooperative relationships	*Ethos, Emulate, (Re) Connect*
9. Operations and Management Effective educational leaders manage school operations and resources to promote each student's academic success and well-being	Build from the bottom up Use readily available materials and energy Reshuffle information	*Emulate*
10. School Improvement Effective educational leaders act as agents of continuous improvement to promote each student's academic success and well-being.	Leverage cycle processes Integrate the unexpected	*Emulate*

APPENDIX B: Biomimetic Leadership Dependent Variables

1. I believe communication is vital to the existence of the organization
2. I cultivate cooperative relationships
3. Interdependence and interconnectivity are important to me
4. I often reshuffle/reorganize information to generate innovation in my organization
5. I recognize the usefulness and value of feedback loops
6. I am locally attuned and responsive with my organization
7. I can adapt to changing conditions
8. I embrace unexpected situations
9. I am responsive to opportunities as they present themselves
10. I believe self-organization is important in achieving complex tasks
11. I accomplish big goals by building from the bottom up
12. I understand how resiliency can play a valuable part in stressful situation
13. I use readily available materials rather than generating new ones
14. I optimize rather than maximize
15. I replicate strategies that work
16. Nature plays an integral role in my life
17. I enjoy learning about nature
18. I can describe what biomimetic/biomimicry is
19. I am aware how biomimetic leadership can help me with decision-making and problem-solving in organizations
20. I am aware how biomimetic leadership can help with innovation in organizations
21. I am aware how biomimetic leadership can help integrate development with growth in organizations
22. I struggle to build interpersonal relationships at work
23. I prefer to work independently
24. I struggle with sudden or significant change
25. I accomplish big goals by starting with the big picture and top-level decisions
26. I struggle to think of new or innovative solutions to solve problems
27. Nature does not significantly interest me
28. I am skeptical that biomimicry can improve my leadership skills

Has this instructional activity helped you to acknowledge the role that nature's life principles could play in organizational leadership?

( ) Yes
( ) No

If YES, please explain how this instructional activity has helped you to acknowledge the role that nature's life principles could play in organizational leadership.

Once biomimicry/biomimetic was defined, did it aligned with some of your own leadership practices?

( ) Yes
( ) No

Please provide suggestions how we can improve this instructional activity

APPENDIX C: Students comments on Biomimetic Leadership

Life's Principles /Behaviors	Students comments
Adapt to changing conditions	It is more of a reminder to be present in the world and notice how life adapt to nature rather than the opposite. An organization should be fluid and responsive to the changing environment in order to achieve maximum efficiency.
	I have always felt that we could learn from nature, one of my favorite examples has always been learning from animal adaptations, like a lizard that loses its tail in an effort to escape capture or the oil on a duck's feathers. I see where we can, in fact, parallel our behaviors and adaptations from nature to be more successful.
Be locally attuned and responsive	Nature's life principles help organizations organize more efficiently and objectively. Utilizing diversity, cooperative relationships, and resilience are areas of interests.
	It centers the leader and allows the leader to look to nature to understand how management and/or leadership should work.
Be resource efficient (material and energy)	By noticing that nature works in sync with each are and everything is purposeful.
	Using the scenario cards was very helpful to discuss ways that nature translates into organizational leadership.
Evolve to survive	It reminded me that we can observe nature and mimic strategies in nature that can be successful for us in leadership.
	Connecting principles in nature to organizations in order to improve them.
Integrate development with growth	Recognizing the choices, patterns and cycles that create the greatest natural growth and persistence in a flourishing ecosystem or organism.
	I enjoy nature and have never thought of it in relation to the organization where I work. I think the concept of interconnected relationships in nature can be easily applied to my leadership methods.
Nature's Value	I have always loved nature and tried to learn lessons from natural systems. I now have a better language structure for explaining this practice to others. I also have multiple examples of exercises that I could replicate.
	I had not previously considered how nature could be used as a tool or how it mimics organizational leadership

Intersectional Reculturing for All Students: Preparation and Practices for Educational Leaders

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Abstract

Situated in the context of U.S. educational outcomes, education policy in California, and UNESCO's definition of inclusive education, we examine how schools have addressed student diversity. Methods of identifying students with disabilities are not adequately designed to identify English learners with disabilities. In part to address that problem, we introduce the concept of intersectional reculturing as an approach for educators to consider students' intersectional identities in order to address inequitable educational outcomes. We then present a theoretically grounded proposal for intersectionally recultured preparation of educational leaders, including use of a framework aligned with universal design for learning (UDL).

Keywords: educational leader preparation, inclusive education, intersectionality, reculturing

Shifts in educational policy at the U.S. federal and California state levels have serious implications for how public schools are expected to address the needs of all students. In light of the rapidly changing demographics of schools in California and elsewhere, we adopt UNESCO's (2015) definition of inclusive education, which declares:

> All people, irrespective of sex, age, race, colour, ethnicity, language, religion, political or other opinion, national or social origin, property or birth, as well as persons with disabilities, migrants, indigenous peoples, and children and youth, especially those in vulnerable situations or other status, should have access to inclusive, equitable quality education and lifelong learning opportunities (p. 25).

This definition pushes educational leaders to consider the needs of many marginalized students, including recent immigrants, English learners, members of minoritized racial and ethnic groups, and those with special needs.

With equitable, inclusive education as our end-in-view (Dewey, 1938), we examine how schools have addressed diversity. As an alternative, we introduce the concept of intersectional reculturing, in which schools consider students' intersectional identities. We then present a theoretically grounded proposal for intersectionally recultured preparation of educational leaders. We begin with an overview of policy shifts and inequitable educational outcomes that highlight the importance of engaging in intersectional reculturing.

Policy Shifts in the United States and California

Echoing UNESCO's inclusive-education emphasis, the Every Student Succeeds Act (ESSA; U.S. Department of Education, 2015) requires states to establish ambitious academic standards for all students, exempting only those with the most significant cognitive disabilities (Council for Chief State School Officers [CCSSO] & National Center for Systemic Improvement [NCSI], 2016). Even for exempted students, alternative standards and assessments must align with state standards and promote access to the general education curriculum.

Meanwhile, the Individuals with Disabilities in Education Act (IDEA) of 2004 reiterated the importance of providing special education services to students with disabilities that qualify for an individualized education program (IEP) in the least restrictive environment (LRE) possible. The LRE mandate aligns with research demonstrating the value of inclusive education for students with (and without) IEPs. Students frequently perform better on academic and behavioral measures when educated in well-supported inclusive settings compared to when they are pulled from general education classrooms to receive specialized services (Capp, 2017; Cosier, Causton-Theoharis, & Theoharis, 2013; de Graaf, van Hove, & Haveman, 2013; Kleinert et al., 2015; Sermier Dessemontet, Bless, & Morin, 2012; Szumski, Smogorzewska, & Karwowski, 2017; Tremblay, 2013). Despite the combined force of both policy and recommended practice for the inclusion of students with IEPs in general education, California lags behind the nation in implementing inclusive educational practices for students with identified learning needs (U.S. Department of Education, 2016).

The new California Teaching Performance Expectations (TPEs; Commission on Teacher Credentialing, 2016) reflect California's intent to bolster educational opportunities for students with IEPs in general education classrooms. Threaded through the document is the expectation that general education teachers use Universal Design for Learning (UDL). General education teachers are also expected to be knowledgeable of and able to participate in ongoing progress monitoring systems associated with Multi-Tiered Systems of Support.

Both of these approaches require the ongoing support of school administrators who guide progress-monitoring decisions.

Inequitable Educational Outcomes in the U.S.

While this policy and research context highlights the importance of educating all students, data from the National Assessment of Educational Progress (NAEP) suggest that current educational approaches in the U.S. leave many students underserved. Nationally, 36% of fourth graders and 37% of twelfth graders have reading composite scores at or above proficient. English learners (Latino and Asian) continue to trail white students in both mathematics and reading achievement on the NAEP (Carnoy & García, 2017), with 8% of fourth grade and 4% of twelfth grade English learners scoring at or above proficient (National Center for Education Statistics, 2015). Among students with IEPs, 11% of fourth graders and 8% of twelfth graders score at or above proficient (National Center for Education Statistics, 2015), with similar disparities for other minority groups, such as students who identify as Black, Latino, or American Indian/Alaska Native and students eligible for free or reduced-price lunches. The most vulnerable group, however, are English learners who have disabilities, with 2% of fourth graders scoring at or above proficient. By twelfth grade, this percentage rounds to zero.

Taken alone, the NAEP data point to a need to consider intersectionality (Crenshaw, 1989)—the full measure of each individual student's diversity—as the most vulnerable students were those identified as both English learners and students with disabilities. Accentuating the issue of intersectionality are data on the disproportionate representation of culturally and linguistically diverse students in special education (Artiles, Rueda, Salazar, & Higareda, 2005; Trent et al., 2014; Umansky, Thompson, & Díaz, 2017; Waitoller, Artiles, & Cheney, 2010). We must consider why different groups of students are over- (or under-) identified to receive special education services. The Office of Special Education Programs calculates the estimated risk ratio for identification to receive special education services in the U.S. by racial or ethnic group based on data that states are required to report (U.S. Department of Education, 2016). These data suggest that students who are identified as Alaskan Natives/American Indian, Black/African American, or Hawaiian/Pacific Islander are more likely to be designated as requiring special education services compared the rest of the population. Similar data are not available for English learners; such data reporting has not been federally mandated. However, state-level analyses indicate that English learners are more likely to be deemed eligible for special education services than students not designated as English learners, particularly in states requiring English-only instruction (Durán, 2008; Samson & Lasaux, 2009; Shifrer, Muller, & Callahan, 2009; Sullivan, 2011). More granular analyses examining how race and ethnicity co-vary with indicators of poverty, parental education, and language (Blanchett, 2006; Kramarczuk Voulgarides, Fergus, & Thorius, 2017; Shifrer et al., 2009) suggest that students from racial and ethnic minority groups are not simply more likely to be predisposed for such disabilities; instead, social factors, including the fact that "socioeconomic inequality is reproduced in schools," cause such disproportionate representation (Shifrer et al., 2009, p. 254). With our schools mirroring society, we also must draw explicit attention to a legacy of racism that has provided a troubling foundation for current schooling policies and practices in the U.S. (López & Burciaga, 2014).

Approaches to Diversity in Education

Student diversity is frequently approached as a problem rather than as a natural outcome of demographic change (Florian, 2017). In contrast, we believe that educational leaders will best serve students from diverse groups, indeed all students, by using—and leading teachers and other staff to use—an intersectional (Crenshaw, 1989) lens to see and understand each student's multiple group memberships and embracing those identities as foundational to that student's learning. Too often, however, those charged with responding to diversity have attempted to separate students into one marginalized group or another.

Siloed Approaches to Educating Marginalized Students

Efforts to address the achievement gaps illustrated above often have relied upon single-axis frameworks, such as culturally relevant pedagogy (CRP; Ladson-Billings, 1995); English learner pedagogy (Goldenberg, 2013; Lucas, Villegas, & Freedson-Gonzalez, 2008; Walqui, 2006); multi-tiered systems of support (MTSS; Sugai & Horner, 2009) including response to intervention (RTI; Fuchs & Fuchs, 2006; Vaughn & Fuchs, 2003) and positive behavior interventions and support (PBIS; Sugai & Horner, 2002); universal design for learning (UDL; Rose, 2000; Rose & Meyer, 2002); social emotional learning (SEL; Cohen, 2008); and more recently culturally sustaining pedagogy (CSP; Paris & Alim, 2017). While single-axis approaches can potentially facilitate learning for all students if applied inclusively, their application to only certain groups of students has created entrenched silos encompassing bilingual, special, and urban education, among others (Rueda & Stillman, 2012). These silos have been codified in educator preparation programs, state credentialing requirements (Blanton, Boveda, Munoz, & Pugach, 2017), and practices and programs in districts and schools, all of which apply to separate groups of students rather than inclusively to all students. Because of these silos, even frameworks that resist and reject the deficit model of education, such as Universal Design for Learning and Culturally Relevant Pedagogy, can result in systems that fail to recognize and build upon each student's strengths. Such silos fail to recognize that students' "*overlapping identities [are] fundamental to individuality*" (Florian, 2017, p. 12, emphasis original).

A compounding problem of the single-axis framework emerges in educational discourse through analyses determining whether an English learner *also* has a disability qualifying them for special education services (Guarino, Buddin, Pham, & Cho, 2010; Swanson, 2017; Wagner, Francis, & Morris, 2005). Given the manner in which support services are provided for English learners and students with disabilities, this discussion frequently rests upon a faulty premise that the needs of these students are best met in separate locations or programs—students with disabilities are best served by a special educator, while English learners are best served by an ELD teacher (Castro-Olivo, Preciado, Sanford, & Perry, 2011). The question inevitably becomes which of these locations will best address the student's needs. In this way, single-axis frameworks for understanding and addressing students' needs erase the needs of English learners with disabilities and problematize their presence in the school. This is not to say that the needs of English learners with disabilities are not unique and do not require individualized attention; instead, within this conversation we are suggesting that the very premise of this conversation be disrupted.

It is undeniable that current methods of identifying students with disabilities are not adequately designed to identify English learners with disabilities. Distinguishing between limited English proficiency and disability-related challenges to explain an English learner's

academic difficulties frequently flummoxes general education teachers (Ortiz et al., 2011). The chief issue in identification is the fact that the common developmental trajectories that English learners proceed through as they learn a new language include stages in which the student's behavior and performance is similar to that which is seen in students with a variety of disabilities (Klinger, Artiles, & Barletta, 2006; Wagner et al., 2005). Traditionally, schools have used the IQ-Achievement discrepancy model to identify students with learning disabilities. In this model, a discrepancy of two or more standard deviations between measured intelligence and measured achievement in a given area would be taken as indication that the student likely had an underlying learning disability (Wilkerson, Ortiz, Robertson, & Kushner, 2006). It is frequently unclear whether a student is performing poorly in a classroom due to a language barrier, an underlying disability, or another factor altogether (Abedi, 2002; Fuchs & Fuchs, 2006; Wilkerson et al., 2006). Even with the emergence of more sophisticated models to identify students with specific learning disabilities, such as Response to Intervention (RTI, Fuchs & Fuchs, 2006), challenges remain with providing appropriate instruction and assessment for culturally and linguistically diverse students (Klinger & Edwards, 2006).

Examination of strategies that have been developed within silos to meet specific student needs uncovers a significant level of overlap in strategies. Rather than focusing on specific and highly targeted educational strategies, there are now calls to develop "universal and loosely targeted education mechanisms aimed at supporting all underachieving students" (Public Policy and Management Institute [PPMI], 2013, p. 5). Educational leaders must therefore be prepared to support ongoing teacher development to implement such a pedagogy for all—truly inclusive education.

Intersectional Reculturing: A Whole-Student Approach

Mendoza-Reis and Flores (2014) designed a tri-level model for reculturing instructional leadership to address the academic learning needs of English learners (see Appendix A). We use intersectional theory to build on their model and introduce the concept of *intersectional reculturing*: the ongoing process through which administrators, teachers, and other educational service providers identify diverse student characteristics, including but not limited to race, and synthesize what they ascertain about each student to support their learning... Just as intersectional theory, analysis, and praxis emerged in Black feminist discourse to highlight the way anti-racist and feminist rhetoric had served to erase the needs of Black women from protection by anti-discrimination laws (Collins, 2015; Crenshaw, 1989), intersectional analysis (Cho, Crenshaw, & McCall, 2013; Collins, 2015; Covarrubias, 2011; Crenshaw, 1989) in education has emerged from the aforementioned single-axis efforts to address the needs of marginalized students. Students are too often are placed into an educational silo based solely on one of their characteristics (e.g., a pull-out English as a Second Language or special education program) that considers only one aspect of their learning needs. That siloing of students and the subsequent siloed application of pedagogical approaches to serve a single group of students has perpetuated the "myth of the normal child" (Baglieri, Bejoian, Broderick, Connor, & Valle, 2011, p. 2122). An intersectional approach perceives the diversity of students' characteristics and seeks to understand their funds of identity—their ways of being, knowing, and experiencing (Esteban-Guitart & Moll, 2014)—with the goal of improving learning outcomes for all students. It is important to underscore that confronting race is a vital component of intersectional reculturing

Since the educational reform era—touched off by the publication of *A Nation at Risk* (National Commission on Excellence in Education, 1983) in the U.S.—reculturing has been recognized as a charge for educational leaders (Crockett, 1996). Mendoza-Reis and Flores's (2014) reculturing model includes the notion that principals at schools with English learners must be capable of instructional leadership that is informed in part by knowledge of the teaching and learning of English learners. Particularly in light of the current educational policy and trends in the U.S. and California described above, principals' instructional leadership also need to be informed by expertise in teaching students with disabilities and other marginalized students. While general and special education teachers alike need that expertise, without leadership from within schools and education agencies, individual teachers are less likely to be able to engage in meaningful attempts to dismantle silos and implement recommended practices for inclusive education on their own (Billingsley, 2004).

To engage in intersectional reculturing, school-based educators and administrators first adopt an approach of identifying each student's diverse characteristics. They can then implement a whole-student approach in their practices and programs (Genessee, 1994; Rogers & Webb, 1991). Meanwhile, faculty preparing educational leaders must engage in the same intersectional reculturing reform of their programs, including curriculum and field experiences, to simultaneously foster candidates' adoption of a whole-child stance and prepare them to advocate for such a stance in the field.

We do not suggest that intersectional reculturing occurs simply by changing practices and programs (not that such changes are simple). Despite the years of work on addressing issues of race in education, U.S. schools still struggle to meet the needs of non-white students. Part of the difficulty with addressing race is that teachers and educational leaders, either consciously or unconsciously, adopt a colorblind stance (Bonilla-Silva, 2003) and ignore diversity among students, frequently because confronting issues of race is both overwhelming and uncomfortable. Therefore, a sustained focus on race is a vital component of intersectional reculturing.

Imagining Intersectional Reculturing in Educational Leader Preparation

To enable educational leaders and those charged with their preparation to understand and address the diverse needs of each and every learner (Florian, 2017), educators need to aggregate knowledge and experiences typically siloed in separate institutions, programs, and curricula. The California Statewide Task Force on Special Education (2015) has called for breaking barriers between general and special education in preparing classroom practitioners and moving toward a coherent educational system that meets all students' needs. We further call for dismantling silos that isolate educational leader, special educator, and teacher preparation, respectively.

While the need to deconstruct existing silos within teacher preparation (Florian, 2017; Whitenack & Lyon, 2015), between classroom practitioners (Beaton & Spratt, 2017), and between general and special teacher education (California Statewide Task Force on Special Education, 2015) has been noted, the separation between teacher preparation and educational leader preparation has received less attention. For example, the websites of the 22 of 23 California State University campuses that offer programs for general education (multiple and single subject), special education, and administrative credentials reveal that 8 offer some type of combined or concurrent program that allows candidates simultaneously to pursue either multiple or single-subject (general education) and education specialist (special

education) credentials. However, none of the administrative credential programs appear to be connected to the special education programs at their respective campuses.

Given the important role educational leaders play in setting the agenda within schools and districts, the push for inclusive education cannot move forward without them. Administrative and teacher leaders can safeguard equitable, enabling education of all students in their school community. To effectively enact that role, school leaders need the research-based knowledge and expertise necessary to critically select only those curricular programs and instructional innovations and approaches that can be adapted appropriately for each student. Additionally, school leaders can coordinate programming with stakeholders outside of and within their immediate school community. They can connect with policy makers at the district level and beyond; they also can unify students, families, teachers, other school personnel, and community partners at the site level. Others (Moore-Gumora, 2014) have noted the significance of the school community in addressing its needs through progressive program development, which again highlights the importance of the school leader's role as a coordinator of such efforts.

Administrators and practitioners can use an intersectional lens to foster positive learning outcomes for all students by engaging with teachers in a process of learning about their students and identifying their needs as whole children, not solely as English learners, students with disabilities, students from single-parent homes, and so forth. Administrators need to be prepared to lead intersectional reculturing at the school-site level, which includes supporting teachers in designing and delivering lessons to meet the widest range of student ability. As teachers learn about, master, and implement a set of research-based instructional practices recommended for use with all students in the general education classroom, administrators can facilitate and maximize the benefits of this intersectional reculturing by organizing professional development and providing ongoing support to teachers.

Confronting Bias in an Ongoing Way

Central to understanding and ultimately addressing inequities in education is the need to recognize that there is conscious and unconscious bias at play with respect to students' race, class, sexuality, gender, immigration status, and other characteristics for which they are marginalized. Despite the proliferation of social-justice-oriented teacher and educational leader preparation programs, a recent study by Sleeter (2017) revealed the importance of sustained discussions of bias--and explicitly race--beyond teacher preparation. Teachers in Sleeter's study were more likely to cite deficit ideologies to blame students' homes, families, communities, and poverty as factors for students' low achievement rather than reflect on their instructional practices. Sleeter asserted that what teachers learned about culturally responsive pedagogy "was not sufficiently potent to disrupt deficit theorizing about students, particularly in schools under pressure to raise student test scores" (p. 157), and maintained that in order to address inequities, sources of bias, such as race, must be confronted directly. This highlights the importance of repeatedly confronting all forms of bias during and after preparation.

Toward that end, educational leader preparation must enable its faculty and candidates to confront and address bias in themselves, their programs, and their practices. That includes preparing educational leaders to direct district- and school-level professional development and ongoing community discussions vital in facilitating teachers' confronting their biases and shifting their practice. Moreover, educational leaders must be prepared to uncover any deficit ideologies embedded in curriculum for struggling students when they are in a position to adopt or reject instructional materials. Furthermore, educational leaders need

to be prepared to recognize the pernicious effects of single-axis frameworks that allow stakeholders to slip from one set of deficit ideologies to another, such as by moving from a framework of poverty to explain low student performance to using a framework of disability to explain it. We argue for preparing educational leaders who instead will examine student performance by using an intersectional lens to interrogate institutional and classroom practices, including any biases therein.

Working Collaboratively Toward Intersectional Reculturing

As Ortiz and Robertson (2018) have called for special educators to collaborate with general education colleagues to meet the needs of English learners, we call for educational leader preparation faculty to collaborate with colleagues in both general and special education. These faculty can work across programs and departments to create new frameworks to prepare principals and others to view leadership through an intersectional lens while supporting teachers to use an intersectional approach when addressing the educational needs of their students. By bridging their programmatic boundaries, faculty can share their knowledge of effective instructional strategies to create a new curricular framework that prepares educational leader candidates to lead intersectional reculturing at the school-site level, which includes supporting teachers in designing and delivering lessons to meet the widest range of student ability.

Inclusive Pedagogies

Consistent with the intersectional approach that we propose, Ohito and Oyler (2017) offer goals for supporting teachers' inclusive counter-hegemonic pedagogies, including designing accessible instruction through Universal Design for Learning (UDL). Villegas, Ciotoli, and Lucas (2017) also suggest UDL as an effective approach used by inclusive teachers. Importantly, they add that inclusive teaching goes beyond simply applying appropriate instructional strategies. It must include the knowledge, skills, and dispositions underlying educators' (a) sociocultural consciousness, (b) affirming views of diversity, (c) commitment to acting as change agents, (d) understanding how learners construct knowledge, (e) knowing about their students' lives, and (f) using these insights to support learning. Those six characteristics of inclusive educators are consistent with our proposed intersectional approach and are infused throughout the instructional framework described below.

Tier 1 Framework

The Tier 1 framework (Whitenack & Golloher, 2017a, 2017b) for instructional practices is one tool to support intersectional reculturing to improve learning outcomes for all students, particularly English learners, students with disabilities, and other marginalized students (see Appendix B).[1] The Tier 1 framework builds upon previous work of the Teacher Education and English Learners (TEEL) research group (Stoddart et al., 2015), which distilled a set of instructional practices supported by a substantial body of research demonstrating the value of integrating subject-matter teaching with language and literacy development to enhance learning for English learners (Cummins, 1981; Genesee, 1987; Lambert & Tucker, 1972; Met, 1994) and building on the work of the Center for Research on

[1] A PDF of the Tier 1 framework is available at http://bit.ly/tier1framework

Education, Diversity & Excellence (Doherty, Hilberg, Epaloose, & Tharp, 2002). To prepare teacher candidates to teach students with disabilities in inclusive classrooms, rather than create a separate framework focusing on the needs of that student group, the Tier 1 framework aligns practices developed by the TEEL group with the UDL framework (National Center on Universal Design for Learning, 2014)[2]. Many of the practices correspond with Checkpoints of the UDL Guidelines (CAST, 2018).

We have begun to use the Tier 1 framework across programmatic curriculum in general education teacher preparation, and we propose its use in preparing educational leaders and in K-12 professional development. Dismantling programmatic silos in which general education, special education, and educational leader preparation tend to operate in universities and barriers between universities and K-12 schools could at once enable and be enhanced by implementation of the Tier 1 framework across programs and institutions. Such shared implementation could foster a shared vision among teacher and administrative candidates, practitioners, and educational leaders that all students participate inclusively—together—in learning activities (Florian, 2017).

Preparing Educational Leaders and Leading Schools with the Tier 1 Framework

The curriculum of educational leader preparation programs typically includes leadership, management, human resources, legal issues, and other such courses, and not ones related directly to curriculum and instruction (Whitenack, 2015). In light of the policies described above, however, Preliminary Administrative Services Credential (ASC) programs need to explicitly address the effective teaching and learning of English learners, students with disabilities, and other marginalized students so that ASC program graduates are prepared to lead the teachers at their sites in addressing the needs of all students. While some veteran teachers may have developed instructional expertise in teaching English learners or students with disabilities through extensive professional development, courses, or degree work, this is rare. Therefore, to be an inclusive instructional leader in most schools, principals need at least a modicum of expertise related to effectively educating English learners, students with disabilities, and struggling students. That many aspiring principals lack that level of content knowledge and instructional expertise highlights the importance of intersectionally reculturing ASC programs both to include curriculum focused on the needs of marginalized students and to develop in aspiring administrators the mindset of seeing the totality of each student rather than assigning them to a silo that matches their predominant characteristic, if any. The Tier 1 framework could be used in educational leadership preparation to support intersectional reculturing, for example, as an observation guide for candidates' analysis of instructional video or live teaching; in planning lessons related to coaching cycles conducted with teachers; or to consider how they would begin intersectional reculturing at specific schools, including considering what choices they would make as a leader, how they structure professional development, what they look for when hiring teachers, and even their expectations for how special education will operate on their campuses.

[2] The Tier 1 Framework referred to herein is neither derived from nor intentionally related to Tier 1 Supports as defined by Positive Behavioral Intervention and Supports (OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports, 2017).

Dismantling the K-12/Higher Education Silo: School-University Partnerships

In order to intersectionally reculture educator preparation programs for general and special education teachers and educational leaders, candidates need field placements where existing educators use an intersectional lens to deliver inclusive instruction to all students. If educator preparation programs are unable to find a sufficient number of intersectionally recultured schools for field placements, they could collaborate with school communities to simultaneously engage in intersectional reculturing while increasing the supply of inclusive placements. To forge such collaborations focused on intersectional reculturing, silos in which higher and K-12 education typically operate need to be removed, potentially by forming school-university partnerships (SUPs; Clark, 1999; Miller, 2015; Sirotnik and Goodlad, 1988), such as Professional Development Schools (PDSs; Darling-Hammond, 1994; Teitel, 2003) or via partnerships with other members of the communities in which schools are located, including community-based organizations (CBOs; Richmond, 2017). In partnering with CBOs, those led by and for members of marginalized groups could be pivotal to efforts at intersectional reculturing. Even with CBO participation, PDSs, SUPs, and other partnerships will not automatically become intersectionally recultured. Members from the K-12, higher education, and any other institutions in a particular partnership need to agree to pursue intersectional reculturing as a partnership goal. We maintain that any SUP or PDS seeking to engage in intersectional reculturing needs to include among its core values that education is an inclusive activity, one in which all students collectively participate, and that to educate all students it is necessary to understand the diversity within each student. Educational leaders would be pivotal in securing such partnership agreements.

Community-based Intersectional Reculturing

While the Tier 1 framework can be a useful part of intersectionally reculturing educator preparation and K-12 practices as described above, it is neither the sole nor is it the foundational component of such efforts. Instead, we conceive of the Tier 1 framework as one part of the inclusive counter-hegemonic pedagogies (Ohito & Oyler, 2017) included in intersectional reculturing, central to which is challenging deficit ideologies about diverse students. Yosso's (2005) community cultural wealth approach reframes traditional notions of cultural capital to focus on and learn from the array of contributions students bring to educational settings.

To successfully realize intersectional reculturing at the school-site level and beyond, educational leaders need to be prepared to engage their constituencies (i.e., teachers, parents, and fellow administrators) in an educational process to increase their understanding of the concepts of inclusive education and work collaboratively across their siloes to achieve more equitable outcomes for all students. In developing a plan to engage constituencies, it is common for school and district leaders to rely solely on consultants from outside of their districts for professional development. To reclaim agency, we recommend cultivating the expertise already within the school community, which includes educators, activists, parents, and alumni who are experts in navigating school politics and policies. Listening to their experiences is an important step in understanding students' needs. This approach requires facilitation by leaders who are reflective, humble, and purposefully committed to all their students.

Implications and Closing Thoughts

Practices, programs, and policies related to inclusive education and intersectional reculturing will need to be studied to determine their impact in improving educational outcomes for all students, particularly those who have been marginalized and inequitably served by existing educational institutions. Although the various linkages along the chain from programmatic practices to student outcomes have been challenging to connect (Cochran-Smith & Zeichner, 2005; Desimone, Smith, & Phillips, 2013; Mullens, Leighton, Laguarda, & O'Brien, 1996), inquiry with such a comprehensive scope would greatly inform future efforts. When such a broad view is resource prohibitive or otherwise not possible, richly detailed accounts of practices and programs also could inform others engaging in similar efforts.

While progress has been made within educator preparation silos in California to address the needs of all students, there remains a lack of vision to work across programs toward that end. The California Administrative Services Credential Program Standards defines all students as including:

> a wide range of learning and behavioral characteristics, as well as disabilities, dyslexia, intellectual or academic advancement, and differences based on ethnicity, race, socioeconomic status, gender, gender identity, sexual orientation, language, religion, and/or geographic origin. (Commission on Teacher Credentialing, 2018a, p. 42)

The state's program standards for the Education Specialist (Commission on Teacher Credentialing, 2018b) and Multiple and Single Subject (Commission on Teacher Credentialing, 2017) credentials are comparably inclusive. While we believe that it is necessary for the policy documents emanating respectively from administrative, teacher, and specialist education to articulate the importance of educating all students, as they do, we urge educators and those who prepare them to transcend their silos and work collaboratively toward that shared goal.

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Appendix A
Reculturing Instructional Leadership (Mendoza-Reis & Flores, 2014)

Institutional Level	**Pedagogical Level**	**Personal Level**
Identifying and addressing institutional inadequacies by identifying structural barriers to student achievement and taking an "advocacy stance" as leaders	Instructional leadership that defines content knowledge necessary for leading schools with ELs: Pedagogical Knowledge Sociocultural Knowledge Culturally Relevant Pedagogy L1/L2 Language and Literacy Acquisition and Development	Exhibiting ideological clarity by self-examination and transformation of deficit assumptions, beliefs, and attitudes about ELs; and naming, interrogating, and transforming deficit assumptions, beliefs, and attitudes about ELs with teachers

A conceptual model adapted from Mendoza-Reis, Flores, and Quintanar (2009).

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Appendix B
Tier 1 Strategies for Integrating Language and Literacy in Subject-Area Instruction

Contextualize Learning (CONTEXTUALIZATION)

Engage in Dynamic Instruction

- Activate or supply students' prior knowledge and thinking about the lesson topic (UDL Checkpoint, hereafter UDLC 3.1)
- Connect the lesson topic to local physical, geographic, economic, ecological, political, social, or other conditions (UDLC 7.2)
- Link the lesson topic to issues and challenges faced personally, locally, statewide, and/or nationally (UDLC 7.2)
- Plan for and maximize transfer and generalization of content by explicitly connecting topics across domains, subjects, etc. (UDLC 3.4)

Stimulate Active Student Learning

- Anticipate and elicit students' home, community, or other out-of-school experiences related to the topic being studied
- Engage students in problem- and project-based learning tasks and assignment

Encourage Self-reflection and Monitoring (GROWTH MINDSET)

Engage in Dynamic Instruction

- Guide appropriate goal setting through modeling planning, embedding opportunities for strategy development, promoting the use of planning tools, discussing what constitutes excellence, etc. (UDLCs 6.1, 6.2, 8.1)
- Create an accepting and supportive classroom that minimizes threats and distractions (UDLC 7.3)
- Promote expectations and beliefs that optimize motivation, focus on self-regulatory goals, and encourage self-reflection (UDLC 9.1)
- Employ differentiated, mastery-oriented feedback. Feedback should identify areas of strength and patterns of errors and provide strategies for success (UDLCs 5.3, 8.4)

Stimulate Active Student Learning

- Optimize individual choice and autonomy (UDLC 7.1)
- Enhance capacity for self-monitoring and self-assessment (UDLCs 6.4, 9.3)
- Facilitate personal coping skills and strategies (UDLC 9.2)

Scaffold Language and Content (SCAFFOLDING)

Engage in Dynamic Instruction

- Modify talk (repetition, wait time, enunciation, rate of speech, rephrasing, L1 use, gesturing) that facilitates student understanding of instruction
- Pay explicit attention to language issues that might be confusing or difficult and promote understanding across languages (UDLC 2.4)
- Illustrate concepts and organize information through multiple media, including by providing supports such as sentence frames, word walls, graphic organizers, outlines, and reading guides (UDLCs 2.5, 5.1, 6.3)
- Highlight patterns, critical features, and big ideas to guide information processing, visualization, and manipulation to maximize transfer and generalization of content (UDLCs 3.2, 3.3)

Stimulate Active Student Learning

- Embed multiple means for students to interact with a concept through the use of visual representations, physical manipulatives, models and realia, offering alternatives for visual or auditory information (e.g., textual descriptions of pictures, transcriptions of audio content) (UDLCs 1.2, 1.3, 2.3)
- Allow students to differentiate how they interact with the lesson by allowing learners to customize the display of information, varying the allowed methods of response, varying demands and resources to optimize challenge, and optimizing access to tools and assistive technology (UDLCs 1.1, 1.3, 4.1, 4.2, 5.1, 5.2)

Promote Academic Discourse (DISCOURSE)

Engage in Dynamic Instruction

- Model discourse patterns such as recounting, hypothesizing, and explaining
- Re-voice or restate student contributions using subject-area-specific discourse patterns
- Provide students with feedback on their use of academic language

Stimulate Active Student Learning

- Ask students to communicate their ideas and thinking about concepts, especially claims, evidence, and reasoning
- Ask students to restate, affirm, critique, and/or respond directly to each other's assertions, claims, evidence, and/or reasoning
- Foster collaboration and communication through the creation of cooperative learning groups and opportunities for peer interactions (UDLC 8.3)
- Allow multiple media for communication that allows students to demonstrate competence with the material (UDLC 5.1)

Support Literacy Development (LITERACY)

Engage in Dynamic Instruction

- Explain expectations of literacy tasks and provide clear instruction about how to successfully accomplish the tasks
- Clarify vocabulary and symbols (UDLC 2.1)
- Clarify syntax and structure, including highlighting structural relations, making connections to previously learned structures, and making relationships between elements explicit (UDLC 2.2)
- Use key subject-area-specific terms throughout the lesson

Stimulate Active Student Learning

- Assign tasks that involve subject-area-specific literacy skills (e.g., expository writing, measuring, using instruments and tools, recording observations, making tables and charts, interpreting or drawing diagrams, reading primary-source documents, etc.)
- Give students opportunities to use key words in writing or talk