



The Impact of Psychological Science on Teaching and Learning

Psychological research contributes to effective learning and development, children's well-being, school climate, teacher preparation, and the science of instruction. To ensure that students receive a well-rounded education that incorporates all aspects of learning into academic success, both the pre-service education and training and professional development of educators must be informed by well-established scientific methods that are grounded in the science of psychology.ⁱ

The Science of Instruction

The science of instruction focuses on understanding and improving the processes of teaching and learning. Applying principles and strategies from neuroscience, educational psychology, instructional design, and cognitive science, the science of instruction documents how people learn and how instructional methods can be designed to enhance student outcomes such as relationship building, problem-solving, and emotional management as well as improves students' motivation, engagement, and behavior, leading to increased rates of learning and retention.ⁱⁱ For example, data show that understanding the science of reading, through coursework designed to include all the core components of scientifically-based reading instruction, helps educators develop effective teaching strategies resulting in improved literacy in their students.ⁱⁱⁱ

Gaps exist between how educators teach and how scientific findings suggest they should. To be successful, teachers must be equipped with the right skills and resources. Teacher preparation curricula must include scientific research on learning and cognition to train educators to better understand the role of information processing in learning, and how to create classroom environments that reduce obstacles and distractions, maximize student retention, and effectively test whether students have learned the needed material.^{iv}

Policy recommendations

Maintain the Higher Education Act's definition of "teaching skills," which is grounded in psychological science and includes the ability to support the social, emotional, and academic development of all students.^v

Increase funding for current federal programs such as the Title II-A, the Supporting Effective Instruction State Grants Program; the Supporting Effective Educator Development (SEED) Program; the Teacher Quality Partnership Program; the August F. Hawkins Centers for Excellence Program; and the Graduate Fellowships to Prepare Faculty in High Need Areas at Colleges of Education Program.

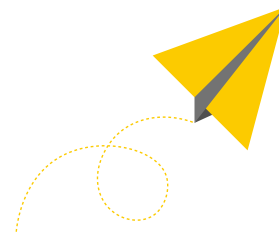
Ensure that assessments and measures used to evaluate teacher preparation programs be informed by well-established scientific methods that are based in psychological science.^{vi}

Provide financial support or incentives for district partnerships with institutions of higher education to help student educators improve coursework design and receive instruction based on cognitive and psychological science, including by providing shadowing opportunities to observe evidence-informed techniques in action and practice them in their teaching.

Prioritize the professional development of educators, including school leaders, by incorporating the principles of the science of instruction including cognitive science and educational psychology to enhance their training and practice.

Classroom Management

The science of instruction shows that effective classroom management is a core principle of successful teacher preparation, training, and continued professional development.^{vii} Expectations for classroom conduct and social interaction are learned and can be taught using proven principles of behavior and effective classroom instruction. Successful classroom management is based on setting and communicating high expectations, consistently nurturing positive relationships, and providing a high level of student support, which can lead to positive academic, behavioral, and social-emotional outcomes for students.^{viii}



However, classroom management is another skill often overlooked by teacher preparation programs. Just 27 percent of teacher preparation programs require instruction on reinforcing positive classroom behavior, with 39 percent of K-12 educators never receiving explicit classroom management instruction in their training programs.^{ix, x} With the proper training, educators will better understand students' social and behavioral cues, allowing them to build closer relationships with their students and effectively manage student behavior through self-regulation, without resorting to exclusionary disciplinary practices.

Policy recommendation

Include instruction on research-based classroom management strategies in teacher preparation programs and continuing professional development programs, including how to establish rules, routines, and expectations; appropriately praise students' actions; and be strategic about responding to student behavior.^{xi}

Cultural and Societal Context Impacts Education



Students' educational experiences are influenced by a variety of contextual factors unrelated to their education. This includes world events, families, peer groups, housing, culture, and beliefs. Each of these may influence their learning; therefore, it is crucial that educational environments facilitate effective interpersonal relationships, promote emotional development, and provide a secure and culturally aware environment in their classrooms.^{xii}

To create classroom environments that engage all students, instruction and curricula must be both rigorous and reflective of students' diverse backgrounds and experiences. Data show that when students from all backgrounds see their culture represented in curricula and feel a sense of belonging, their educational experience improves, including through increased motivation, interest in the content, and confidence in their academic abilities.^{xiii, xiv} Culturally responsive education also enhances academic outcomes for all students, including in math and science; improves classroom management, where understanding students' personal and cultural needs can help manage behavior; and leads to higher graduation rates.^{xv, xvi} Additionally, a diverse educator workforce produces positive academic, social, emotional, and behavioral outcomes for all students, regardless of race, with students of all races showing stronger gains in reading and math when they have a teacher of color.^{xvii}

Similarly, positive relationships between educators and families can increase engagement and motivation and improve academic outcomes.^{xviii} Most parents are satisfied with their children's schools and they increasingly rely on communication with teachers to gauge how their children are doing in school.^{xix, xx} Additionally, large majorities of parents across all demographic groups and political affiliations want their children to acquire social and emotional skills such as motivation and engagement, problem-solving, emotional intelligence, resiliency, agency, and relationship building, and believe that schools have a role to play in providing that instruction, alongside academic work.^{xxi} Educators must have the training to engage families around all aspects of their children's education.

Policy recommendations

Include instruction in teacher preparation programs and continuing education programs on practical strategies to create a safe, supportive classroom environment; social and emotional learning and culturally and linguistically responsive teaching; and building stronger relationships with and between students as well as with parents, families, and caregivers.

Invest in resources for school districts to build and strengthen family and community engagement.

Provide schools and districts with guidance and resources, such as APA's Guide to Addressing Racial and Ethnic Disparities in Education, to better understand and reduce educational disparities.^{xxii}



Implement trauma-informed teaching practices and provide culturally, developmentally, and linguistically appropriate training for educators and other school personnel on the impact of Adverse Childhood Experiences (ACEs) on children's health and development.

Increase funding for Title IV-A, the Student Support and Academic Enrichment Program, which aims to improve students' academic achievement, including by improving school conditions and climate through enhanced mental health services, social and emotional learning, and trauma-informed practices.

Provide schools and districts with funding to support the mental health of educators. Data show that doing so improves both school climate and students' academic success.^{xxiii}

Use of Technology in the Classroom



Technology is likely to have a profound impact on the future of education. Many teachers already use digital materials for planning purposes and to build curricula. Due to its quickly evolving and ever-changing nature, predictions about the exact effects of technology on education are difficult to make; however, personalized learning, assistance with administrative tasks for educators, and streamlining of assessment and data analysis are among the likely possibilities of how advances in technology are likely to change schools and learning.

Education policies must be developed with technological advancement

in mind, while also being mindful of the ethical and equity implications of technology utilization in education. This further underscores the importance of psychological and cognitive science to learning and how it interacts with technology.

Policy recommendations

Provide training for educators on educational technology literacy and how to incorporate technology into all aspects of classroom instruction.

Invest in resources that expand students' access to content, supports, and learning opportunities.

Fund additional research on the implications of technology for education, including ethical and equitable applications.

Ensure that policies regulating educational technology are informed by psychological and cognitive science, are evidence-based, and work to enhance relationships rather than limit social interaction.

Ensure that students at low-income schools have equitable access to technology and all students develop technological literacy.

Professional Development for Educators

To continue enhancing their knowledge and evidence-based skills that holistically support students' academic, social, and emotional development, educators must have access to collaborative and iterative professional development opportunities.^{xxiv} Data show that the most effective forms of professional development focus on improving teachers' daily classroom practices, including instruction and relationship building.

Policy recommendation

Invest in sustainable, collaborative, continuous professional learning opportunities for educators that support students academically, socially, and emotionally, including through culturally reflective curricula, instruction, and classroom management.



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^{xiii} Ibid.

^{xiv} National Education Association and the Law Firm Antiracism Alliance. (2022). *The Legal and Pedagogical Case for Culturally Responsive and Racially Inclusive Public Education for All Students*. <https://www.nea.org/resource-library/legal-and-pedagogical-case-culturally-responsive-and-racially-inclusive-public-education-all>

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