LEAP
learning
framework
for personalized learning

research
snapshot
2017

learner **CONNECTED**

learner FOCUSED

learner DEMONSTRATED
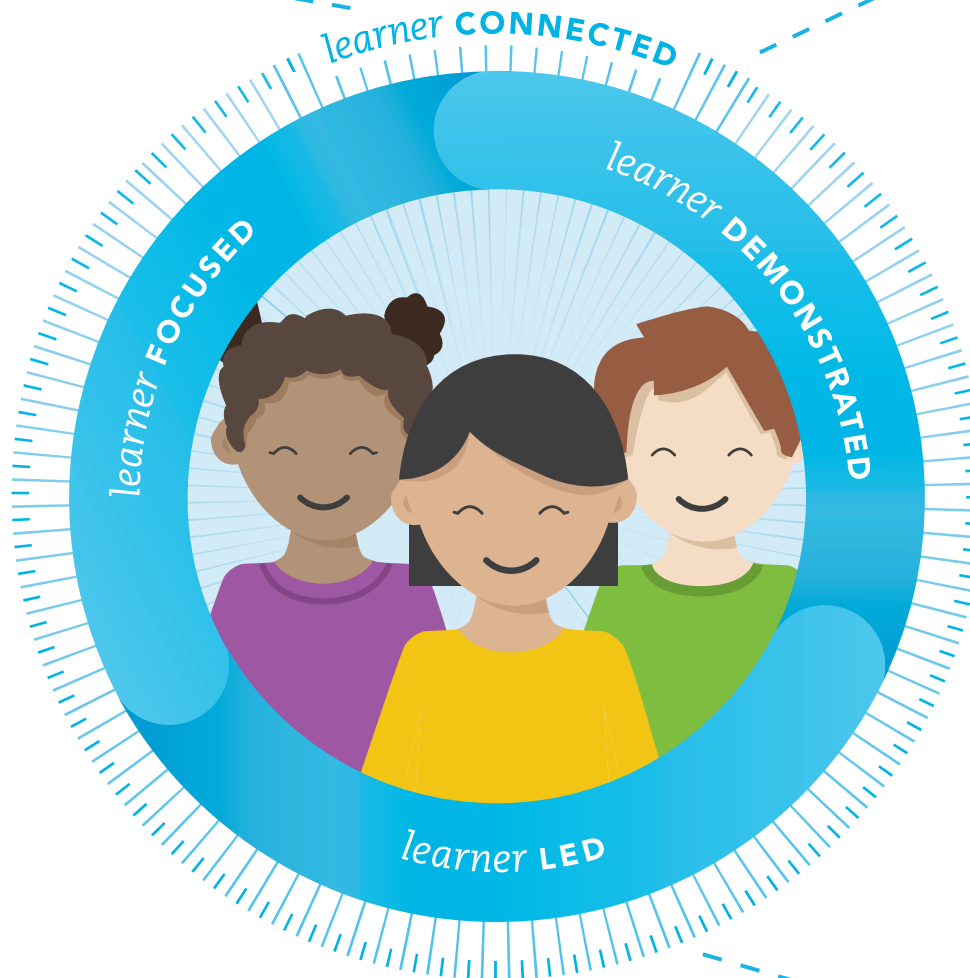
learner **LED**

LEAPinnovations
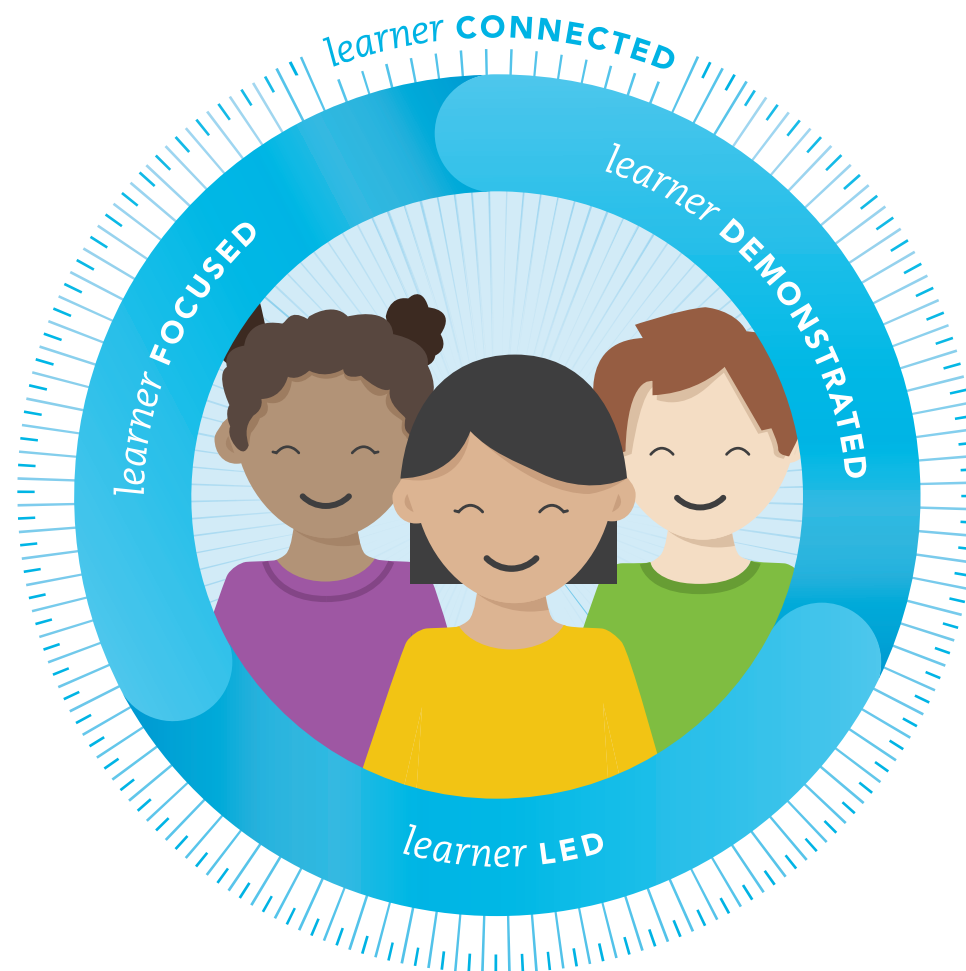
Core Components

Learner Connected

Schools can help students learn how to thrive and advance in a connected world that is driven on relationships and learning anytime, anywhere. These real-world connections lead to new opportunities and bridges that enable students to grow social capital and develop their personal, social and civic engagement skills for life.

Learner Demonstrated

Students make academic progress, tackle challenges and improve perseverance when they are in classrooms that feature flexible but rigorous pacing and assessments. Teachers can make it safe to struggle and fail so that students recognize the importance of mastering a skill over just showing up for class and turning in required assignments.

Learner Focused

This approach is the best way to serve the diverse needs of all children because one lesson does not fit all. We know schools and teachers are crucial to learning; but, we also know that what happens inside a child and outside school can play a sizable role in determining academic progress. It's important to understand all those factors that shape learning – even the ones that teachers can't control – so they can become sources of strength, rather than barriers to progress.

Learner Led

When learners feel in control, they are more motivated and work harder in school. This is true regardless of whether the students are meeting their goals or hitting obstacles. Still, teachers know they must strike a balance between giving students autonomy and supporting them to develop crucial skills and knowledge–because students need to feel competent before taking greater control of their learning. Teachers also can empower learners by championing their voice in conferences and classrooms.

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Take a look inside for highlights of our research review of more than 600 recent studies focused on elements of personalized learning.

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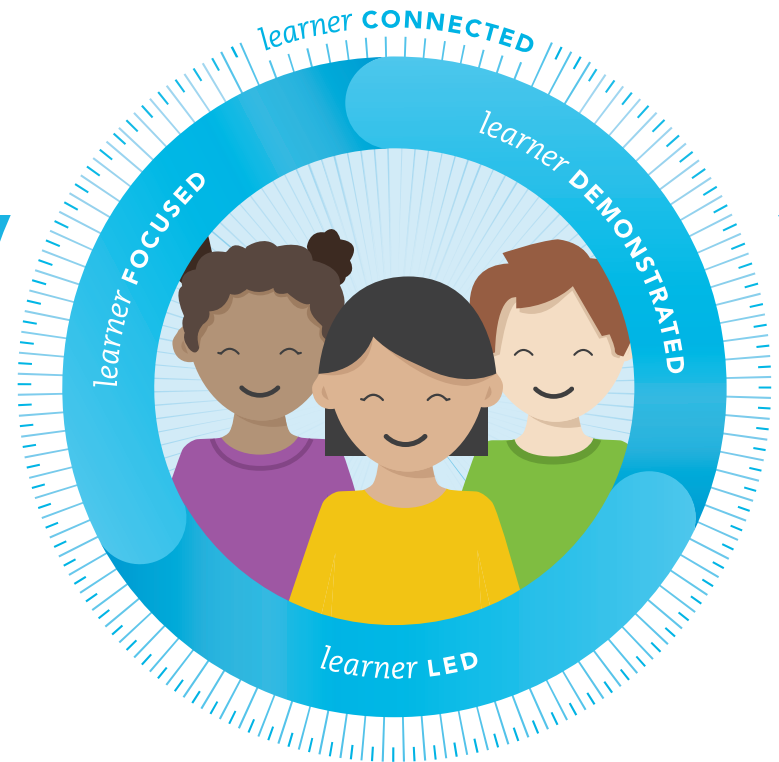
Learner Connected:
Transcending location; forging meaningful relationships

Students get beyond the four walls of school to build relationships and forge connections in the real world that advance their long-term access to professional advancement. These connections take shape in a myriad of ways– in peer-learning teams, internships, and community projects that create opportunities for new experiences, relationships, and networks.

40%

increase in high school graduation rate among high school students enrolled in a community-based support program

*Oreopoulos et al. (2014) Pathways to Education: An Integrated Approach to Helping At-Risk high School Students". National Bureau of Economic Research working paper 20430.

Elements of Learner Connected

✷ **LC.1:** Collaborate with peers, family, educators and others

✷ **LC.2:** Cultivate meaningful relationships

✷ **LC.3:** Advance personal opportunities through connections

✷ **LC.4:** Engage in real-world experiences through multiple mediums to develop:

- Academic skills & knowledge
- Workplace experience
- Community & civic engagement
- Global citizenship

✷ **LC.5:** Earn valued recognition for all demonstrated competencies (regardless of where and when it happens)

Why Does this Matter?

Schools can help students learn how to thrive and advance in a connected world that is driven on relationships and learning anytime, anywhere. These real-world connections lead to new opportunities and bridges that enable students to grow social capital and develop their personal, social and civic engagement skills for life.

What Does the Research Say?

Many of the Learner Connected elements are aspirational and still not practiced widely in school systems. For that reason, much of the research is in its infancy and is expected to mature significantly in the coming years. A sample of related studies tell us:
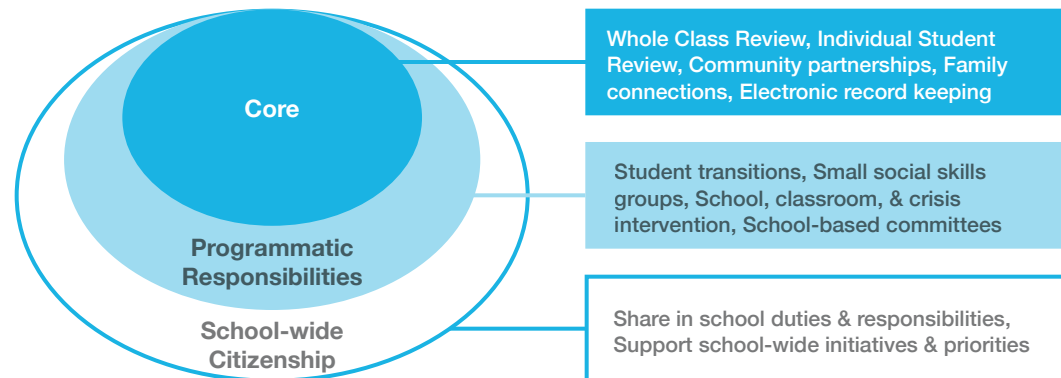
☀ **When group learning is well supported, it can be a powerful way to promote social-emotional skills** and **improve achievement in academic** subjects, with the **strongest gains seen** in **math** and **science**. Cooperative learning relies on effective teamwork and a solid base of knowledge.[1] **(LC.1:** *Collaborating with peers, family, educators and others)*

☀ **A sense of belonging at school** and **strong relationships** with teachers **strongly predicts improved learning outcomes**–learners can do more when they have more people whose support, ideas or **networks they can rely on**.[2] **(LC.2:** *Cultivating meaningful relationships)*

☀ There are **promising models** that **help students build social capital** by developing **mentor relationships** and **professional connections** outside school.[3] **(LC.3:** *Advancing personal opportunities through connection)*

☀ Studies suggest that **students enrolled in schools that encourage them to learn from outside work**, community service or other **real-world projects develop stronger personal, social and civic engagement skills**[4] **(LC.4:** *Engaging in real world experience)*

☀ International research suggests that adult **students recognized for prior learning earned higher grades** and were **more likely to complete community college programs**.[5] **(LC.5:** *Earning valued recognition for demonstrated competencies)*

Core

Programmatic Responsibilities

School-wide Citizenship

Whole Class Review, Individual Student Review, Community partnerships, Family connections, Electronic record keeping

Student transitions, Small social skills groups, School, classroom, & crisis intervention, School-based committees

Share in school duties & responsibilities, Support school-wide initiatives & priorities

*Walsh, M. E., Madaus, G. F., Raczek, A. E., Dearing, E., Foley, C., An, C., … Beaton, A. (2014). A New Model for Student Support in High-Poverty Urban Elementary Schools: Effects on Elementary and Middle School Academic Outcomes. American Educational Research Journal, 51(4), 704–737.

Results from a 10 year study of nearly 8,000 students receiving the City Connects support model showed that students had higher report card scores and middle school math and English test scores.

"From an equity perspective... access matters."

- Amelia Peterson, Innovation Unit

Open Questions

☀ How do we go beyond the study of hands-on, project-based learning that happens in classrooms to examine models of real-world experiences that happen outside school?

☀ How can we expand these practices and focus research attention on younger students in elementary and middle schools?

☀ How do we develop a theory of action and refine the terminology around learner connectedness that would allow the research base to grow and mature?

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Learner Focused:
## What it really means to teach the whole child

Students thrive when their learning is relevant to their lives and shaped by their individual needs, interests and strengths. We are focused on learners when we respect their culture, understand their families, and pay attention to their individual needs–which includes academic strengths and preferences, physical and mental health, and social-emotional development.

1.4
Higher GPA

among ninth-grade students provided with a culturally-relevant curriculum

Dee, T. S., & Penner, E. K. (2017). The Causal Effects of Cultural Relevance: Evidence From an Ethnic Studies Curriculum. American Educational Research Journal, 54(1), 127–166."

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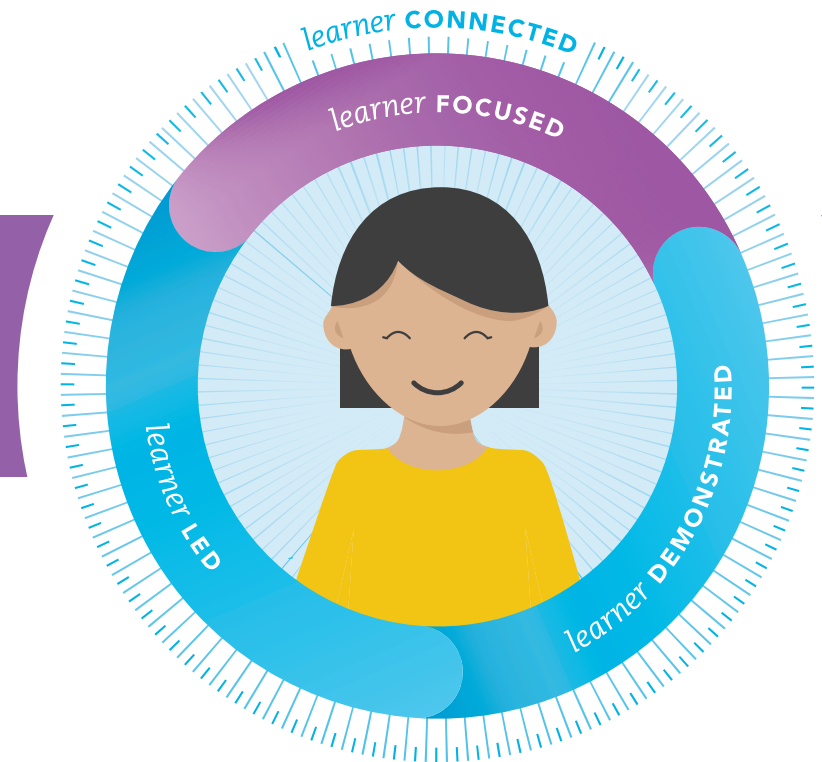
Elements of Learner Focused

☀ **LF.1:** Develop a deep understanding of needs, interests and strengths around:

- Academics
- Health & wellness
- Social-emotional development
- Culture & language
- Living situation
- Cognitive skills

☀ **LF.2:** Experience learning that is relevant, contextualized and designed for their individual needs, interests and strengths

Why Does this Matter?

This approach is the best way to serve the diverse needs of all children because one lesson does not fit all. We know schools and teachers are crucial to learning; but we also know that what happens *inside* a child and *outside* school can play a sizable role in determining academic progress. So it's important to understand all those factors that shape learning – even the ones that teachers can't control – so they can become sources of strength, rather than barriers to progress.

What Does the Research Say?

There is a robust and rigorous body of research that demonstrates how important it is pay attention to the individual needs of the students. For example, we know:

☀ When learners **choose their own reading material based on their interests**, their **reading skills improve**, in both the elementary and middle grades.[1] (**LF.1:** *Academics*)

☀ Paying attention to **physical and emotional health** pays off in **improved learning outcomes**. That means increasing physical activity and integrating meditation and **mindfulness practices** into the school day.[2] (**LF.1:** *Health and wellness*)

☀ **Integrating social-emotional development** into academic lessons **improves student behavior**, which leads to greater **content knowledge** and **motivation** to learn[3] (**LF.1:** *Social-emotional development*)

☀ Culturally responsive teaching includes: **high academic expectations** and using student **strengths**; cultural competence, where **teachers reshape lessons based on the culture of the students**; and **critical consciousness**, where **teachers share power**, engage in **social justice** and encourage students to **challenge the status quo**.[4] (**LF.1:** *Culture and Language*)

☀ Parent involvement can improve academic outcomes at school, but it helps when that connection to families goes beyond attending events or volunteering in class. **Teachers and parents** should **create processes to regularly communicate** about the student so they can **reinforce support** at **school** and **home**[5] (**LF.1:** *Living situation*)

☀ The notion that students have specific learning "styles" (visual, auditory or kinesthetic, for example) has largely fallen out of favor with researchers. **Learners may** *prefer* **to learn** new material in different ways, but research now suggests **it's more important to match the way the lesson is taught to the content** rather than the **learner**[6] (**LF.1:** *Cognitive skills*)

Student Self-Perception	Effect of Having Choice
High confidence	Enhances motivation
Low confidence	Diminishes motivation

*Patall, E. A., Sylvester, B. J., & Han, C. (2014). The role of competence in the effects of choice on motivation. Journal of Experimental Social Psychology, 50, 27–44.

Choosing is motivationally empowering when a learner feels competent about the task at hand, but when an individual feels less competent choosing can be debilitating. This emphasizes the need to understand learners perceived strengths when designing lessons and projects.

"One way to build on prior knowledge is to connect with a learner's interests"

- Reis, S. M., McCoach, D. B., Little, C. A., Muller, L. M., & Kaniskan, R. B. (2011). The Effects of Differentiated Instruction and Enrichment Pedagogy on Reading Achievement in Five Elementary Schools. American Educational Research Journal, 48(2), 462–501.

Open Questions

☀ Do learners improve academically when they lead their own conferences and create their own learning plans?

☀ Does culturally responsive teaching styles lead to academic gains?

☀ How do we create wraparound services that best meet the needs of families and individual learners?

☀ How do we really define intelligence when it involves so much more than IQ and standardized test scores?

LEAPinnovations

Research Snapshot: This summary was drawn from an exploratory review of educational research that involved more than 600 studies drawn largely from the year 2000 and later that reflect the teaching techniques, technological advances and students of today. To see the full reference list and view videos of personalized learning in action, go to: LEAPlearningframework.org

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Learner Led:

When students take ownership of their learning

Students succeed when they explore their interests, help design their own lessons, set ambitious goals, reflect on their own progress and advocate for what they need. Teachers play a crucial role in inspiring students to tap their curiosity and discover new interests, while supporting students to challenge themselves.

41%

greater increase in skills among children that were taught self-monitoring versus no monitoring

*Schunk, D. H. (1982). Progress Self-Monitoring.
The Journal of Experimental Education, 51(2), 89–93.*
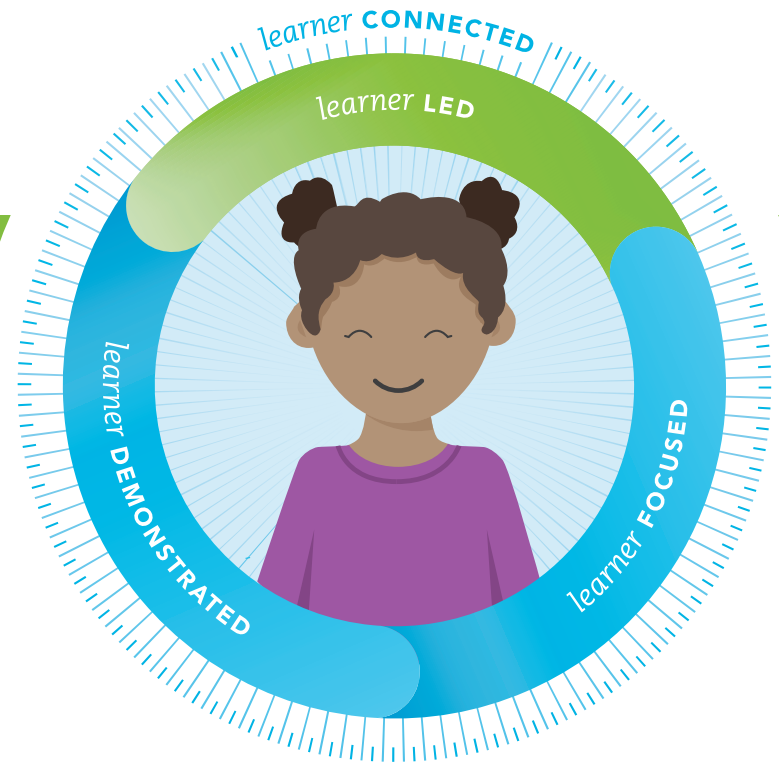
Elements of Learner Led

☀ **LL.1:** Co-design their learning experiences

☀ **LL.2:** Articulate their interests, strengths and needs

☀ **LL.3:** Assess, monitor and reflect on their own progress

☀ **LL.4:** Partner in setting their learning goals and plans

☀ **LL.5:** Advocate for needed support from teachers, peers, technology and other sources

Why Does this Matter?

When learners feel in control, they are more motivated and work harder to learn. This is true regardless of whether the students are meeting their goals or hitting obstacles. Still, teachers know they must strike a balance between giving students autonomy and supporting them to develop crucial skills and knowledge–because students need to feel competent before taking greater control of their learning. Teachers also can empower learners by championing their voice and choice in conferences and classrooms.

What Does the Research Say?

There is a full body of research that focuses on specific learning practices–most robustly as it relates to self-assessment, goal setting and reflection. These studies tell us:

✸ Studies are mixed on whether students learn more from student-led projects or ones led by teachers. This is largely because few models are purely one or the other; the best classrooms embrace a hybrid where teachers and students collaborate on desired projects, and students get more choice in everyday activities.[1] (LL.1: Co-design learning experiences)

✸ A disconnect between what is taught in school and what interests students drives a decrease in motivation and achievement, notably among boys. Thus, giving students more say in what they learn can play an important role in increasing motivation, attention and learning–even when the material is challenging.[2] (LL.2: Articulate interests, strengths and needs)

✸ The way students receive, interpret and use feedback on how they can improve has a major impact on learning–but to use that feedback wisely, students must understand the assessments. That's why teaching students how to assess themselves can be a powerful practice in schools.[3] (LL.3: Assess, monitor and reflect on progress)

✸ Student grades, attendance and conduct improve when they practice a learning technique where they imagine a desired future, think through potential challenges and then plot a course to surmount those challenges. However this practice is not widespread, so there have been no systematic reviews of personal development or learning plans.[4] (LL.4: Partner in setting learning goals and plans)

✸ When students advocate for themselves around learning, they are able to articulate their needs and ask for support to meet those needs. Teachers can use specific strategies to teach self advocacy, which is particularly important for students with diverse learning needs.[5] (LL.5: Advocate for needed support from teachers, peers, technology and other sources)

Self-reflection Increases Accuracy
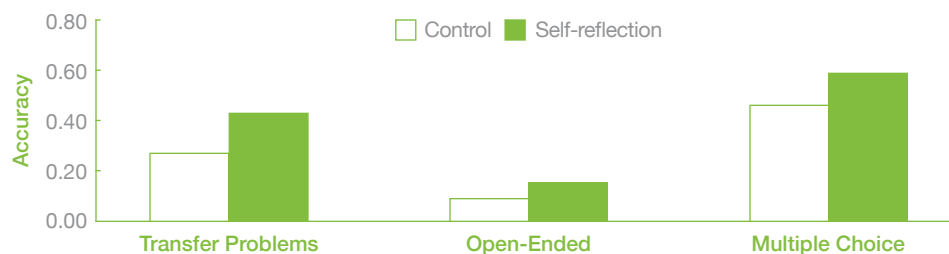
*Zepeda, C. D., Richey, J. E., Ronevich, P., & Nokes-Malach, T. J. (2015). Direct Instruction of Metacognition Benefits Adolescent Science Learning, Transfer, and Motivation: An In Vivo Study. Journal of Educational Psychology, 107(4), 954–970.

Adolescent learners who received metacognitive (self-reflection) training scored better on all types of problems and a self-guided activity. It demonstrates that this type of instruction can lead to better self-regulation during a period when academic achievement and motivation often decline.

> ## "Feeling in control is insufficient if learners do not also value the outcome of their learning."
>
> - Wigfield, A., & Cambria, J. (2010). Students' achievement values, goal orientations, and interest: Definitions, development, and relations to achievement outcomes. Developmental Review, 30(1), 1–35.

Open Questions

✸ How can we learn more about best practices for goal-setting in K-12 schools?

✸ How much support do teachers need to provide for students to benefit from the greater control they have over their learning?

✸ How can students benefit from a model of empowered learning when they are more inclined to see academic setbacks as something external or outside their control?

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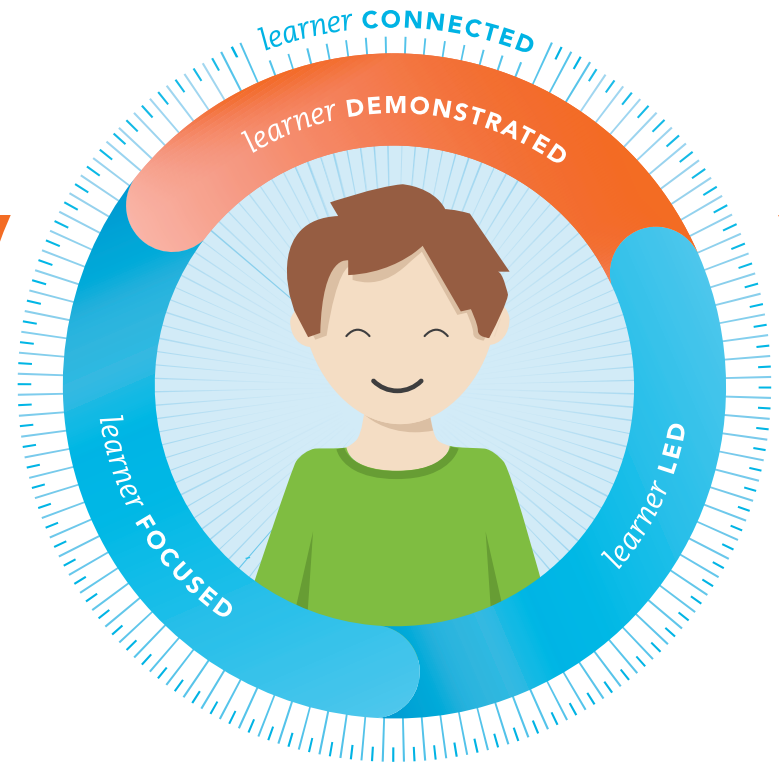
Learner Demonstrated:
Meeting students where they are

Learners move through demanding lessons that match their skills and knowledge and allows them to progress at their own pace. Students benefit if they are challenged in constructive ways and when mastery over the material is measured in multiple ways and ultimately recognized.

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35%
more students
earned A's or B's
when a course was delivered with a competency-based instructional approach versus a traditional approach

Fleming, R., Stoiber, L. c., Pfeiffer, H. m., Kienzler, S. e., Fleming, R. r., Pedrick, L. e., … Reddy, D. m. (2016). Using U-Pace instruction to improve the academic performance of economically disadvantaged undergraduates. Journal of Computer Assisted Learning, 32(4), 304–313..

Elements of Learner Demonstrated

✹ **LD.1:** Begin at a level appropriate to their prior knowledge and learning needs

✹ **LD.2:** Engage in productive struggle

✹ **LD.3:** Progress at a pace that fits their learning needs

✹ **LD.4:** Demonstrate competency when ready

✹ **LD.5:** Demonstrate evidence of learning in multiple ways

✹ **LD.6:** Receive recognition based on demonstrated competency, not seat time

Why Does this Matter?

Students make academic progress, tackle challenges, and improve perseverance when they are in classrooms that feature flexible but rigorous pacing and assessments. Teachers can make it safe to struggle and fail so that students recognize the importance of mastering a skill over just showing up for class and turning in required assignments.

What Does the Research Say?

The body of research in this area is growing, but is somewhat complicated by the range of terms used to describe these practices– including competency-based education, mastery-based learning and personalized learning. Recent studies tell us:

☀ **Interventions that help teachers provide students with lessons at appropriately challenging levels consistently produced learning gains**. This typically involved using pre-tests to gauge what students know and the supports they need to progress.[1] **(LD.1:** *Beginning at level appropriate to prior knowledge and learning needs)*

☀ In the classroom, **both students and teachers must believe that struggle is necessary and must be worked through rather than avoided**. Still, a student's **struggle must be visible** to the teacher so the teacher can gauge whether the student is making progress or needs more support.[2] **(LD.2:** *Engaging in productive struggle)*
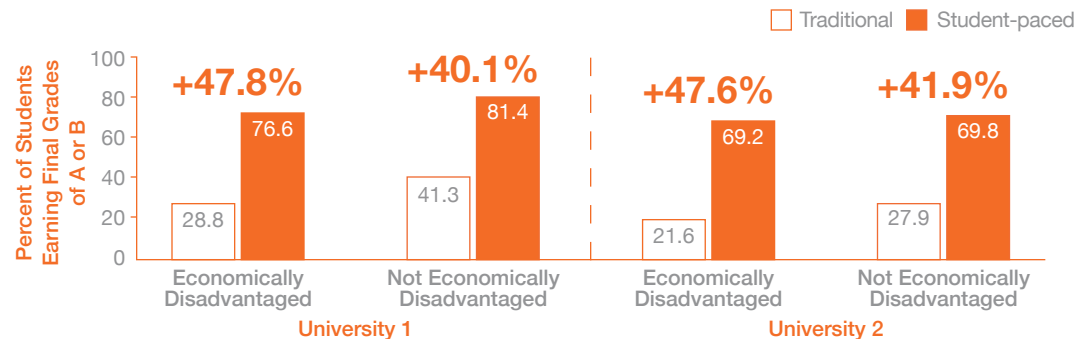
☀ **Individualized pacing**–when students learn at their own pace, get regular feedback, and move forward when they are ready–**improves student motivation and the belief that they can be successful learners**, especially on mathematics tasks.[3] **(LD.3:** *Progressing at a pace that fits learning needs)*

☀ **Students can progress more quickly through their learning** when they are **allowed to show the teacher they have mastered the material** and are ready to move on.[4] **(LD.4:** *Demonstrate competency when ready)*

☀ Learners in a competency-based school **need multiple forms of assessment to ensure they are being sufficiently stretched in mastering knowledge and applying skills**.[5] **(LD.5:** *Demonstrate evidence of learning in multiple ways)*

☀ Evidence indicates that **learners are more motivated when they receive "credit" for demonstrating learning. Achievement is higher in districts that have high-stakes exams**; for example, tests tied to graduation or college admission.[6] **(LD.6:** *Receive recognition based on demonstrated competency, not seat time)*

Legend: □ Traditional ■ Student-paced

Percent of Students Earning Final Grades of A or B

University 1:
- Economically Disadvantaged: Traditional 28.8, Student-paced 76.6 (**+47.8%**)
- Not Economically Disadvantaged: Traditional 41.3, Student-paced 81.4 (**+40.1%**)

University 2:
- Economically Disadvantaged: Traditional 21.6, Student-paced 69.2 (**+47.6%**)
- Not Economically Disadvantaged: Traditional 27.9, Student-paced 69.8 (**+41.9%**)

*Fleming, R., Stoiber, L. c., Pfeiffer, H. m., Kienzler, S. e., Fleming, R. r., Pedrick, L. e., … Reddy, D. m. (2016). Using U-Pace instruction to improve the academic performance of economically disadvantaged undergraduates. Journal of Computer Assisted Learning, 32(4), 304–313.

At both universities, the U-Pace instructional intervention was associated with greater academic success by a margin of at least 35 percentage points. This academic success was found regardless of students' level of academic preparedness and was also seen for both economically disadvantaged students in the intervention and students who were not economically disadvantaged in the intervention.

"Simply grouping students according to tested ability has a negative overall effect."

- Deunk, M., Doolaard, S., Smale-Jacobse, A., & Bosker, R. J. (2015). Differentiation within and across classrooms: A systematic review of studies into the cognitive effects of differentiation practices.
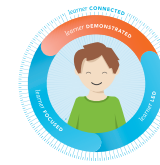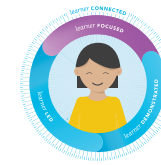

Open Questions

☀ Which elements of competency-based learning are the most effective in improving student outcomes?

☀ Given that it is difficult to assess competencies accurately and reliably, how can schools overcome the barriers (e.g., increased workload and perceptions of grade inflation) that challenge implementation at scale?

☀ How can we learn more about the kinds of recognition that motivate learners, including a concept called Extended Learning Opportunities, which give students credit for knowledge and skills developed outside traditional classrooms such as real-world internships, community service and performance groups?

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A Framework Informed by Evidence

We see personalized learning as a lever to transform education. We need an approach that gives teachers and school leaders the tools to re-imagine their teaching and learning practices and to move to a model centered on the unique needs, strengths and interests of each individual learner.

How Did We Analyze the Research?

To explore the modern research base for our framework, our researcher spent months scouring key research databases including ERIC, EBSCO-host, Google Scholar and the What Works Clearinghouse. More than 600 studies and meta-analyses were reviewed for relevant evidence, and more than half of these are cited in exhaustive literature reviews that focus in on each of the four framework components.

The analysis focused on K-12 students plus foundational psychology studies and deliberately honed in on research conducted in the past two decades. Because the LEAP Learning Framework reflects emerging practices in personalized learning, we wanted our research base to accurately reflect the teaching techniques, technological advances and students of today. The studies included reflect a range of methodological approaches, with preference given to studies with the most rigorous approaches (experimental and quasi-experimental designs); qualitative studies are included when they are the most relevant to the specific practices.

This review reflects the current state of our evidence, and it continues to evolve. Many of these practices are nascent, and the research field has yet to catch up with rigorous, relevant studies. There is promising evidence for these practices, but refinement is needed-notably around the measuring the quality of implementation. To that end, we worked with American Institutes for Research to develop the first national teacher and student surveys for personalized learning, as well as a set of standards, to begin measuring the degree of personalization in a classroom.

Is There Emerging Evidence to Support This Transformation?

In a word: yes. Our exploratory review of over 600 relevant research studies reveals a promising base of evidence for the elements of the LEAP Learning Framework, but some of these concepts are new and the evidence continues to evolve. Our work is rooted in the belief that a personalized education will ultimately produce better outcomes only if it is based on rigorous, empirical research-not what sounds exciting or new. The Framework will continue to be a living document that is updated regularly as we learn about what really works. We are committed to building the research foundation for these practices, to create better causal connections and to bring valuable data back to the public, parents, and educators making this work a reality on the ground in schools across our nation.

Amelia Peterson - Amelia is currently at Harvard University Graduate School of Education, where she is also an Inequality and Social Policy fellow. For her dissertation, she is studying patterns of change in school accountability and student credentialing for teens 15 to 19. Amelia came to Harvard from Innovation Unit, a London-based non-profit consultancy that works on public system transformation in education, health and social services. Amelia has been commissioned by a wide range of organizations (including the OECD and the World Innovation Summit on Education) and has contributed to projects on assessment, creativity, school leadership development, cultural and moral education, and deeper learning. In addition to her doctoral work, Amelia is currently the research lead on a project studying "human-centered systems design" in K-12 education.

References for Statistics and Figures

Dee, T. S., & Penner, E. K. (2017). The Causal Effects of Cultural Relevance: Evidence From an Ethnic Studies Curriculum. *American Educational Research Journal*, 54(1), 127–166.

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