A Literature Review in Support of the

With Inspiration Students Excel (W.I.S.E) Learning and Engagement Assessment

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Abstract

Of more than forty assessments that have been created in both the United States and Canada over the past sixty years none address the combination of culture, learning styles and intelligence. This research attempts to use prior research findings to develop a new more comprehensive framework that addresses "the whole student" through the lens of Universal Design.

Keywords: Opportunity to Learn, Achievement Gap, Culture, Equity, Universal Design, Learning Styles, Multiple Intelligences, Developmental Assets, Culturally Responsive Curriculum, Cultural Dimensions of Learning

Problem Statement

Since the inception of the public-school system equity has been a topic of great concern. "It may not be our intent to exclude our learners, but the reality is that many students do not have opportunities to learn at high levels or to access curriculum and instruction that is accessible, engaging, culturally sustaining, and linguistically appropriate (If Equity, 2021)". Due to the level of inequality and inequity that is pervasive in our school systems it is virtually impossible to close the achievement gap. That seemingly insurmountable achievement gap, unresolved, extends into adulthood and continues to have a negative impact on the lives of minorities. Although, there have been many laws, theories and frameworks developed over the past six decades to address this problem; none have been extensively successful. In the year 2022, inequity and inequality in public school classrooms is the norm, yet an unacceptable state for an education system that is touted as number one in the world.

Equity and Equality

Over the past four decades education policy in North America has progressed as it relates to equality and equity. Although different systematic changes to address these topics have occurred simultaneously in both the United States and Canada there is still much to be done. In the matter of *Brown vs Board of Education* on May 31, 1955 Chief Justice Earl Warren delivered the Supreme Court's decision to overturn the *Plessy* v. *Ferguson* decision of 1896 resolving that "separate but equal" was constitutional. This set the stage for immediate desegregation of schools. The intent was to provide equal opportunities, resources and instruction to ALL students. In the coming years the United States Department of Education established several laws with the purpose of supporting the Supreme Court's decision. In 1965 the Elementary and Secondary Education Act (ESEA) was entered into law; and provided funding for public schools. "The original hope was that, once schools received money, the school systems would reform and reach out to those children neglected by the system for so long" (Paul, 2016). However, as the years progressed, priorities changed and the ESEA did not reach its full potential. Since 1965 the ESEA has been revised and reauthorized every five years to enhance the impact and provide equity in public education. In 2001 the ESEA was reauthorized as the No Child Left Behind Act (NCLB). NCLB promoted achievement for all students and implemented processes that held local education agencies (LEA's), schools, teachers and students accountable for academic outcomes. Although NCLB was integral in decreasing achievement gaps; those gaps still remained. On December 10, 2015 ESEA was reauthorized. This iteration is known as Every Student Succeeds Act (ESSA). ESSA modified the former NCLB by providing flexibility to states that

demonstrated adoption of "college and career-ready standards and assessments, implemented school accountability systems that focused on the lowest-performing schools and those with the largest achievement gaps" between racial and ethnic groups (Paul, 2016).

Similarly, in 2008 the Canadian Minister of Education authorized Realizing the promise of diversity (RPD): Ontario's Equity and Inclusive Education Strategy(EIE) (Ontario Ministry of Education 2009a). This policy also addressed the need for a more equitable and equally accessible education system for all students (Campbell, 2019). At that time only 43 of Ontario's 72 school boards reported having any type of equity or equality policy in place. This policy served as a mandate for all 115 school boards to develop and implement policies. Specifically, the policy required:

> "the ministry to provide direction, support, and guidance to the education sector, so that every student has a positive learning environment in which to achieve his or her highest potential; each school board to develop and implement an equity and inclusive education policy and guidelines for the board and its schools; and each school to create and support a positive school climate that fosters and promotes equity, inclusive education, and diversity. (Ontario Ministry of Education 2009a, 11)."

This was followed by the implementation of the Accepting Schools Act (ASA) in 2012 which served as an amendment to specific sections of the former EIE policy. ASA amendments included: "supports for student-led activities and clubs concerning understanding and respect for gender equity, anti-racism, disabilities, and sexual orientation and gender identities" (Campbell, 2020, pg. 422). The ASA states that:

"students need to be equipped with the knowledge, skills, attitude and values to engage the world and others critically, which means developing a critical consciousness that allows them to take action on making their schools and communities more equitable and inclusive for all people' (Government of Ontario 2012, 1)."

As with US policies during this time, Canadian policies had a positive impact on improving the gap in the academic performance of marginalized groups. However, the gaps remained present. Dedicated to continuing progress, in 2014 the Council of Ontario Directors of Education, with the support of the Ministry of Education published a document entitled *Equity and Inclusive Education: Going Deeper*. This document was the result of a project directed at providing a tool to school board leaders for three purposes:

"supporting current implementation of their equity and inclusive education policy through more intensive applications; assessing progress made in their equity and inclusive education policy in order to enhance implementation; and determining their own pathways towards full integration of equity and inclusive education into school and board improvement, and multi-year strategic planning (Ontario Ministry of Education 2014, pg. 2)".

In 2017 the Ontario Ministry of Education acknowledged publicly that their efforts had not met the mark and more specific action was needed to assure the achievement gap was closed and introduced the Equity Action Plan. This plan not only addressed the achievement gap from an academic perspective but delved deeper into the data and addressed inequitable expulsion rates among marginalized groups. It addressed four

focus areas, School and Classroom Practices; Leadership, Governance and Human Resource Practices; Data Collection, Integration and Reporting; and Organizational Culture Change.

Ultimately, with every iteration of the original ESEA and IEI policies in North America governments have attempted to address the issue of equality to provide an environment that allows all students the same opportunity to learn.

Opportunity to Learn

As Governments have continuously attempted to improve policies and laws to provide equal opportunities to learn for all students, and minimize achievement gaps, researchers have simultaneously been developing theories and frameworks to address both equality and equity. Although very similar in structure and spelling the words equality and equity are very different. While equality is concerned with the distribution of resources equity is focused on each student receiving the support and resources needed to achieve academic success without regard to the student's background, language, race, economic profile, gender, learning capability, disability, or family history" (Western Governors University, 2021). This would suggest that in order to provide an equitable education in public schools we need effective teachers. Teachers need to be equipped with a vast knowledge of pedagogical techniques and learning theories; and have the ability to both identify student needs and apply techniques appropriately to meet those needs. Essentially, effective teachers are not a luxury; they are a necessity.

Effective Teaching and Education Law

From the Elementary and Secondary Education Act (ESEA) of 1965 and the No Child Left Behind Act of 2001(NCLB), to the Equity and Inclusive Education Strategy (EIE)of 2008, American Recovery and Reinvestment Act of 2009(ARRA); and Equity Action Plan (EAP) of 2017 Government programs across North America have focused on the improvement of education standards impart through mandating the implementation of programs that focus on the quality of teachers and evaluation measures to assess their effectiveness. In 2015 President Barack Obama signed the Every Student Succeeds Act (ESSA) into law reauthorizing ESEA and replacing NCLB.

One of the most highly debated changes in the new law was its failure to include specific minimum qualification requirements for teachers. Instead ESSA requires each state to define the "Effective Teacher" (Klein, 2018) and strictly prohibits involvement from the Federal Government. Title II of ESSA specifically addresses preparing, training, and recruiting high-quality teachers. Specifically, the legislation states:

- 20 U.S.C. §6311(g)(1)(B)of Title I states that each state plan *shall describe* "how low-income and minority children enrolled in schools assisted under this part are not served at disproportionate rates by *ineffective*, out-of-field, or inexperienced teachers, and the measures the State educational agency will use to evaluate and publicly report the progress of the State educational agency with respect to such description".

- Title II, Part A *authorizes* states to use funds for "improving equitable access to effective teachers"

For fiscal year 2020 ESSA provided states with more than 16 billion dollars in funding, 95% of which must be used for the state to provide Local Education Agencies (LEA's) (commonly known as "school districts") with grants to "improve student achievement, instruction and schools" (pg 16—ESSA). According to Section 1112 of ESSA, in order to acquire grant funding from the state LEA's must submit plans:

> "To ensure that all children receive a high-quality education, and to close the achievement gap between children meeting the challenging State academic standards and those children who are not meeting such standards, each local educational agency plan shall describe—" and to document

> ''(2) how the local educational agency will identify and address, as required under State plans as described in section 1111(g)(1)(B), any disparities that result in low-income students and minority students being taught at higher rates than other students by *ineffective*, inexperienced, or out-of-field teachers;" (pg. 54).

In ESSA, references to teacher effectiveness are written in the negative, as "ineffective". But in order to identify ineffective teachers there must be a description of what is considered effective. Essentially, ESSA puts the onus of defining the "effective teacher" on the shoulders of states and LEA's. This has proven to be a daunting task; leading to the current environment where there is no single agreed upon definition for the "effective teacher". Although there is no consensus on how to specifically define the "effective teacher" leading education and research organizations such as The Council of Chief School State Officers (CCSSO), Rand Corporation, American Institutes for Research (AIR) and many more all agree that an effective teacher is the most important

and influential factor on student achievement. If indeed an effective teacher is the most important and influential factor on student achievement, it becomes paramount for school districts to understand the meaning of "effective" and develop hiring practices that attract and retain teachers who are identified as "effective". Similarly, the 2017 EAP included components to provide more professional development to teachers. The Ministry of Education concluded that training and development of teachers was key to reducing the achievement gaps and providing a more equitable and equally accessible education for all students. A laser focus was placed on effective teachers and their understanding of structural inequalities as it relates to their ability to "disrupt historical patterns" and "create more equitable opportunities, learning environment and outcomes for [both] students and staff (Campbell, 2020, pg. 424)". Although North American governments identified effective teaching as a prominent determinant of academic success; and potentially an avenue for providing all students and equal and equitable education; one question remained. What are the characteristics of an effective teacher?

Characteristics of Effective Teachers

After decades of research, there is no consensus on the definition of an "effective teacher". However, there are characteristics that are consistently supported as indicators of teacher effectiveness. In a 2007 meta-analysis strictly focused on teacher-student relationships Cornelius-White found that teacher-student relationships had a strong positive effect (d=0.72) on all student outcomes (achievement and attitudes). The study results indicated that teacher characteristic like empathy, warmth, and encouragement (effect sizes ranged between 0.60 and 0.70) contributed to positive

teacher-student relationships and therefore improvements in both attitude and achievement.   According to Stronge 2007, "caring for and about students" includes behaviors such as taking time to get to know and listening to students. Caring, empathy and other characteristics associated with teacher-student relationships are supported in research by Darling-Hammond 2013, Evans 1966, Hattie 2007 & Metzger & Wu 2008. Collectively effect sizes of characteristics related to teacher-student relationships ranged from 0.29 (small) to 0.72 (large). Getting to know students allows teachers to better understand their motivations, personalities and learning preferences. However, if teachers are not adept in teaching pedagogy, they are unable to implement appropriate strategies and therefore are less capable of impacting academic performance positively.

Pedagogical Knowledge

Teaching Pedagogy is a measure of a teacher's pedagogical knowledge, familiarity and ability to apply appropriate assessment, and teaching strategies; and their ability to create a positive learning environment. In a meta-analysis of 183 studies investigating the effect of pedagogical knowledge in science on student achievement Yeany & Padilla (1986) found an astoundingly large average effect size of 1.18; while Bennett (1987) found an equally as large average effect size of 1.10 when investigating overall pedagogical knowledge. Effective teachers have a deep understanding of their content and strategies that allow them to develop and communicate expectations with clarity (Fendick, 1991, d=0.75). They map state and local standards and develop long range planning to guide their instruction (McEwan, 2010). Additionally, they use appropriate assessment to determine student mastery (Gronlund, 2003; Marzano et al., 1993). The

combination of deep pedagogical knowledge and exceptional classroom management

yields and environment conducive to learning and higher levels of student achievement

(Langer, 2001; Entwisle & Webster, 1973; mason et al., 1992). Effective teachers

understand how to use questioning, mastery learning, cooperative learning and other

instructional strategies to meet the needs of students and therefore improving

achievement (Cotton, 2000; Johnson, 1997; McBer, 2000; Bloom, 1984; Covino &

Iwanicki, 1996). A substantive amount of the research regarding pedagogy over the

past four decades has been focused on teacher knowledge and the understanding of

Multiple Intelligences and Learning Styles.

Multiple Intelligences and Learning Styles

The theory of Multiple Intelligences was developed by Dr. Howard Gardner in 1983.

Gardner suggested that intelligence was not unidimensional but instead multi-faceted

being composed of 8 different sub-intelligences, Linguistic, Logical-mathematical,

Spatial, Bodily-Kinesthetic, Musical, Interpersonal, Intrapersonal, and Naturalist as

defined in Table 1 and illustrated in Figure A.

Table 1

Gardner's Multiple Intelligences

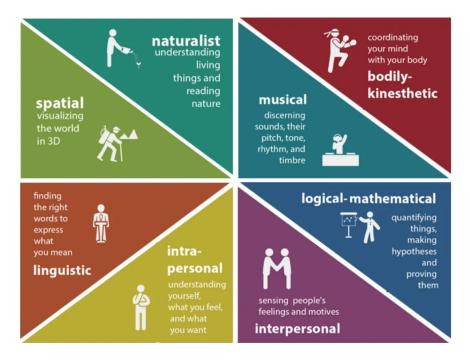| Intelligence	Explanation
Linguistic	sensitivity to the spoken and written language, ability to learn languages, and capacity to use language to accomplish certain goals (word smart)
Logical-mathematical	sensitivity to the spoken and written language, ability to learn languages, and capacity to use language to accomplish certain goals (number/reasoning smart)
Spatial	the potential to recognize and manipulate the patterns of wide space (those used, for instance, by navigators and pilots) as well as the patterns of more confined areas, such as those of importance to sculptors, surgeons, chess players, graphic artists, or architects (picture smart)
Bodily-Kinesthetic	the potential of using one's whole body or parts of the body (like the hand or the mouth) to solve problems or to fashion products (body smart)
Musical	the skill in the performance, composition, and appreciation of musical patterns (music smart)
Interpersonal	the capacity to understand the intentions, motivations, and desires of other people and consequently to work effectively with others (people smart)
Intrapersonal	the capacity to understand oneself, to have an effective working model of oneself-including own's desires, fears, and capacities—and to use such information effectively in regulating one's own life (self smart)
Naturalist	expertise in the recognition and classification of the numerous species—the flora and fauna—of his or her environment (nature smart)

Source: Marenus, 2020

Figure A. Gardner's Multiple Intelligence's (Marenus, 2020)

"Gardner's multiple intelligences theory gives classroom teachers two extremely valuable tools that make learning more focused on individual abilities. First, it helps teachers to identify students' innate strengths and abilities. Second, it enables teachers to design classroom activities that will give students an opportunity to experience working in different areas of intelligence" (Teaching Diverse Students Book Chapter, p. 26)

Another such theory is that of Learning Styles. During the late 1970's and early 1980's the terms multiple intelligences and learning styles were often used interchangeably. However, according to Dr. Gardner there is a fundamental difference between the two. Multiple intelligences represent different intellectual abilities; while earning styles, represent the ways in which an individual approach a range of tasks.

According to Darling-Hammond, 2001, students learn more and retain it longer when they have an opportunity to learn and to demonstrate what they've learned using their preferred learning style. Therefore, a teacher's ability to assess the needs of a student and how they learn best (teacher effectiveness) is essential to academic success. Armstrong et al., 2012 defines learning styles as an "individuals' preferred ways of responding (cognitively and behaviorally) to learning tasks which change depending on the environment or context" (p.451-454). Further, Armstrong states that these "learning styles" can affect person's motivation and attitude to learning and shape their performance (p.451-454). Research and development pertaining to learning styles can be traced back as early as 334 BC when Aristotle, proposed that, "each child possessed specific talents and skills" (Reiff & National Education Association, W. D., 1992). Since that time there have been countless studies conducted to substantiate the existence of learning styles. In conjunction with these studies many instruments have been developed to assess the primary learning style of students, as illustrated in Table 2.

Table 2

Learning Style Instruments by Year

Year	Author	Instrument
1909	Betts	Betts Inventory
1949	Gordon	Scale of Imaginary Control
1954	Holzman and Klein	Schematising Test
1958	Pettigrew	Scale of Cognitive Style
1962	Witkin	Group Embedded Figures Test (GEFT)
1962	Myers-Briggs	Myers-Briggs Type Indicator (MBTI)
1967	Sheehan	Shortened Betts Inventory
1971	Paivio	Individual Difference Questionnaire (IDQ)
1973	Marks	Marks Vividness of Visual Imagery Questionnaire
1973	Kogan	Sorting Styles Into Types
1974	McKenney and Keen	Model of Cognitive Style
1974	Grasha-Riechmann	Student Learning Style Scales (SLSS)
1976	Reinert Edmonds	Learning Style Identification Exercise (ElSIE)
1976	Hill	Cognitive Style Profile
1976	Friedman and Stritter	Instructional Preference Questionnaire
1977	Richardson	Verbaliser Visualiser Questionnaire
1977	Schmecket et. al.	Inventory of Learning Processes
1977	Gregorc	Gregorc Mind Styles Delineator (MSD)
1978	Renzulli-Smith	Learning Style Inventory
1978	Hunt	Paragraph Completion Method
1980	Letteri	Cognitive Style Delineators
1980	Christensen	Lifescripts
1980	Tamir-Cohen	Cognitive Preference Inventory
1980	Canfield	Canfield Learning Style Inventory (CLSI)
1981	Rezler-Rezmovic	Learning Preference Inventory
1982	Honey and Mumford	Learning Styles Questionnaire (LSQ)
1982	Cacioppo and Petty	Need for Cognition Scale
1983	Curry	'Onion' Model
1984	Whetton and Cameron	Cognitive Style Questionnaire (CSQ)
1986	Keefe and Monks	(NASSP) NASSP Learning Style Profile
1987	McCarthy	4mat
1987	Biggs	Study Process Questionnaire
1988	Kirby et al.	Multidimensional Verbal-Visual LSQ

1988	Weinstein, Zimmerman and Palmer	Learning and Study Strategies Inventory
1989	Kirton Kirton	Adaption-Innovation Inventory (KAI)
1989	Kaufmann	The A-E Inventory
1989	Epstein and Meier	Constructive Thinking Inventory (CTI)
1990	Groner	Cognitive Style Scale
1990	Conti and Kolody	Self-Knowledge Inventory of Lifelong Learning Skills
1990	Torrance	Style of Learning and Thinking
1991	Miller	Personality Typology: Cognitive, Affective, Conative
1991	Pintrich, Smith, Garcia & McCeachie	Motivated Strategies for Learning Questionnaire
1991	Riding	Cognitive Styles Analysis (CSA)
1995	Walters	Psychological Inventory of Criminal
1995	Herrmann	Brain Dominance Instrument (HBDI)
1996	Felder and Silverman	Index of Learning Styles (ILS)
1996	Vermunt	Inventory of Learning Styles (ILS)
1996	Allinson and Hayes	Cognitive Style Index (CSI)
1997	Cooper	Learning Styles Id
1998	Harrison-Branson	Revised Inquiry Mode Questionnaire
1998	Sternberg	Thinking Styles
1998	Apter	Motivational Style Profile (MSP)
2000	Hermanussen, Wierstra, DeJong and Thijssen	Questionnaire Practice-Oriented Learning (QPL)
2002	Jackson	Learning Styles Profiler (LSP)

Source: Coffield, Moseley, Hall, & Ecclestone, 2004

One of the most well-known and widely accepted theories of learning styles was developed by psychologist David Kolb in 1984. Kolb believed that "individual learning styles emerge due to our genetics, life experiences, and the demands of our current environment." (Cherry, 2021 p. 1). He theorized and developed an instrument based on four distinct learning styles, Convergent, Divergent, Assimilator and Accommodator, as defined in Table 3.

Table 3

Kolb's Learning Styles

Learning Style	Description
The Converger	People with this learning style have dominant abilities in the areas of Abstract Conceptualization and Active Experimentation. They are highly skilled in the practical application of ideas. They tend to do best in situations where there is a single best solution or answer to a problem.
The Diverger	Divergers dominant abilities lie in the areas of Concrete Experience and Reflective Observation, essentially the opposite strengths of the Converger. People with this learning style are good at seeing the "big picture" and organizing smaller bits of information into a meaningful whole. Divergers tend to be emotional and creative and enjoy brainstorming to come up with new ideas. Artists, musicians, counselors, and people with a strong interest in the fine arts, humanities, and liberal arts tend to have this learning style.
The Assimilator	Assimilators are skilled in the areas of Abstract Conceptualization and Reflective Observation. Understanding and creating theoretical models is one of their greatest strengths. They tend to be more interested in abstract ideas than in people, but they are not greatly concerned with the practical applications of theories. Individuals who work in math and the basic sciences tend to have this type of learning style. Assimilators also enjoy work that involves planning and research.
The Accommodator	People with this learning style are strongest in Concrete Experience and Active Experimentation. This style is basically the opposite of the Assimilator style. Accommodators are doers; they enjoy performing experiments and carrying out plans in the real world. Out of all four learning styles, Accommodators tend to be the greatest risk-takers. They are good at thinking on their feet and changing their plans spontaneously in response to new information. When solving problems, they typically use a trial-and-error approach. People with this learning style often work in technical fields or in action-oriented jobs such as sales and marketing.

Source: Cherry, 2020

In 1987, Neil Fleming designed yet another extremely popular model for identifying learning styles. The VARK model of learning styles inventory was developed in an effort to help students understand more about the ways in which they learn. Although it is presumed that all students have the ability to access every learning style, research suggests that one learning style is usually more dominant. Theoretically, Fleming believed that if students understood more about their preferred (more dominant) method of learning they would be better able to determine which study strategies would be most helpful to their academic success. The VARK model included four categories, Visual, Auditory, Reading and Writing; and Kinesthetic as defined in Table 4 (Cherry, 2019).

Table 4

VARK's Learning Styles

Learning Style	Preferred Mode of Learning
Visual	pictures, movies, diagrams
Auditory	music, discussion, lectures
Reading & Writing	making lists, reading textbooks, taking notes
Kinesthetic	movement, experiments, hands-on activities

Source: Cherry, 2019

Although the naming conventions for both the Kolb and VARK models are very different; conceptually they overlap considerably. In fact, the vast majority of research conducted

regarding learning styles have resulted in categories that are very similar. This would seem to suggest that there is a consensus among researchers in support of learning styles.

Surprisingly, in recent years, there have been equal amounts of acceptance and criticism throughout the literature regarding theories of learning styles as well as multiple intelligences. Ultimately, the theories of both learning styles and multiple intelligences provide pertinent information to educators and assist in improving opportunity for diverse students to learn on a level playing field. However, in isolation neither theory is sufficient. According to Silver, Strong, and Perini, 1997, the theory of learning styles does not provide insight into how each style varies in different content areas and disciplines. Additionally, it does not address the effect of purpose and context on learning. Too, multiple intelligence theory does not address the "individualistic process" learning. In opposition, Moussa, 2014 reported that,

"Learning styles is a field of research that has many useful implementations for both the learner and educator. Learning styles can be simply understood as the various techniques that students prefer to use to perceive and process information and interact with the learning environment. Identifying the various dimensions of learning styles provides educators with a greater awareness of the unique characteristics of learners. Educators can use this awareness to maximize student learning and support effective education by developing teaching methods that incorporate various learning styles (pg. 25)."

The arguments suggesting a move away from learning styles and multiple intelligences focus on the lack of definitive empirical research completed over the past forty years.

However, support in the learning styles community has not waivered. In most recent years new pedagogical techniques have emerged. These techniques suggest that multiple intelligences and learning styles are not sufficient in isolation to provide teachers with strategies that will have an optimal positive impact on student learning. New models, frameworks and inventories should strive to be more comprehensive.

Universal Design for Learning and Developmental Assets

Universal Design for Learning (UDL) is a step in that direction. According to Rose & Myer, 2002, UDL has three principles that guide teachers' implementation

1. Provide multiple means of representation

2. Provide multiple means of action and expression

3. Provide multiple means of engagement

As noted by University of Massachusetts Global, 2021, the core principles of UDL supports the "most widely replicated finding in educational research: that students are highly variable in their response to instruction (pg. 1). Essentially, UDL extends, not replaces, the work of Gardner and Kolb with regard to types of learners and learning. UDL breaks down representation, action and expression, and engagement into three categories of brain networks. The first of which is recognition. The recognition network appraises what we learn, hear, see and read; and how we classify and collect information. To address this brain network teachers, present information in different ways. The second is the strategic network. This network is focused on how we learn. How we express ideas and organize thoughts is strategic in nature. This network suggests teachers to allow students to present responses in multiple ways. The third

network addressed in UDL is the affective network. The affective network is concerned with the why of learning. It addresses keeping students engaged motivated and challenged (Muhammet Yaşar and Arslan, 2017).

Research shows that when students experience developmental relationships with their teachers, motivation and responsible decision-making, are strong (The Search Institute). The Developmental Assets research and inventory created by the Search Institute addresses a common group of factors included in the UDL framework. In fact, according to the Search Institute:

"youth with strong developmental relationships benefit powerfully in their learning and development through:

- Increased academic motivation;

- Increased social-emotional growth and learning (self-management, relationship skills, responsible decision making, social awareness, and self-awareness)

- Increased sense of personal responsibility; and

- Reduced engagement in a variety of high-risk behaviors.

That's why it's important for educators and youth leaders to be both intentional and inclusive when building relationships with young people".

The Search Institute has recognized the role of their Developmental Assets work in classrooms and partnered with the education community to provide workshops and classroom materials to address social emotional constructs that influence the classroom environment and by default the opportunity for all students to learn.

Together, the Developmental Framework, and UDL sets a broader stage for what is necessary to address the needs of all students by considering the social-emotional characteristics of learners and applying purposeful flexibility to pedagogical practices. This combination has proven instrumental in further eliminating barriers to providing equal and equitable opportunities for all students to learn. Although the inclusion of UDL and Developmental Assets would yield a more complete model for creating student learning profiles, the literature suggests that culture is yet another very influential factor in student learning that should be considered.

Cultural Dimensions of Learning

In the early 2000's researchers began delving into determining the relationship between culture and academic performance. Too often this research focused on race and ethnicity; and used these terms interchangeably with culture. In fact, many studies have even attempted to categorize entire races into specific types of learners. However, "findings of previous studies focusing on the effect of culture on learning styles, it does not seem possible to generalize the representation of certain cultures with certain learning styles (Diken and Özdemir, 2021, pg. 2)".

 Although culture has been defined in a multitude of ways the universal definition of culture is "shared motives, values, beliefs, identities, and interpretations or meanings of significant events that result from common experiences of members of collectives that are transmitted across generations" (SAGE, 2004, p. 15). This definition substantiates the idea that culture is not synonymous with race or ethnicity; but instead relates to life experiences. Research suggests that "every individual's background and experiences

(in and out of the classroom) shape the learner" (Kieran & Anderson, 2019, pg 3). Kieran & Anderson, 2018 advises that understanding this concept is imperative, especially to as it relates to "historically oppressed and marginalized communities" (pg. 3). Further closing the achievement gap will require purposeful attention to the needs of these students and will demand a focus on culturally adaptive learning (Parrish and Linder-VanBerschot, 2010).

According to Bennett (1987) ignoring the effects of would be detrimental to the overall learning process.

> "Proponents of cultural differences point to the disparity between the students' home and school culture and the difficulties that minority students have in adjusting to a classroom with different social interactions, linguistic, and cognitive styles (Dembo, 1993, p.90)."

If we are to provide every student an equal and equitable opportunity to learn we cannot ignore the effects of culture (Guild,1994). Shade (1986) indicated that perceptual development is not consistent across ethnocultural groups and erroneously assuming that every student sees, hears or processes every event the exact same way is unreasonable (Ramirez, 1989).

In 2010, Parrish and Linder-VanBerschot sought to build a model to take culture and all of the related components into account through their development of the Cultural Dimensions of Learning Framework (CDLF). They developed a model and assessment tool to provide teachers with a comprehensive student profile. The CDLF explains the eight key cultural dimensions of learning that can be used to recognize and address culturally based learning differences. The Cultural Dimensions of Learning Framework

(CDLF) (Parrish & Linder-VanBerschot, 2010) builds on the work of Geert Hofstede. It expands Hofstede's work to include eight key cultural dimensions and describes continuums of behaviors within each that could be observed during instruction. The authors suggest the CDLF as a tool to assist teachers in better understanding the culture of both themselves and their learners.

Conclusion

In the more than six decades since the United States and Canada began launching efforts to address equality and equity in education one thing is clear. There is still work to be done. Researchers continuously theorize and assess new and improved ways to assist in closing the achievement gap and provide all students with the opportunity to learn. The culmination of research to date suggest that in order to provide teachers with the information necessary to improve the current state of affairs, we will need new and improved frameworks and assessments. These frameworks and assessments will need to address not only learning styles and multiple intelligences, but also the broader topics of universal design, developmental assets, and culture. Of the more than forty learning inventories listed in Table 2 not one of them addresses the combination of all these factors. The development of an inventory that provides educators with more comprehensive student profile data is imperative if we truly desire to continue closing the achievement gap and; ultimately want to create equal and equitable learning environments that provide all children an opportunity to learn.

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