
# The Merits of Teaching Preparation Grounded in Equity: Critical Components for Developing and Retaining Educators who are Responsive to Minnesota's Diverse and Complex Communities

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# I. What is EPIC?

The Educator Policy Innovation Center, or EPIC, is the practitioner-driven think tank of Education Minnesota. EPIC brings together teams of experienced educators to provide research-proven solutions to the challenges facing Minnesota schools. Each EPIC team performs a comprehensive review of academic literature on a given issue and adds to our understanding by sharing classroom experiences. After discussing the academic literature and its real-world implications for students, the educators recommend policies to meet the challenge. The coupling of sound academic research with actual classroom experience means EPIC's policy recommendations are uniquely valuable because they combine the best from academia and real-world practical experience.

The EPIC research teams are open to all members of Education Minnesota because although practicing educators are the experts when it comes to education policy, the voice of the educator has often been absent in education policy discussions. Academics, politicians, and CEOs proclaim what is best for education, often with no grounding or experience in how their proposals affect real classrooms with actual students. As a result, our schools are hampered by disjointed, inefficient and at times harmful state and federal policies.

Educators see every day how these policies affect Minnesota's children. EPIC ensures policy makers will now have access simultaneously to the best academic research as well as to the thinking of front-line educators on the most pressing issues in education.

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# II. The EPIC Teacher Preparation Advisory Team

**Marcell Branch** is a behavioral specialist from West Education Center in Minnetonka for Intermediate School District 287. Before coming into the education field, Branch was employed in the human and social service field for 20-plus years. He is passionate about the work he does with his students, teaching them natural skills to live productive lives, and empowering them to have a voice on issues of importance to their lives. Branch points to his training in working with youth involved in gangs, inclusion of minorities in community development, parental separation implications for schools, student development and diversity, and other areas as strengths that make it possible for him to help his students learn to live with life crises, and know that they are in control of their own actions.

**Dennis Draughn** is a high school social studies teacher in Rosemount-Apple Valley-Eagan Public Schools. He holds a B.A. from the University of Minnesota Twin Cities in English and African American studies. Additionally, he has a M.A. in education from Augsburg University and is currently enrolled in an administration doctoral program in educational leadership at University of St. Thomas. Draughn works for his school district as an assistant integration and equity coordinator, assisting the district with equitable and culturally proficient teaching practices. Draughn is also a 2017 Humanities Center Veterans Voices award winner and is currently serving in the Minnesota Army National Guard. In his free time, he loves traveling, spending time with friends, family and coaching softball.

**Ann Feyen** is a Nationally Certified School Psychologist working in Duluth Public Schools. Before working in Duluth, she worked as a school psychologist in Superior, WI; Lafayette, IN; and Lansing, MI, with children ranging from birth to 12th grade. She received her B.A. from Wittenberg University and her education specialist degree from Michigan State University in school psychology. In her current position as a school psychologist, Feyen works primarily with elementary students who come from very diverse families and neighborhoods through the special education evaluation process. She is part of her district's data review team and has been a part of a Positive Behavioral Intervention and Supports team. She has participated in trainings on autism, racism, educational equity, poverty, and PBIS. Outside of school, Ann enjoys being on the lake, camping, hiking, and traveling with her family.

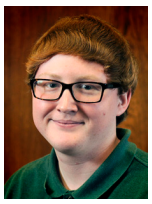
**Deanna Fosness** is a teacher with the state of Minnesota working in Saint Peter at a residential treatment facility. Fosness earned her undergraduate degree in mathematics education from St. Cloud State University and an M.A. degree in experiential education from Minnesota State University, Mankato. She is currently working toward a doctoral degree in educational leadership from Minnesota State University, Mankato, and is enthusiastic about helping learners discover passions that motivate them to learn. In her spare time, Fosness enjoys learning and spending time with her dogs.

**Abby Kelley** has an M.A. in education from Augsburg University. She is a special education evaluator for Cambridge-Isanti Schools. She has worked in a variety of special education settings, has a passion for culturally appropriate educational practices, and has worked to support both general education and special education teachers to improve outcomes for all students. In her free time, she is an obsessive baseball fan and a coffee connoisseur.

**Tricia Miller** is a Spanish teacher at Westwood Middle School in the Spring Lake Park School District. She holds a B.A. from Bethel University in Spanish education, and a master's in education in teaching and learning from St. Mary's University. She has been teaching for 12 years, and was the recipient of the Spring Lake Park Teacher of the Year award in 2013. She enjoys running the diversity club and mock trial program, and directing the fall play. In her free time, she enjoys taking her boys to the Mall of America to play Pokémon Go, volunteering as a small group leader at her church youth group, and reading fiction novels.

**Angela Osuji** is a 7-12 licensed chemistry, physics, and physical science teacher in Minneapolis Public Schools. She is a graduate of the University of Nigeria, Nsukka and St. Mary's University of Minnesota. She holds a Ph.D. in science education and K-12 administration licensure. She is a member of various professional organizations, including Education Minnesota, the Minnesota Science Teachers Association (MnSTA), the National Science Teachers Association (NSTA), the Association for Supervision and Curriculum Development, (ASCD), Phi Delta Kappa, Global Minnesota, and the United Nations, USA (UN-USA). Currently, she is the chemistry discipline director on the board of MnSTA. Outside of work, she volunteers with various nonprofits, including Habitat for Humanity, the Youth Mentoring Program for Children of African Descent, and the Igbo Women League of Minnesota. She enjoys travelling, cooking, and spending time with her family.

**Chris Peterson** is a sophomore secondary social studies student at the University of Minnesota Twin Cities working toward a B.A. in history and political science and a master's in secondary social studies education. He currently works for the Minnesota Historical Society in their History Day program, working one-on-one with students from around the metro on their projects. Peterson is also the co-president of the Education Minnesota Student Chapter on the Twin Cities campus and is involved in the union's student program as the metro area representative on the state council.



**Courtney Roatch** is a K-12 school counselor and district assessment coordinator for Bertha-Hewitt Public School. Roatch received both her B.A. in psychology and her M.S. in counseling and student affairs from Minnesota State University Moorhead. For her thesis project, she designed a comprehensive school leadership program for at-risk students. Before working as a school counselor, Roatch worked as a behavior therapist at the North Dakota Autism Center. When she has free time, she enjoys traveling, spending time with family and friends, and watching or playing sports.

**Sumair Sheikh** is currently a career and college readiness specialist within Duluth Public Schools. He works with district and community stakeholders to collaboratively develop and coordinate programs helping all students better understand postsecondary options and have a plan to accomplish their goals. As a member of the district's Office of Education Equity, Sheikh is also committed to helping colleagues better understand cultural competency and the role they play integrating culturally relevant and career and college readiness content into their curriculum. Sheikh holds a B.S. degree in biology from Michigan State University, a post-baccalaureate teacher certification through Eastern Michigan University, and a master's in advocacy and political leadership from the University of Minnesota Duluth. Sumair spends his free time volunteering for local campaigns, playing basketball and volleyball, listening to music with friends, and exploring the north shore of Lake Superior and beyond.

**Gail Wilkey** is the K-4 Spanish teacher at Prairie Woods Elementary in New London-Spicer. Before moving to New London-Spicer, she taught third grade for eight years at a Spanish immersion International Baccalaureate school in Forest Lake, and spent five years of teaching in Quito, Ecuador at an international school. She earned her B.A. in elementary/middle school education with a minor in K-8 Spanish from the University of Wisconsin-Eau Claire, and later received her M.A. degree from the University of Alabama-Tuscaloosa. Wilkey believes that the most important factor in teacher preparation is studying the strong relationship between social-emotional learning and academic success and their connection to strong classrooms. Wilkey serves on her local union's executive board and her district's Q Comp Oversight Committee. Aside from teaching, Wilkey travels, practices portraiture photography, and loves attending concerts.

# III. Executive Summary

Scholars and national stakeholders have long praised Minnesota for having both high professional standards for educators and high student achievement. At one time, Minnesota was committed to building and sustaining a professional, well-trained, and appropriately compensated teaching workforce to serve students. However, in 2017, Minnesota's state lawmakers made sweeping changes to our teacher licensure laws. The 2017 change dramatically reduced the requirements to teach in Minnesota classrooms. Minnesota has now shifted from being among the states with the most stringent requirements for teacher licensure to being among the states with the lowest standards for teacher licensure. This has dramatic implications for Minnesota's students, especially students of color.

**Teacher preparation matters. Ill-prepared teachers harm students, schools, and communities.**

Minnesota needs to confront the inequity that is woven throughout the entire education system. All stakeholders, unions, districts, policymakers, and administrative groups, need to realize previous methods of training teachers have harmed and ignored students of color and low-income communities. However, lowering the bar for entry into the classroom is the wrong way to go about correcting the deep injustices of education inequity. Instead, stakeholders must collectively agree to transform the teacher preparation system in a way that preserves the common good of free public education. All parties must strive to build and sustain a system that serves all students and the future citizens of Minnesota.

We offer this paper to promote our vision of how policymakers can seize the opportunity given to us by the 2017 legislative changes.

We must learn from the other states that have already traveled this path, so we can use this moment to correct the inequities of the past and prevent future harm.

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**Teacher preparation, not on the job training, is critically important to student achievement and success.**

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With that, we argue that all future teachers in Minnesota, the candidates from both traditional Institutes of Higher Education and those from alternative pathways, must receive quality training in:

- content knowledge and content-specific methodology
- childhood development, including social-emotional learning and trauma-informed practices
- classroom management, student behavior, and restorative practices
- the multi-faceted levels of assessment that can determine student success
- working with diverse learners
- the legal and pedagogical connections between special education and general education
- actual instructional practice by having multiple, rigorous and diverse clinical experiences

The remainder of this summary will highlight our key findings and arguments by answering the following questions:

1. What drove the legislative change? Was there a problem with the status quo?
2. Does teacher preparation really affect student academic achievement?
3. Why are these seven core components important for future teachers and students?
4. How can lawmakers and stakeholders act on this opportunity?

## A. WHAT DROVE THE LEGISLATIVE CHANGE? WAS THERE A PROBLEM WITH THE STATUS QUO?

During the 2017 legislative session, the Minnesota Legislature changed licensure requirements, and the state now has some of the most relaxed standards in the nation. This change is a reflection of decades of intentional efforts on the part of motivated stakeholders committed to de-professionalizing the teaching profession and weakening the quality of public education. Richard Ingersoll (2007) has pointed out that the parties committed to an agenda of deregulation have been at work for two decades altering the way nations and states train teachers with, "alternative certification programs, whereby college graduates can postpone formal education training, obtain an emergency teaching certificate, and begin teaching immediately" (Ingersoll, 2007, p. 2).

Most proponents of measures like our 2017 legislative change mask their motives with faux concerns about the nationwide and ever-worsening shortage of qualified teachers. We agree that there is an acute shortage of licensed teachers in Minnesota classrooms. However, we disagree with the stakeholders arguing that lowering the requirements for teaching licenses will be the solution to attracting more people to the profession. Minnesota has a "teacher retention" problem.

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**More than 50,000 licensed teachers in the state are not working in classrooms. This majority of trained teachers have left the profession because of efforts to devalue the profession and the public school system.**

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They did not leave because of challenging standards or licensing loopholes.

We also agree that the status quo needed reform. First, Minnesota always ranks among the states with the highest levels of student academic achievement, but it also possesses one of the largest achievement gaps between students of color and white students.

Alternative routes to licensure that take massive shortcuts around the essential preparation all teachers need are not the answer. Structural racism has led to the achievement gap, and this 2017 statutory change gives teacher educators, lawmakers, and stakeholders a vital opportunity to begin the work of correcting the systemic inequities that pervade every aspect of Minnesota's civic and public life. Any new teaching preparation program in this state, IHE based or non-IHE based, must train new teachers to be social justice educators committed to challenging systems of oppression and lifting up all students. Teacher preparation programs must be spaces dedicated to building equity-minded, culturally conscious educators.

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**History and research has shown that eliminating teacher preparation and certification requirements exacerbate, rather than eradicate, inequities.**

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## B. DOES TEACHER PREPARATION REALLY AFFECT STUDENT ACADEMIC ACHIEVEMENT?

Yes, teacher preparation matters. Educators with proper training have better success in the classroom and produce higher achieving students as measured by academic assessments.

Research has shown for decades that teacher effectiveness has a strong effect on student outcomes. Several peer-reviewed, academic scholars have confirmed that teacher effectiveness is one of the most important factors that improve student academic achievement (Sanders & Rivers, 1996; Wright, Horn, & Sanders, 1997; Jordan, Mendro, & Weerasinghe, 1997, qtd. in Darling-Hammond, 2000, pp. 2-3). A properly trained teacher is more likely to improve academic achievement in his or her students.

In addition, education researchers have also built a strong body of evidence to show that a lack of teacher preparation leads to negative outcomes for students. Unfortunately, improperly trained teachers usually end up working in schools that serve the most vulnerable students (Sanders & Rivers, 1996, qtd. in Darling-Hammond, 2000, "Previous Research," para. 1). Ashton (1996) has argued that states' efforts to reduce teacher certification requirements "no doubt contribute to students' academic failure" (p. 21). She has also stressed, "that these policies exacerbate inequities in the quality of education offered to low-income children in comparison to children from more economically advantaged homes. Teachers without regular certification are more often assigned to teach in schools with predominantly low-income children and children of color than are regularly certified teachers" (Ashton, 1996, pp. 2-3).

We know our detractors have counter-arguments they use to challenge the importance of teacher education. Corporate stakeholders, looking to deregulate teaching preparation to promote quick Band-Aid solutions to systemic problems, cling to (1) Goldhaber and Brewer's (2000) "Does Teacher Certification Matter: High School Teacher Certification Status and

Student Achievement," (a study commissioned by the Thomas B. Fordham Foundation) and (2) Kate Walsh's (2001) "Teacher Certification Reconsidered," (commissioned by the Abell Foundation). Academic scholars, publishing in peer-reviewed journals, have consistently highlighted the flaws and political and corporate biases within these two papers.

For example, in "Research and Rhetoric on Teacher Certification: A response to 'Teacher Certification Reconsidered'," Darling-Hammond (2002), offers one of the most profound critiques of the Walsh/Abell paper. She wrote, "[The Walsh/Abell report] suggests that its recommendations are based on 'solid research.' However, only one reference among the report's 44 footnotes is to a peer-reviewed journal article (which is mis-quoted in the report)." (p. 3).

Teacher preparation matters. The best education systems in the world also have a strong, public commitment to building and sustaining a professional teaching workforce.

## C. WHY ARE THESE SEVEN CORE COMPONENTS IMPORTANT FOR FUTURE TEACHERS AND STUDENTS?

Teaching candidates in Minnesota will now have the option to attend a traditional IHE based preparation program, or they can follow the alternative paths that will enter the marketplace. Some of these alternative pathways will be incomplete and cause more harm. Others will be better avenues for non-traditional and second career teaching candidates. However, we stress that all teaching preparation programs in this state, both the current programs tied to IHEs and the new alternative pathways, must embrace a critical race, equity lens and prepare future teachers for the demands of the profession. At minimum, there are seven core components, all rooted in an equity lens, that must be present in any successful teaching preparation program.

*COMPONENT #1: ALL TEACHING CANDIDATES NEED TRAINING IN CONTENT KNOWLEDGE AND CONTENT-SPECIFIC METHODOLOGY.*

We concur with Grossman, Schoenfeld, & Lee (2005), who echo the findings of multiple researchers when they assert that "at a minimum, prospective teachers need a solid foundation in the subject matters they plan to teach and the requisite disciplinary tools to continue learning within the subject matter throughout their careers" (p. 206). Content and content-specific pedagogy are interrelated and highly complex and they are critical components of teacher preparation. Teachers must know both subject matter and how to deliver that content knowledge to students.

*COMPONENT #2: TRAINING IN CHILDHOOD DEVELOPMENT, INCLUDING SOCIAL EMOTIONAL LEARNING AND TRAUMA-INFORMED PRACTICES.*

An understanding of childhood development and childhood psychology are profoundly important tools for teachers. Researchers continue to learn about childhood development. Future educators must know the current research on childhood development, and they must be able to continue building on this knowledge. Understanding a variety of theoretical approaches to development, social emotional learning, and trauma-informed practice are vital elements of teacher knowledge and skill sets.

Child and adolescent development "is the most solid and substantial basis upon which to build curricular, assessment, and teaching skills . . . with child development as a common core of training" (Elkind, 1998, p. 186). Preparation programs must help future teachers develop understandings of brain development and student growth (Daniels & Shumow, 2002, p. 516).

*COMPONENT #3: TRAINING IN CLASSROOM MANAGEMENT, STUDENT BEHAVIOR, AND RESTORATIVE PRACTICES.*

One of the most fundamental tools any teacher needs from the first day is a solid background in classroom management and a deep understanding of student behavior and restorative practices. This area of training has a wildly disparate history in traditional teacher preparation programs. Alternative pathways to teacher preparation often ignored this topic. This is problematic for the students of Minnesota. A teacher with strong classroom management skills is more likely to be effective in classrooms.

In addition, Losen (2011), with the National Education Policy Center, has shown that there is clear racial inequity in the use of school suspensions and punitive interventions. Scholars now speak of "a growing racial discipline gap" for students of color (Losen, 2011, p. 5). There are ways to end this inequity, but it starts by training all future teachers in the best practices connected to classroom management, student behavior, and restorative practices.

*COMPONENT #4: TRAINING IN ROBUST AND MULTI-FACETED ASSESSMENT.*

All future teachers need to be prepared to use and understand student assessment data because this information is used for a variety of professional evaluation purposes. All training programs must help new teachers understand (1) formative and summative assessment used to both improve learning and determine grades or establish final scores (Shepard et al., 2005, p. 297) and (2) prior knowledge assessments used to determine a student's knowledge of a subject.

In addition, teachers need to understand the harm that assessments can cause to students and student learning. Students can be internally motivated, seeking to master content. Students can also be externally motivated, seeking rewards. These two types of motivation can be very much at odds. The recent federal focus on high-stakes standardized tests have ushered in complaints about teachers "teaching to the tests," which is another way of saying that policy has lead us away from providing students with an environment that helps develop and nurture internal motivation to master content.

*COMPONENT #5: TRAINING ON TEACHING DIVERSE LEARNERS.*

The racial and ethnic diversity of children and families has increased in almost all states, including Minnesota. The vast majority of teachers across the country, however, are mostly white and middle class (U.S. Department of Education, 2016, p. 6). In addition to racial and socioeconomic diversity, families across the country are becoming more diverse in a wide variety of other ways. The number of students who are learning English as a second language has grown dramatically, as has the diversity in the range of academic abilities within classrooms (Banks et al., 2005, p. 232).

Cultural differences between teachers and students have enormous and far-reaching implications for teaching and learning. A lack of understanding of students' cultural context can result in a misinterpretation of student behavior, leading to measurably higher rates of special education referrals and higher rates of inappropriate and unhelpful disciplinary interventions (Brown, Vesely, & Dallman, 2016). It is imperative that all teacher candidates must begin what needs to be an on-going, career-long process of developing cultural competency before they begin their work as teachers (Brown, Vesely, & Dallman, 2016, p. 76). Culturally responsive teaching goes far beyond curriculum and methodology. As Banks et al. (2005) have explained, "Teachers need to be aware of...family and community values, norms, and experiences, so that they can help to mediate the 'boundary crossing' that many students must manage between home and schools" (p. 233). Preservice teachers need robust training about diverse learners in order to begin this critical work.

*COMPONENT #6: TRAINING IN SPECIAL EDUCATION.*

All preservice teachers need better training in the area of special education. Darling-Hammond, Wei, and Johnson (2009) studied graduates of traditional teacher preparation programs and found that only "60-70%...felt well prepared to meet the needs of special education students and students with limited English proficiency" (Darling-Hammond, Wei, & Johnson, 2009, p. 630). Traditional preparation programs tied to IHEs struggle to prepare new teachers for the challenges of working with special education students. We worry that accelerated alternative pathway programs will fail at even greater rates when it comes to preparing future teachers to work with special education students.

We echo the work of scholars like Miller (1991) who have long championed the important fact that "special education and regular education should not be two separate systems, but should be integrated to provide the best possible services for the benefit of all children" (p. 19-20). New teachers need training in (1) accommodations and modifications, (2) the legal requirements of an individual education plan, and (3) the connections between socioemotional learning and disability categories. Preservice teachers need training in these areas; they do not need to learn "on the job" while working with Minnesota's special education students.

*COMPONENT #7: CLINICAL EXPERIENCE TIED TO THEORY AND BUILT ON COLLABORATION.*

The clinical experience for preservice teachers is so critical that it needs to be both intensive and extensive. Multiple clinical settings can give preservice teachers a much more diverse set of tools and experiences, and a substantial commitment of time is critical if we aim to create

the collaborative relationships necessary for growth and learning. Banks (2014) calls for field experiences that "allow teacher candidates to apply their pedagogical content knowledge in a variety of settings" (p. 62). In Darling-Hammond's 2006 study of seven teacher preparation programs that are outperforming most others, one of the common characteristics was not just that the clinical experiences were carefully integrated with the curriculum, but it was also that the clinical experience itself was extensive—30 weeks or longer.

## D. HOW CAN LAWMAKERS AND STAKEHOLDERS ACT ON THIS OPPORTUNITY?

Minnesota needs to seize this opportunity and protect future students. This will require:

- Closing the loophole in Minnesota's tiered licensure system that allows a candidate to attain a Tier 3 license without having completed teacher preparation.
- Providing financial support and other resources to Tier 1 and Tier 2 teachers to move through teacher preparation programs.
- Investing resources in higher quality and collaborative relationships between teacher preparation programs and school districts.
- Fully funding public institutions of higher education in the form of subsidizing free/affordable college education, tuition tax relief, and education debt relief.
- Increasing teacher salaries to incentivize long-term commitments to our most diverse and our most impoverished schools.
- Building grow-your-own programs that provide educational support professionals quality pathways to become licensed teachers.
- Supporting research about how Minnesota teacher preparation programs can achieve better results for a diverse demographic of teacher candidates.
- Expanding the Minnesota Teacher Loan Repayment Program by providing adequate funding and broadening eligibility requirements to include school counselors, school nurses, school social workers, school psychologists, speech language pathologists, school-based occupational therapists, and other support personnel.

Minnesota is at a critical juncture for our students. We must decide if our children–all of our children-deserve the best, most highly prepared educators or if they deserve less. Our children deserve more than cheap-and-easy proposals that do not address the roots of the inequities and injustices in our education system. They deserve highly trained, skilled, and professional educators that will inspire them to be the creators of our new century.

# IV. A Turning Point in Minnesota's History: Changes to Teacher Licensure and Preparation in Minnesota

During the 2017 legislative session, Minnesota passed a law that dramatically overhauled the state's teacher licensing system. For more than two decades, Minnesota has been among the states with the most robust requirements for full professional teaching licensure. The 2017 Legislature changed licensure requirements, and the state now has some of the most relaxed standards in the nation.

Over the past three decades, Minnesota has been among the states with the highest levels of student academic achievement overall. However, this relatively high level of student achievement does not mitigate the fact that Minnesota's achievement gap between students of color and white students has been and remains large. For example, Figure 1 shows statewide reading proficiency for Minnesota students in 2013. In that year, white students significantly outperformed other ethnic groups on reading assessments. The immediate concern regarding Minnesota's decision to eliminate teacher preparation from the list of requirements for attaining full, professional licensure is that very achievement gap.

*FIGURE 1: MINNESOTA'S ACHIEVEMENT GAP IN READING PROFICIENCY (2013)*

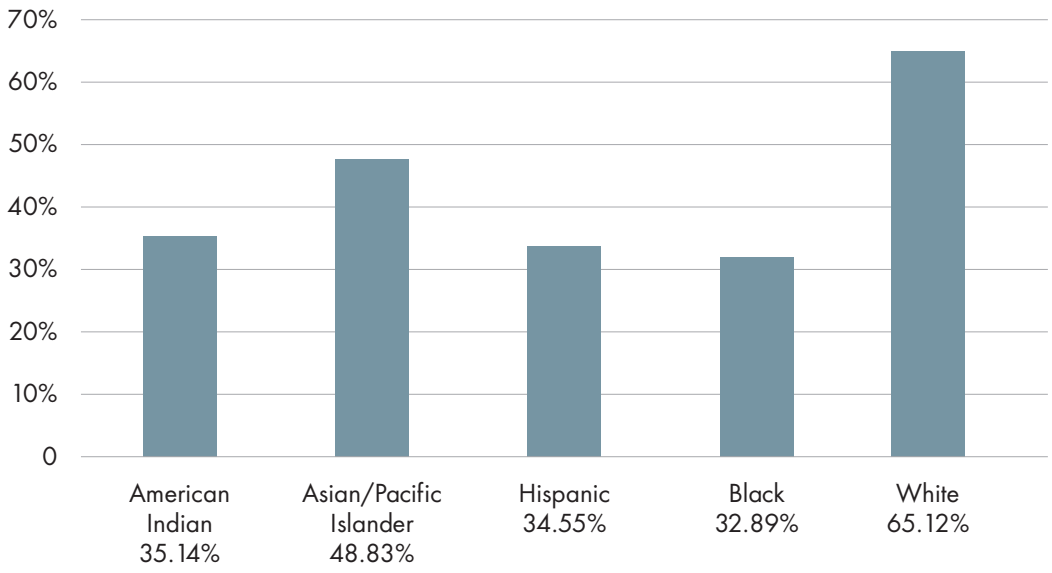



*Figure reproduced from "Closing the Achievement Gap" by the Minnesota Department of Education. Retrieved from:http://education.state.mn.us/MDE/NewSiteLook/gap/056710.*

In Minnesota, as is the case around the country, students of color, special education students, and students in poverty are already far more likely than their peers to have teachers who are either not licensed and/or prepared in their assigned field or not licensed and/or prepared at all. Table 1 and Table 2 show the stark differences between the racial make-up of students

in Minnesota as compared to the teaching workforce. In 2015, 95.58% of Minnesota teachers were caucasian as compared to the 1.15% identifying as african american or the 1.05% identifying as Hispanic. Students of color, on the other hand, represent 30% of the student population (Minnesota Department of Education, 2017). Students of color are also far more likely to attend schools with high levels of teacher attrition. Instead of doing anything to bolster the quality of teaching in our schools, as have some states to impressive results, Minnesota legislators chose instead to lower the bar for teacher licensure by making teacher preparation optional.

*TABLE 1: MINNESOTA'S TEACHING WORKFORCE BY RACE/ETHNICITY*

| Race/ethnicity | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|
| Native American | 237 | 218 | 229 | 244 | 253 | 249 |
| Asian/Pacific Islander | 717 | 701 | 760 | 829 | 933 | 973 |
| Hispanic | 475 | 474 | 485 | 523 | 590 | 629 |
| African American | 587 | 544 | 567 | 563 | 661 | 690 |
| Caucasian | 54,679 | 53,380 | 54,755 | 55,509 | 57,017 | 57,432 |

*Note: Prepared from STAR System. The count of teachers indicated in Table 1 above does not include teachers with unknown race/ethnicity. Image reproduced from: Minnesota Department of Education. (2017). 2017 Report of Teacher Supply and Demand in Minnesota's Public Schools. Fiscal Year 2017 Report to the Legislature as required by Minnesota Statutes, Section 127A.05, Subdivision 6. Retrieved from: https://education.state.mn.us/MDE/index.html.*

*TABLE 2: PERCENTAGE OF MINNESOTA'S TEACHING WORKFORCE BY RACE/ETHNICITY*

| Race/ethnicity | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|
| Entire state | 56,790 | 55,388 | 56,943 | 57,763 | 58,211 | 60,090 |
| Native American | 0.42% | 0.39% | 0.40% | 0.04% | 0.43% | 0.41% |
| Asian/Pacific Islander | 1.26% | 1.27% | 1.33% | 0.14% | 1.60% | 1.62% |
| Hispanic | 0.84% | 0.86% | 0.85% | 0.09% | 1.01% | 1.05% |
| African American | 1.03% | 0.98% | 1.00% | 0.10% | 1.14% | 1.15% |
| Caucasian | 96.28% | 96.37% | 96.16% | 96.1% | 97.95% | 95.58% |

*Image reproduced from: Minnesota Department of Education. (2017). 2017 Report of Teacher Supply and Demand in Minnesota's Public Schools. Fiscal Year 2017 Report to the Legislature as required by Minnesota Statutes, Section 127A.05, Subdivision 6. Retrieved from: https://education.state.mn.us/MDE/index.html.*

The 2017 legislative changes to Minnesota's licensure laws are, indeed, breathtaking in scope. Once the tiered licensure system is in effect, on July 1, 2018, it will be possible for a teacher candidate to work his or her way through the tiered licensure system, obtain a full professional license, and renew that license indefinitely, without having had any formal teacher preparation. The individual would simply need a bachelor's degree in any field, passing scores on statewide tests, and a single teaching methods course.

**Robustly prepared teachers yield higher rates of student academic achievement when compared to their less prepared and unprepared colleagues.**

A second major change to come from Minnesota's 2017 legislative session was the deletion of a long-standing requirement that teacher preparation programs either be or be partnered with an institution of higher education. Going forward, it is not a given that state-approved teacher preparation programs will be run out of a university-based system.

In this paper, we provide research and narrative to support two points. First, we present the findings of six decades of research to show that teacher preparation correlates with student academic achievement.

Second, we explain the mandatory components all teacher candidates need to enter the education field prepared to serve students. We use research to show that all new teachers need:

1. Training in content knowledge and content-specific methodology.
2. Training in childhood and adolescent development, including social emotional learning and trauma-informed practices.
3. Training in classroom management, student behavior, and restorative practices.
4. Robust and multi-faceted training in assessment literacy.
5. Training on teaching diverse learners.
6. Training in special education.
7. Clinical experience tied to theory and built on collaboration.

# V. Situating Minnesota: Global and National Contexts

## A. HOW DID WE GET HERE? THE NATIONAL REFORM MOVEMENT

Minnesota did not end up in the present battle over teacher preparation by chance or overnight. This moment is the reflection of decades of intentional efforts on the part of motivated stakeholders committed to de-professionalizing the teaching profession and weakening the quality of public education. Richard Ingersoll (2007) points out that the parties committed to an agenda of deregulation have been at work for two decades:

> Proponents of variants of the deregulation perspective have pushed a range of initiatives, most of which involve a loosening of the traditional occupational entry gates. Among the most widespread of these reforms are alternative certification programs, whereby college graduates can postpone formal education training, obtain an emergency teaching certificate, and begin teaching immediately (Ingersoll, 2007, p. 2).

Ingersoll's warning was an introduction to a debate that escalated seven years later. In 2014, Dworkin and López Turley (2014) asserted that "the call for school reform was championed by conservatives, business leaders, and middle-class parents who objected to a perceived over-emphasis on cultural issues associated with student diversity and multiculturalism that followed court decisions regarding school desegregations prompted by the Civil Rights movement" (p. 566-7). These scholars provide a helpful reminder that these moves have stemmed from a long narrative that has "presented a 'manufactured crisis,' and this crisis gave reasons to siphon tax dollars out of public schools and funnel the money into...private interest" (Dworkin & López Turley, 2014, p. 567).

Advocates for deregulating the teaching profession include those concerned first and foremost about the nationwide and ever-worsening shortage of qualified teachers. Many stakeholders believe that if we just lower the requirements for teaching licenses enough, we will be able to attract more people to the profession. Others point out that traditional teacher preparation programs have not moved the needle on attracting and retaining teachers of color, and that some of the requirements for teacher licensure include racially-biased assessments. Still other reform groups are eager to weaken public schools in order to free up dollars for vouchers, scholarships, greater flexibility for charter schools, and, ultimately, private interests.

The American Legislative Exchange Council, or ALEC, is a nonprofit group financed by corporate and private interests. ALEC has promoted its Alternative Certification Act since 2006. ALEC recommendations eliminate teacher preparation requirements for licensure, and in the past 12 years, many state legislatures have adopted language in keeping with ALEC's language. In 2017, Minnesota did the same.

The intentional dismantling of teacher licensure requirements is part of a new and bleak vision for our schools, wherein teachers are far less skilled, as they are mere presenters of scripted lessons with strict pacing. In his assessment of the corporate agenda, *The One Percent Solution: How Corporations are Remaking America One State at a Time*, economist Gordon Lafer writes about what he calls the "deskilling" of teachers:

> High-stakes tests are designed to undo tenure and close public schools. As that is accomplished, a new education system will emerge, which runs on cheaper, high-turnover instructors who follow canned curricula geared around test preparation and thus have no need for the levels of professionalism aspired to by previous generations of teachers.

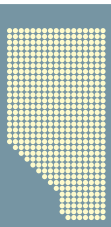
Minnesota's teaching shortage is much more the result of high turnover rates than it has ever been the result of stringent licensure requirements. When one out of every three new teachers leaves within the first five years, we need to recognize that the problem is less to do with getting teachers into the profession and far more to do with keeping them there.

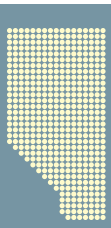
## B. GLOBAL COMPARISIONS: HOW DO OTHER COUNTRIES PREPARE TEACHERS?

It is important to note that many other countries have for decades taken teacher preparation more seriously, both in policy and in practice, than we have in the United States. Comparisons are often made between public school systems in Finland, for example, to the U.S. We know that critics of this sort of comparison will often cite the "Finland problem" to negate these sorts of comparative analyses. There will be voices that say studies that compare the United States to a nation like Finland present a faulty analogy because Finland has a population around 5.4 million. Yes, we concede that it is unfair to expect a nation of 323 million people to implement the same programs as a nation that has a smaller population than New York City. At the same time, we also think that the state of Minnesota, with a population of 5.5 million people, can learn a lot from places like Finland.

Also, Alberta, Canada offers a great model to compare to the teacher preparation structure in the United States to find one of the best alternative approaches to preparing and compensating teachers. Alberta consistently ranks in the top tier on international comparisons of quality public schools. The students in this province are some of the highest achieving in the world, and the educators in Alberta are some of the most compensated and professionally prepared. Zeichner and Hollar (2018) have argued that Alberta "and the states have much in common" so the education system in this province is an ideal comparison model. Figure 2 provides a graphic representation of the stark structural differences facing the educators in Minnesota as compared to their colleagues in Alberta. We want to particularly stress that teachers in Alberta do not become fully, credentialed professional teachers until they have met the professional standards set forth by the provincial professional board, an organization that shows respect to teachers and is financially and politically committed to the continued development of the province's educator workforce.

*FIGURE 2: MINNESOTA V. ALBERTA: A COMPARISON OF TEACHER PREPARATION AND PROFESSIONAL STANDARDS*

| |  Alberta |  Minnesota |
|---|---|---|
| Population: | Apprx. 4.416 million | Apprx. 5.52 million |
| Student population: | Multilingual diverse learners, 18% immigrant population, indigenous populations | Multilingual diverse learners, 8.3% English learners, 32.5% students of color, immigrant population, indigenous populations |
| Starting salary for teachers: | $58,500 (Canadian dollars)<br>$47,606 (U.S. dollars) | $34,505 (U.S. average)<br>$34,025 (Minnesota average) |
| Benefits: | Free government health care, job protected maternity leave, 37 weeks of parental leave, child care subsidies for low-income families, high minimum wage, rent support for low-income families | Varies by district |
| Average public university tuition annually: | $5,900 (Canadian)<br>$4,803 (U.S. dollars) | $8,028 (Minnesota State university)<br>$14,488 (University of Minnesota) |
| Teacher preparation: | "Emphasize professional learning not teacher evaluation" (Zeichner & Hollar, 2018). | Teachers and schools primarily assessed by achievement of students on problematic standardized tests. |

| |  Alberta |  Minnesota |
|---|---|---|
| Minimum requirements for teachers entering the classroom | 1. Bachelor of education or equivalent<br>2. Graduation from one of the nine government approved teacher preparation programs<br>3. Hold a valid interim license during internship<br>4. 48 hours of professional education coursework<br>5. Minimum 10 weeks student teaching but most complete 14-20 weeks | 1. Bachelor's degree in any field |

*Information for these comparisons come from: Alberta Teacher's Association, National Education Association, National Center for Education Statistics; Berliner, D.C. & Glass, G.V. (2014). 50 Myths and Lies That Threaten America's Public Schools, [Kindle iPad version]. Retrieved from: www.amazon.com; Nolais, J. (2015, March 10). Alberta teacher wages –too high, too low, or just right? Metro News. Retrieved from: www,metronews.ca/Toronto.html; Zeichner, K. & Hollar, J. (2018). Developing professional capital in teaching through initial teacher education: Comparing strategies in Alberta, Canada and the US. In K. Zeichner (ed), The struggle for the soul of teacher education (Critical social thought). New York, NY: Routledge. [Amazon Kindle version]. Retrieved from www.amazon.com.*

Also, we want to stress that Finland and Alberta are not the only success stories. Provinces and municipalities existing in nations with populations larger than the United States, such as Shanghai in China with a population of 24.3 million, provide other examples of how to scale programs for larger, geographical and culturally diverse regions. Minnesota can build equitable systems that provide access to all and increase the presence of highly trained professionals in every classroom, and it can look to other developed nations for starting points.

Many policymakers and scholars have attempted to rank countries according to the quality of their public school systems. There are too many such rankings to list, but a typical example comes from the World Economic Forum's Global Competitive Report, which ranks countries based on "12 pillars of competitiveness," including education (Williams-Grut, 2016). As is the case in the World Economic Forum's report, the United States often does not make it into the top 10 lists in such rankings. Scholars have looked at the best public school systems and comprised lists of the shared qualities of the most highly effective systems. The most interesting element is that the themes identified have not changed over the course of decade. The best

public education systems on the globe have always held the same core values. Methods and programs might change over the years, but strong public education systems contain core elements, and a professionally licensed and robustly prepared teaching force is at the core of a successful system.

Linda Darling-Hammond (2006) offered some of the earliest comparison work comparing teacher preparation in the United States to other nations. She started her work by identifying a problem that is hauntingly similar to the conversation happening in contemporary Minnesota. Darling-Hammond (2006) wrote:

> Both the apparent ease of teaching to the non-initiated and the range of things teachers really do need to know to be successful with all students—not just those who can learn easily on their own—are relevant to the dilemmas that teacher education programs find themselves in today. On one hand, many laypeople and a large share of policy makers hold the view that almost anyone can teach reasonably well—that entering teaching requires, at most, knowing something about a subject, and the rest of the fairly simple 'tricks of the trade' can be picked up on the job (p. 301).

This is one of the talking points that drove the changes Minnesota made in 2017. Darling-Hammond (2006) further explains that unlike other industrialized nations in Europe and Asia, "American factory-model schools offer fewer opportunities for teachers to come to know students well over long periods of time and much less time for teachers to spend working with one another to develop curriculum, plan lessons, observe and discuss teaching strategies, and assess student work in authentic ways (p. 302). In 2006, Darling-Hammond issued this important plea:

> Schools of education must design programs that help prospective teachers to understand deeply a wide array of things about learning, social and cultural contexts, and teaching and be able to enact these understandings in complex classrooms serving increasingly diverse students (p. 302).

Unfortunately, deregulation proponents have ignored scholarship on the importance of teacher preparation. We now exist on the precipice of uncharted territory in this state. Unless we boldly act, we are about to launch "more new weak programs that underprepare teachers, especially for urban schools" [instead of developing] "the stronger models that demonstrate what intense preparation can accomplish" (Darling-Hammond, 2006, p. 302).

Following Darling-Hammond, Richard M. Ingersoll (2007) writing with the Consortium for Policy Research in Education issued the report *A Comparative Study of Teacher Preparation and Qualification in Six Nations.* He echoed the findings of Darling-Hammond (2006) by showing how the United States fails in comparison to other nations in its commitment to strong, accessible teacher education programs. He wrote:

> In the United States, teaching as an occupation has an unusually ambivalent character. Compared to other occupations and to professions, teaching is relatively complex work, but it also is an occupation with relatively low pre-employment entry requirements (Ingersoll, 2017, p. 97).

Ingersoll has shown that the United States is behind other nations in the attention and dedication given to teacher preparation.

Also, Ingersoll showed stakeholders that "among those who study work, organizations and occupations in general, teaching traditionally has been classified as a relatively complex form of work, characterized by uncertainty, intangibility and ambiguity and requiring a high a degree of initiative, thought, judgment and skill to do well" (p. 97). Despite this fact, there has been a large move to deregulate the very systems that prepare educators for these roles. This is not the case in other developed nations that recognize this complexity and equip teachers to meet the needs of all students. Ingersoll (2007), citing the work of Kohn and Schooler (1983), asserts:

> Secondary teaching involved greater substantive complexity than the work of accountants, salespersons, machinists, managers and officials in service industries and in the retail trade. Despite its complexity, from a cross-occupational perspective, teaching has long been characterized as an easy-entry occupation (p. 98).

We agree with his assessment that there seems to be a collective misunderstanding about how challenging it is to be a teacher in the United States.

In short, traditional teacher preparation tied to institutes of higher education (IHE) was not failing most students. A reliance on emergency hires and the legislative attempts to bypass teacher training created an environment that allowed interested stakeholders to make a faulty argument about the failure of preparation programs. That is, the struggling teachers in 2006-07 were not the individuals trained in a traditional IHE-based program. They were most likely the teachers who had circumvented the laws meant to protect the profession.

Following Ingersoll, Darling-Hammond and colleagues also returned to the global comparison question. Barber and Mourshed's (2007) study (as cited in Darling-Hammond, Wei, & Andree, 2010) makes the case that strong, national school systems include the following three factors:

1. Getting the right people to become teachers.
2. Developing them into effective instructors.
3. Ensuring that the system is able to deliver the best possible instruction for every child.

They also again highlighted that the nations with the strongest commitment to public education have the following:

1. Universal high-quality teacher education, typically two to four years in durations, completely at government expense, featuring extensive clinical training as well as coursework.
2. Equitable, competitive salaries, comparable to those of other professions such as engineering, sometimes with additional stipends for hard-to-staff locations.
3. Mentoring for all beginners, coupled with a reduced teaching load and shared planning time.
4. Teacher involvement in curriculum and assessment development and decision making (Darling-Hammond, Wei, & Andree, 2010, p. 1).

In 2010, these scholars noted "studies of U.S. professional development show that a small minority of American teachers receive the kind of sustained, continuous professional development that research indicates can change teaching practice and improve student achievement" (Darling-Hammond, Wei, & Andree, p. 2).

Most of the global comparisons studies on teacher induction reveal a bleak characterization of teacher preparation systems in the United States. However, the scholars also provided a nice synthesis of ways Minnesota and the nation can stop the erosion of the teaching profession. Darling-Hammond, Wei, and Andree (2010) gave some clear examples of the successes from other nations. In particular, they suggested that states like Minnesota could:

1. Develop universally strong designs for teacher education offering research-based training and extensive clinical practice.
2. Subsidize the cost of preparation for all recruits, so that all could afford to be well prepared.
3. Invest in more competitive and equitable salaries to ensure that all communities can attract well-prepared and effective teachers.

4. Underwrite mentoring for all beginning teachers, featuring in-classroom coaching by trained mentors and shared collaboration time for novices.

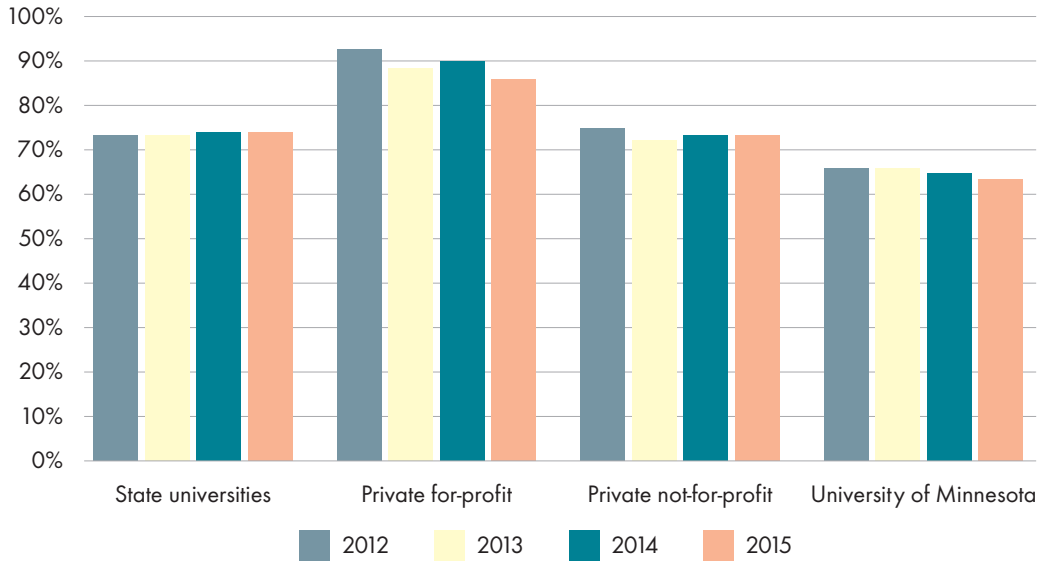
5. Organize schools to provide time for teacher collaboration—at least 10 hours per week—in which teachers can engage in collective curriculum planning, analysis of student work, and sustained, job-embedded professional development.

6. Provide training for lesson study, action research, and inquiry that can guide teachers and school leaders in ongoing curriculum development and problem solving in their schools and classrooms.

7. Allocate time and develop curriculum and training resources for regular professional learning opportunities—at least 10 hours per year—supported by trained coaches and mentors, and linked to the content teachers teach, as well as the standards students are expected to meet (Darling-Hammond, Wei, & Andrea, 2010, p. 8).

These three scholars conclude their study with a plea. They remind stakeholders that "in high achieving nations, teachers' professional learning is a high priority, and teachers are treated as professionals" (Darling-Hammond, Wei, & Andrea, 2010, p. 7).

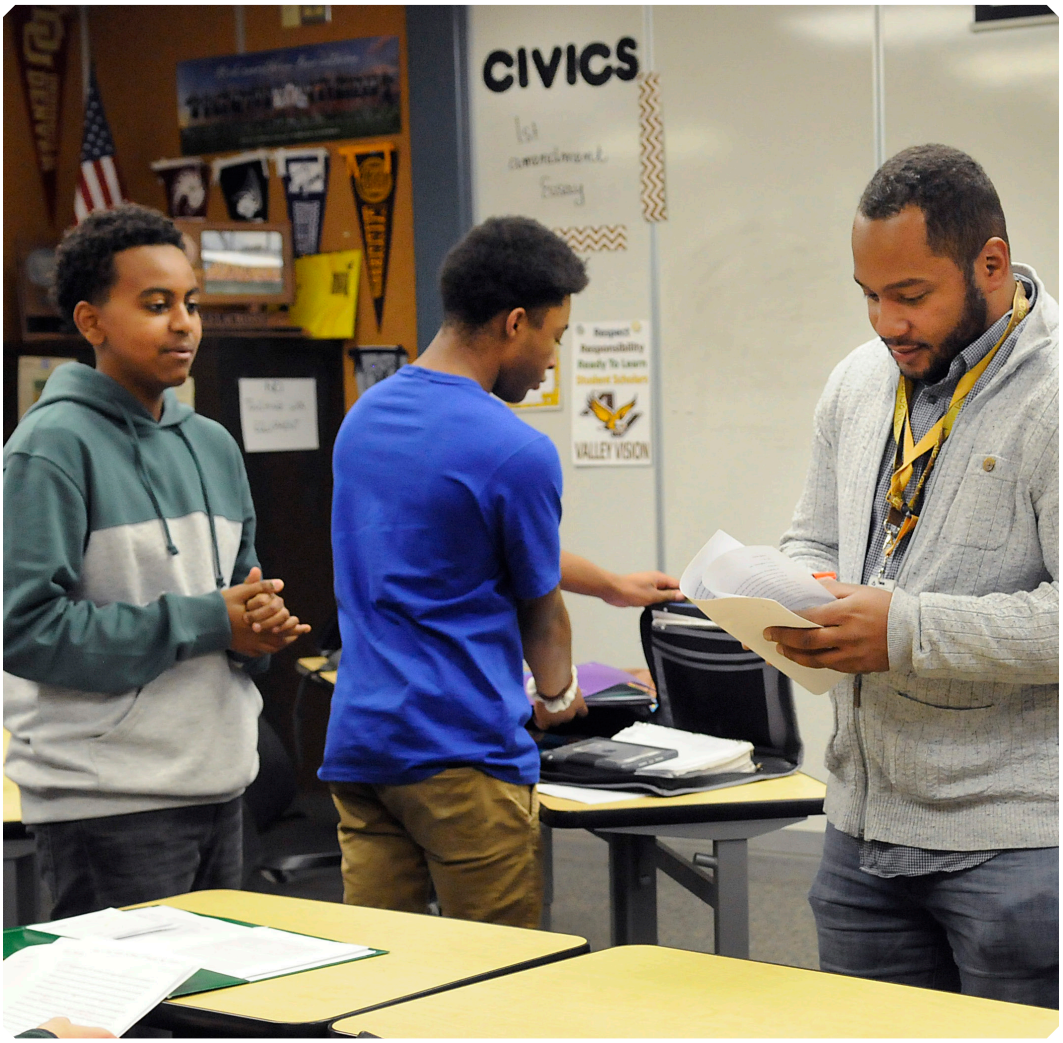
*FIGURE 3: STUDENT LOAN RATES FOR MINNESOTA'S HIGHER EDUCATION STUDENTS*




*Minnesota Office of Higher Education. (2016). Cumulative student loan debt in Minnesota, 2015. Retrieved from www.ohe.state.mn.us.*

Unfortunately, lawmakers only have to look at the compensation offered to educators in in the United States to realize that we fall far short of best practice for treating teachers as professionals. Highly competent teacher training structures in other nations provide funds to offset the cost of teacher training. Minnesota sends future teachers into debt. Figure 3 shows the astronomical rates at which public school students use loan money to offset the cost of education. Table 3 provides a representation of how this will affect the future household income of teachers. On average, a Minnesota college graduate will leave school with $26,822 in debt and will pay around $205 on average per month. This number only gets worse as the debt total rises. The Minnesota Office of Higher Education has written:

> Assuming a 6.8 percent interest rate, monthly payments for a student with $26,822 in debt (weighted median debt for a bachelor's degree graduate in Minnesota) would be $309 for a 10-year repayment plan and $205 for a 20-year repayment plan. A bachelor's degree recipient from a private for-profit institution with $48,259 in debt would have monthly increase to $545 and $361 for a 10- and 20-year repayment plan, respectively (pp. 15-16).



Examples of monthly payments for Minnesota degree recipients, by degree type.

*TABLE 3: AVERAGE MONTHLY STUDENT LOAN PAYMENTS FOR MINNESOTA DEGREE RECIPIENTS*

| Degree attained | Average median student loan debt for those with loans, 2015 | Estimated monthly payment | Estimated loan term |
|---|---|---|---|
| Sub-baccalaureate certificate | $11,318 | $130 | 10 years |
| Associate degree | $18,233 | $210 | 10 years |
| Bacherlor's degree | $26,822 | $205 | 20 years |
| Master's degree | $34,522 | $264 | 20 years |
| Doctoral degree | $63,237 | $439 | 25 years |
| First professional degree | $139,090 | $907 | 30 years |

*Minnesota Office of Higher Education. (2016). Cumulative student loan debt in Minnesota, 2015. Retrieved from www.ohe.state.mn.us.*

Unlike other high-performing systems. Minnesota and the United States saddles future teachers with debt burdens before they ever enter their first classrooms.

Some lawmakers may point out that this is the same debt burden all college graduates carry. They may also make the argument that students need to have some "skin in the game" and take part in the funding of their own education. Despite the privilege and bias hidden in such arguments, it is much easier for a student entering the private sector to repay their loans than it is for an average new public school teacher. The Institute for Economic Research has provided significant data to show that teachers suffer a wage gap as compared to other college graduates..

While global comparisons are often ignored and can too easily lead to overgeneralizations, it is important to recognize that U.S. policies and practices around teacher preparation are by no means based on best practices as discovered in international approaches to the issue or by academic research. In 2017, some of the best minds in teacher preparation, led by Darling-Hammond, released a book and a series of reports titled *Empowered Educators: How High-Performing Systems Shape Teaching Quality Around the World.* The scholars used this book to report that problems highlighted in 2006 and 2007 still exist and are becoming more acute. Their arguments again prove that the United States does not give enough attention or resources to teacher preparation and induction. They also offer examples of

successful systems to encourage policymakers to make a shift to new and better ideas, not more deregulation. Darling-Hammond et al. (2017) and her colleagues again argue that the countries with the strongest teacher preparation programs:

> Train individual educators well, but also they deliberately organize the sharing of expertise among teachers and administrators within and across schools so that the system as a whole becomes ever more effective. And they not only cultivate innovative practices but also they incorporate them into the system as a whole, rather than leaving them as exceptions at the margins (p. 2).

Studies like these show us that we have a lot to learn from other nations. The national political environment might not be ready for these sorts of changes, but Minnesota could look at the works of these other nations and become a national leader in investing in innovative ways to build and support teacher preparation systems for the good of all students. We could once again lead the way.

Darling-Hammond et al. (2017) compare "Singapore and Finland, the states of New South Wales and Victoria in Australia, the provinces of Alberta and Ontario in Canada, and the province of Shanghai in China" (Darling-Hammond, 2017, p. 2). They chose these nations and areas because

> the jurisdictions...have made considerable investments in developing teaching and learning systems that include a coherent approach to supporting teaching quality. All of them have also demonstrated considerable success on international indicators of educational quality that emphasize the kinds of higher-order skills needed in contemporary societies, such as OECD's Program for International Student Assessment (PISA). Further, most of these education systems include significant linguistic, cultural, and racial and ethnic diversity, and all of them have exhibited strong achievement and growing equity for students who are lower income, immigrants, and members of long-standing minority groups (Darling-Hammond et al., 2017, p. 8-9).

This is an important study that all lawmakers in the state should consider and ponder as we move in the direction of changing teacher preparation.

Darling-Hammond et al. (2017) again discovered important qualities that all of these national and provincial systems share. In particular, the scholars recommend policies that lead to

> the development of a teacher workforce that is highly educated and empowered to make decisions about teaching for the best interests of their students, based on knowledge accumulated from their training and from what they learn about the wisdom of practice from their in-service experiences and sharing of expertise with colleagues. It also suggests that teachers are accountable not only to students and parents but also to each other as professionals to maintain professional standards (Darling-Hammond et al., 2017, p. 13).

Darling-Hammond et al. (2017) also make the critical point that in other countries, that do a better job with teacher preparation, "put in place policies and practices designed to support historically low-performing students and groups of students. And, as their success makes clear, these efforts have not come at the expense of high-performing students. Equity and excellence are not a zero-sum game; They reinforce one another" (p. 185).

A brief look at international approaches to teacher preparation also underscores our own neglect of the critical issue of preparing teachers to teach diverse learners.

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**The best global systems have developed their educators in the ability to teach diverse learners, and these same systems provide educators with professional development to maintain an equity-based pedagogical approach throughout their careers. This must be the cornerstone of Minnesota's attempts to transform teacher training.**

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Every change made, every solution offered, and every program that is initiated must be rooted in equity.

Darling-Hammond et al. (2017) provide an illustrative example of how a commitment to equity can change systems. We know from scholars that the highest performing public school systems are based in countries that "prepare all teachers to work effectively with a diverse student body" (Darling-Hammond et al., 2017, p. 198).

One such program that exemplifies best practice around teacher preparation and teaching diverse learners is run through the Connected Communities Initiatives in New South Wales. This program provides professional development to educators working with students from the Aboriginal communities. It is based on an "assets-based, antiracist model of engagement" and is driven by partnerships with community leaders and school administrators (Darling Hammond et al., 2017, p. 201). Every school is assigned a community executive leader from the Aboriginal community who works with the administration and teachers to develop and sustain intercultural collaboration to benefit all students. The program is based on eight key concepts, which include, "partnership over paternalism; opportunity over disadvantage; successes over shortfalls; 'listening to' over 'talking at;' local solutions over one size fits all; evidence over assumptions; participation over marginalization; and practice over theory" (as cited by Darling Hammond et al., 2017, p. 201). These sorts of community and school collaborations are one example of how Minnesota can help its public education system build schools that are more equitable.

The students of Minnesota deserve equity-driven programs like the example from New South Wales. Community and school partnerships produce the best results for students. Darling-Hammond et al. (2017) acknowledged that the high-performing nations they study are not perfect. However, they all have a shared commitment to continued improvement. These nations have also adopted the mantra that "every student from every background deserves high-quality instruction and support" (p. 208).

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**Minnesota can build these programs, but they will require sustained, public investments, not token grants or misguided one-time expenditures. It is time to make a commitment to a truly equitable public education system that lifts all students, not a select few.**

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# VI. Minnesota Must Commit to Educational Equity

In order to interrupt the systemic racial inequities that lead to the achievement gap, teacher education systems must instruct candidates to view education systems through a lens focused intentionally on equity. Public education is one of the places we can begin to correct some of the systemic inequities that pervade every aspect of public life. This means that any new preparation program in this state, IHE-based or non-IHE-based, must train new teachers to be social justice educators committed to challenging systems of oppression and lifting up all students.

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**Our schools are becoming ever-more segregated. Minnesota must equip teachers to have conversations about racial injustice and systemic oppression. It is a reality that cannot be ignored, and new teachers will face the ramifications of racism every day they enter a public school.**

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A shared commitment to public education means a shared commitment to dismantling systems of oppression. A social justice teacher is not simply an individual who believes in equality for all. Social justice teachers utilizes an equity lens in every aspect of their teaching practice. They follow the call of voices like that of Johannessen (2010) who has said that social justice teachers need "to advance *equity, equitable access to education, freedom from discrimination, and the principles of a democratic society"* (p. 4). This is not an easy task, and this is why teacher preparation programs must embed courses and opportunities that help future teachers navigate these paths. Johannessen (2010) made this call knowing that "waves of governmental and institutional policies" are constantly working to "erode the foundation of democracy" (p. 4). However, teachers can be the frontlines of defense that stop this erosion. They can train critically thinking citizens ready to defend democracy.

In the later sections of this paper, we move through the core components all teacher preparation programs must contain. To be clear, these are the minimum requirements. But, we want to stress that each of these components must be rooted in what Johannessen (2010) has termed an "ideology of possibility" or an equity-based pedagogical practice. This alone can help educators "take the initiative to preserve the principles and values of democracy by challenging the misguided actions of irresponsible politicians" (Johannessen, 2017, p. 5). Johannessen (2010) has described this classroom approach by writing:

> We consider it essential for teacher candidates to be exposed to and to be provided with opportunities to critically analyze unjust conditions currently existing locally, nationally, and in the open world. Knowledge of these conditions, when linked to

> educational pedagogy and practices, raises teachers' consciousness, or as Freire says conscientizaçao. As teachers awaken to this new consciousness or conscientizaçao, they can choose to become 'cultural workers' ready to scrutinize the practices of educational systems guided by political agendas–not sound educational decisions (p. 5).

Teacher preparation programs are no longer places to train students in basic pedagogy and brain development. Those elements are vital and must be preserved, but

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**teacher preparation programs must teach candidates that they will one day have the power to disrupt systems of oppression.**

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Our new teacher preparation programs must teach educators about the "the destructive nature of these policies and disciplines" that have dismantled public education (p. 10). The programs must give their candidates the knowledge and the skills to see themselves as able to act in the face of injustices directed at their students.

We approach the rest of this brief acknowledging that help us see that teacher preparation programs of the past are rooted in systems that have unfortunately excluded voices of color. Public education and future teachers have the ability to interrupt these patterns if we train them with the proper tools.

Minnesotans can look to the work of scholars like Crenshaw, Bell, Freeman, West, Hooks, Ladson-Billings, Tate, Delgado, Hill, Delpit, Gillborn, and Preston as guides to help build race-conscious teacher preparation program.

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**The old systems of teacher preparation gave minimal attention to systemic inequity. If we must change teacher preparation in Minnesota, then we must also correct that mistake.**

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# VII. Teacher Preparation Matters

We now turn attention to the question at the center of this debate: Does teacher preparation matter? We fundamentally believe the answer to this question is, yes. In addition, we want legislators to realize students, teachers, and communities are the groups that most benefit from a trained, professional educator workforce. The Minnesota Constitution indicates that the state's primary purpose is providing an education to all of our children. By setting a high bar for teacher preparation, the Legislature fulfills its constitutional obligation and benefits all Minnesotans.

Evaluating the efficacy of teacher preparation programs is challenging for two reasons. First, student academic achievement is usually the measure researchers use to determine the success of classroom teachers. However, scholars also know a number of different factors, not just classroom experiences, influence student academic achievement. Because of No Child Left Behind's (2002) myopic focus on standardized test scores in reading and math, the kinds of data schools, districts, and states track are largely limited to those types of test scores. But test scores in a limited number of subjects provide far too narrow a lens to use in order to truly measure things as complex and broad as student academic achievement and teacher effectiveness.

There are currently new research projects under way that allow for a much broader look at teacher preparation program effectiveness and student achievement. We applaud those efforts. However, even given the handicap of a very narrow set of data points to use to track student achievement over the past 20 years, we still see, with great consistency, overwhelming evidence that robust teacher preparation in both content and pedagogy leads to higher levels of student achievement.

Second, teacher preparation programs, both traditional and alternative, vary wildly in their structure, curricula, levels of support for student success, content-area course requirements, teaching methods, childhood development, childhood psychology, pedagogy course requirements, student teaching opportunities and requirements, and the presence or absence of capstone projects. This means it is sometimes difficult for social scientists to make definitive conclusions because they may be comparing apples to oranges rather than apples to apples.

In addition, every state uses different terms for different levels of licensure. Most states have some mechanism by which they can place people without established teaching credentials into classrooms. Sometimes a state will call this level of licensure an "emergency hire." In some states, those teachers receive some sort of provisional or limited license. In other states, they do not receive a license. In addition, the requirements for full licensure differ from state to state. Therefore, it is important to take care to note the precise questions the researchers of any study on this topic are asking.

Tricia Miller is a Spanish teacher at Westwood Middle School in the Spring Lake Park School District. She has been teaching for 12 years, and was the recipient of the Spring Lake Park Teacher of the Year Award in 2013. She is passionate about equity in education, and she

believes teacher preparation to be critical. Miller tells the story of a student, T, who lacked basic study skills, who did not test well, who wanted to succeed but lacked the supports to do so. He was getting Ds and Fs in all of his classes, and it took her a long time to find the appropriate interventions for him. But through dedication and the application of a variety of tools she attained in her preparation programs, she eventually learned how to help him learn:

> I think T shows where teacher preparation comes into play. If hadn't gone through the preparation programs that I've gone through, I wouldn't know about these interventions, I wouldn't know how to do them, how to help him. For example, I learned about authentic instruction in my undergraduate program, and again in my graduate work. Learning about authentic instruction helped me understand how important it is to tie my lesson plans to value beyond the classroom, helping my students see the real-life application in what they are learning. Showing T what value he would gain in what he was learning helped to motivate him to work hard and persevere. I continue to learn about appropriate interventions through ongoing professional development. All of this preparation helps me really see kids, helps me see their strengths and helps me find ways to reach them. I had tools to help T. And you know what? He ended up with a B+ in Spanish class (personal communication, November 20, 2017).

Miller's student is one example of how training is vital to the success of Minnesota's future citizens. Teachers need to be adequately prepared to help kids learn.

## A. QUALITY TEACHER PREPARATION CORRELATES WITH HIGH STUDENT ACHIEVEMENT

As far back as the 1980s, researchers have examined different teacher characteristics in search of other indicators of effectiveness.

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**We have a great deal of evidence reflective of a positive correlation between teachers' knowledge of teaching and learning and student achievement.**

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Ashton and Crocker (1987) reviewed seven studies on the correlation between teachers' education coursework and student achievement and found a positive correlation in four of the seven studies reviewed. Evertson, Hawley, and Zlotnik (1985) reported a positive effect of teachers' formal education training on a number of indicators of teacher effectiveness, including supervisory ratings and student learning. Monk's (1994) study of student achievement in mathematics and science found that teacher preparation positively correlated to student achievement, more so than subject matter preparation. Monk concluded, "it would appear that a good grasp of one's subject area is a necessary but not a sufficient condition for effective teaching" (p. 142). Ferguson and Womack (1993) looked at the impact of 13 different teacher characteristics on student achievement, and found that "the amount of

education coursework completed by teachers explained more than four times the variance in teacher performance than did measures of content knowledge. Finally, Guyton and Farokhi (1987) and Denton and Lacina (1984) also demonstrated consistent and strong correlations between teachers' education coursework and student achievement (ctd. in Darling-Hammond, 2000, p. 5).

The National Assessment of Educational Progress had also documented the connection between teacher learning and student achievement. In their study, "4th grade students of teachers who were fully certified, who had master's degrees, and who had had professional coursework in literature-based instruction did better than other students on reading assessments. While these relationships were modest, the relationships between specific teaching practices and student achievement were often quite pronounced, and these practices were in turn related to teacher learning opportunities" (qtd. in Darling-Hammond, 2000, p. 6). In short, they found that

**teachers who had more professional education training used teaching practices that led to higher reading achievement.**

In 1999, Mark Fetler of the California Department of Education published a study focused on high schools in California that investigated the relationship between mathematics teachers' skill and student achievement. Felter controlled for family income in the study and still concluded that teacher preparation could serve as a mechanism by which to predict student success on exams.

In 2001, Suzanne M. Wilson, Robert E. Floden, and Joan Ferrini-Mundy, of Michigan State University, working under advisement from experts from the National Research Council, the University of Wisconsin, Madison, Stanford University, The Spencer Foundation, and the University of California at Berkeley, prepared a report for the U.S. Department of Education and the Office for Educational Research and Improvement. In their report, they attempted (1) to summarize what was at that time known about teacher preparation and (2) make recommendations for future research on teacher preparation. In order to write their report, Wilson et al. (2001) reviewed the findings of 57 research studies that met their stringent criteria for inclusion in their analysis.

Wilson et al. (2001) focused on research that explored the impact of pedagogical preparation across several components of teacher preparation programs. The following are among the findings of the studies the authors include in their review:

- Hawk, Coble, and Swanson (1985) found that the students of certified mathematics teachers scored higher on standardized mathematics tests than those of uncertified teachers.
- Felter (1999) found a negative correlation between percent of teachers with emergency certification and student mathematics achievement.
- Grossman (1989) found that secondary teachers with no pedagogical preparation were limited in their ability to engage high school students in the subject matter, and that those new teachers taught as they had been taught in high school and college.
- In two different correlational studies, Ferguson and Womack (1993) and Guyton and Farokhi (1987), both contended that education coursework was a better predictor of teaching success than subject matter major or GPA prior to entering teacher education programs.
- Finally, Adams and Krockover (1997), Grossman and Richert (1988), and Valli and Agostinelli (1993), all concluded that teachers attributed their knowledge of a range of instructional strategies, classroom discipline and management, and classroom routines to their education coursework.

The decades marked by high demand for teachers, such as the 1960s, 1970s, and 1990s, provided the proper context for scholars to compare teachers with and without the preparation needed for state certification. Decades in which there was little or no demand for teachers meant there were not large groups of unprepared teachers to use as control groups. Scholars who compared these two categories of educators typically found students taught by teachers with all of the preparation needed for certification showed higher levels of student learning (Hice, 1970; LuPone, 1961; McNeil, 1974; Erekson & Barr, 1985; Evertson, Hawley, and Zlotnik, 1985; Ashton 1996).

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**There is a positive connection between teachers' preparation in their content area and the academic achievement of their students.**

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## B. QUALITY SUBJECT MATTER PREPARATION CORRELATES WITH HIGHER STUDENT ACHIEVEMENT

Scholars have also concluded that proper levels of subject matter preparation is often indicative of effective teaching. For example, Wilson et al. (2001) found that

Several other studies showed a positive correlation between teachers' subject matter preparation and both higher student achievement and higher teacher performance evaluation scores, in mathematics, science, and reading (Darling-Hammond, 2000;

Goldhaber & Brewer, 2000; Guyton & Farokhi, 1987; Monk, 1994).

It is important to note that there seems to be a "threshold" for the usefulness of content courses in teacher preparation. For example, Wilson et al. (2001) quoted Monk (1994) who argued "there was a minimal additional effect of teachers' study of mathematics beyond five undergraduate courses on pupil mathematics performance" and "there was a strikingly positive relationship between undergraduate coursework in physical sciences and student achievement" (Wilson et al., 2001, p. 8). But, Monk (1994) stressed there appeared to be a threshold effect. After having taken four courses in physical sciences, there was less of a payoff in terms of student progress (Wilson et al., 2001, p. 8). Wilson et al. (2001) also noted that the results of studies looking at whether a content-specific major in the prospective teacher's area of focus leads to better effectiveness in the classroom are mixed. In some cases, researchers like Darling-Hammond (2000) have found a positive correlation between a content major and student achievement; other scholars do not arrive at the same conclusion. These scholars were able to determine that some content area training is necessary for student success, but studies attempting to determine how much content coursework is ideal yield mixed results. As Darling-Hammond (2000) points out, regardless of how much content knowledge is necessary for effective teaching, there is no question that content and pedagogy are interdependent and highly important (p. 26).

Clotfelter et al., (2007) examined the correlation between a number of teacher characteristics and student achievement. They examined teacher experience, teacher test scores, and teacher licensure. The authors found that students gain significantly if their teachers are fully prepared when they start teaching, instead of gaining credentials while teaching or not gaining credentials at all. They also found students benefit if their teachers are teaching in their licensure area, have high scores on teacher licensing tests, have taught for more than two years, have graduated from a competitive college, and have become National Board Certified. All of these characteristics correlated to higher levels of student achievement. Their data showed a positive correlation between all of these teacher characteristics and student achievement, though the effects are most dramatic in math. Taken together, "the various teacher credentials exhibit quite large effects on math achievement, whether compared to the effects of changes in class size or to the socio-economic characteristics of students, as measured, for example, by the education level of the parents" (p. 2).

This phenomenon of teacher effectiveness characteristics making a larger difference in measurements of student achievement in math than in reading is not unique to the findings of Clotfelter et al. (2007):

> Though the estimated patterns of results for teacher credentials are similar for math and reading, in almost all cases the estimated achievement effects of the various teacher credentials are larger for math. That pattern is not surprising given the common view that schools have a larger role to play relative to families in the teaching of math than in reading" (pp. 26-27).

In other words, when we look at all of the factors that influence a student's level of achievement, when it comes to reading, family characteristics take up a larger percentage of effect on achievement than is the case with math, as most parents leave the teaching of math to a much larger extent to the schools, whereas parents are much more likely to be engaged in their children's literacy. While teacher characteristics such as licensure status are positively correlated to student achievement in literacy, the correlation between those characteristics and student achievement in math is even larger.

Ruth Curran Neild, of John's Hopkins University, and Elizabeth Nash Farley-Ripple, of the University of Pennsylvania, and Vaughan Byrnes, also of Johns Hopkins, published a 2009 report that adds even more proof that teacher preparation matters. Their report, "The Effect of Teacher Certification on Middle Grades Achievement in an Urban District," is one of a very few that look specifically at the correlation between teacher preparation and student achievement in the middle school years. They were able to conclude that "In mathematics, we find that students with elementary- and secondary-certified teachers outscore those with uncertified teachers and those who are certified in special education. Especially strong effects are seen in science, where students with secondary science-certified teachers substantially outscore those with any other kind of teacher" (p. 732).

Also, Noell et al. (2009) issued a report for the Louisiana Department of Education on the results of the state's pilot program of a value-added model used to assess the effectiveness of teacher preparation programs concluded that "teachers who are certified in the content area they are teaching are more effective than those who are not certified to teach that content" (Noell et al., 2009, p. 29).

In 2010, Clotfelter, Ladd, and Vigdor, published another major study that used data from end-of-course tests in North Carolina to examine the relationship between high school student achievement and teacher credentials (Clotfelter, Ladd, & Vigdor, 2010). In North Carolina, over the course of the 9th and 10th grade, students take end-of-course tests in five subjects: algebra; economics, legal, and political systems (ELP); English; geometry; and biology. Clotfelter et al., (2010) use the results of those tests with administrative data on teacher characteristics and credentials to look for correlational relationships. Among the teacher characteristics they examined were years of experience, educational background, licensure test scores, type of licensure, and other forms of certification, such as National

Board Certification (p. 663). They found "compelling evidence that teacher credentials affect student achievement at the high school level, and that the effects for subject-specific certification in math and English are large. Moreover, the combined effects of all the credentials we measure are large enough to be relevant for policy" (Clotfelter et al., 2010, p. 656). This study found teacher credential effects to be significant enough to reduce the achievement gap.

Clotfelter et al. (2010) also examine the relationship between licensure type and student achievement. Like most states, North Carolina requires that teachers be licensed in order to teach, but candidates for licensure can choose between traditional licensure routes and "lateral entry" licenses, which are issued to individuals who have at least a bachelor's degree and the equivalent of a college major in the area in which they are assigned to teach. These teachers "must enroll in an approved teacher education program to complete the prescribed class work and must complete at least six semester hours of coursework each year" (p. 670).

The authors can compare the student achievement results to both groups of teachers: those who started teaching after having completed teacher preparation, and those who started teaching without full preparation but worked toward that certification along the way. They also make an important distinction between lateral-entry teachers, those still working toward full preparation while in the classroom, and those who previously held lateral-entry licenses, who came into the profession via that route but who have since finished their full preparation programs. Their findings are illuminating:

> Students taught by teachers with a lateral entry license average 0.06 standard deviations lower than those taught by teachers with a regular license. Prior lateral entrants, however, appear to be no less effective than teachers with a regular license (p. 670-71).

These findings echo those of other studies that have looked at the difference between fully prepared teachers and teachers lacking full preparation. They also echo other evidence that teachers who come into teaching via alternate certification routes oftentimes catch up with traditionally trained teachers in terms of effective teaching. Clotfelter et al., (2010) offer an important caution regarding this particular nuance in their findings:

> Though this finding may reflect in part the training that lateral entrants receive during the two years of their license, it also reflects selection. Lateral entrants have high departure rates, and it is reasonable to assume that the ones who remain in teaching are more effective than those who depart (p. 670).

It is difficult to study some alternative programs because so many of their trainees leave the profession within the first few years.

This same phenomenon was noted in Boyd et al. (2009) and Darling-Hammond et al. (2005). Note that in Minnesota's new tiered licensure system, it will be possible for someone with a bachelor's degree in any field and passing scores on content and pedagogy tests

to obtain a full, mobile, and indefinitely renewable professional license without working toward full preparation. Minnesota's new licensure system allows for candidates who have completed teacher preparation before starting to teach, candidates who complete teacher preparation while already teaching (lateral entry), and candidates who start teaching with no preparation and never enroll in or complete teacher preparation to eventually obtain full professional licensure.

Clotfelter et al., (2010) also examined the relationship between teacher certification in the subject area being taught and student achievement. One caution here: the group of teachers in the control group who were not certified in their assignment area was relatively small. They find that "being taught by a teacher who is certified in the subject area. . . leads to higher test scores and that the effects are large relative to those for other teacher credentials. The estimated effects of certification, for example, are many times the size of those that are implied" by the effects of teacher test scores on student achievement (p. 671).

## C. LACK OF TEACHER PREPARATION CORRELATES WITH LOW STUDENT ACHIEVEMENT

Importantly, education researchers have also built a strong body of evidence to show that a lack of teacher preparation leads to negative outcomes for students. This evidence also started to highlight that children of color were the most frequently harmed. Researchers started showing that certain students, particularly students of color and students living in poverty, were far more likely to be assigned to the most ineffective teachers (Sanders & Rivers, 1996, qtd. in Darling-Hammond, 2000, p. 2). Patricia Ashton (1996) of the University of Florida at Gainesville, noted that states' efforts to reduce teacher certification requirements "no doubt contribute to students' academic failure" (p. 21). She also stressed "that these policies exacerbate inequities in the quality of education offered to low-income children in comparison to children from more economically advantaged homes. Teachers without regular certification are more often assigned to teach in schools with predominantly low-income children and children of color than are regularly certified teachers" (Ashton, 1996, p. 21). This is one study that provided important supplementary evidence to work like the study from Darling-Hammond (2000) mentioned above. While Darling-Hammond and others show that teacher preparation ultimately yields better student achievement, then Ashton and similar studies, also show that a lack of preparation ultimately harms students.

In 2002, Harold Wenglinsky, then a researcher for the Educational Testing Service, published a study in which he explored the link between teacher practices in the classroom and student academic performance. In this study, Wenglinsky examined the correlation between math and science achievement levels of more than 7,000 eighth graders to measures of teaching quality and student social class background. He found that teachers' background in content and in teacher education and ongoing professional development had strong effects on achievement. Although Wenglinsky's study focuses on the important need for ongoing, robust professional development for teachers, he nevertheless also found that pedagogical training and content education improved the classroom practices of teachers.

Another important 2002 study is "Legislating Equity: The Distribution of Emergency Permit Teachers in California," written by Laura Goe, of the University of California, Berkeley. Goe's study examines the effects of California's high number of emergency permit teachers (in 2000-01, 34% of all new teachers in California were working on emergency permits, and 10% of all teachers in California were emergency permit teachers) on student achievement. She controls for both student and school characteristics. Her findings indicated that "generally, the more emergency permit teachers there are in a school, the lower the school's achievement" (Goe, 2002, p. 1).

Goe (2002) also examined the distribution of emergency permit teachers throughout California. She confirmed what other researchers have uniformly found to be the case in other places by arguing:

> emergency permit teachers tend to be concentrated in schools with low standardized test scores, high percentages of minority students and English learners, and high percentages of students with free or reduced-price lunch status (Goe, 202, p. 2).

The students who most need qualified, highly trained teachers, and stable teachers, therefore, are the students who are least likely to get them (p. 2).

It is important to clarify that underprepared teachers include more categories than just emergency hires. Fast-track programs that utilize "on-the-job" training, like Teach for America, also fail to prepare future teachers and ultimately this harms students. Laczko-Kerr and David C. Berliner's (2002) examination of "The Effectiveness of 'Teach for America' and Other Under-Certified Teachers on Student Academic Achievement: A Case of Harmful Public Policy." This study, using data from Arizona, compared the academic achievements of students taught by regularly certified primary school teachers to those of students taught by emergency, temporary, and provisionally certified teachers. One subset of the second group, the "under-certified" group, was from the national program, Teach for America (TFA). The authors' findings were consistent with the ever-growing body of work around this question. They found:

- Students of TFA teachers did not perform significantly different from students of other under-certified teachers.
- Students of certified teachers out-performed students of teachers who were under-certified. This was true on all three subtests of the SAT, and effect sizes favoring the students of certified teachers were substantial. In reading, mathematics, and language, the students of certified teachers outperformed students of under-certified teachers, including the students of the TFA teachers, by about two months on a grade equivalent scale. Students of under-certified teachers make about 20% less academic growth per year than do students of teachers with regular certification. (Laczko-Kerr & Berliner, 2002, p. 2)

These researchers again strengthen the narrative that preparation yields the best results for students.

In 2005, Darling-Hammond, Holtzman, Gatlin, and Heilig, of Stanford University, published the results of a well-controlled study using longitudinal data for 132,000 students from Houston to examine 4th and 5th graders' achievement gains over a six-year period (Darling-Hammond et al., 2005). Their study found that students taught by fully certified teachers consistently out-performed students with uncertified teachers. Also, they reported that students taught by Teach for America educators showed lower academic achievement, and they also found Teach for America candidates were as underprepared as other alternatively trained instructors. Importantly, TFA recruits who eventually became fully certified performed as well as fully certified teachers in terms of student achievement. However, the vast majority of Teach for America recruits leave classroom teaching by their third year, which is right around the time they start to catch up with their fully certified peers in terms of effectiveness.

Also, Nougaret, Scruggs, & Mastropieri (2005), researchers with the Center for Exceptional Children, used data about 20 traditionally licensed first-year teachers and 20 first-year teachers with emergency provisional licenses. The scholars had experienced supervisors with no knowledge of licensure status observe the teachers and evaluate their performance. The evaluators were asked to use a rating scale with three subscales, based on Charlotte Danielson's 1996 framework. The subscales included "planning and preparation, classroom environment, and instruction" (Nougaret et al., 2005, p. 217). The researchers were able to conclude that "across all measures, traditionally licensed teachers were rated statistically significantly higher than were teachers holding emergency provisional licensure. Differences between the two groups were substantial, with effect sizes exceeding 1.5 standard deviation units" (Nougaret et al., 2005, p. 217).

In 2006, a research team from Duke University examined 10 years of longitudinal data on teachers and students in North Carolina (Clotfelter, Ladd, & Vigdor, 2007). Their study found that 3rd, 4th, and 5th grade students whose teachers were fully licensed achieved at higher levels on state math and reading tests than did students whose teachers were not certified. At the same time, the study found that teachers with less than full professional certification, including those with provisional, temporary, and emergency licenses were negatively correlated to student achievement.

## D. UNDERPREPARED TEACHERS INTENSIFY THE ACHIEVEMENT GAP WHICH HARMS STUDENTS OF COLOR

In 2009, Donald Easton-Brooks of the University of North Texas and Alan Davis of the University of Colorado, Denver, published a study looking at the correlation between teacher qualifications and the achievement gap in early primary grades. Their study was large, using data from 4,400 early elementary children from the Early Childhood Longitudinal Study, and it uses value-added methods. Easton-Brooks and Davis (2009) found that certified teachers produced higher levels of academic achievement in reading for their students. Importantly, African American students experienced larger gains due to having a certified teacher. Teacher certification correlated with a slight narrowing of the achievement gap.

The findings suggest that the presence of a certified teacher is associated with higher growth in reading for both African American and white students but is marginally more important for African American students. At the same time, certification itself is meaningful only to the extent that it is associated with differences in the instructional practices of teachers, practices that in turn reflect the pedagogical and content knowledge of teachers and their ability to draw on that knowledge in moment-to-moment interactions in the classroom (Easton-Brooks & Davis, 2009, p. 10).

Education researchers have built a strong body of evidence to show that a lack of teacher preparation leads to negative outcomes for children of color were the most frequently harmed. Researchers started showing that certain students, particularly students of color and students living in poverty, were far more likely to be assigned to the most ineffective teachers (Sanders & Rivers, 1996, qtd. in Darling-Hammond, 2000, "Previous Research," p. 2). Patricia Ashton (1996) of the University of Florida at Gainesville, noted that states' efforts to reduce teacher certification requirements "no doubt contribute to students' academic failure" (p. 21). She also stressed "that these policies exacerbate inequities in the quality of education offered to low-income children in comparison to children from more economically advantaged homes. Teachers without regular certification are more often assigned to teach in schools with predominantly low-income children and children of color than are regularly certified teachers" (Ashton, 1996, p. 21). This is one study that provided important supplementary evidence to Darling-Hammond's work (2000), mentioned above. While Darling-Hammond and others show that teacher preparation ultimately yields better student achievement, then Ashton and similar studies, also show that a lack of preparation ultimately harms students.

## E. RIGOROUS PROFESSIONAL LICENSURE STANDARDS CORRELATE WITH HIGHER STUDENT ACHIEVEMENT

In 2000, Darling-Hammond published a study focused on the relationship between teacher quality and student achievement, entitled *Teacher Quality and Student Achievement: A Review of State Policy Evidence*. The study uses a 50-state survey of policies, state case study analyses, the 1993-94 Schools and Staffing Surveys (SASS), and the National Assessment of Educational Progress (NAEP) to explore the ways in which specific teacher qualifications correlate to student achievement. Her analysis led to the following conclusions:

> Teacher quality characteristics such as certification status and degree in the field to be taught are very significantly and positively correlated with student outcomes. Characteristics such as education level (percentage of teachers with master's degrees) show positive but less strong relationships with education outcomes ( p. 23).

Partial correlations, Darling-Hammond continued

> confirm a strong, significant relationship of teacher quality variables to student achievement even after controlling for student poverty and student language background. The most consistent highly significant predictor of student achievement in reading and mathematics in each year tested is the proportion of well-qualified teachers in a state: those with full certification and a major in the field they teach. The strongest, consistently negative predictors of student achievement, also significant in almost all cases, are the proportions of new teachers who are uncertified and proportions of teachers who hold less than a minor in the field they teach. (p. 23).

Darling-Hammond published this report in 2000 when Minnesota was still one of the national leaders in terms of both teacher certification requirements and student achievement. Darling-Hammond (2000) reviewed state teaching certification policies and their relationship to student achievement and determined:

> [T]he states that repeatedly lead the nation in student achievement in mathematics and reading have among the most highly qualified teachers in the country and have made longstanding investments in the quality of teaching. The three long-time leaders–Minnesota, North Dakota, and Iowa–have all had a long history of professional teacher policy and are among the 12 states that have state professional standards boards which have enacted high standards for persons entering the teaching profession....Iowa, Minnesota, Montana, North Dakota, and Wisconsin have among the lowest rates of out-of-field teaching in the country and among the highest proportions of teachers holding both certification and a major in the field they teach ("The National View of Teacher Qualifications," 2000, para. 9).

Of course now, after the 2017 legislative session, Minnesota is no longer counted among the states that have high standards for full professional licensure.

In the late 1980s and 1990s, several states with alarmingly low levels of student achievement undertook major initiatives to improve the quality of teaching. Connecticut and North Carolina "enacted the most ambitious teacher legislation of any states nationally." Also, Arkansas, Kentucky, and West Virginia enacted reforms of their teacher preparation systems with a goal of improving the quality of teaching (Darling-Hammond, 2000). Both Connecticut and North Carolina "coupled major statewide increases in teacher salaries and improvements in teacher salary equity with intensive recruitment efforts and initiatives to improve preservice teacher education, licensing, beginning teacher mentoring, and ongoing professional development" (Darling-Hammond, 2000, State Achievement Gains, para. 2). These states witnessed significant academic growth in students. Darling-Hammond reported that:

> [Between the early 1990s and 2000] North Carolina posted the largest student achievement gains in mathematics and reading of any state in the nation. . . . Connecticut

> also posted significant gains, becoming one of the top scoring states in the nation in mathematics and reading. (Darling-Hammond, 2000, p. 15).

These are incredible outcomes for both states. Darling-Hammond (2000) described the many simultaneous initiatives North Carolina used. She stated:

> (1) they boosted teacher salaries; 2) they created a career development program that rewarded teachers for greater education and for achieving National Board Certification; 3) they launched an aggressive program to recruit hundreds of high school students into teacher preparation by subsidizing their college education; 4) they increased requirements for teacher preparation programs; 5) they increased licensing requirements for both teachers and principals; 6) they invested in improvements to teacher education curriculum; 7) they invested sizable resources in early childhood education, and more. (Darling-Hammond, 2000, pp. 15-16)

Connecticut's reforms were similar. That state boosted teacher salaries, raised licensing standards by requiring a major in the discipline to be taught plus extensive knowledge of teaching and learning, instituted performance-based assessments in both content and content-specific pedagogy as a basis for attaining a license, and they funded a statewide mentoring program for new teachers (Darling-Hammond, 2000, pp. 16-17). These two states provide a strong example that strengthening preparation systems, not weakening existing structures, is the best approach to improve student achievement.

During the same time period, five other states increased licensure standards with the result of improving student achievement. In the late 1980s and 1990s, Kentucky, West Virginia, and Arkansas raised teacher licensure requirements and requirements applicable to teacher preparation programs and invested more heavily in professional development. They, too, witnessed significant student achievement gains (Darling-Hammond, 2000, pp. 17-18).

Research has shown for decades that teacher effectiveness has a strong effect on student outcomes (Sanders & Rivers, 1996; Wright, Horn, & Sanders, 1997; Jordan, Mendro, & Weerasinghe, 1997, qtd. in Darling-Hammond, 2000, pp. 2-3). In other words, we have known for a long time that teacher quality adds to student achievement, instead of merely compensating for deficiencies. And as we will show below, research has shown for decades that robust teacher preparation leads to greater levels of teacher effectiveness.

## F. EXEMPLARY PREPARATION TRACKS, LIKE THE NBCT PROGRAM, IMPROVE EFFECTIVENESS

Also echoing results from other studies in other states, Clotfelter et al. (2010) find that teachers "appear to become better teachers as a result of" the National Board Certification process (p. 672). The authors summarize their overall findings by writing:

> Specifically, we compare the achievement effects of a teacher with weak credentials... with those of a teacher with strong credentials. Based on the teachers in our sample, the difference in predicted student achievement between the two teachers is 0.23 standard deviations. Thus, by this metric a student with a...teacher [with weak credentials] would be expected to perform 0.23 standard deviations lower than if she had a teacher with strong credentials. Though credentials may be bundled in various ways, it is clear from the estimated coefficients that novice or lateral entry teachers and those not certified in the field they are teaching or in a related field are most likely to be at the bottom of the distribution (p. 672).

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**The vast majority of peer-reviewed research conducted since 2000 examining the correlation between teacher preparation and student achievement yields the same conclusion: teacher preparation, both in content and in pedagogy, matters.**

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Another important contribution to our understanding, published in 2010, came from the National Center for Analysis of Longitudinal Data in Education Research (Feng & Sass, 2010). Its authors are Li Feng, of Texas State University and Tim Sass, of Florida State University. Feng and Sass set out to examine the effect of teacher training on student achievement among special education students. Their study used longitudinal data from Florida over a five-year span. Feng and Sass found that "pre-service preparation in special education has statistically significant and quantitatively substantial effects on the ability of teachers of special education courses to promote gains in achievement for students with disabilities, especially in reading. Certification in special education, and undergraduate major in special education, and the amount of special education coursework in college are all positively correlated with the performance of teachers in special education reading courses" (p. iii).

This does not mean that every graduate of a teacher preparation program will be a highly-effective teacher. It also does not prove that every person who becomes a teacher through some other route will be ineffective. Many variables influence the success or lack of success of a given teacher. A fully-prepared teacher who lacks any support or meaningful mentoring in his or her first years, and who does not teach in a building that nurtures collaborative working relationships, might flounder. A lesser-prepared teacher with adequate support systems might thrive. And clearly, some teacher preparation programs are better than others in preparing their students for the demands of the classroom. Regardless of these "what if's" and potential outliers, and despite the number of reform groups and legislators who would like for this not to be, robust teacher preparation matters.

# VIII. Alternative Voices: Exposing the Faulty Evidence Used by Critics of Traditional Teacher Preparation

In 2001, President George W. Bush signed into law the NCLB (2002) with the stated and laudable aim of reducing the achievement gap. The law required that all students have a "highly qualified" teacher.


Many organizations and individuals frustrated by the weaknesses and limitations of traditional teacher preparation programs saw the act as an opportunity to turn teacher preparation into an entirely different commodity, and others saw it as an opportunity to completely deprofessionalize and deregulate teaching and get rid of most or all teacher credentialing requirements. As discussed above, by the time politicians were drafting the language of NCLB, scholarship had already established the fact that "high-quality teaching–

knowing the material and how to convey it—makes the difference in student achievement" (Kaplan & Owings, 2003, p. 687). However, in the few years surrounding the adoption and implementation of NCLB, a handful of studies appeared in the literature, attempting both to discredit all of the previous research correlating teacher preparation to student achievement and to assert that no such correlation existed. Leslie S. Kaplan and William A. Owings' "No Child Left Behind: The Politics of Teacher Quality" (2003) and Jeff Archer's "Focusing in on Teachers," (2002) provide a helpful overview of the political fight over teacher quality that was sparked by NCLB. The result was the watering down of the definition of "highly qualified."

One political problem faced by supporters of NCLB was that it was widely known that deep and ubiquitous inequities existed in the distribution of our most highly prepared teachers across communities, schools, and student demographics. It was true then, and it is true now, that students in our most linguistically, culturally, economically, and racially diverse schools are more likely than students in other schools to be taught by teachers with some level of certification that is less than their state's highest standards or who are teaching without any certification in the assigned field at all. Our kids who most need our best-trained teachers have been and remain the least likely to get those teachers.

Goldhaber and Brewer's (2000) "Does Teacher Certification Matter: High School Teacher Certification Status and Student Achievement," (2000), a study commissioned by the Thomas B. Fordham Foundation, and Kate Walsh's (2001) "Teacher Certification Reconsidered: Stumbling for Quality," commissioned by the Abell Foundation are the two most contentious and often-cited publications that challenge the decades of research connecting student achievement to teacher pre-NCLB.

First, Goldhaber and Brewer's (2000) article asserted that their analysis of student and teacher data led to the conclusion that teacher certification has little bearing on student achievement. They argued that "contrary to conventional wisdom, mathematics and science [students] who have teachers with emergency credentials do no worse than students whose teachers have standard teaching credentials," and then they suggest that because of this finding, teacher credential requirements be abandoned. These "findings" were very convenient for the architects of NCLB, who were about to require that every student get a "highly-qualified" teacher, because if "highly qualified" does not mean "prepared," then the challenge to staff those schools would get a whole lot easier.

But scholars immediately pushed back, calling Goldhaber and Brewer's methodology into question and noting that their conclusion—that there is no correlation between preparation and achievement—did not even match their own study's findings. Darling-Hammond, of Stanford University; Barnett Berry, of the National Commission on Teaching and America's Future; and Amy Thoreson, of the University of Chicago; published a response to Goldhaber and Brewer in the same journal that published Goldhaber and Brewer's work, *Educational Evaluation and Policy Analysis.* Their response, entitled "Does Teacher Certification Matter? Evaluating the Evidence," provides an in-depth analysis of Goldhaber and Brewer's methodology and conclusions. Darling-Hammond et al. (2001) assert:

> In drawing its conclusions, [Goldhaber and Brewer's study] ignores its own findings about the positive effects of teacher certification on student achievement (based on the 2,800 teachers who held such certification in their sample) while resting sweeping policy recommendations on a finding from a sub-sample too small to support ambitious inferences. The study's problematic conclusions derive not only from over-generalization based on tenuous evidence but also from a misunderstanding of how state certification systems operate; a failure to examine the available data on the emergency certified teachers in question (a large share of whom are similarly prepared to those with standard certification); and a neglect of much of the existing research in the field. The authors ignore methodologically solid work that would lead to different conclusions about the effects of preparation, while referencing studies that are methodologically inadequate to support conclusions about the effects of teacher preparation or certification (p. 58).

In fact, Goldhaber and Brewer's own data found that student achievement improved when a student had a teacher with a degree in mathematics, and they found that having a certified teacher in mathematics "exerts an even stronger positive influence on student achievement" (Darling-Hammond et al., 2001, p. 58).

Walsh (2001) also provided support for those looking to diminish or eliminate teacher credentialing requirements. Walsh (2001) argued for lawmakers to ignore the entire body of research published before 2001 connecting teacher preparation to student achievement outcomes. She further argued that there is no such connection, and that states should sever their involvement in setting requirements for teacher credentialing and leave hiring decisions up to school principals. Further, Walsh argues that the large inequities in access to certified teachers for poor and minority students are not a problem because research linking teacher education to student achievement is flawed. Walsh makes several key assertions.

- Uncertified teachers are as effective as certified teachers,
- That teacher education makes no difference to teacher effectiveness,
- That verbal ability is the most important determinant of teaching effectiveness,
- That private schools staffed by uncertified teachers are more effective than public schools, and,
- That untrained teachers are more qualified than prepared teachers.

The Walsh/Abell study's methodology has since been thoroughly critiqued and debunked, and we outline that critique below. What is most remarkable about Walsh/Abell (2001), however, is not its sloppy scholarship, its failure to support claims with evidence, its misrepresentation of other studies, or its sweeping generalizations. What is most remarkable about this report is that when Secretary of Education Rod Paige presented his 2002 Report on Teacher Quality, he cited only the Walsh/Abell study in the section of his report that advocated for the elimination of teacher preparation requirements. Ignoring vast amounts of research pointing to a very different conclusion, the secretary of education chose to cite a single paper, riddled with methodological problems.

Darling-Hammond's (2002), "Research and Rhetoric on Teacher Certification: A Response to 'Teacher Certification Reconsidered'," documents the many inaccuracies in the Walsh/Abell paper and describes the actual findings of many of the studies it purports to review, as well as the findings of other studies it ignores. Darling-Hammond (2002) provides a close reading of the study and an additional analysis of its methodology, and she outlines the study's major failings. The article addresses methodological issues regarding the validity and interpretation of Walsh's research. Darling-Hammond wrote:

> [The Walsh/Abell report] suggests that its recommendations are based on 'solid research.' However, only one reference among the report's 44 footnotes is to a peer-reviewed journal article (which is misquoted in the report); most are to newspaper articles or to documents published by advocacy organizations, some of these known for their vigorous opposition to teacher preparation. [...] Though written as a local rejoinder to Maryland's efforts to strengthen teacher preparation and certification, it appears to have become a foundation for federal policy (p. 3).

In the article, Darling-Hammond (2002) addresses five major flaws in the Walsh/Abell report, which include:

1. *Evidence ignored.*
2. *Unfounded claims.*
3. *Misrepresentation of research.*
4. *Methodological issues and double standards in using research.*
5. *Illogical policy conclusions (p. 5).*

Darling-Hammond (2002) concludes:

> While [the Walsh/Abell report's proposal] is couched as the elimination of 'barriers' to teaching, evidence suggests that lack of preparation actually contributes to high attrition rates and thereby becomes a disincentive to long-term teaching commitments and to the creation of a stable, high ability teaching force. Lack of preparation also contributes to lower levels of learning, especially for those students who most need skillful teaching in order to succeed.
>
> The evidence from research presented here and elsewhere makes clear that policies Walsh endorses could bring harm to many children, especially those who are already least well served by the current system (Darling-Hammond, 2002, p. 42).

Despite the fact that the Walsh/Abell study is riddled with inaccuracies and sloppy scholarship, it nevertheless became the go-to resource for those pushing to eliminate or reduce teacher certification requirements. Notably, two of the three recommendations made in the Walsh/Abell report, that states should a) eliminate coursework requirements for teacher certification and require only a bachelor's degree and passing scores on teacher tests; b) devolve their responsibility for teacher qualification and selection to school districts, are precisely the changes made to Minnesota teacher licensing laws in 2017. The Walsh/Abell study is faulty but scholars, politicians, reform groups, and policymakers who align with its underlying ideology have continued to cite this study repeatedly. This should be troubling to policymakers, parents, districts, and concerned citizens.

Proponents of the polished and carefully branded Teach for America (TFA) program have spent millions of dollars on efforts to persuade legislators that the term "highly qualified" should not require teacher preparation beyond a five-week training. Diane Ravitch, a scholar who has served both Republican and Democratic departments of education, explains: "We live in an age of public relations and perception. And the TFA brand is a winner... Its board of directors contains some of America's most powerful figures from Wall Street and the corporate sector." TFA "directs millions of dollars to lobbying to influence members of Congress to agree that TFA's corps members are highly qualified. TFA paid $760,285 during the one year period between October 1, 2009 and September 30, 2010, and one of the priorities listed on their Schedule C, Form 990, Part IV designates one of their lobbying priorities "preserving the status quo of alternatively certified teachers as being federally recognized as highly qualified" (Veltri, 2013, para. 18).

The "highly-qualified teacher" provision of NCLB was one of the most pronounced issues of tension during NCLB's tenure. This requirement came at a time when there was a shortage of teachers, at a time when teacher attrition rates were higher than other, comparable fields, and at a time when our most diverse schools had the highest percentage of teachers who lacked traditional credentials.

As Affeldt (2011) has argued, "Congress cannot pretend that it really cares about closing the achievement gap or providing equal opportunities to learn if it refuses to address the

fundamental right of every child to have a fully prepared and qualified teacher who knows how to teach their subject matter effectively" (2011, para. 10). But this is exactly what NCLB did. It proposed to provide equitable access to highly qualified teachers as a way of closing the achievement gap, but then so lowered the bar on the definition of "highly qualified" that just about any teaching candidate would meet those criteria, whether they had trained for years with robust, full teacher preparation or whether they had degrees in unrelated fields and a few weeks of training over a summer before being thrown into high-needs schools. Both before and after NCLB, students in our most racially, linguistically, and economically diverse schools were and are the students who are least likely to be taught by teachers with full teacher preparation in the subject area they teach, and they are the least likely to be taught by teachers who will stay at the school for more than a few years (Eckert, 2013).

Are there studies favorable to alternative teacher preparation programs, including TFA? First, it should be noted that there are teacher preparation programs that include even less preservice training than TFA. As for studies of TFA in particular, there are, though "even in those limited cases in which TFA shows a positive impact, it is consistently small" (Schaefer, 2015, para. 7). As Heilig and Jez (2014) point out, despite a series of non-peer-reviewed studies funded by TFA and other organizations that purport to show benefits of TFA teachers, "peer-reviewed research on their impact continues to produce a mixed picture. The peer-reviewed research suggests that results are affected by the experience and certification level of the TFA teachers as well as by the group of teachers with whom those TFA teachers are compared. The question's specifics strongly determine the answer" (p. i).

One critical concern regarding the paradigm upon which TFA is built has to do with race and the narratives about race upheld by TFA's recruiting and placement strategies. Barnes, Germain, and De Valenzuela (2016) provide a strong critical race critique of TFA's problematic rhetoric. They have shown that TFA uses a dominant narrative about poor students and students of color to encourage college students to become teaching cadets. They wrote:

> To help entice her new teachers into the profession, Kopp discusses ways to glamorize poverty. She proposes advertisements that 'will seek to sell the experience as something almost glamorous,' and 'the Teacher Corps will seek to capitalize on the fact that salaries are low to actually increase the status of the endeavor ...The glamour, spirit, and mystique Kopp aspires to associate with the Teacher Corps (CMs) positions students and communities of color as the other, an exotic spectacle, and casts the two-year act of service as an extended version of poverty tourism (Selinger & Outterson, 2010; Steinbrink, 2012). This unfortunate image is compounded by deficit language directed at the communities of color that will be disproportionately served by Kopp's CMs (Barnes, Germain, & De Valenzuela, 2016, pp. 14-15).

One finding that seems to hold up over a number of studies, both those commissioned by proponents of NCLB and/or TFA and those conducted by university-based academic research and published in peer reviewed journals, is that under-trained teachers do tend to catch up with their traditionally-prepared counterparts after a number of years in the classroom when we look strictly at student test scores. We do not believe that high needs schools should be laboratories for less well-prepared teachers; in fact, we believe our most racially, economically, and linguistically diverse schools need our most robustly trained teachers.

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**The best candidates for teaching careers in our most high needs schools are not necessarily white students from our most elite colleges and universities, looking for a two-year stop on their way to careers in other fields. They are the people who live in and are committed to those communities, for whom the road to teacher licensure is too often interrupted by systemic racism, tuitions costs, student debt barriers, and teacher preparation programs that fail to meet the needs of candidates of color.**

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## A. ALTERNATIVE PREPARATION PROGRAMS AND TEACHER ATTRITION

A critical aspect of the relationship between teacher preparation and student achievement has to do with teacher retention rates. Districts' inability to find qualified teachers to fill open positions has been worsening for decades. In some geographic areas, as well as in some licensure fields, this problem is already at crisis levels. And while the teacher shortage has a negative impact on all districts, schools serving students with the most complex needs are disproportionately disadvantaged by it (Education Policy Innovation Center, 2016, p. 8).

There are two ways to approach a shortage of workers in any field: 1) recruit more, and 2) retain more. The easiest path is to recruit more. However, if we ignore the attrition problem in the teaching profession, that amounts to simply pouring more water into a leaking bucket (Ingersoll, 2001). Teachers leave the profession at a higher rate than other like fields, and teacher attrition rates are highest among young teachers and teachers of color (Achinstein et al., 2010; Allensworth et al., 2009; Darling-Hammond & Sykes, 2003; Ingersoll & May, 2011; Ingersoll & Smith, 2003). In Minnesota, one out of every three new teachers leaves the profession within the first five years of teaching (Minnesota Department of Education, Teacher Supply, 2017). The financial and academic costs for this level of turnover are extremely high.

The National Commission on Teaching and America's future has published a study on the costs of teacher turnover. Schools have to drain their resources to recruit, hire, and train new teachers, and they note that student achievement suffers from the turnover as well:

> Low performing schools rarely close the student achievement gap because they never close the teaching quality gap—they are constantly rebuilding their staff. An inordinate amount of their capital—both human and financial—is consumed by the constant process of hiring and replacing beginning teachers who leave before they have mastered the ability to create a successful learning culture for their students. Student achievement suffers, but high turnover schools are also extremely costly to operate. Trapped in a chronic cycle of teacher hiring and replacement these schools drain their districts of precious dollars that could be better spent to improve teaching quality and student achievement (Carroll, 2007, p. 5).

Kacey Guin (2004) examined the impact of teacher turnover on schools' working climate and ability to effectively function. The researcher found that:

> Schools with high teacher turnover rates have difficulty planning and implementing a coherent curriculum and sustaining positive working relationships among teachers. The reality of these organizational challenges is particularly alarming, given that high turnover schools are more likely to serve low-income and minority students (p. 4).

Research consistently shows that teacher churn harms the schools that predominantly serve students of color.

In 2013, Matthew Ronfeldt of the University of Michigan, Susanna Loeb of Stanford University, and James Wyckoff, all highly respected and often-cited scholars in education research, published a study on the high costs of teacher turnover, both in terms of district finances and in terms of student achievement. They estimate that it costs a school up to $20,000 for every teacher who leaves an urban district.

When schools have a hard time retaining teachers, student achievement suffers. Ronfeldt, Loeb, and Wyckoff (2013) estimate the effects of teacher turnover on over 850,000 New York City fourth- and fifth- grade students over eight years. Their findings are consistent with other analysis of the problem as well as with long-held assumptions about teacher turnover:

> Results suggest that teacher turnover has a significant and negative impact on student achievement in both math and ELA. Moreover, teacher turnover is particularly harmful to the achievement of students in schools with large populations of low-performing and black students. (Ronfeldt et al., 2013, p. 30)

The students in our most high-needs schools who most need stable, experienced teachers, and well-prepared teachers, are in schools that have a constantly revolving door of teachers coming for only a short period of time before either leaving for different schools or leaving the profession altogether.

If high attrition rates diminish student achievement, then it is important to look at how teacher preparation correlates or does not correlate to teacher retention rates. On this score, the evidence is quite stark. A 2011 study comparing TFA and traditionally prepared teachers in Texas found that after the TFA teachers "had completed their 2-year commitment, their retention rates dropped to a range of 42%-56%, compared to non-TFA teachers in the comparison group, whose retention rates ranged from 76% to 81%" (Ware et al., 2012, p. 1). In longitudinal studies, both Boyd et al. (2006) and Kane et al. (2006) found that by the fourth year of teaching, 76%-81% of TFA teachers had left teaching, 50% of New York Teaching Fellows had left teaching, and 37% of traditionally prepared teachers had left teaching. A 2005 study of teachers in Houston revealed that on average 80% of TFA teachers had left by their third year (Darling-Hammond et al., 2005). Glass (2008), National Commission (2002), and Henke, Chen, and Geis (2000) all also found that fully prepared teachers have far higher retention rates than do teachers who come to the profession through short-cut programs that place far less emphasis on teacher preparation.

The quality of traditional teacher preparation programs varies wildly. And we know that traditional teacher preparation programs are not a viable option for many teacher candidates who need alternative routes to licensure. But the body of evidence available today on the single question of whether or not there is a correlation between teacher preparation and student academic achievement points overwhelmingly toward the conclusion that better prepared teachers produce better student achievement results.

# IX. What Do the Students of Minnesota Deserve? The Mandatory Components of All Teacher Preparation Programs

As Minnesota ventures forth into a new era of teacher preparation, there are several essential components of teacher preparation that policymakers should demand from any program leading to teacher licensure in the state of Minnesota. Education Minnesota believes that regardless of delivery, all teacher preparation programs must contain basic components that build equity-driven educators prepared to teach diverse learners.

Minnesota now exists in a world in which there will be teacher preparation routes not tied to traditional universities. With this reality in mind, any IHE or non-IHE based teacher preparation program must include:

a. Training in content knowledge and content-specific methodology.

b. Training in childhood and adolescent development, including social-emotional learning and trauma-informed practices.

c. Training in classroom management, student behavior, and restorative practices.

d. Robust and multi-faceted training in assessment.

e. Training on teaching diverse learners.

f. Training in special education.

g. Clinical experience tied to theory and built on collaboration.

## A. TRAINING IN CONTENT KNOWLEDGE AND CONTENT-SPECIFIC METHODOLOGY

As we discussed earlier, research suggests that while content knowledge matters, content-specific methodology is of even greater importance for student achievement, and that the two elements of teacher preparation are interdependent.

Scholars are not in complete agreement on whether and how much content knowledge translates to effective teaching, and there are a number of reasons for this. First, researchers have used vastly different measurements of content knowledge. Studies that use standardized test results as indicators of content knowledge are more likely to show either no benefit for eventual student achievement or statistically insignificant benefits. Some of these studies still point to a significant benefit (Clotfelter et al., 2010), but others have mixed results. Studies that count the number of undergraduate courses taken in the subject area are more likely to find more positive correlations between content knowledge and student achievement. This may be because standardized tests, often multiple choice in design, take a very narrow

snapshot of content mastery (Darling-Hammond, 2000). Second, there seems to be a threshold effect in play regarding the efficacy of content courses in teacher preparation, belying the myth that more is better. Monk (1994) found that beyond five undergraduate courses in the licensure path content area, there is little benefit to student achievement gains (p. 8). This may explain why the results of studies that ask whether a content-specific major helps or does not help are mixed (Darling-Hammond, 2000; Wilson, 2001). Regardless, content knowledge is clearly important (Schulman, 1987; Wilson et al., 2001). More importantly, content knowledge coupled with content-specific pedagogy is critical.

Liping Ma's (1999) important work examining expert teachers reveals that there are different kinds of content knowledge at play, and that type of content knowledge, not quantity of knowledge, that is most useful for teachers. Her work shows that expert teachers of elementary mathematics "have a deeper, richer organization of elementary subject matter knowledge (which she calls 'profound understanding of fundamental mathematics') than do mathematics professionals, because their knowledge is organized for teaching. From this perspective, 'more mathematics' is not a sufficient prescription for content preparation; it is mathematics knowledge related to teaching that matters" (qtd. in Grossman, Schoenfeld, & Lee, 2005, p. 206). Research suggests, therefore, that we be less concerned with mastery of subject area as it is defined by the highest levels of attainment in those specific fields, and more concerned with a mastery of the subject area for the purposes of teaching it to others.

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**Knowing how to work with fractions, knowing how to read, interpret, and respond to texts, understanding the scientific process, or knowing how to speak French are not sufficient for knowing anything at all about how to teach these skills and knowledge sets. Content-specific pedagogy means understanding "ways of representing and formulating the subject that make it comprehensible to others" (Shulman, 1986, pp. 9-10).**

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We concur with Grossman, Schoenfeld, and Lee (2005), who echo the findings of multiple researchers when they assert that "at a minimum, prospective teachers need a solid foundation in the subject matters they plan to teach and the requisite disciplinary tools to continue learning within the subject matter throughout their careers. . . . Such tools include understandings of deep connections in the subject matter that inform curricular and pedagogical choices, an understanding of big ideas and productive patterns of thought within the discipline, and an understanding of how knowledge is generated within a field (p. 206).

This skill set requires entirely different work for entirely different fields, and it requires an ability to discern the best ways to teach different types and groups of learners.

Grossman, Schoenfeld, and Lee (2005) offer an example of pedagogical content knowledge that illustrates why content knowledge alone is not sufficient. They use work developed by Swan and Ridgway (2002). In this case, we look at a basic method of assessing students' understanding of fractions.

1. Write these fractions in order of size, from smallest to largest: 5/8; ¼; 11/16
2. Write these fractions in order of size, from smallest to largest: 5/8; ¾; 1/16
3. Write these fractions in order of size, from smallest to largest: 5/8; ¾; 11/16

Someone with a solid understanding of fractions can solve this problem no matter how it is written. However, someone with solid content-specific pedagogical knowledge will know that only one of the options will actually assess where the students are struggling. Research shows "that many students who have yet to master fractions will focus only on the number of pieces, not their relative size. Given task 1, such students will think, '1/4 has only one piece, so it is the smallest; 5/8 has five pieces, so it's in the middle; and 11/16 has eleven pieces, so it's the largest'" (Grossman, Schoenfeld, & Lee, 2005, p. 202). This is a very common form of incorrect reasoning, and yet it will lead students nevertheless to the correct answer. Therefore, putting this task on the test will fail to assess the students' skills accurately; it will also fail to alert the teacher to what kind of reasoning the students are using.

Another common but faulty form of reasoning found among students learning to use fractions is to think that the smaller the piece, the smaller the fraction: "If the students hold this conception, they attend only to the denominator of the fraction. Because sixteenths are smaller than eighths, which are smaller than fourths, students with this misconception will reason incorrectly and yet, again, arrive at the correct answer to task 2.

In contrast, however, students who use either incorrect form of reasoning will fail to reach the correct answer to task 3. Only student answers to task 3, therefore, will provide "the [appropriate] diagnostic information to the teacher, who can then work to clear up students' misconceptions (Grossman, Schoenfeld, & Lee, 2005, p. 203).

In order to master content-specific pedagogy, it is equally important to have and continue to develop a deep understanding of the students' cultural framework and knowledge base. We discuss the importance of training preservice teachers in the area of diverse learners in its own section later on, but it is worth mentioning here that content-specific pedagogy means knowing as much about one's subject matter as about the frameworks the student bring to that subject matter. Grossman, Shoenfeld, and Lee (2005) build on Lee's 1995 work on teaching literary interpretation skills to African American high school students:

> Lee's work in Cultural Modeling (1995) demonstrates the complexity of prior knowledge in the interpretation of literary texts. Lee designed a curricular intervention that scaffolded the rhetorical knowledge of African American adolescent speakers of African American English to support literary reasoning of canonical texts. She assessed students' prior knowledge of African American cultural knowledge as related to two target texts, *The*

*Color Purple*, by Alice Walker, and *Their Eyes Were Watching God*, by Zora Neale Hurston. She also assessed their knowledge of signifying, a genre of talk in African American English that involves ritual insult characterized by high use of innuendo and figurative language, using material close to the students' out-of-school experience.

Such teaching "requires [a] profound understanding of the knowledge, world experiences, dispositions, and habits of mind that students construct through their history with schooling as well as through their out-of-school experiences in families, communities, and peer social networks (Grossman, Schoenfeld, & Lee, 2005, p. 220).

Content and content-specific pedagogy are interrelated and highly complex, and they are critical components of teacher preparation.

## B. TRAINING IN CHILDHOOD AND ADOLESCENT DEVELOPMENT, INCLUDING SOCIAL-EMOTIONAL LEARNING AND TRAUMA-INFORMED PRACTICES

Scholars have asserted for over a century that an understanding of childhood development and childhood psychology are profoundly important tools for teachers. Importantly, what we now know about childhood development has changed significantly over that time, and these changes have critical implications for the effectiveness of any given teacher. Understanding a variety of theoretical approaches to development, social emotional learning, and trauma-informed practice are essential elements of teacher knowledge and skill sets.

Daniels and Shumow (2002) provide a helpful overview of the various theorists who have most impacted our understanding of childhood development and teacher preparation, and they explain that the field of cognitive developmental psychology contributed important findings about how children learn in the latter half of the 20th century (p. 498). One of the most significant shifts in our understanding of how children learn was a move from presenting teachers with "global stage models of cognition," wherein all children at a particular age are expected to learn in the same fashion and perform at the same level, to training teachers to understand "how children approach and solve specific types of problems within content areas and how the development of domain-specific reasoning is linked to 'everyday' reasoning" (Daniels & Shumow, 2002, p. 498).

Olson & Bruner's (1996) work on childhood development remains important today. They asserted that a teacher's educational practices are based on his or her views, which they call "folk psychologies." These different folk psychologies include teachers' beliefs about children, learning, and knowledge. Olson and Bruner identify four general models of children and development held by teachers. In their framework, "less sophisticated folk psychology perspectives concentrate on children's behavior, view learning as imitation, and conceptualize teaching as presenting information, whereas more sophisticated views conceive of children as competent and intentional meaning makers and of education as a process of forming, identifying, questioning, weighing, and producing ideas based on evidence subject to scrutiny" (Daniels & Shumow, 2002, pp, 498-499).

It is through a sophisticated understanding of childhood development and psychology that teachers can move beyond thinking of children as having fixed abilities that are demonstrated by behavior assessed according to a single, global model. We have evidence that "teachers' views of the child's innate intelligence and natural propensity to learn and develop may shape how they view their role as educators" (Daniels & Shumow, 2002, p. 509).

A solid background in the most updated research on childhood development and psychology is critical for teachers, so that they can create developmentally appropriate curriculum and lessons (Courtney Roatch, personal communication, November 22, 2017).

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**Teachers with a more robust understanding of children and learning are better able to teach using practices such as guided-discovery, cooperative learning, differential learning, culturally-appropriate instruction, student-centered instruction, positive classroom climate, social skills curricula, and parent and community involvement (Daniels & Shumow, 2002, p. 500).**

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*1.SOCIAL-EMOTIONAL LEARNING AND TRAUMA-INFORMED PRACTICE*

A previous EPIC paper, entitled *From Exclusionary to Restorative: An Intentional, Trauma-Sensitive Approach to Interrupting Racial Disparities, Reducing Violence, Strengthening Communities, and Accelerating Student Learning* (2017), fully explores the important role social-emotional learning and trauma-informed practices now play in our schools. Schools now commonly adopt a variety of programs under the larger umbrella designation of social emotional learning, or SEL. Such programming is designed to develop children's self-awareness and regulation skills, social awareness and relationship skills, and decision-making skills. Topics such as anti-bullying, resilience, mindfulness, growth mindset, peer relationships, emotional literacy, teamwork, and respect are common issues at the center of SEL programming in schools. This kind of programming, whether embedded in academic curricula or in the wider school environment, is predicated on a sophisticated understanding of childhood development and is both designed and delivered appropriately when educators have a thorough background in childhood development.

Abby Kelley, a special education evaluator for Cambridge-Isanti Schools, describes a young child whose social-emotional needs are so profound, that unless educators could recognize and respond to them, he was unable to learn:

> My biggest thing with him was empathy and meeting his social and emotional needs. It was sitting with him and asking questions: What's going on? What's happening this week at home? Where and when have you last eaten? Where are your siblings? Where are you going to be this weekend? There's a whole narrative to his life that, when we're not really well trained to meet those needs, we're going to miss. So we're going to see

> this kid who shows up and has 63 missing assignments and we're going to assume Ahh! He doesn't care; he's not trying! And that's complete crap. We shut kids down when we do that; we create a hostile environment for them (personal communication, November 20, 2017).

Understanding social and emotional needs is not something that teachers can do in addition to their teaching. It is at the heart of the practice of effective teaching.

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**A specific and critical area of childhood development that should be requisite for all Minnesota educators involves understanding how trauma manifests itself in the developing brain, how trauma manifests itself in student behavior, and the barriers trauma can erect between a child and his or her ability to learn.**

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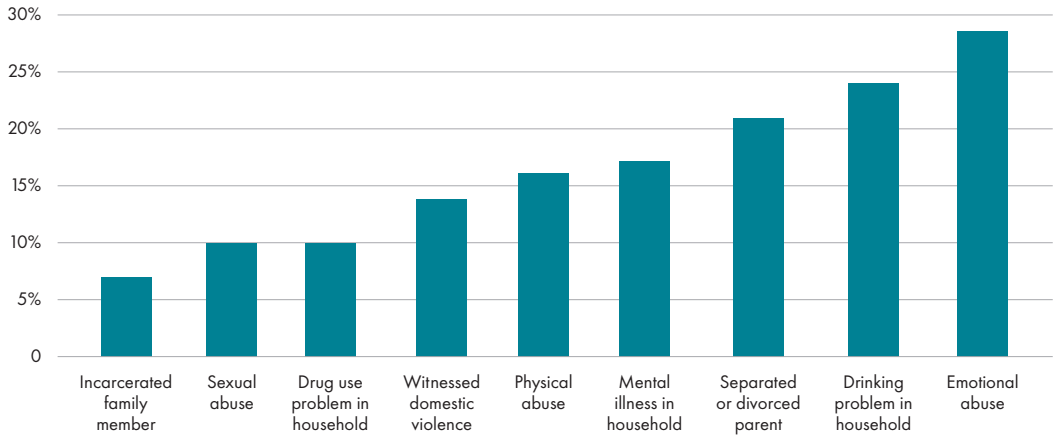
One of the most groundbreaking developments in the field of childhood development in recent decades includes a new understanding of the prevalence of high levels of toxic stress due to exposure to childhood trauma and how that toxic stress changes the developing brain. We know "much more now than we did 25 years ago about why some student behavior looks like it does, and we must equip our educators to recognize and respond appropriately to students exhibiting high levels of toxic stress" (Educator Policy Innovation Center, 2017, p. 62).

The first startling discovery to come from this area of research is that our children are walking around with much higher levels of toxic stress than we previously assumed. The original ACE (adverse childhood experience) study of 17,000 people in San Diego, CA, was conducted in 1998 by researchers Robert Anda, an epidemiologist with the Centers for Disease Control, and Vincent Felitti, a preventative disease specialist. Since that time, ACE studies are now conducted in almost every state on a regular basis, and we know now both what average levels of toxic stress are among our student population as well as the demographic groupings of students that are manifesting extraordinarily high levels of trauma.

The Minnesota Department of Health conducted an ACE assessment of the general population in 2011. Figure 4 presents the results of that study. In Minnesota, 55% of the population reports having one or more adverse childhood experiences. The most common are emotional abuse (28%), living with a problem drinker (24%), separation or divorce of a parent (21%), mental illness in the household (17%), and physical abuse (16%) (Minnesota Department of Health). Of those who have one or more adverse childhood experiences, 60% had two, and 15% have had five or more. The Minnesota ACEs study provides us with a startling picture of the prevalence of toxic stress within our student population (Minnesota Department of Health). The data show that in an average class of 30 students, 16-17 will

have had one or more adverse childhood experiences, and two to three have had five or more. The data also show us that in many of our classrooms, specifically classrooms in high-poverty areas and those with high populations of American Indian, African American, Hispanic, LGBTQ, and special education-identified students, the prevalence of high ACE scores is much, much higher.

*FIGURE 4: PREVALENCE OF ACES IN THE POPULATION OF MINNESOTA*




*Reproduced from: Minnesota Department of Health. (2013). Adverse childhood experiences in Minnesota: Findings & recommendations based on the 2011 Minnesota behavioral risk factor surveillance system. Retrieved from www.health.state.mn.us.*

Students experiencing high levels of toxic stress have different responses to a wide variety of interactions than students who have not experienced adverse childhood experiences or who have experienced very little of it. The very brain structure in children with high levels of toxic stress is altered. Because of advancements in brain research, we know now that "toxic stress strengthens connections in the parts of the brain that are associated with fear, arousal, and emotional regulation. Additionally, toxic stress negatively impacts the parts of the brain associated with learning and memory (Minnesota Department of Health, 2013, p. 9).

When a student with high levels of toxic stress has his or her fears triggered, he or she may display behaviors that seem to an outsider to be far more dramatic than what the situation calls for. The student's brain is wired to respond to potential threats as if they are as severe as the original adverse childhood experiences have been. Once the brain releases cortisol, a person is in what is commonly known as "fight, flight, or freeze" mode. And when this is happening, "the brain cannot physiologically take in new knowledge or problem solve" (Medina, 2014). Students with "unprocessed traumatic memories cannot deal with threats, real or perceived, which cause them to automatically drop out of their neo-cortex into their limbic area for the survival reactions of fight/flight" (Oehlberg, 2012, p. 5).

Although schools cannot directly change the economic and social conditions that lead to high levels of toxic stress in children's brains, "the manner in which educators respond to the needs of these students is within their grasp when there is adequate preparation and training" (Oehlberg, 2012, p. 8). Schools have an opportunity to provide a range of supports to students with high levels of toxic stress, but teachers need training in trauma-informed practice in order to help these students develop the resiliency they will need to learn and to thrive.

Ann Feyen is a school psychologist in the Duluth Public Schools, and she sees the importance of our ability to bring a trauma-informed lens to public education when working with some of her students. She describes students who live in their parents' cars, little kids who do not have enough food, students who face neglect and abuse, and students who have never had the stability in life to have been part of a group where the expectation is to be able to "sit down and listen," such that they have not had that experience so they don't know what that means. Feyen says that one of the most common characteristics of children who have experienced significant trauma that she sees is behavior and mood dysregulation. The behaviors include: "yelling, screaming, kids fleeing from the classroom, leaving the building, hitting other kids, hitting adults, throwing materials" (personal communication, November 20, 2017). Feyen asserts that another one of the most powerful ways trauma affects students is that it leaves them with difficulties in forming meaningful relationships. Research on trauma-informed practices suggests helping students develop relationships and connections with a stable, loving adult is one of the single most important things that the child needs to develop resiliency allowing them to be ready to learn.

Given how much our understanding of childhood development has changed, and given how much a teacher's understanding of childhood development affects their practice, it is even more critical today than ever before that teachers be robustly trained in this area. Child and adolescent development "is the most solid and substantial basis upon which to build curricular, assessment, and teaching skills . . . with child development as a common core of training" (Elkind, 1998, p. 186). Our question should not be whether or not the issue is of importance in the realm of teacher preparation; it should be "how to assist teachers in developing more sophisticated beliefs about children and correspondingly sophisticated educational practices (Daniels & Shumow, 2002, p. 516).

## C. TRAINING IN CLASSROOM MANAGEMENT, STUDENT BEHAVIOR, AND RESTORATIVE PRACTICES

One of the most fundamental tools any teacher needs from the first day is a solid background in classroom management and a deep understanding of student behavior and restorative practices. Deficits in this area are often cited by teachers as the root cause of high levels of stress and as reasons for leaving the profession. This area of training has a wildly disparate history in traditional teacher preparation programs and is often ignored in state-level requirements for alternative teacher preparation programs. And yet, it is directly related to teachers' ability to be effective in classrooms and their likelihood of staying beyond the first few years. Proactive classroom management skills are critical for teacher effectiveness and teacher retention, and they are among the most important skills required for educators to interrupt the racial discipline disparities in our schools and stop fueling the school-to-prison pipeline.

Most, but not all, states "have a requirement that accredited teacher preparation programs include instruction in classroom management . . . though relatively few programs require that the classroom management instruction be evidence-based" (Freeman et al., 2015, p. 108). In addition, in too many cases, traditional teacher preparation programs that do offer such training emphasize "reactive, rather than proactive, strategies" (Oliver & Reschly, 2010). This is a critical problem, as we now know that approaches to student behavior that are merely reactive have led to grossly inequitable treatment of students from different racial and ethnic backgrounds.

Beginning teachers "report that weak classroom management skills and disruptive students are the most significant barriers to being a good teacher, and often teachers in their first few years of teaching blame their teacher preparation programs for failing to adequately prepare them for classroom management" (Eisenman, Edwards, & Cushman, 2015). Managing student behavior "is an established concern for new teachers, and difficulty in this area contributes to the attrition of teachers from the field (Freeman et al., 2014, p. 116). In fact, even experienced teachers who have robust training in classroom management at the pre-service level continue to ask for more training as their careers progress. In a 2015 survey of special education teachers, "over 83% of the teachers surveyed reported being underprepared in classroom management and behavioral interventions," even though "the teachers in this study overwhelmingly reported that they found their university course in classroom management helpful" (Stough et al., 2015, p. 36). Although "effective classroom management practices have been identified, a significant gap exists between the effective classroom management research base and requirements for teacher training. As a result, many pre-service teachers may not be prepared to effectively manage student behavior upon completion of a teacher preparation program due to a lack of exposure to classroom management content" (Freeman et al., 2014, p. 107).

In many of our dense, urban areas, public school teachers are largely white, but education support professionals tasked with managing problematic student behavior are much more likely to be people of color. This is problematic on a number of fronts. It implies a system

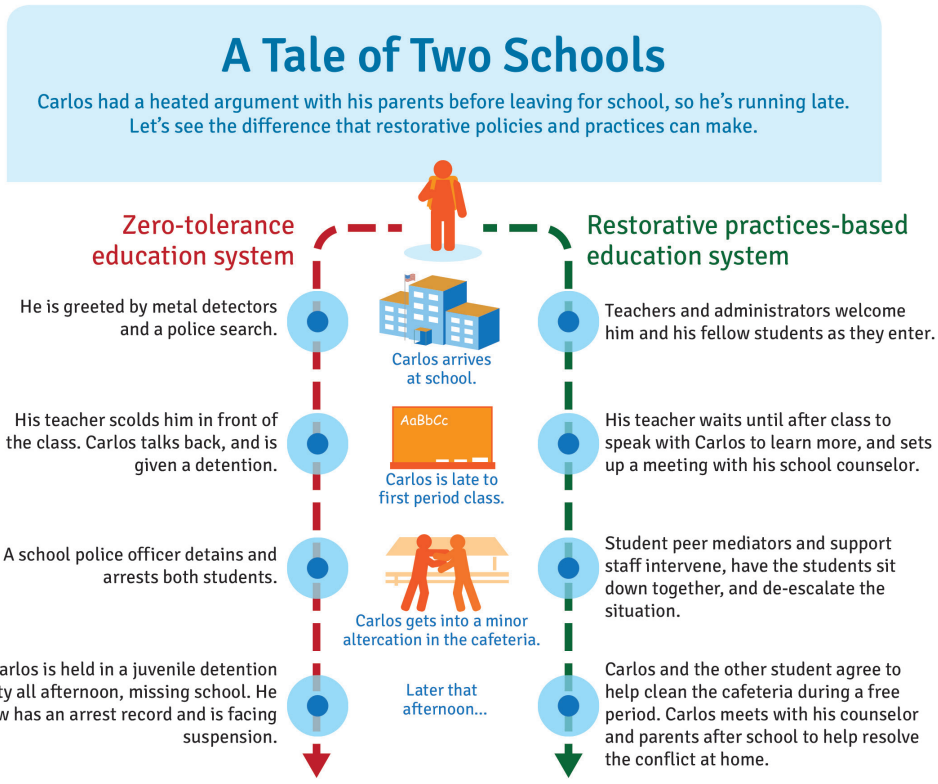
that has determined that the people who can dispense knowledge are white, that student behavior is not necessarily the job of the white teacher, and that the role of adults of color in schools is to deal with problematic behavior. This is one way that we construct knowledge as a form of whiteness, and it sends a jarringly visual message to students that some of them belong, and some of them do not.

Minnesota needs to do two things to mitigate this damage: 1) we need to invest in increasing the numbers of well-prepared teachers of color, and 2) we need to ensure that all of our teachers are given the robust training needed to understand, recognize, and make room for all learners and provide inclusive, supportive, and engaging learning environments. Effective classroom management translates into classrooms in which student feel "competent and in control, and if teachers are to develop strategies that are appropriate for their needs, teachers must know and respect their students. Of course, this also involves not concentrating our new and/or poorly prepared teachers in certain schools and classrooms, and it involves providing rigorous and engaging educational opportunities that challenge students and offer appropriate supports where needed. There is evidence that many teachers attribute inaccurate characterizations of both behavior and academic ability to students based on race and ethnicity" (Kaplan, Gheen, & Midgley, 2002, qtd. in LePage et al., 2005, p. 335). Part of classroom management, therefore, involves cultural competency, which we discuss in its own section later in this paper.

Many of Minnesota's public and charter schools rely heavily on exclusionary disciplinary policies, and what we know about the effects of such practices makes continued use of them irresponsible. Exclusionary discipline policies that rely foremost on suspensions and expulsions did not produce the benefits proponents hoped for, and, instead, they have done more damage than almost anyone could have envisioned. The good news is that there are far more appropriate, research-backed approaches to student behavior that educators can adopt in place of exclusionary practices. Education Minnesota's 2017 EPIC paper provides a thorough overview of the research around the effectiveness of restorative practices in schools. We offer just a summary of that information here.

Given what we now know about the harm done by an overreliance on exclusionary practice and the tremendous results possible by the wholesale adoption of restorative practices, it is clear that educators need training in this area before they begin their careers. Figure 5 provides a visual comparison of the different approaches to school climate. New educators need the opportunity to learn to build the skills needed to help create restorative schools and classrooms.

*FIGURE 5: RESTORATIVE SCHOOLS VS. EXCLUSIONARY SCHOOLS*




*Reproduced with permission from the American Federation of Teachers (AFT). Original image from: Restorative Practices: Fostering Healthy Relationships for Promoting Positive Discipline in Schools (2014). A report from the Advancement Project, AFT, the National Education Association, and the National Opportunity to Learn Campaign. Retrieved from http://schottfoundation.org.*

We have already discussed the importance of training in trauma-informed practice. In addition, it is critical that educators be trained to approach student behavior in an entirely different way than the approach schools have been using for the past three decades. Restorative practices offer schools the opportunity to reimagine their thinking around discipline and justice. In a restorative setting, far greater attention is paid to community building and engaging all students and staff in the school community. This is a paradigm shift from thinking about justice or discipline as a means of social control or as simply a necessary reaction to disruptive behavior to thinking about justice and discipline as mechanisms of building communities and teaching accountability (Morrison, 2016). Restorative practices can interrupt the school-to-prison pipeline and build schools that are safer, more inclusive, and better environments for learning.

Student behavior policies that are designed only to respond when bad behavior happens miss the profound opportunity for schools to build the kinds of communities in which students can thrive. Our overreliance on exclusionary practices began with zero-tolerance policies around weapons in schools and grew exponentially into a system built on the concept of removing disruptive students instead of intervening, teaching, providing resources, or repairing harm. Not only have our policies relying on exclusion not led to a reduction in disruptive and violent incidents in schools, but neither have they led to higher academic achievement for the students who are not causing the disruption or the violence. And most importantly, these policies have been applied unevenly, leading to grossly inequitable outcomes. Students of color and other smaller groups, such as LGBTQ and special education students, are far more likely to face suspension and expulsion for behavior that, when demonstrated by other students, is met with less severe responses.

Restorative practice requires training, and that training is critical for all educators. One of the most common reasons efforts at adopting restorative practices fail at the school level is that the training requirements are not often taken seriously enough. Minnesota districts lack adequate funding for robust professional development for staff. Even the current law governing teacher development and evaluation has never been fully funded by the state.

Why is this change so critical, and why should teacher preparation programs be held accountable for preparing educators to approach student behavior differently? Daniel Losen (2011), with the National Education Policy Center, has examined the existing data and shown that there is clear racial inequity in the use of school suspensions. There have been increases in the use of suspension for all students, but the data show "a growing racial discipline gap" for students of color (Losen, 2011, p. 5). Students of color are being expelled at greater rates than their white peers. This increased use of suspension and expulsion denies students of color fair access to public education. We should be appalled that "one out of every five or six black students is suspended, but only about one out of every 40 white students" is suspended (Losen & Gillespie, 2012, p. 20). Research has also shown that exclusionary interventions have been used disproportionately on LGBTQ students and students identified with special education needs (National Council on Disability, 2015; Ending the School-to-Prison Pipeline, 2012).

The school-to-prison pipeline refers to the punitive pathways that move many Minnesota students out of classrooms and into the criminal justice system. Heitzig (2009) defines it as a system of "tracking students out of educational institutions, primarily via zero tolerance policies, and tracking them directly and/or indirectly into the juvenile and adult criminal justice systems" (p. 1). Zero-tolerance introduce students to the criminal justice system, many times for very minor infractions.

The school-to-prison pipeline influences the lives of all students, but it has been particularly bad for students of color and students with disabilities. The American Bar Association (ABA) (2016) found that during the 2011-12 school year, 260,000 students were referred to law enforcement and 92,000 were arrested on school property. They also found that the majority of these referrals were because of minor offenses.

The school-to-prison pipeline is fueled by the use of punitive disciplinary measures. Gonzales (2015) makes the observation that "schools have imposed harsher sanctions on students for minor disruptive behavior, such as tardiness, absences, noncompliance, and disrespect, resulting in a systematic and pervasive pushing out of students from schools and into the school-to-prison pipeline" (p. 287). The "pushing out" identified by Gonzales speaks primarily to the use of suspensions and expulsions as the primary means of intervention. A suspension removes a student from classrooms and the supervision of educators. This lost instruction time is also a lost opportunity to help students who are most in need. Zero-tolerance policies lead to more suspensions and expulsions, which set more students in the direction of the school-to-prison pipeline.

Schools across the country that have adopted restorative practices with fidelity have demonstrated a reduction in punitive disciplinary actions, a reduction in harmful, disruptive, and violent behavior, greater levels of respect for educators across racial and ethnic groups, a decrease in the size of the racial discipline gap, increased levels of student connectedness, improved academic achievement, and improved school climate (Armour, 2013; Educator Policy Innovation Center, 2017; Fronius et al., 2016; Gonzalez, 2012; Gregory et al., 2015; Mirsky, 2003; Suvall, 2009; Tyler, 2006). Clearly, Minnesota educators need the skills and knowledge to interrupt the failed approach to student behavior that has dominated our education climate for decades.

Our understanding of classroom management, student behavior, and restorative practices continues to evolve, as does our understanding of how critical this set of skills is for new educators.

## D. ROBUST AND MULTI-FACETED TRAINING IN ASSESSMENT LITERACY

Assessment is a broad umbrella term that encompasses a number of key interactions between teachers and learners, and researchers have argued that teachers spend up to a third of their time doing assessments (Butt, 2010). As is the case with most other topics discussed in this paper, our understanding of the utility of certain types of assessments, the limitations of other types of assessments, and the equity concerns regarding assessments continues to evolve. Preservice teachers need a solid base in both theory and practice on the most effective ways to use assessments to maximize student learning and to constantly improve their own instruction. Important components of assessment literacy include design, implementation, analysis, and modifications.

### *1. FORMATIVE ASSESSMENTS*

Teachers use assessments for a variety of purposes, including summative assessment, the most traditional, which is to determine grades or establish final scores. Final grades on individual assignments or on entire courses are assessments of student performance. But over the past 20 years, teachers, teacher preparation faculty, and scholars have learned a great deal about the power of assessments to do more than simply grade student performance or

report a particular level of student performance for classwide, schoolwide, or statewide data requirements. Formative assessments are designed to inform teaching and thereby improve student learning. A previous EPIC paper, *Testing Better: How to Improve Minnesota's Use of Assessments in Education*, rightly asserts that "students deserve a learning environment that provides timely and meaningful feedback" (Educator Policy Innovation Center, 2015, p. 8). It is through the use of formative assessments that this environment can be created.

Paul Black and Dylan William (1998) published a seminal work in *Assessment in Education* in which they reviewed existing research on the utility of formative assessments in education. Their review is cited so often in more recent research because in it, they determined that focused formative assessments can improve student outcomes dramatically. Shepard et al., (2005) explain the significance of Black and William's work:

> [Black and William] found that focused efforts to improve formative assessment produced learning gains greater than one-half standard deviation, which would be equivalent to raising the score of an average student from the 50th percentile to the 85th percentile. In other words, formative assessment, effectively implemented, can do as much or more to improve student achievement than any of the most powerful instructional interventions, intensive reading instruction, one-on-one tutoring, and the like (Shepard et al., 2005, p. 277).

A formative assessment is designed to answer an entirely different set of questions than is a summative assessment, or the kind of assessment designed to determine whether or not or to what extent a student was successful at a given task. For teachers "to be effective in supporting student learning they must constantly be checking for student understanding. Moreover, they must convey to students the importance of students themselves taking responsibility for reflecting on and monitoring their own learning process" (Shepard et al., 2005, p. 276). Instead of using an assessment to determine whether or not a lesson worked, effective teachers use formative assessments to determine whether or not their current teaching is working for their particular, diverse learners. When used in a focused and appropriate manner, the data teachers receive from formative assessments allow them to make adjustments in instruction necessary for their very specific group of learners. Curriculum-embedded performance assessments are a way to make assessments more meaningful for students, and they can and should provide a constant stream of data to drive improvements in instruction.

Kemal Izci (2016) studied the various factors that influence individual teachers' willingness to adopt formative assessments as part of their instructional strategies. One of their findings is that when teachers' training on formative assessments is either missing in teacher preparation or is weak, those teachers are less likely to either choose to use formative assessments or use them ineffectively:

> Even if some teacher preparation programs provided skills and knowledge of formative assessment, they do not provide time for application of and reflection on formative assessment practices. Accordingly, the newly graduated teachers come into school without having an understanding of and experience with FA, which cause frustration in adopting FA. If they gain confidence with FA in their preparation program, they will be confident to adopt various forms of FA (Izci, 2016, p. 2779).

Given that much of what we now know about the positive impact of formative assessments for students is less than 20 years old, it is imperative that this training start in teacher preparation programs.

*2. PRIOR KNOWLEDGE ASSESSMENTS*

Another type of assessment that has been shown to increase a teachers' effectiveness is one that assesses students' prior knowledge of a subject. Learning is, of course, always a process of building on prior knowledge:

> Prior knowledge includes formal learning, such as a preschooler learning the rule about not crossing the street without looking both ways, but it also includes a multitude of implicit, self-taught explanations about how the world works. These intuitions or self-taught theories can sometimes facilitate new learning, as when scientific explanations are easily mastered because they 'make sense' and jibe with our previous experience. Intuitive theories can also be the source of serious misconceptions that hinder new learning and are relatively impervious to instructional change unless students are given a structured way to work through the inconsistencies between their intuitions and contradictory evidence (Shepard et al., 2005, pp. 285-286).

Assessing students' prior knowledge can play a critical role in allowing the teacher to design curriculum in a way that will be most beneficial for students.

Prior knowledge assessments are particularly important given our increasingly diverse classrooms. Prior knowledge certainly includes formal learning and facts already mastered, but it is far more nuanced than that:

> Prior knowledge also includes language patterns and ways of thinking that students develop through their social roles and cultural experiences. Differences in cultural practices can sometimes be misinterpreted by teachers as evidence of 'deficits' (Shepard et al., 2005, p. 286).

Preservice teachers need training so that they know and are comfortable with strategies "for eliciting prior knowledge in a way that allows students from different ethnic and cultural groups to bring relevant resources to bear" (Shepard et al., 2005, p. 286).

Assessment is also something that happens unconsciously, as teachers make judgements about student capacity, and this is where training in unconscious bias and training on learning to teach diverse students is critical, and we discuss this in greater detail later in this paper. But as we consider all of the implications of training preservice teachers in assessment, we need to be sure that our approach to assessment is broad and multifaceted.

Angela Osuji, a science teacher at Washburn High School in Minneapolis, sees the danger of failing to train teachers to recognize cultural differences in assessing prior knowledge, whether those assessments be formal or informal. She talks about the diverse students in Minneapolis, immigrant poor students, immigrant poor Black students, immigrant poor White students, immigrant students for whom English is a second language. She sees that too often, educators assign specific values, judgements, assessments to people who come from different backgrounds, and with these students in particular, "too often, the moment they open their mouths to speak, we kind of assign some kind of low cognition to them" (personal communication, November 21, 2017). Even something as momentary in time as such an assumption by an educator when first encountering a student can have dramatic implications for that students' academic trajectory. It can impact "the type of classes they take, the kind of college they will go to, their ability to even believe they belong, or whether or not they are expected to do well in class" (Osuji, personal communication, November 21, 2017).

Effective teaching also includes the use of self-assessment, as the student's ability to take responsibility for his or her own learning becomes increasingly critical: "Engaging students in critiquing their own work serves both cognitive and motivational purposes. Ultimately, the habit of self-assessment leads to the self-monitoring of performance that is the ultimate goal of instructional scaffolding" (Shepard et al., 2005, p. 291).

And, of course, preservice teachers need ample training in the use and utility of summative assessments. Formative and summative assessments have entirely different purposes: "one enables learning and the other documents achievement" (Shepard et al., 2005, p. 297). But even though the purpose of a summative assessment is much more limited than that of a formative assessment, there is evidence that summative assessments can play an important role in student achievement: "significantly, students appear to study more and learn more if they expect to be tested. . . . Follow up testing engages students in review and relearning, . . . [and] the testing experience itself [assuming the quality of the assessment is appropriate] engages students in mental processing of the content" (Shepard et al., 2005, p. 298). Cognitive theory "also suggests that students benefit from the opportunity to demonstrate competence and to work toward increasing proficiency as defined by criteria that are mutually understood by teacher, student and the community" (Pellegrino, Baxter, & Glaser, 1999, qtd. in Shepard et al., 2005, p. 298).

Finally, and of great importance, preservice teachers need to understand the harm that assessments can cause to students and student learning. Students can be internally motivated, seeking to master content, and they can be externally motivated, seeking to be rewarded, and the two types of motivation can be very much at odds. Dweck (1986) distinguishes between students with "mastery goals" and those with "performance goals." Students with "mastery goals" or "learning goals," "seek to increase their competence, to understand or master something new," while students with "performance goals," seek to gain favorable judgments of their competence or avoid negative judgments of their competence" (Dweck, 1986, p. 1040). The recent federal focus on high-stakes standardized tests have ushered in complaints about teachers "teaching to the tests," which is another way of saying that policy has lead us away from providing students with an environment that helps develop and nurtures internal motivation to master content.

Students with "mastery goals" seek challenges and are persistent in the face of obstacles, while students with "performance goals" avoid challenge, have low rates of persistence, and display anxiety and negative self-cognition when faced with difficult obstacles (Dweck, 1986, pp. 1040-1041). This is a critical distinction for teachers to be aware of, because research has also shown that "mastery versus goal orientations are not fixed student attributes; they can be created or elicited to different degrees by the learning environment" (Shepard et al., 2005, p. 304). Assessments can be used to encourage either pattern of thinking. Assessments that, for example, are designed to provide useful feedback and to reward hard work by showing routes for improvement, encourage the internal motivation of someone seeking to master content. Summative assessments, if not coupled with helpful feedback or opportunities to improve, can encourage the opposite:

> With performance goals, the entire task choice and pursuit process is built around children's concerns about their ability level (Dweck, 1986, p. 1041).

Students who are "performance" oriented "are more concerned about looking competent rather than being competent and will tend to avoid situations where they might appear to be incompetent" (Shepard, et al., 2005, p. 304). Research shows how a "focus on ability judgments can result in a tendency to avoid and withdraw from challenge, whereas a focus on progress through effort creates a tendency to seek and be energized by challenge" (Dweck, 1986, p. 1041).

Researchers have identified an important distinction between the kinds of feedback on academic work that lead to greater engagement with the content and the kinds that lead to lesser engagement. We know, in other words, that instructional practices, including especially those practices surrounding the use of assessment, can develop, shape, and encourage students to be internally motivated toward mastery just as easily as they can develop, shape, and encourage students to be externally motivated around performance, and thereby avoid challenges and growth.

For example, Shepard et al., (2005) argue that "perhaps the most serious negative consequences of traditional grading practices have come from the use of normative comparisons" (p. 304). When assessments are used merely to rank students against one another in a competitive environment, researchers have found that they "resulted in lower interest, less willingness to persist, and lower performance compared to students who received substantive feedback (Shepard et al., 2005, p. 304).

Preservice teachers can also learn to use the results of various assessments to inform their instruction, a critical skill set for any teacher. Preservice teachers need robust training in the different forms of assessment in order to meet the needs of their students.

## E. TRAINING ON TEACHING DIVERSE LEARNERS

Over the past several decades, one of the most persistent problems in the way of our ability to address obvious and inexcusable inequity in our public schools lies at the intersection of three facts: 1) we have an unequal distribution of highly-trained teachers across different groups of students; 2) our teaching force is predominantly white and middle class coupled with a student body that is increasingly diverse; and, 3) many teachers lack the preparedness to teach effectively in diverse settings.

Families across the country are increasingly diverse and complex "in terms of race, ethnicity, immigrant status, socioeconomic circumstances, and family structures (Brown, Vesely, & Dallman, 2016). The racial and ethnic diversity of children and families has increased in almost all states, including Minnesota. Nationally, 14 million children, or 19.5% of all children (United States Census, 2017), now live in poverty, and in Minnesota, 188,000, or 14% of children live below the poverty line (Children's Defense Fund, 2015). The vast majority of teachers across the country, however, are mostly white and middle class (U.S. Department of Education, 2016, p. 6). In addition to racial and socioeconomic diversity, families across the country are becoming more diverse in a wide variety of other ways. The number of students who are learning English as a second language has grown dramatically, as has the diversity in the range of academic abilities within classrooms (Banks et al., 2005, p. 232).

Thirty percent of Minnesota's student population is made up of students who are Native American, Asian or Pacific Islander, African American, or Hispanic. But our teaching force, as is the case across the country, is far less diverse. In fact, in Minnesota, the gap between the diversity of our student body and the diversity in our teaching force is among the most severe in the nation. In Minnesota only 3% of our teaching force is made up of people who identify as Native American, Asian or Pacific Islander, African American, or Hispanic (Minnesota Department of Education, 2017).

It can also lead to a failure to adopt appropriate teaching methods and appropriate expectations for student achievement, leading to less than optimal academic outcomes for students of color and contributing to the achievement gap. While there is no question that we need to find ways to recruit and retain far greater numbers of teachers of color, it is also critical that we train all teachers to work in diverse settings. It is imperative that all teacher candidates must begin what needs to be an ongoing, career-long process of developing cultural competency before they begin their work as teachers (Brown, Vesely, & Dallman, 2016, p. 76). The Blue Ribbon Panel (2010) asserts that

> today's teachers will have to educate all students—including those from increasingly diverse economic, racial, linguistic, and academic backgrounds—to the same high learning outcomes. They must insure that all children master rigorous course content [and] be able to apply what they learn to think critically and solve problems (Blue Ribbon, 2010, p. 1).

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**Cultural differences between teachers and students have enormous and far-reaching implications for teaching and learning. A lack of understanding of students' cultural context can result in a misinterpretation of student behavior, leading to measurably higher rates of special education referral and higher rates of inappropriate and unhelpful disciplinary referrals (Brown, Vesely, & Dallman, 2016).**

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Characteristics of effective teaching in many settings include "connecting theory and practice, making students feel needed, gentle teaching in a violent society, persistence, and professional/personal orientation to students, to name a few" (Banks, 2014, p. 62).

Dennis Draughn is a high school social studies teacher in a suburb of the Twin Cities, where he also serves as an assistant integration and equity coordinator, assisting the district with equitable and culturally proficient teaching practices. As one of very few teachers of color in his building, he often hears frustration from students of color who do not feel that their teachers are always equipped to respond to or lead appropriate conversations about race or equity. He tells the story of one student, whom we will call M.

> M wants to learn about culture and heritage. The problem is that she thinks teachers are clueless, they don't know about her. She wants to start student groups around education culture because she thinks teachers aren't prepared to handle or have these conversations within the classroom or any educational setting, and she argues that the number-one thing teachers should be taught is how to prepare themselves to have conversations around race, culture, ethnicity, religion, sexual orientation, all that stuff. (personal communication, November 20, 2017)

M is not alone in her feelings of isolation; her concerns echo our calls for greater attention to training teachers to be culturally responsive.

ISAIAH is a faith-based organization in Minnesota that's work is focused on the common good. And as Gregory King of ISAIAH has said, "We can't hold our schools responsible for all the racism and inequality that the students face, but we must understand that they represent our best hope of healing those wounds" (personal communication, July 11, 2016). Educators "must seek to eliminate disparities in educational opportunities among all students, especially those students who have been poorly served by our current system. Furthermore, in order for all citizens to be prepared to participate in a democracy, children must experience democracy in schools. Therefore, teachers need to have the knowledge, skills, and attitudes to create democratic classrooms and to implement a culturally responsive and inclusive curriculum" (Banks et. al., 2005, p. 233).

"Culturally responsive teaching "is defined as using the cultural characteristics, experiences, and perspectives of ethnically diverse students as conduits for teaching them more effectively. It is based on the assumption that when academic knowledge and skills are situated within the lived experiences and frames of reference of students, they are more personally meaningful, have higher interest appeal, and are learned more easily and thoroughly (Gay, 2002, p. 106). Sumair Sheikh is a career and college readiness specialist within Duluth Public Schools, and he points out the stark lack of culturally responsive training in our teacher preparation programs:

> I think teacher preparation is very lily white, designed by and from a mono-cultural and dominant cultural perspective. When our schools are designed this way, too, we force students to have to assimilate, which always involves some kind of loss. I have noticed teacher preparation programs starting to diversify their own curriculum, and I think that's important if we are going to have our students feel comfortable, safe, and welcome. We can't do that if we can't relate to them. (personal communication, November 20, 2017)

Culturally responsive teaching goes far beyond curriculum and methodology. As Banks et al. (2005), explain:

> Teachers need to be aware of–and be prepared to influence–the structural conditions that determine the allocation of educational opportunity within a school: the kinds of courses, curriculum, and teaching that are offered to different students, the kinds of student groupings that are created, the ways in which students are assigned to teachers, and the kind of norms and expectations that govern their treatment and the treatment of their families. Teachers also need to be aware of family and community values, norms, and experiences, so that they can help to mediate the 'boundary crossing' that many students must manage between home and schools (p. 233).

The term "demographic imperative" has been coined to "make the case that teacher educators and others must take action to alter the disparities in opportunities and outcomes deeply embedded in the American educational system (Banks, et al., 2005, p. 236). Preservice teachers need robust training about diverse learners in order to begin this critical work.

Abby Kelley is a special education evaluator for Cambridge-Isanti Schools, and both her job and her master's degree revolve around the problem of the over-representation of students of color identified as needing special education services. As she explains, we need to tease apart this over-representation, of what is culture, what is disability, and what is actually just us not understanding culture.

A key element of training preservice teachers in culturally responsive teaching involves training them to examine their own cultural assumptions and biases, and to "understand how these shape their starting points for practice. They also need to know how to inquire into the backgrounds of their students so that they can connect what they learn to their instructional decision making, in a sense become anthropologists" or "cultural brokers" (Banks et al., 2005, p. 243). In order to meet the needs of diverse learners, teachers need to acknowledge the power inherent in whiteness in a structurally racist culture. Lawrence and Tatum (2004) define the kind of antiracist teaching necessary to meet the needs of diverse learners "as the personal and pedagogical work of developing one's stance as educator and as ally, an advocate for students of color, and a much-needed anti-racist role model for students" (p. 371). In other words, the two most widely adopted approaches to diversity by white teachers in previous decades, colorblindness and multiculturalism, both fail to equip teachers to meet the needs of diverse learners because those two lenses typically fail to acknowledge the power structure in place that normalizes and grants power to whiteness. Both colorblindness and multiculturalism, Galman, Pica-Smith, and Rosenberger (2010) assert, "protect white racial knowledge by neutralizing the role of power and reframing race as a sanitized discourse of culture or difference" (p. 228). Many studies point out the power of naming whiteness as part of a successful antiracist pedagogy (Galman, Pica-Smith, & Rosenberger, 2010; Howard, 2003; King, 1991; McIntyre, 2001; Scheurich, 1993: Tatum, 1994).

Social science has proven conclusively that we all have implicit biases—nobody is immune to them. These biases color the way we interpret people, behavior, and situations, and they do so on a level that is below conscious thought.

Cheryl Staats (2015) explains the importance of understanding implicit bias for teachers this way:

> The unwavering desire to ensure the best for children is precisely why educators should become aware of the concept of implicit bias: the attitudes or stereotypes that affect our understanding, actions, and decisions in an unconscious manner. Operating outside of our conscious awareness, implicit biases are pervasive, and they can challenge even the most well-intentioned and egalitarian-minded individuals, resulting in actions and outcomes that do not necessarily align with explicit intentions (p. 2).

Implicit bias has tremendous influence on school climate. It influences the way discipline codes are enforced, and it often leads to inequitable reactions to student behavior.

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**A critical outcome of any teacher preparation program should be the ability to recognize and constantly challenge unconscious bias.**

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In one study (Okonofua & Eberhardt, 2015), researchers set up an experiment in which they showed a racially diverse group of female K-12 teachers the school records of a fictitious middle school student who had misbehaved twice; both infractions were minor and unrelated. While the student discipline scenarios were identical, researchers manipulated the fictitious student's name; some teachers viewed the record of a student given a stereotypically Black name (e.g., Deshawn or Darnell) while others reviewed the record of a student with a stereotypically White name (e.g., Jake or Greg).

> Results indicated that from the first infraction to the second, teachers were more likely to escalate the disciplinary response to the second infraction when the student was perceived to be Black as opposed to White. Moreover, a second part of the study, with a larger and more diverse sample that included both male and female teachers, found that infractions by a Black student were more likely to be viewed as connected, meaning that the Black student's misbehavior was seen as more indicative of a pattern, than when the same two infractions were committed by a White student (Okonofua & Eberhardt, 2015, p. 621).

There is no question that preservice teachers need be trained in how to examine the norms through which they view student behavior, student learning, and family and community interactions. This is an important element of culturally responsive teaching. Research has shown that when teachers create "cultural connections" between schools and communities,

student achievement increases (Banks et al., 2005, p. 244). There are many examples, of this phenomenon. One of them comes from a high school in California:

> In a four-year evaluation of the High School Puente Project in California, [one researcher] found that Mexican American and Latino students who participated in a rigorous academic preparation program that incorporated community-based research and writing, academic counseling, and opportunities to interact with community leaders applied to and attended universities at nearly twice the rate of those who did not participate in the program (Banks et al., 2005, p. 244).

Moll and Gonzalez (2004) found that the academic performance of Latino students is strengthened when students' community knowledge is tapped. Effective culturally responsive teachers "link classroom content to students' experiences, focus on the whole child, and believe that all of their students can succeed" (Banks et al., 2005, p. 245). The way to accomplish this kind of pedagogy is not to supply preservice teachers with lists of cultural characteristics and assume such superficial knowledge will allow them to navigate across cultural divides. This approach encourages stereotypes and does little to nurture cross-cultural understanding. Rather, preservice teachers need training on how to embed their practice in the communities in which they teach: "The importance of connecting with students and their communities for the purposes of mutual information and support" is important. It allows for students and teachers to work together to construct meaning out of content, rather than teaching a decontextualized set of skills that are passed from teacher to student (Banks et al., 2005, p. 247).

## F. TRAINING IN A BASIC LEVEL OF SPECIAL EDUCATION PEDAGOGY

All preservice teachers need better training in the area of special education. Special education fields top the list of fields for which districts report having the most difficulty finding qualified applicants (Minnesota Department of Education, 2017), and special education fields have spectacularly bad attrition rates: Nationally, the turnover rate for special education teachers is 46% higher than is the attrition rate for elementary teachers (Carver-Thomas & Darling-Hammond, 2017). Special education students in Minnesota are too often taught by teachers working outside of their licensure field or working without any teacher preparation at all. The Minnesota Department of Education's (2017) most recent teacher workforce report provides data on how hard it is to fill special education jobs. Figure 6 displays the responses of Minnesota school districts about the special education teacher shortage.

In addition, too often special education teachers complain that general education teachers are not equipped with the basic level of knowledge or skills to collaborate with the special education teachers and offer appropriate support to special education students who are in their mainstream classrooms. Surveys of teachers newly graduated from teacher preparation programs "have found that more than 80% felt that they were well prepared for nearly all of

the challenges of their work," but that number drops to 60-70% when asked if they felt well prepared to meet the needs of special education students and students with limited English proficiency (Darling-Hammond, Wei, & Johnson, 2009, p. 630).

*FIGURE 6: SHORTAGES IN THE MINNESOTA SPECIAL EDUCATION WORKFORCE*

| Answer options | Easy | Somewhat difficult | Very difficult | Could not fill all vacancies | N/A no positions in this district or charter school | N/A no vacancies for this position |
|---|---|---|---|---|---|---|
| Academic and behavioral strategist* | 14 | 46 | 72 | 17 | 99 | 159 |
| Autism spectrum disorders* | 11 | 43 | 115 | 37 | 40 | 161 |
| Blind or visually impaired* | 2 | 6 | 50 | 12 | 124 | 213 |
| Career and technical with disabilities | 4 | 13 | 33 | 4 | 129 | 224 |
| Deaf or hard of hearing* | 3 | 15 | 45 | 12 | 106 | 226 |
| Developmental/ adapted physical education* | 15 | 36 | 42 | 12 | 59 | 243 |
| Developmental disabilities* | 13 | 56 | 100 | 22 | 28 | 188 |
| Emotional behavioral disorders* | 16 | 65 | 130 | 54 | 10 | 132 |
| Physical and health disabilities* | 11 | 27 | 56 | 11 | 50 | 252 |
| Special education director | 32 | 31 | 34 | 1 | 66 | 243 |

| Answer options | Easy | Somewhat difficult | Very difficult | Could not fill all vacancies | N/A no positions in this district or charter school | N/A no vacancies for this position |
|---|---|---|---|---|---|---|
| Speech language pathologist* | 15 | 47 | 85 | 23 | 31 | 206 |
| Special education early childhood* | 15 | 40 | 78 | 16 | 65 | 193 |
| Specific learning disabilities* | 18 | 72 | 89 | 35 | 21 | 172 |

**Denotes licensure area included on the Federal Shortage Report.*

*Image reproduced from: Minnesota Department of Education. (2017). 2017 Report of Teacher Supply and Demand in Minnesota's Public Schools. Fiscal Year 2017 Report to the Legislature as required by Minnesota Statutes, Section 127A.05, Subdivision 6. Retrieved from: https://education.state.mn.us/MDE/index.html.*

**More robust special education preparation for all prospective teachers will allow Minnesota to better integrate special education students into general population classrooms, correct the misdiagnoses of many children as needing special education due to racial bias, and empower educators to respond appropriately and immediately to escalations and issues that are the normal business of educating students.**

All preservice teachers should be trained in modifications and accomodations, all should be trained in the legal and educational implications of individual education plans (IEPs), regular education teachers should be trained to work collaboratively with special education teachers, and all should be trained in appropriate de-escalation strategies.

We know that best practice includes finding ways to keep most special education students in mainstream classrooms as much as possible. Acker-Hocevar, Cruz-Jansen, and Wilson (2010) have accurately reminded educators and lawmakers that the "IDEA mandates that students with disabilities must be educated in the least restrictive environment in which they can succeed with appropriate supports provided. For most students, this environment is the general education classroom" (p. 104). This understanding dictates a close working

relationship between special education teachers and the general education teachers with whom they must collaborate.

The shift from exclusion to inclusion involves a complex overhaul of the way we view special education services. Winzer and Mazureck (2010) have rightly argued:

> Inclusion in special education is not a minor reform, not just tinkering to improve basic educational structures. Rather, it is a major reform that aims to transform and alter permanently the structure and organization of schooling. As school restructuring, inclusive education cannot be treated as a new program or innovation or as a discretionary responsibility; rather, the focus is on all students, all teachers, all curricular reforms, all support personnel, all policies, all strategies for student assessment, and so on (p. 89).

Miller (1991) has shown that "in many institutions, regular and special education teacher preparation programs are housed in different buildings, employ separate faculties, and subscribe to different curricula. Yet there is much to be gained from sharing regular and special education teacher preparation expertise through integrated teacher preparation programs" (p. 19). Miller describes a program designed to build this kind of collaboration at the level of the teacher preparation program, the Integrated Special-Education English Program, or ISEP. ISEP is designed to "facilitate the gradual integration of a regular and special education personnel preparation program" (p. 19). Also, Miller has made the very important observation that "the ISEP is a small scale project that can lead to attitudinal change and improve cooperation between regular and special education departments, yet does not require a great deal of bureaucratic change to implement" (p. 19).

We echo the work of scholars like Miller (1991) who have long championed the important fact that "special education and regular education should not be two separate systems, but should be integrated to provide the best possible services for the benefit of all children" (p. 19-20). Minnesota should look at collaborative special education and general education training models if it is going to live up to the promise of building new teacher preparation systems that meet student needs.

Disproportionate representation by race in regard to special education classification and disciplinary responses within special education classification has been long established. We see consistent patterns over time "in the disproportionate representation of some racial/ethnic groups in special education" (Council for Exceptional Children, 2012, p. 3). African American students are "the most overrepresented group in special education service as well as the categories of mental retardation (MR) and emotional disturbance (ED)" (Council for Exceptional Children, 2012, p. 3).

While other groups of students are overrepresented in special education categories, the rate of disproportionality for African American students is by far the most extreme, at about 160% of what would be expected, were the representation in special education to match the proportion of African American students in the general education population as a whole

(Cullinan & Kauffman, 2005, p. 394). Notably, the disproportionality by race drops when we look at the "non-judgmental or 'hard' disability categories, such as hearing impairment, visual impairment, or orthopedic impairment, and more often in the judgmental or 'soft' disability categories of MR, ED, or LD" (Council for Exceptional Children, 2012, p. 4).

In addition to being more likely to be identified as in need of special education services, African American students who are identified in special education categories are far more likely than their caucasian counterparts in the same special education categories to face severe and exclusionary forms of discipline for the same behaviors. They are also more likely to be educated in more restrictive educational settings than are their caucasian counterparts in the same special education categories. In this sense, it has been argued that "the under-representation of culturally and linguistically diverse students in less restrictive educational environments may be more important than the disparities in disability categories" (Council for Exceptional Children, 2012, p. 4). While the reasons for disproportionality have proven to be complex, there is no question that all teachers need extensive training in recognizing behaviors meriting special education referrals and those not meriting referral, training on how to recognize and interrupt patterns of inequitable referral and discipline responses, and training on how to recognize and interrupt patterns related to which students have access to the least restrictive learning environments and which do not.

Chris Peterson is a preservice teacher preparing for a career teaching high school social studies in one of Minnesota's public university teacher preparation programs. He describes both the low level of special education training required by his program, and the consequences for that paltry training. He describes a classroom observation experience, wherein a special education student was exhibiting highly disruptive behaviors. The education support professional working with the student was not trained in special education and did not know how to deescalate the student, who became increasingly disruptive to the larger class. Peterson was in a position to step in, but he, too, lacked the training to do so effectively:

> So this affected [the student's] learning, but it also was a detriment to the entire class, because the teacher had to keep stopping her lesson and keep intervening in this. It got to the point where I felt the need to step in, but I just didn't feel that I had the knowledge to step in because I don't have any formal SPED training either. Just to give you some background, in my teacher preparation program, currently, in secondary education, you're only required to take one, maybe two, classes in special education throughout your undergrad and your graduate studies (Peterson, personal communication, November 21, 2017).

Throughout this paper, we recommend dramatic alterations to the ways we train future teachers, and the equity lens we use should not be limited to race. In fact, our equity lens begins at points of intersectionality in which racial discrimination, class discrimination, gender discrimination, and discrimination against the disabled all coalesce to produce systems of inequity. Teacher preparation programs need to prepare future teachers to meet the needs of our diverse learners, and this has to include more robust special education training for all.

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**Teacher preparation programs should be training all preservice teachers to better recognize and meet the needs of special education students, including learning how to collaborate with special education teachers, how to recognize and interrupt inequitable representation patterns, and how to recognize and appropriately deescalate disruptive students.**

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## G. CLINICAL EXPERIENCE TIED TO THEORY AND BUILT ON COLLABORATION

Teachers and researchers have noted at anecdotal, qualitative, and quantitative levels the critical role that clinical experience plays in the realm of teacher preparation (Banks, 2014; Blue Ribbon, 2010; Darling-Hammond, 2014; Lee et al., 2012). As Darling-Hammond (2014) explains, "a good part of the magic of teaching and of teacher education is how teachers come to integrate theory and practice in a way that allows them to become expert in making and enacting decisions to meet the very different needs of the children they serve" (p. 547). Despite overwhelming agreement that student teaching is among the most critical components of teacher preparation, in fact, that it should be the centerpoint around which all other components of preparation programs orbit, long-standing programs and new programs alike too often neglect to construct the experience according to the best information available. The quality and duration of clinical experience requirements among existing teacher preparation programs, whether higher education-based or not, varies wildly. Most states require student teaching, as does Minnesota, but "with few exceptions, they are silent on what this crucially important experience should look like, and how programs should be held accountable" (Blue Ribbon, 2010, p. 4). Clinical preparation is often poorly defined and inadequately supported (Blue Ribbon, 2010, p. 4).

As a result, clinical teaching experiences for preservice teachers are too often randomly assigned, not extensive enough to provide the bank of experiences and skills needed, and disconnected from theory and teacher preparation curricula. Preservice teachers preparing for careers in Minnesota classrooms need clinical experiences that are closely integrated with theory, steeped in collaborative relationships between the program, the school, and the cooperating teacher, and both extensive and intensive.

Scholars and teachers agree that in order for clinical experience to translate to the kind of deep learning and accumulation of context, skills, recognition of different needs, and practical application practice that preservice teachers need, clinical experience needs to be specifically and intentionally integrated with the rest of the teacher preparation learning. Traditional approaches to clinical practice in teacher preparation, Darling-Hammond (2014) explains,

> have often had students taking batches of front-loaded coursework in isolation from practice and then adding a short dollop of student teaching at the end of the program—often in classrooms that did not model the practices that had previously been described in abstraction. By contrast, the most powerful programs require students to spend extensive time in the field, examining and applying the concepts and strategies they are simultaneously learning about in their courses alongside teachers who can show them how to teach in ways that are responsive to learners (p. 551).

Tachelle Banks' "Teacher Education Reform in Urban Educator Preparation Programs" echoes this concern in specific regard to the problems caused by the disconnection between theory and practice in too many preparation programs leading to careers in urban schools: "Teacher candidate field placements vary greatly and tend to be idiosyncratic as opposed to well-crafted experiences that foster skill development and mastery. As a result, prospective teacher candidates learn theory in isolation from practice and typically have brief encounters with classroom practice divorced from theory, which further contributes to the gap between research and practice. These variables culminate to produce teacher candidates who feel unprepared to meet the diverse educational needs of children and youth" (2014, p. 60).

The Blue Ribbon Panel on Clinical Preparation and Partnerships for Improved Student Learning (2010) calls for clinical experiences to be placed at the core of teacher preparation. That report recommends that "content and pedagogy are woven around clinical experiences throughout preparation in coursework, laboratory-based experiences, and school-embedded practice" (Blue Ribbon, 2010, p. 5). Teacher educators have argued that "novices who have experience in classrooms are more prepared to make sense of the ideas that are addressed in their academic work and that student teachers see and understand both theory and practice differently if they are taking coursework concurrently with field work" (Darling-Hammond, 2014, p. 551). In another study, this one a close examination of the characteristics of seven teacher preparation programs that are yielding tremendous results, researchers found one common characteristic: "extended clinical experiences—at least 30 weeks of supervised practicum and student teaching opportunities in each program—that are carefully chosen to support the ideas presented in simultaneous, closely interwoven coursework (Darling-Hammond, 2006a, p. 232).

Another shift toward better integration of theory and practice includes more opportunities for students to practice the application of what they are learning in ways that allow for feedback, renewed attempts, and, therefore, continuous improvement:

> Powerful teacher education programs have a clinical curriculum as well as a didactic curriculum. They teach candidates to turn analysis into action by applying what they are learning in curriculum plans, teaching applications, and other performance assessments that are organized around professional teaching standards. These attempts are especially educative when they are followed by systematic reflection on student learning in relation to teaching. . . . Furthermore, recent research suggests that, to be most productive, these opportunities for analysis, application, and reflection should derive from and connect to both the subject matter and the students who are taught (Darling-Hammond, 2014).

A major shift in the way teacher preparation programs place preservice teachers in clinical settings is necessary and will take significant will and commitment from more than just program providers. We know that collaborative environments yield better teaching and better learning. Many scholars have called for better collaborative relationships between preparation programs and school districts around not just the careful placement of preservice teachers in clinical settings, but also around an intentional partnership and commitment to that clinical experience. Banks (2014) calls for, among other things, clinical experiences that include the following:

- School-university collaboration, with school and university faculty meeting on an ongoing basis to implement and evaluate the program;
- Program coordination, with faculty meeting on a regular basis to discuss the connections between courses and field experiences and to monitor candidates' progress in the program;
- Supportive learning environments with ongoing advisement and mentoring by coordinators, faculty, and university supervisors;
- Ongoing and coordinated field experiences throughout a program with experienced cooperating teachers selected by university supervisors in collaboration with school administrators, cooperating teachers oriented to the program and working closely with university supervisors, and courses that provide structured assignments requiring direct application in the classroom (66).

In order to accomplish this goal, stakeholders surrounding teacher preparation programs will have to acknowledge that they have a shared responsibility in preparing our state's future teachers:

> This transformation cannot be accomplished by teacher preparation programs working alone. Preparation programs, school districts, teachers and their representatives and state and federal policymakers need to accept that their common goal of preparing effective teachers for improved student achievement cannot be achieved without each

> other's full participation. . . . Only when preparation programs become deeply engaged with schools will their clinical preparation become truly robust and will they be able to support the development of candidates' urgently needed skills and learn what schools really need. Conversely, only through much closer cooperation with preparation programs will districts be able to hire new teachers who are better prepared to be effective in their schools. (Blue Ribbon, 2010, p. 3)

Finally, we have to acknowledge that the collaboration at the heart of the student teaching experience has to be a two-way exchange of information, has to engage the cooperating teachers and their supervisors and the preservice teachers and their faculty in seeking new methods and applying new theoretical frameworks. The practice of teaching is incredibly complex, and best practice is founded on ever-evolving knowledge of teaching and learning. And, of course,

> it is impossible to teach people how to teach powerfully by asking them to imagine what they have never seen or to suggest that they 'do the opposite' of what they have observed in the classroom. . . . It is impractical to expect to prepare teachers for schools as they should be if teachers are constrained to learn in settings that typify the problem of schools as they have been—where isolated teachers provide examples of idiosyncratic, usually atheoretical practice that rarely exhibits a diagnostic, assessment-oriented approach and infrequently offers access to carefully selected strategies designed to teach a wide range of learners well (Darling-Hammond, 2014, p. 553).

Banks also urges partnerships to reach beyond program-to-district relationships, and to include community partnerships as well. She argues that we need to "build effective partnerships and draw on community-based organizations to foster a 'third space' for teacher preparation (2014, p. 62).

The problem of preservice teachers being placed too often in the rooms of teachers who themselves are isolated is a much larger problem that has effects that reach far beyond the realm of teacher preparation. Schools that do not nurture collaboration between teachers, between teachers and administrators, and between teachers and parents and community members are stifling environments that have higher teacher attrition rates than are found in schools with high levels of collaboration (Allensworth, et al., 2009; Borman & Dowling, 2008; Guarino et al., 2006). It is also, however, a critical problem to solve if we are to create better clinical experiences for preservice teachers: "All teacher preparation programs and districts have to start thinking about teacher preparation as a responsibility they share, working together" (Blue Ribbon, 2010, p. 4).

Finally, the clinical experience for preservice teachers is so critical that it needs to be both intensive and extensive.

Banks calls for field experiences that "allow teacher candidates to apply their pedagogical content knowledge in a variety of settings" (2014, p. 62). In Darling-Hammond's 2006 study of seven teacher preparation programs that are outperforming most others, one of the common characteristics was not just that the clinical experiences were carefully integrated with the curriculum, but it was also that the clinical experience itself was extensive–30 weeks or longer.

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**Multiple clinical settings can give preservice teachers a much more diverse set of tools and experiences, and a substantial commitment of time is critical if we aim to create the collaborative relationships necessary for growth and learning.**

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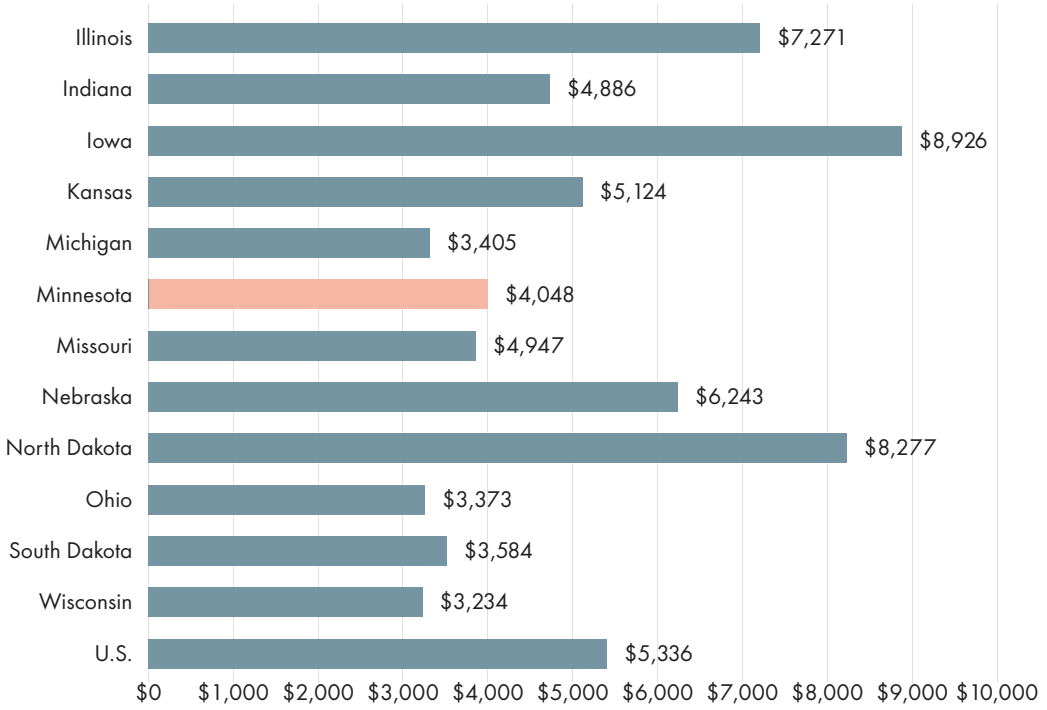
# X. Recommendations

State lawmakers are not going to repair the harms caused by the problems of the inequitable distribution of fully-prepared teachers and high teacher attrition rates by removing teacher preparation from the list of requirements for teacher licensure. Minnesota can look to other states and learn how they solved similar problems. This means

**Minnesota's lawmakers will have to develop the political will to tackle these problems honestly by making a robust financial commitment to support a strong public school system, which might be the last public good.**

Figure 7 shows that Minnesota trails the national average and most other Midwestern states in the amount of money allocated to higher education. Figure 8 provides further proof that investment has fallen since 2002, and it has remained low even after more funds were allocated after the recession. This must be reversed and altered.

*FIGURE 7: MINNESOTA'S FUNDING FOR HIGHER EDUCATION*

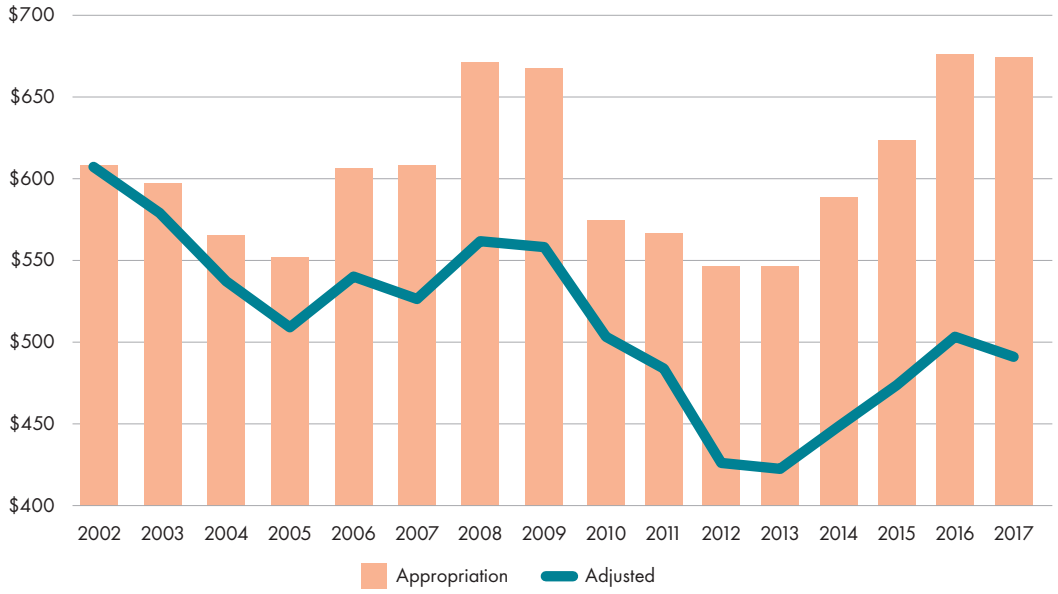



*Reproduced from: Minnesota State. (2017). Data book. Retrieved from www.minnstate.edu.*

When public institutions central to our democracy are in trouble, our response should be to fix them, not to undermine them, deregulate them, and sell them off piece-by-piece to corporate interests. Specifically, Minnesota should:

- Adopt policy that requires all state-approved teacher preparation programs to include the following:
  - *Training in content knowledge and content-specific methodology.*
  - *Training in childhood and adolescent development, including social-emotional learning and trauma-informed practices.*
  - *Training in classroom management, student behavior, and restorative practices.*
  - *Robust and multi-faceted training in assessment.*
  - *Training on teaching diverse learners.*
  - *Training in special education.*
  - *Clinical experience tied to theory and built on collaboration.*
- Close the loophole in Minnesota's tiered licensure system that allows a candidate to attain a Tier 3 license without having completed a teacher preparation program.
- Reimburse districts who provide financial support and other resources to Tier 1 and Tier 2 teachers to move through teacher preparation programs.
- Invest the resources needed for higher quality and collaborative relationships between teacher preparation programs and school districts, such that both student teachers and cooperating districts are learning from best practices and such that both programs providers and districts are jointly invested in preparing the teachers Minnesota needs.
- Invest in teacher preparation candidates in the form of fully funding our public institutions of higher education and in the form of subsidizing free/affordable college education, tuition tax relief, and education debt relief.
- Invest in increasing teacher salaries that incentivize long-term commitments to our most diverse and our most impoverished schools.
- Invest resources in grow-your-own programs that provide education support professionals already committed to those schools and those communities with the full, robust teacher preparation they will need to realize their potential as licensed teachers.
- Invest in further research about how Minnesota teacher preparation programs can achieve better results for a diverse demographic of teacher candidates.
- Expand the Minnesota Teacher Loan Repayment Program by providing adequate funding and broadening eligibility requirements to include school counselors, school nurses, school social workers, school psychologists, speech language pathologists, school-based occupational therapists, and other support personnel.

*FIGURE 8: MINNESOTA'S APPROPRIATION FOR HIGHER EDUCATION BY YEAR*

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# XI. References


Achinstein, B., Ogawa, R., Sexton, D. & Freitas, C. (2010). Retaining teachers of color: A pressing problem and a potential strategy for "hard-to-staff" schools. *Review of Educational Research, 80*(1), 71-107.

Acker-Hocevar, M., Cruz-Jansen, M.I., & Wilson, C.L. (2010). The impact of two policies on principal and teacher preparation programs: No Child Left Behind and the Individuals with Disabilities Education Act. In J. Zajda (Ed.) *Globalisation, education and social justice* (pp. 103- 126). Dordrecht, New York: Springer.

Adams, P.E., & Krockover, G.H. (1997). Beginning science teacher cognition and its origins in the preservice science teacher program. *Journal of Research in Science Teaching*, 34, 633-653.

Affeldt, J. (2011, October 18). Congress must demand effective teachers for all students. [Editorial]. EdSource: Highlighting Strategies for Student Success.

Allensworth, E., Ponisciak, S., & Mazzeo, C. (2009). *The schools teachers leave: Teacher mobility in Chicago Public Schools.* Chicago: Consortium on Chicago School Research at the University of Chicago Urban Education Institute.

Archer, Jeff. (2002). Focusing in on teachers. *Education Week*, 21(29). Retrieved from http://web.b.ebscohost.com.ihcproxy.mnpals.net/ehost/detail/detail?

Armour, M. (2015). Ed White middle school restorative discipline evaluation: Implementation and impact 2014/2015. Retrieved from http://www.irjrd.org.

Ashton, P. (1996). Improving the preparation of teachers. *Educational Researcher.* 25(9), 21-22.

Ashton, P. & Crocker, L. (1987). Systematic study of planned variations: The essential focus of teacher education reform. *Journal of Teacher Education*, 38, 2-8.

Ball, D. L., & Bass, H. (2000). Interweaving content and pedagogy in teaching and learning to teach: Knowing and using mathematics. In J. Boaler (Ed.), *Multiple perspectives on the teaching and learning of mathematics* (pp. 83-104). Westport, CT: Ablex.

Banks, J., Cochran-Smith, M., Moll, L., Richert, A., Zeichner, K., LePage, P., Darling-Hammond, L., Duffy, H., & McDonald, M. (2005). Teaching diverse learners. In L. Darling-Hammond & J. Bransford (Eds.), P*reparing teachers for a changing world: What teachers should learn and be able to do* (pp. 232-274). San Francisco, CA: Jossey-Bass.

Banks, T. (2014). Teacher education reform in urban educator preparation programs. *Journal of Education and Learning*, 4(1), 60-71.

Barnes, M., Germain, E., & De Valenzuela, A. (2016). Teach For America's long arc: A critical race theory textual analysis of Wendy Kopp's works. *Education Policy Analysis Archives*, 24(14), 1-36. DOI: http://dx.doi.org/10.14507/epaa.24.2046

Bell, D. (1976). Serving two masters: Integration ideals and client interests in school desegregation litigation. *The Yale Law Journal*, 85(4), 470-516.

Bell, D. (1980). *Brown v. Board of Education* and the interest-convergence dilemma. *Harvard Law Review*, 93(3), 518-533.

Berliner, D.C. & Glass, G.V. (2014). *50 myths and lies that threaten America's public schools* [Kindle iPad version]. Retrieved from http://www.amazon.com

Blue Ribbon Panel on Clinical Preparation and Partnerships for Improved Student-Learning. (2010). *Transforming teacher education through clinical practice: A national strategy to prepare effective teachers.* Commissioned by the National Council for Accreditation of Teacher Education. Retrieved from http://www.ncate.org/LinkClick.aspx?fileticket=zzeiB1OoqPk%3D

Borman, G., & Dowling, N. (2008). Teacher attrition and retention: A meta-analytic and narrative review of the research. *Review of Educational Research, 78*(3), 367-409.

Boyd, D., Grossman, P., Lankford, H., Loeb, S., & Wyckoff, J. (2006). How changes in entry requirements alter the teacher workforce and affect student achievement. *Education Finance & Policy, 1*(2), 176-216.

Boyd, D., Grossman, P., Lankford, H., Loeb, S., & Wyckoff, J. (2009). Teacher preparation and student achievement. *Educational Evaluation and Policy Analysis, 31*(4), 416-440.

Brandenburg, R., Glasswell, K., Jones, M., & Ryan, J. (2017). *Reflective theory and practice in teacher education: Self study of teaching and teacher education practices.* Singapore: Springer Singapore.

Brown, E.L., Vesely, C.K., & Dallman, L. (2016). Unpacking biases: Developing cultural humility in early childhood and elementary teacher candidates. *Educators' Journal, 9*, 75-96.

Butt, G. (2010). *Making assessment matter.* New York, NY: Continuum International Publishing Group.

Carroll, T. (2007), *Policy Brief: The High Cost of Teacher Turnover.* Retrieved from http://nctaf.org/wp-content/uploads/2012/01/NCTAF-Cost-of-Teacher-Turnover-2007-policy-brief.pdf

Carver-Thomas, D. & Darling-Hammond, L. (2017). *Teacher turnover: Why it matters and what we can do about it (brief).* Palo Alto, CA: Learning Policy Institute.

Cherlin, A.J. (2010). Demographic trends in the United States: A review of research in the 2000s. *Journal of Marriage and Family, 72*, 403-419.

Children's Defense Fund. (2015). *Child Poverty in America 2014: State Analysis.* Retrieved from http://www.childrensdefense.org/library/poverty-report/child-poverty-in-america-2014-1.pdf

Clark, M.A., Chiang, H.S., Silva, T., McConnell, S., Sonnenfeld, K., Erbe, A., & Puma, M. (2013). *The Effectiveness of Secondary Math Teachers from Teach For America and the Teaching Fellows Programs* (NCEE 2013-4015). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

Clotfelter, C. T., Ladd, H. F., & Vigdor, J. L. (2007, March). *How and why do teacher credentials matter for student achievement?* Washington, DC: The Urban Institute, National Center for Analysis of Longitudinal Data in Education Research. Retrieved from http://www.caldercenter.org/sites/default/files/1001058_Teacher_Credentials.pdf

Clotfelter, C. T., Ladd, H. F., & Vigdor, J. L. (2010). Teacher credentials and student achievement in high school: A cross-subject analysis with student fixed effects. *Journal of Human Resources, 45*(3), 655-681.

Cole, M. (2017). *Critical race theory and education: A Marxist response* (2nd ed., Marxism and education). New York: Palgrave Macmillan US.

Constantine, J., Player, D., Silva, T., Hallgren, K., Grider, M., & Deke, J. (2009). *An evaluation of teachers trained through different routes to certification.* Washington, DC: Mathematica. Retrieved from https://ies.ed.gov/ncee/pubs/20094043/index.asp

Council for Exceptional Children. (2004). *The Council for Exceptional Children definition of a well-prepared special education teacher.* Retrieved from https://www.cec.sped.org/~/media/Files/Policy/CEC%20Professional%20Policies%20ad%20Positions/wellpreparedteacher.pdf

Council for Exceptional Children. (2012). *CCBD's position summary on federal policy on disproportionality in special education.* Retrieved from https://higherlogicdownload.s3.amazonaws.com/SPED/bc40048c-cf24-4380-a493-273ff305ca3c/UploadedImages/CCBD%20Policy%20Paper%20Disproportionality.pdf

Council of Chief State School Officers. (2011, April). *Interstate Teacher Assessment and Support Consortium (InTASC) Model Core Teaching Standards: A Resource for State Dialogue.* Retrieved from http://www.ccsso.org/Documents/2011/InTASC_Model_Core_Teaching_Standards2011.pdf

Cullinan, D. & Kauffman, J.M. (2005). Do race of student and race of teacher influence ratings of emotional and behavioral problem characteristics of students with emotional disturbance? *Behavioral Disorders, 30*(4), 393-402.

Daniels, H.D. & Shumow, L. (2002, August). Child development and classroom teaching: A review of the literature and implications for educating teachers. *Applied Developmental Psychology, 23*, 495-526.

Darling-Hammond, L. (2000). Teacher quality and student achievement: A review of state policy evidence. *Education Policy Analysis Archives, 8*(1), 1-44. DOI: http://dx.doi.org/10.14507/epaa.v8n1.2000

Darling-Hammond, L. (2002). Research and rhetoric on teacher certification: A response to "Teacher Certification Reconsidered," *Education Policy Analysis Archives, 10*(36), 1-55. DOI: http://dx.doi.org/10.14507/epaa.v10n36.2002

Darling-Hammond, L. (2006a). *Powerful teacher education: Lessons from exemplary programs.* San Francisco, CA: Jossey-Bass.

Darling-Hammond, L. (2006b). Constructing 21st-century teacher education. *Journal of Teacher Education, 57*(3), 300-314.

Darling-Hammond, L. (2009). *Educational opportunity and alternative certification: New evidence and new questions.* Stanford, CA: Stanford Center for Opportunity Policy in Education. Retrieved from https://edpolicy.stanford.edu/sites/default/files/publications/educational-opportunity-and-alternative-certification-new-evidence-and-new-questions.pdf

Darling-Hammond, L. (2014). Strengthening clinical preparation: The holy grail of teacher education. *Peabody Journal of Education, 89*, 547-561.

Darling-Hammond, L., Berry, B., & Thoreson, A. (2001). Does teacher certification matter? Evaluating the evidence. *Educational Evaluation and Policy Analysis, 23*(1), 57-77.

Darling-Hammond, L. & Burns, D. (2017). *Empowered educators: How high-performing systems shape teaching quality around the world* (First ed.). San Francisco, CA: Jossey-Bass, a Wiley Brand.

Darling-Hammond, L., Holtzman, D. J., Gatlin, S. J., & Heilig, J. V. (2005). Does teacher preparation matter? Evidence about teacher certification, Teach for America, and teacher effectiveness. *Education Policy Analysis Archives, 13*(42), 1-51. DOI: http://dx.doi.org/10.14507/epaa.v13n42.2005

Darling-Hammond, L., & Sykes, G. (2003, September 17). Wanted, a national teacher supply policy for education: The right way to meet the "Highly Qualified Teacher" challenge. *Education Policy Analysis Archives, 11*(33), 1-55. DOI: http://dx.doi.org/10.14507/epaa.v11n33.2003

Darling-Hammond, L., Wei, R. C., with Johnson, C. M. (2009). Teacher preparation and teacher learning: A changing policy landscape. In G. Sykes, B. L. Schneider, and D. N. Plank (Eds.), *Handbook of Education Policy Research* (pp. 613- 636). New York, NY: American Educational Research Association and Routledge.

Dweck, C.S. (1986). Motivational processes affecting learning. *American Psychologist, 41*(10), 1040-1048.

Dworkin, A. & López Turley, R.N. (2014). United States of America. In P. Stevens & A. Dworkin (Eds.), *The Palgrave handbook of race and ethnic inequalities in education* (pp. 599-607). Basingstoke, England: Palgrave Macmillan.

Easton-Brooks, D., & Davis. A. (2009). Teacher qualification and the achievement gap in early primary grades. *Education Policy Analysis Archives, 17*(15), 1-19. DOI: http://dx.doi.org/10.14507/epaa.v17n15.2009

Eckert, S.A. (2013). What do teaching qualifications mean in urban schools? A mixed-methods study of teacher preparation and qualification. *Journal of Teacher Education, 64*(1), 75-89.

Educator Policy Innovation Center. (2015). *Testing better: How to improve Minnesota's use of assessments in education.* [Policy paper]. Retrieved from https://www.educationminnesota.org/advocacy/Educator-Policy-Innovation-Center/EPIC-reports

Educator Policy Innovation Center. (2016). *Smart solutions to Minnesota's teacher shortage: Developing and sustaining a diverse and valued educator workforce.* [Policy paper]. Retrieved from https://www.educationminnesota.org/advocacy/Educator-Policy-Innovation-Center/EPIC-reports

Educator Policy Innovation Center. (2017). *From exclusionary to restorative: An intentional, trauma-sensitive approach to interrupting racial disparities, reducing violence,strengthening communities, and accelerating student learning.* [Policy paper]. Retrieved from https://www.educationminnesota.org/advocacy/Educator-Policy-Innovation-Center/EPIC-reports

Eisenman, G., Edwards, S., Cushman, C.A. (2015). Bringing reality to classroom management in teacher education. *Professional Educator, 39*(1), 1-12.

Elkind, D. (1998). All grown up and no place to go: Teenagers in crisis. (Rev. ed).Reading, MA: Addison-Wesley. *Ending the School-to-Prison Pipeline: Hearing before the Judiciary Subcommittee on the Constitution, Civil Rights and Human Rights,* 112th Cong. (2012) (Testimony of the Gay, Lesbian & Straight Education Network, the Gay-Straight Alliance Network, the Family Equality Council, the Human Rights Campaign, the National Black Justice Coalition, the National Center for Lesbian Rights, the National Center for Transgender Equality, the National Gay and Lesbian Task Force Action Fund, Parents, Families & Friends of Lesbians and Gays, the Trevor Project, and Sexual Minority Youth Assistance League).

Erekson, T.L. and Barr, L. (1985). Alternative credentialing: Lessons from vocational education. *Journal of Teacher Education, 36*(3), 16-19.

Evertson, C., Hawley, W., & Zlotnik, M. (1985). Making a difference in educational quality through teacher education. *Journal of Teacher Education, 36*(3), 2-12.

Ferguson, P., & Womack, S.T. (1993). The impact of subject matter and education coursework on teaching performance. *Journal of Teacher Education, 44,* 155-63.

Fetler, M. (1999). High school staff characteristics and mathematics test results. *Education Policy Analysis Archives. 7*(9). Retrieved from: http://epaa.asu.edu/epaa/v7n9.html

Feng, L., & Sass. T. (2010). *What makes special-education teachers special? Teacher training and achievement of students with disabilities.* National Center for Analysis of Longitudinal Data in Education Research. Working Paper 49.

Fideler, E., & Haskelhorn, D. (1999). *Learning the ropes: Urban teacher induction programs and practices in the United States.* Belmont, MA: Recruiting New Teachers.

Freeman, A.D. (2006). Legitimizing racial discrimination through antidiscrimination law: A critical review of Supreme Court doctrine. *Minnesota Law Review, 62,* 1049-1119.

Freeman, J., Simonsen, B., Briere, D.E., & MacSuga-Gage, A.S. (2014, May). Pre-service teacher training in classroom management: A review of state accreditation policy and teacher preparation programs. *Teacher Education and Special Education, 37*(2), 106-120.

Fronius, T., Persson, H., Guckenburg, S., Hurley, N., & Petrosino, A. (2016). *Restorative justice in U. S. Schools: A research review.* San Francisco: WestEd Justice and Prevention Center. Retrieved from http://jprc.wested.org/wp-content/uploads/2016/02/RJ_Literature-Review_20160217.pdf

Galman, S., Pica-Smith, C., & Rosenberger, C. (2010). Aggressive and tender navigations: teacher educators confront whiteness in their practice. *Journal of Teacher Education, 61*(3), 225-236.

Gansle, K. A., Noell, G. H., Grandstaff-Beckers, G., Stringer, Al, Roberts, N., & Burns, J. M. (2015). Value-added assessment of teacher preparation: Implications for special education. *Intervention in School and Clinic, 51*(2), 106-111.

Gay, G. (2002). Preparing for culturally responsive teaching. *Journal of Teacher Education, 53*, 106-116.

Glass, G. V. (2008, May). *Alternative certification of teachers.* East Lansing, MI: Great Lakes Center for Education Research & Practice. Retrieved from http://greatlakescenter.org

Goe, L. (2002). Legislating equity: The distribution of emergency permit teachers in California. *Educational Policy Analysis Archives, 10*(2), 1-36. DOI: http://dx.doi.org/10.14507/epaa.v10n42.2002

Goe, L., Bell, C., & Little, O. (2008). *Approaches to evaluating teacher effectiveness: A research synthesis.* Washington, DC: National Comprehensive Center for Teacher Quality. Retrieved from http://dev-tqsource.airws.org/publications/EvaluatingTeachEffectiveness.pdf

Goldhaber, D. D. (2002). The mystery of good teaching: Surveying the evidenced on student achievement and teachers' characteristics. *Education Next. 2*(1). Retrieved from http://educationnext.org/the-mystery-of-good-teaching/

Goldhaber, D. D., & Brewer, K. J. (2000). Does teacher certification matter? High school certification status and student achievement. *Educational Evaluation and Policy Analysis, 22*, 129-145.

Gonzalez, T. (2012). Keeping kids in schools: Restorative justice, punitive discipline, and the school to prison pipeline. *Journal of Law and Education, 41*(2), 281-335.

Greenwald, R., Hedges, L., & Laine, R. (1996). The effect of school resources on student achievement. *Review of Educational Research. 66*(3), 361-396.

Gregory, A., Clawson, K., Davis, A., & Gerewitz, J. (2014). The promise of restorative practices to transform teacher-student relationships and achieve equity in school discipline. *Journal of Educational & Psychological Consultation* [Special Issue: Restorative Justice].

Grossman, P.L., & Richert, A.E. (1988). Unacknowledged knowledge growth: A reexamination of the effects of teacher education. *Teacher and Teacher Education, 4*, 53-62.

Grossman, P.L. (1989). Learning to teach without teacher education. *Teacher College Record, 91*, 191-207.

Grossman, P., Schoenfeld, A., & Lee, C. (2005). Teaching Subject Matter. In L. Darling-Hammond & J. Bransford (Eds.), *Preparing teachers for a changing world: What teachers should learn and be able to do* (pp. 201-231). San Francisco, CA: Jossey-Bass.

Grossman, P.L., & Stodlosky, S.S. (1995). Content as context: The role of school subjects in secondary school teaching. *Educational Researcher, 24*(8), 5-11, 23.

Guarino, C., Santibanez, L., & Daley, G. (2006). Teacher recruitment and retention: A review of the recent empirical literature. *Review of Educational Research, 76*(2), 173-208.

Guin, K. (2004). Chronic teacher turnover in urban elementary schools. *Education Policy Analysis Archives, 12*(42), 1-30. DOI: http://dx.doi.org/10.14507/epaa.v12n42.2004

Guyton, E., Fox, M.C., & Sisk, K.A. (1991). Comparison of teaching attitudes, teacher efficacy, and teacher performance of first year teachers prepared by alternative and traditional teacher education programs. *Action in Teacher Education, 13*(2), 1-9.

Hawk, P.P., Coble, C.R., & Swanson, M. (1985). Certification: It does matter. *Journal of Teacher Education, 36*(3), 13-15.

Heilig, J.V., & Jez, S.J. (2014). *Teach for America: A Return to the Evidence.* National Education Policy Center. Retrieved from http://nepc.colorado.edu/publication/teach-for-america-return

Heitzig, N.A. (2009). Education or Incarceration: Zero tolerance policies and the school to prison pipeline. *Forum on Public Policy Online, 2*. Retrieved from http://files.eric.ed.gov

Henke, R., Chen, X., & Geis, S. (2000). P*rogress through the teacher pipeline: 1992-1993 college graduates and elementary/secondary school teaching as of 1997.* NCES 2000-152. Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Hice, J.E.L. (1970). The relationship between teacher characteristics and first-grade achievement. *Dissertation Abstract International, 25(*1), 190.

Hooks, b. (1989). *Talking back: Thinking feminist, thinking black.* Boston: South End Press.

Howard, T.C. (2003). Culturally relevant pedagogy: Ingredients for critical teacher reflection: Theory into practice. In J. J. Irvine (Ed.), *Black students and school failure: policies, practices, and prescriptions. 42*(3), (pp. 195-202). New York, NY: Praeger.

Ingersoll, R. (2001). Teacher turnover and teacher shortages: An organizational analysis. *American Educational Research Journal, 38*(3), 499-534.

Ingersoll, R. (2007). *A Comparative Study of Teacher Preparation and Qualifications in Six Nations.* Consortium for Policy Research. Retrieved from www.cpre.org

Ingersoll, R. & May, H. (2011). Recruitment, retention and the minority teacher shortage. (Report No. RR-69). Retrieved from http://www.cpre.org

Ingersoll, R. M., & Smith, T. M. (2003). The wrong solution to the teacher shortage. *Educational Leadership, 60*(8), 30-33.

Izci, K. (2016). Internal and external factors affecting teachers' adoption of formative assessment to support learning. *International Journal of Social Behavioral, Educational, Economic, Business and Industrial Engineering, 10*(8), 2774-2779.

Johannessen, B. (2010) Pedagogical ethics for teaching social justice in teacher education. In J. Zajda (Ed.), *Globalization, education and social justice: Globalisation, comparative education and policy research,* (3-13). Dordrecht: New York: Springer.

Jordan, H.R., Mendro, R.L., & Weersinghe, D. (1997). *Teacher effects on longitudinal student achievement: A preliminary report on research on teacher effectiveness.* Paper presented at the National Evaluation Institute, Indianapolis, IN. Kalamazoo, MI: CREATE, Western Michigan University.

Kane, T.E., Rockoff, J.E., & Staiger, D.O. (2006, March). *What does certification tell us about teacher effectiveness?* Evidence from New York City. Working Paper 11844. Cambridge, MA: National Bureau of Economic Research.

Kaplan, L. S., & Owings, W.A. (2003). No child left behind: The politics of teacher quality. *Phi Delta Kappan, 84*(9).

King, J. E. (1991). Dysconscious racism: Ideology, identity, and the miseducation of teachers. *Journal of Negro Education, 60*(2), 133-146.

Lafer, G. (2017). The one percent solution: How corporations are remaking America one state at a time. Ithaca, NY: Cornell University Press.

Lawrence, S.M., & Tatum, B.D. (2004). White educators as allies: Moving from awareness to action. In M. Fine, L. Weiss, L. Powell, L. Pruitt, & A. Bums (Eds.), *Off/White: Readings on power, privilege, and resistance* (pp. 362-372). New York, NY: Routledge.

Lee, C. D. (1995). A culturally based cognitive apprenticeship: Teaching African American high school students skills in literary interpretation. *Reading Research Quarterly, 30*(4), 608-630.

Lee, J., Tice, K., Collins, D., Brown, A., Smith, C., & Fox, J. (2012). Assessing student teaching experiences: Teacher candidates' perceptions of preparedness. *Educational Research Quarterly, 36*(2), 3-19.

LePage, P., Darling-Hammond, L., Akar, H., Gutierrez, C., Jenkins-Gunn, E., & Rosebrock, K. (2005). Classroom Management. In L. Darling-Hammond & J. Bransford (Eds.), *Preparing teachers for a changing world: What teachers should learn and be able to do* (pp. 232-274). San Francisco, CA: Jossey-Bass.

Losen, D. (2011). Discipline policies, successful schools, and racial justice. National Education Policy Center. Retrieved from http://nepc.colorado.edu/publication/discipline-policies

Losen, D. & Gillespie, J. (2012). Opportunities suspended: The disparate impact of disciplinary exclusion from school. The Center for Civil Rights Remedies at the Civil Rights Project at the University of California Los Angeles, Retrieved from www.civilrightsproject.ucla.edu

LuPone, L.J. (1961). A comparison of provisionally certified and permanently certified elementary school teachers in selected school districts in New York State. *Journal of Educational Research, 55*(1), 53-63.

Ma, L. (1999). *Knowing and teaching elementary mathematics: Teachers' understanding of fundamental mathematics in China and the United States.* Mahwah, NJU: Erlbaum.

Malone, H., Rincón-Gallardo, S., Kew, K., & Taylor & Francis. (2018). *Future directions of educational change: Social justice, professional capital, and systems change.* New York,NY: Routledge.

McDiarmid, G.W., & Caprino, K. (2018). *Lessons from the teachers for a new era project: Evidence and accountability in teacher education.* New York, NY: Routledge.

McIntyre, A. (2001). Exploring whiteness and multicultural education with prospective teachers. *Curriculum Inquiry, 32*(1), 31-49.

McNeil, J.D. (1994). Who gets better results with younger children—experienced teachers or novices? *Elementary School Journal, 74*, 447-451.

Medina, J. (2014). *Brain rules:12 principles for surviving and thriving at work, home, and school.* Seattle: Pear Press.

Miller, D. (1991). Merging regular and special education teacher preparation programs: The integrated special education-English project (ISEP). *Teaching and Teacher Education, 7*(1), 19-23.

Minnesota Department of Education. (2017). *2017 Report of Teacher Supply and Demand in Minnesota's Public Schools.* Retrieved from http://education.state.mn.us/mdeprod/groups/educ/documents/basic/bwrl/mdyw/~edisp/mde060019~1.pdf

Minnesota Department of Health. (2013). *Adverse childhood experiences in Minnesota: Findings & recommendations based on the 2011 Minnesota behavioral risk factor surveillance system.* Retrieved from www.health.state.mn.us

Mirsky, L. (2003). *Safer saner schools: Transforming school cultures with restorative practices.* Restorative Practice Forum. Retrieved from http://www.iirp.edu/iirpWebsites/web/uploads/article_pdfs/ssspilots.pdf

Moll, L. C., & Gonzalez, N. (2004). Engaging life: A funds of knowledge approach to multicultural education. In J. Banks & C. McGee Banks (Eds.), *Handbook of research on multicultural education* (Second edition) (pp. 699-715). New York, NY: Jossey-Bass.

Monk, D. (1994). Subject area preparation of secondary mathematics and science teachers and student achievement. *Economics of Education Review, 13*(2), 125-142.

Monroe, A.E., Blackwell, S.E., & Pepper, S.K. (2010). Strengthening professional development partnerships while bridging classroom management instruction and practice. *The Professional Educator, 34*(2), 1-9.

Morrison, B. (2016). What is restorative justice? [video] Restorative Justice Center at the University of California, Berkeley. Retrieved from http://rjcenterberkeley.org

National Commission on Teaching and America's Future (2002). *Unraveling the 'teacher shortage' problem: Teacher retention is the key.* A symposium of the National Commission on Teaching and America's Future and NCTAF State Partners, August 20-22, 2002. Washington, DC: Author. Retrieved from http://www.ncse.edu/mentorjunction/text_files/teacher_retentionsymposium.pdf

National Commission on Teaching and America's Future (2003). *No dream denied: A pledge to America's children.* Washington, DC: Author. Retrieved from https://nctaf.org/wp-content/uploads/no-dream-denied_summary_report.pdf

National Council on Disability. (2015). *Report on breaking the school to prison pipeline.* Retrieved from https://www.ncd.gov/sites/default/files/Documents/NCD_School-to-PrisonReport_508-PDF.pdf

Neild, R. C., Farley-Ripple, E. N., & Byrnes, V. (2009, September). The effect of teacher certification on middle grades achievement in an urban district. *Educational Policy, 23*(5), 732-760.

Noell, G. H., Poerter, B. A., Patt, R. M., & Dahir, A. (2008). Value-added assessments of teacher preparation in Louisiana: 2005-2006 to 2006-2007. Report to the Louisiana Department of Education. Louisiana State University, Department of Psychology. Retrieved from http://www.regents.la.gov/assets/docs/2013/09/2008-09VATechnical8.24.09-Yr6.pdf

Nolais, J. (2015, March 10). Alberta teacher wages –too high, too low, or just right? Metro News. Retrieved from: www,metronews.ca/Toronto.html.

Nougaret, A., Scruggs, Tl, & Mastropieri, M. (2005). Does teacher education produce better special education teachers? *Exceptional Children, 71*, 217-229.

Oehlberg, B. (2012). *Ending the shame: Transforming public education so it works for all students.* Pittsburgh, PA: RoseDog Books.

Okonofua, J. A. & Eberhardt, J.L. (2015). *Two strikes: Race and the disciplining of young students.* Pittsburgh, PA: RoseDog Books.

Oliver, R.M., & Reschly, D.J. (2010). Special-education teacher preparation in classroom management: Implications for students with emotional and behavioral disorders. *Behavioral Disorders, 35*, 188-199.

Olson, D., & Bruner, J. (1996). Folk psychology and folk pedagogy. In D. Olson, & N. Torrance (Eds.), *Handbook of education and development: new models of learning, teaching, and schooling* (pp. 9-27). Malden, MA: Blackwell.

Podgursky, M. (2004). Improving academic performance in U.S. public schools: Why teacher licensing is (almost) irrelevant. In Hess, F.M., Rotherham, A.J., & Walsh, K (Eds.), *A Qualified Teacher in Every Classroom? Appraising Old Answers and New Ideas.* Boston, MA: Harvard Education Press.

Ravitch, D. (2013). *Reign of error: The hoax of the privatization movement and the Danger to America's public schools* [ibooks version]. Retrieved from itunes.apple.com

Rincón-Gallardo, S. (2018). In the pursuit of freedom and social justice: Four theses to reshape educational change. In H. Malone, S. Rincón-Gallardo, & K. Kew, K (Eds.), *Future directions of educational change: Social justice, professional capital, and systems change* (pp. 17-33). New York, NY: Taylor & Francis, Routledge.

Ronfeldt, M., Loeb, S., & Wyckoff, J. (2013, February). How teacher turnover harms student achievement. *American Educational Research Journal, 50*(1), 4-36.

Sanders, W.L. & Rivers, J.C. (1996). *Cumulative and residual effects of teachers on future Students' academic achievement.* Knoxville: University of Tennessee Value-Added Research and Assessment Center.

Schaefer, P. (2015, September 11). After 25 years, Teach for America results are consistently underwhelming. *Nonprofit Quarterly: Innovating Thinking for the Nonprofit Sector.* Retrieved from https://nonprofitquarterly.org/2015/09/11/after-25-years-teach-for-america-results-are-consistently-underwhelming/

Scheurich, J. (1993). Toward a white discourse on white racism. *Educational Researcher, 22*(8), 5-10.

Shepard, L., Hammerness, K., Darling-Hammond, L., Rust, F., Snowden, J. B., Gordon, E., Gutierrez, C., & Pacheco, A. (2005). Assessment. In L. Darling-Hammond & J. Bransford (Eds.), *Preparing teachers for a changing world: What teachers should learn and be able to do* (pp. 201-231). San Francisco, CA: Jossey-Bass.

Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher, 15*(2), 4-14.

Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review, 57*(1), 1-22.

Siwatu, K.O. (2007). Preservice teachers' culturally responsive teaching self-efficacy and outcome expectancy beliefs. *Teaching and Teacher Education, 23*(7), 1086-1101. Retrieved from http:dx.doi.org/10.1016/j.tate.2006.07.001

Sleeter, Christine E. (2017). Critical race theory and the whiteness of teacher education. *Urban Education, 52*(2), 155-169.

Staats, C. (2015). Understanding implicit bias: What educators should know. *American Educator*, Retrieved from www.aft.org

Stevens, P. & Dworkin, A. (Eds). (2014). *The Palgrave handbook of race and ethnic inequalities in education.* Basingstoke: Palgrave Macmillan.

Stough, L. M., Montague, M.L., Landmark, L.J., & Williams-Diehm, K. (2015, October). Persistent classroom management training needs of experienced teachers. *Journal of Scholarship of Teaching and Learning, 15*(5), pp. 36-48.

Suvall, Carla. (2009). Restorative justice in schools. *Harvard Civil Rights-Civil Liberties Law Review, 44*, 547-562.

Swan, M., and Ridgway, J. (2002). *Understanding teacher understanding–tools for a workshop.* Nottingham, England: University of Nottingham.

Tatum, B.D. (1994). Teaching white students about racism: The search for white allies and the restoration of hope. *Teachers College Record, 95*(4), 462-76.

Tyler, T. (2006). Restorative justice and procedural justice: Dealing with rule breaking. *Journal of Social Issues, 62*(2), 307-326.

United States Census Bureau. (2017). *American Community Survey.* Retrieved from https://www.census.gov/acs/www/data/data-tables-and-tools/subject-tables/

United States Department of Education. (2016). The state of racial diversity in the educator workforce. Retrieved from https://www2.ed.gov/rschstat/eval/highered/racial-diversity/state-racial-diversity-workforce.pdf

Valli, L., with Agostinelli, A. (1993). Teaching before and after professional preparation: The story of a high school mathematics teacher. *Journal of Teacher Education, 44*, 107-118.

Veltri, B.T. (2010). *Learning on other people's kids: Becoming a Teach for America teacher.* Information Age Publishing, Charlotte, NC.

Walsh, K. (2001). Teacher certification reconsidered: Stumbling for quality. Baltimore, MD: Abell Foundation. Retrieved from http://www.abellfoundation.org

Ware, A., LaTurner, R.J., Okulicz-Kozaryn, A., Garland, M., & Klopfenstein, K. (2011, January). *Teacher preparation programs and Teach for America research study.* The University of Texas at Dallas, Education Research Center.

Wenglinsky, H. (2002, February 13). How schools matter: The link between teacher classroom practices and student academic performance. *Education Policy Analysis Archives, 10*(12), 1-30. DOI: http://dx.doi.org/10.14507/epaa.v10n12.2002

Williams-Grut, O. (2016). The 11 best school systems in the world. *Independent.* Retrieved from http://www.independent.co.uk/news/education/11-best-school-systems-in-the-world-a7425391.html

Wilson, S., Floden, R., & Ferrini-Mundy, J. (2001). *Teacher preparation research: Current knowledge, gaps, and recommendations.* Center for the Study of Teaching and Policy, University of Washington. Retrieved from http://www.education.uw.edu/ctp/sites/default/files/ctpmail/PDFs/TeacherPrep-WFFM-02-2001.pdf

Winzer, M. & Mazurek, K. (2010). Including students with special needs: Implications for social justice. In J. Zajda (Ed.), *Globalization, education and social justice: Globalisation, comparative education and policy research,* (87-101). Dordrecht: New York: Springer.

Wright, S.P.; Horn, S.P.; and Sanders, W. L. (1997). Teacher and classroom context effects on student achievement: Implications for teacher evaluations. *Journal of Personnel Evaluation in Education, 57-67*.

Xin, J.F., Accardo, A.L., Shuff, M., Cormier, M., & Doorman, D. (2016). Integrating global content into special education teacher preparation programs. *Teacher Education and Special Education, 39*(3), 165-175.

Zajda, J. (2010). *Globalization, education and social justice: Globalisation, comparative education and policy research. Dordrecht:* New York: Springer.

Zeichner, K. & Hollar, J. (2018). Developing professional capital in teaching through initial teacher education: Comparing strategies in Alberta, Canada and the US. In K.

Zeichner (Ed.), *The struggle for the soul of teacher education (Critical social thought).* New York, NY: Routledge. [Amazon Kindle version]. Retrieved from www.amazon.com.

Zeichner, K.M. (2009). *Teacher education and the struggle for social justice.* New York, NY:Routledge.

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