Digital Promise Global

2
in a series

Making Learning Personal for All

Research and the Promise of Personalized Learning

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Introduction

If you search online for what personalized learning is, you'll find dozens of definitions.

This lack of a common language to describe an emerging idea can hamper understanding, acceptance, and effective implementation. Compounding this are the several terms for personalized learning approaches that are, at times, used interchangeably, including individualized, differentiated, and adaptive.

Yet, as personalized learning as an approach for meeting the varying needs of an increasingly diverse learner population has gained traction in the education community, definitions are emerging with more similarities than differences.

A review of definitions from leading education organizations *(see the sidebar)* reveals these common threads:

Leading Education Organizations

The International Association for K-12 Learning Online (iNACOL)

LEAP Innovations

The Bill & Melinda Gates Foundation

EDUCAUSE

The District Reform Support Network

Learning is framed from a learner's point of view and connected to each learner's background, interests, and prior experience;

Learning objectives, approaches, content, pace, and tools are tailored and optimized for each learner;

Learning is not confined to educational institutions and instead takes place anytime and anywhere; and

Learners take ownership of their learning, having more choice and a greater voice in what, how, when, and where they learn.

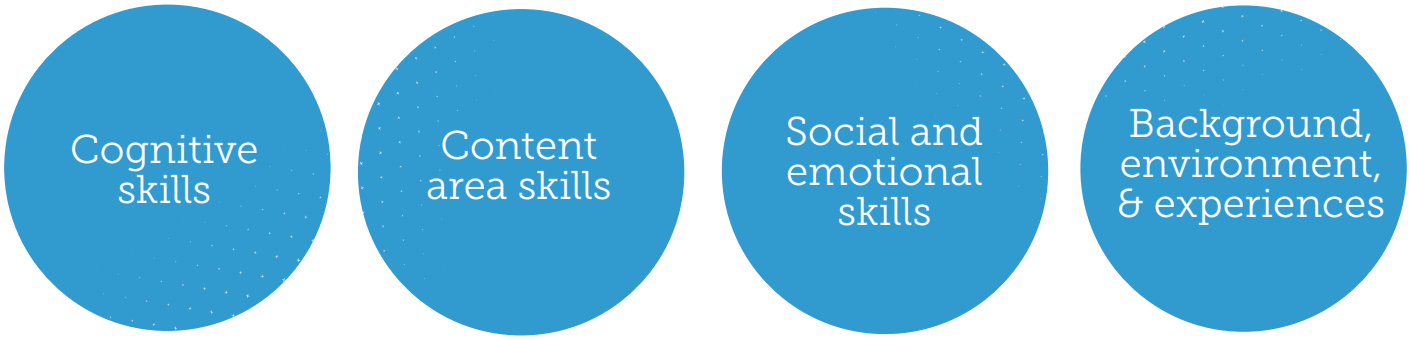
One critical aspect, however, is not highlighted — the explicit acknowledgement of the importance of learning sciences research in determining how to best understand and reach each learner. Technology can be utilized to make this growing body of research more accessible and practical. Further, developers of technology based products can make much better use of existing and emerging research so that personalized learning can truly support all learners. ■

Personalized Learning Must Begin with Research

Effective classroom teachers have always personalized learning. But they have done so with limited structural supports, such as curriculum, pedagogy, tools, and resources specifically designed to support personalization.

For the education community to bring personalized learning more systematically to many more learners, we need to leverage the research about how students learn so we can improve the accuracy and precision of personalization.

Key areas of inquiry where research is already underway—and must continue—include the impact of the following four categories of factors influencing learner variability:



Current research shows that, while each of these categories individually affects learning, no single factor acts independently. Achieving a better understanding of how these factors affect learning in various combinations is critical.

For example, if a learner is struggling with decoding, a content area skill needed for literacy development, it is also important to understand the learner's working memory, an aspect of their cognitive development. Working memory is the type of memory that allows a person to temporarily hold and manipulate information for use in simple and complex processes, and research shows that it is a strong predictor of decoding skills. Multisensory literacy strategies, such as audio books, manipulatives, word games and songs, help students with low working memory become better at decoding by activating different parts of the brain.

In addition, while current research shows that personalization is effective, not all personalization approaches, materials, and products are effective with all students in every situation.

Therefore, we also need translational research (inquiry that translates research into practice) to determine which personalized learning approaches and supports work for which students, in what context. ■

Personalized Learning Requires a More Expansive Use of Learning Sciences Research

Technology can be used to translate research to support learner variability for personalized learning practices by providing structures, strategies, and scale.

Technology makes it possible to:

- Provide a searchable index of all available research to make research more accessible and useful for those outside the research community (i.e. teachers, students, parents, product designers);
- Offer interactive visualizations that make it easier to understand the body of research, such as the Digital Promise Research Map;
- Develop automated and adaptive tools that help teachers and program and product designers fully incorporate research-based strategies and interventions; and
- Support the complexity of multiple learning factors inherent in meeting the diverse needs of all learners at scale.

This last bullet reminds us that, to ensure true equity for all, there is much to be learned by looking at the specialized technologies developed for students with specific learner variability. Research from the fields of inclusive design and Universal Design for Learning (UDL) shows that most assistive technologies and inclusive design approaches also help all learners learn more effectively.

For example, products designed to assist learners with physical or developmental impairments that affect vision, speech, or writing can also help other learners struggling with literacy or numeracy more broadly.

Jutta Treviranus, founder and Director of the Inclusive Design Research Centre at OCAD University in Toronto, takes this idea a step further when she asserts that **designing for accessibility is just better design** — and better design benefits everyone. She frequently cites a design concept called the "curb-cut effect" to support her claim. When curb cuts were first designed into sidewalks to accommodate people in wheelchairs, it wasn't long before people pushing strollers and riding on bikes or skateboards began to use them. It turned out that sidewalks with curb cuts benefitted everyone because they were simply better sidewalks.

While some technology developers are using research in this way, there is much more work to be done. A 2015 report from the Joan Ganz Cooney Center and New America found that **more than 70 percent of the 180 most popular literacy applications made no reference to research** or learning expertise in the design of the products.[1] ■

1 Vaala, S., Ly, A., Levine, M.H., Getting a Read on the Apps Stores: A Market Scan and Analysis of Children's Literacy Apps, December 8, 2015, page 5.

Keeping Our Focus on Why

In the push for a common understanding of *what* personalized learning is, it's critical not to lose sight of the *why*.

In this context, personalized learning is a path to actively engaging, motivating, and inspiring all learners to embrace difference, overcome challenges, and demonstrate mastery.

In the first white paper in our Making Learning Personal for All series, *"The Growing Diversity in Today's Classrooms,"* we reported that over the last 50 years, U.S. public school students have become more diverse in numerous ways that affect learning. More students are living in poverty, have learning differences, are English Language Learners, are considered gifted or talented, and/or are experiencing challenges or violence at home or in their communities that result in trauma.

With these trends in mind, it is critical for us to make sure that as personalized learning evolves and grows we are leveraging research to explicitly design for the full diversity of learners. ■

Understanding Learners Creates Pathways to Success

Despite advances in personalized learning in recent years, there is clearly more work to be done. Inherent in the concept of personalization is that we can only personalize based on what we know about learners.

Given the dramatic increase in learning variability among today's learners and the struggle to use research to keep pace, our education system has been slow to support learners who are held back by traditional pathways.

To address this need, Digital Promise Global launched an initiative to develop Learner Positioning Systems™ (LPS). Built on the emerging research on both the variability of the learner population and technology innovation, LPS-based frameworks and resulting products will be able to provide a fuller understanding of learners and how to support them no matter how they learn best.

At the heart of the LPS R&D effort is the development of **Learner Models** that identify important factors that research shows affect learning and vary among learners. These Learner Models build on the research of Todd Rose, a faculty member at the Harvard Graduate School of Education and author of "*The End of Average: How to Succeed in a World that Values Sameness*," specifically on his concept of "jagged profiles," which recognize that each learner has distinctly different strengths and areas of growth or variability. The Models combine content area factors with the unique characteristics of each learner to create a rich understanding of the learner to improve the personalization of teaching practices and product designs.

Digital Promise Global will work with developers to help them integrate the Models into their design to accelerate the supply of research-based personalized learning programs and products. LPS can also be used as a tool for evaluating and certifying personalized learning products to signal that the design is based on research and supports variability. By improving both supply and demand, LPS will accelerate research-based practices that support all learners.

To advise and inform their work, Digital Promise Global has enlisted some of the world's leading education researchers, including Harvard's Rose, Bruce McCandless of Stanford University, Jeannette Mancilla Martinez of Vanderbilt University, and Carol Connor of University of California, Irvine, among others. ■

Conclusion

Delivering on the promise of evidence-based personalized learning for all requires a more research-driven, technology-enabled approach to supporting learner variability in the classroom.

For developers, working with education researchers and educators to leverage research in their product design can help them support a larger population of learners and better achieve the desired learning objectives. These partnerships also make it easier for developers to demonstrate the effectiveness of their products so educators, schools, and districts can evaluate and purchase products with confidence.

For teachers, administrators, and learners themselves, understanding how students learn best can drive effective implementation of personalized learning strategies across schools and districts and throughout our education system. ■