

Theory of Learning for Powerful Teaching

Purpose

The NCS Theory of Learning for Powerful Teaching serves as a guiding document for NCS's approach to improving the quality of high school instruction to increase student learning, development, and achievement in partnership with school leaders and staff. It represents our commitment to transparency: the importance of communicating the research, theory, and organizational values underpinning the work that we do. The following sections provide a framework for understanding adolescent brain and psychological development and the kinds of learning experiences that best support adolescent learners. We do not prescribe a particular set of strategies. Rather, we put forth principles for teaching based on how adolescents learn. As partners, we will engage in dialogue about how to create powerful learning experiences for adolescents in your unique school context.

Using this framework effectively will require that instructional leaders engage all staff in school-based processes to create developmentally appropriate learning conditions in every classroom. We intend this to provide a common understanding from which professional peers (within and across schools) can support each other's growth.

Beliefs

NCS is a group of experienced practitioners, many of whom have worked in Chicago Public Schools for over two decades. Our beliefs about teaching and learning are grounded in socio-cultural learning theory, based on the idea that human cognition develops through social interaction and that people build knowledge and strategies by working and communicating with each other. We also take an explicit equity stance in our work. We believe a focus on equity is critical when so many of our students live in communities that have been systematically marginalized, and the contributions and potential of young people of color are too often undervalued. We believe that students are capable learners regardless of their home environment or prior school experience.

Chicago students bring strength and perspective to the classroom, and it is by accessing and building on those strengths and perspectives that we engage them in meaningful learning. Taking a strengths-based approach to planning learning experiences for

adolescents directly impacts how well they learn in our classrooms. Students thrive when they are active participants who inquire, create, model, coach, and collaborate with teachers and peers. Our goal is to support students' development as independent thinkers, and collaboration is an essential pathway to constructing knowledge.

Ultimately, it is the adults' responsibility to create classroom contexts which support student learning. To make the pedagogical shifts we describe below, teachers must similarly be supported as learners.

The Problem

State of the System

The educational system in the United States perpetuates limiting beliefs and existing inequities across communities (race, class, gender, etc.). This impacts practice and policy at every level - district administrators, school leaders, teachers, and students. We have failed to examine critically the structure of school systems, how they distribute resources to serve those most in need and adjust to meet the demands of the current context. For adolescents to take the risk to learn, we must challenge the beliefs of the adults who teach them and the systems that create those limiting beliefs (Guerra and Nelson). Rather than attacking public education, our society MUST trust that everyone can get better – students are learners, teachers are professionals, and principals are leaders (Perry et al.).

Schools of Education and practicing educators do not work from a common set of professional standards rooted in research and practice leading to an unacceptable and inequitable system that countless reform efforts have attempted and failed to disrupt at the school, local, and federal levels. The field of education is fraught with myriad contrasting theories of learning and teaching based in research, rhetoric, personal experience, and emotion. Although brain research and its implications for education have grown substantially, this science has not yet made its way into the regular practice of teachers or teacher educators. In-service teachers are bombarded with professional development initiatives, professional books filled with disconnected teaching strategies, and off the rack curricula that make little use of the neurological research. Amongst teachers, there is still a pervasive belief that teaching is an art – something that each teacher must individually piece together based on his or her own unique style, personality, context, and content. Because the field of education is disparate, young lives are at risk in very real ways (Ball and Forzani, 17-21).

Support for Learning and Teaching

Schools are stuck in a reactionary mode due to ever-changing demands from the district. School leaders struggle with establishing effective conditions for adult growth including a clear vision for quality instruction, focused work (Schmoker), useful data (Roderick), and time to collaborate (Fullan) and reflect (Jay). These leaders also fail to create focused space for the teachers and to surface beliefs about and expectations for the students they serve and to plan intentionally for change (Bryk et al.).

Teaching

Teachers infrequently access students' social and cultural capital as an academic resource (Monkman et al.). Even well-meaning teachers don't often provide space for productive struggle, risk-taking, and the inclusion of student voice (Tokuhama-Espinosa), instead maintaining tightly controlled classrooms where the teacher's voice is prominent. Teachers provide limited opportunities for students to learn from each other through discussion or group problem-solving (Zwiers and Crawford). These practices are especially prominent where teachers perceive the students are low performing - most often in schools and classrooms serving African-American and Latino students and students who live in poverty. Few teachers have found effective ways to support students' individual learning, social/emotional, or developmental needs within the classroom context, particularly with ELL, diverse learners, and students who have experienced trauma (Lee and Sprately). The pressure to cover content and the perceived need to remediate and accelerate learning undermine teachers' efforts to make shifts in their practice.

Learning

Adolescents rarely see themselves as agents of their own learning and valued members of their academic communities (Nagaoka et al.) (Farrington et al.). They comply with classroom activities often without pushing for deeper learning, nor do they feel challenged to do so ("What is Deeper Learning?"). At best, students seek to please teachers, give the right answer, or earn points rather than exploring their own curiosity and developing their own understanding (Gusky). They frequently look for the quickest way to complete tasks and give up when they face intellectual struggles. Some students opt out by not participating in the classroom activities or skipping class altogether.

Theory of Learning

Learning and the Adolescent Brain

The adolescent brain undergoes significant, biological changes that impact how young people learn. First, the brain reorganizes itself during adolescence. Connectivity between regions of the brain increases, and there is a change in balance between the limbic system (emotions) and the frontal lobe (executive function) (“The Amazing Teen Brain”). Secondly, the brain goes through an intensive period of pruning unused connections during the adolescent years. The number of neurons and neurotransmitters peaks during childhood. In adolescence, the brain tries to maximize efficiency by reinforcing the circuits that get used and clearing out the ones that are idle (Spinke) (“The Teen Brain: Still Under Construction”) (“The Adolescent Brain – Learning Strategies & Teaching Tips”) (Lorain). All of these changes mean that adolescents’ brains are in a prolonged period of development that has an impact on their learning, decisions, and behaviors. While there are common characteristics of brain development, the rate and impact of the changes vary from one person to the next (Siegel).

Adolescents are also undergoing significant psychological changes. The primary psychological task of adolescence is the development of a stable adult identity, integrating one’s gender identity, racial/ethnic identity, and a variety of adult social roles. Adolescents are rightly preoccupied with their relationships and social connectedness as they sort out questions of belonging, identity, and sexuality. They tend to be idealistic and attuned to issues of fairness as they expand their awareness of the larger world. High school students also begin to think seriously about their interests and abilities, and what these portend for the future. A positive learning environment provides opportunities for adolescents to encounter and explore a wide range of ideas, perspectives, people, and places as well as opportunities to discover interests and talents, practice skills, and build competence (Farrington, “Teaching Adolescents”).

Learning and Race

African-American and Latino students face additional challenges in learning and development caused by racism and ongoing racial segregation in American society. Worries about reinforcing negative racial/cultural stereotypes can occupy some of students’ cognitive space, making less working memory available for learning. They may experience implicit bias in the form of low expectations from their teachers and peers,

and they may feel pressure to downplay academic effort if such effort feels in conflict with important social identities (Shapiro and Neuberg) (Steele).

Learning and Trauma

Adolescents who have experienced some form of trauma may also experience challenges in learning. Trauma is defined by an emotionally painful or distressful event which induces an abnormally intense and prolonged stress response, often resulting in lasting physical and mental health effects. Trauma is not always recognizable because young people may mask their emotional stress rather than acting it out. When students are dealing with the effects of trauma (more common in high poverty schools), they may struggle with trust and thus hesitate to build relationships which serve as a foundation for learning. These students may be preoccupied with emotions making them less cognitively available for learning (Perry and Szalavitz).

Learning Experiences Adolescents Need

To support their developing agency and independence, adolescents need to be able to make choices in their learning. They benefit by engaging in longer-term, open-ended projects that allow them to contribute meaningfully to purposes that extend beyond the classroom walls. Finally, adolescents need opportunities to interact with their peers, to talk about their ideas and experiences, and to reflect on the implications of their learning. Ultimately, schools should support adolescents in envisioning possibilities and coming to see themselves as good and capable people with much to offer.

Educators and school structures must respond to the adolescents they seek to educate. Adolescents need certain kinds of experiences to learn most effectively. Adolescents are beginning to move from concrete to abstract thinking including metacognition, problem solving, and critical thinking. Because this is a developmental process, it is not reasonable to expect that adolescents will have the organizational or decision-making skills of adults (Lorain).

- The **short term memory** can only hold four to five pieces of new information at a time. Adolescents need multiple opportunities to engage with new information before it becomes part of their long term memories (Jensen).
- **Social interaction** is an important part of adolescent development. Adolescents should have opportunities to engage with peers to reinforce learning through discussions, debates, and projects (Vygotsky).

- The adolescent brain is going through a significant pruning process, so **what does not get used, is lost**. Adolescents need many opportunities to engage in problem solving and critical thinking to reinforce these neural connections (Frontline).
- Adolescents are **active learners**. The brain learns best when it is in an excited state. Brain pathways are increased and made stronger when students engage in learning in ways that are hands-on, engaging, require active participation, and provide varied stimulus such as creative writing, art projects, and guest speakers.
- Adolescents' brains are just beginning to develop the ability to **organize and plan**. They need supports from adults to build these skills including color coding, anchor charts, explicit processes, and clear expectations and routines (Frontline).
- Developmentally, adolescents are in a **me-centric world**. They learn better when they can make connections between the content and their world and when the work they do in school is relevant to their lives.
- Adolescents need to know that much is expected of them regardless of race.
- In the case of students who have experienced trauma, they need **predictable routines** across classes, opportunities for **personal expression**, and **strong relationships** with caring adults.

Teaching to Adolescent Needs

Teaching brains at this stage of development is exciting work; adolescents are capable of making big breakthroughs if we can continue to approach them as developing human beings. This kind of brain development is happening for all students regardless of their past school performance. Given this fact, adolescence offers opportunities to re-engage all students including those who have previously struggled. It is important to distinguish executive function issues (lack of organization), emotional flux (apparent lack of motivation or engagement), and prior knowledge/achievement from a student's learning/intellectual capacity. Students who are having a hard time socially, face

challenges organizing themselves to work, or have some skill deficiencies are still capable of rigorous intellectual engagement and learning (Lorain).

Teachers who organize their instruction to meet adolescent learners' needs are teachers who:

- set **clear, ambitious learning goals** and share them clearly and succinctly with students.
- **facilitate student learning** rather than manage completion of tasks, continually pushing toward students carrying the cognitive load so they own their learning.
- access the **strengths and intellectual capacity** students bring to learning and what they already know.
- provide conceptual frameworks to **help students organize thinking** (schema) and understanding (Rumelhart 33-58).
- establish **clear expectations and routines** in classrooms so that students know how to engage as learners.
- support students' developing **executive function** with procedures and visuals that foster their individual organization.
- prioritize **depth of learning** over coverage of content by offering multiple opportunities to wrestle with fewer new concepts and information and engage in problem solving and critical thinking around those concepts (Walqui, Ch. 1).
- structure frequent opportunities to **dialogue with peers** to reinforce learning through discussions, debates, and projects (Walqui, Ch. 3).
- design learning activities that are hands-on, engaging, and provide varied stimulus such as creative writing and art projects and require **active participation** (Ritchhart).

- plan units that have **value and relevance for adolescents** and connect the content/skills students are learning to their “me-centric” world and life experiences. (Tatum)
- provide **regular, specific feedback** on student work which gives a clear roadmap for improving.
- build conditions for **developing academic mindsets**, which support a sense of belonging, efficacy, relevance, and ability to grow with effort (Nagaoka et al.).
- normalize achievement for all students and explore issues of race as they surface personally, within the class, and with colleagues.
- establish opportunities for **student voice** and expression, and **proactively build relationships** with students.

In order to embrace this approach to teaching, teachers may have to let go of long-held practices that are in conflict with making this change. We encourage teachers to examine a shift to Deeper Learning as a resource.

School Supports For Learning And Teaching

School-wide Conditions to Support Instructional Improvement

School improvement at its core is about learning and teaching. Still, while instructional improvement is the ultimate goal, these efforts must invest in building the health and wellness of the school as a system. Schools are more than just a collection of classrooms (Bryk et al.). They are living organizations that require their own thoughtful support. In order for student learning to flourish, adults must foster a learning-oriented, problem-solving professional climate with working relationships characterized by collegiality, caring, trust, and respect. Schools must undertake a shift from making decisions based on adult preferences and tradition to a thorough examination of what best supports student learning.

Schools that are organized to improve teaching and learning are schools with:

- strong principal leadership and ability to lead an instructional vision.

- distributed leadership at all levels and structures to support and develop leaders (Fullan, “Change Leader”).
- sufficient time allocated for collaboration, reflection, and learning including an Instructional Leadership Team and course and/or department and grade-level team meetings (Allensworth).
- assessment and grading systems that provide clear learning goals for students and families, multiple opportunities to demonstrate learning, and grades that report information about students’ progress toward specific learning goals (rather than an accounting of completed tasks).
- reliable systems for aggregating, disaggregating, and reporting actionable, real-time, and meaningful data (Schmoker).
- a school-wide instructional focus to guide adult learning and resource allocation.
- appropriately ambitious student performance goals based on the school’s unique student population and context.
- focused, on-going, relevant, and quality professional learning around a school-wide, research-based instructional framework (Nelson).
- structures for providing teachers and leaders with frequent feedback and coaching (Drago-Severson).
- a growth and improvement orientation for students and adults. Teachers, as well as administrators, need to see themselves as learners, eager and capable of improving their practice when given support (DuFour).
- conditions that support adults to explore issues of race and implicit bias that impact expectations for students.
- avenues for student participation and leadership in the wider school community.
- structures for providing responsive social and emotional supports to students as well as learning opportunities for adults about students’ social and emotional development and needs.

The Role of NCS and Schools

This is not a prescription of specific actions or programs, but rather a guiding vision for thinking about how NCS supports learning and teaching in Chicago's high schools.

To take up this work, schools may take several steps.

- Find ways to surface adult beliefs about student capability.
- Clarify the school's instructional vision. Review and adjust curriculum to meet students' needs.
- Build structures for teacher collaboration so they can work on learning and instructional improvement together.
- Prioritize the use of time to maximize adult collaboration.
- Foster shared leadership to expand the number of people working on improving student outcomes.
- Build systems for reviewing student-level data to monitor progress on outcomes that matter for student success.

As partners, NCS is committed to engaging in dialogue about how these ideas best fit each school's unique context. We work with our partner schools to support educators in this work. Please join us.