

An Annotated Bibliography of Personalized Learning Resources with a Focus on Equity

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Introduction

The Wisconsin Department of Public Instruction (DPI) defines equity as ensuring that all students have access to the resources and educational rigor they need at the right moment in their education, across race, gender, ethnicity, language, disability, sexual orientation, family background, and/or family income.¹ Educators at all levels of the system (Grades K–12) should be aware of the practices geared toward achieving equity in classrooms and schools, especially practices that involve personalized learning. The Institute for Personalized Learning defines personalized learning as an approach to learning and instruction that is designed around the readiness, strengths, needs, and interests of individual learners. Personalized learning makes students active participants in the learning process, giving them a voice in charting their learning paths, setting goals, and determining how mastery will be demonstrated.² RAND studied achievement data in 62 public charter and district schools implementing a variety of personalized learning practices. The study found that students in schools using personalized learning practices made greater progress over the course of two years, and students who were lower at baseline made greater strides toward performing at or above national averages.³

To help inform the work of educators implementing personalized learning in their schools and classrooms in Wisconsin, the Midwest Comprehensive Center (MWCC) conducted this literature review, which focuses on personalized learning through the lens of equity. Using an annotated bibliography format, it includes resources from all levels of education and from urban, suburban, and rural schools. The literature review is organized into two main sections: Personalized Learning and Equity, and Leveraging Personalized Learning in Schools and Classrooms. The first section includes resource that explicitly addresses personalized learning to achieve equity. The second section is composed of resources meant to guide the practice and implementation of personalized learning in schools and classrooms.

Methodology

To conduct the search for personalized learning resources with a focus on equity, MWCC engaged with colleagues at REL (Regional Educational Laboratories) Midwest to use the Ask a REL service, a collaborative reference desk service provided by the 10 laboratories. REL Midwest directed a reference search around the following question: What is the availability of research and resources from 2010 forward that focus on personalized learning through the lens of equity? In addition to this search, MWCC conducted an independent search for personalized learning resources using the following key terms: personalized learning AND equity OR diversity OR diverse OR marginalized OR disadvantaged OR Color OR Race OR racism OR ethnic* OR "differently abled" OR "different abilities" OR disab* OR "limited english proficien*" OR "english learner*" OR "english language learner*" OR LGBT* OR transgender*

¹ Wisconsin Department of Public Instruction (DPI). *Equity [website]*. Madison, WI: Wisconsin DPI, 2017. <https://dpi.wi.gov/rti/equity>.

² The Institute for Personalized Learning. *Definition of Personalized Learning*. Pewaukee, WI: Institute for Personalized Learning, 2015. <http://institute4pl.org/index.php/our-model/>.

³ Pane, John F., Elizabeth D. Steiner, Matthew D. Baird, and Laura S. Hamilton. *Continued Progress: Promising Evidence on Personalized Learning: Executive Summary*. Santa Monica, CA: RAND Corporation, 2015. https://www.rand.org/pubs/research_reports/RR1365z1.html.

OR "trans-gender*" OR poverty OR poor OR rural OR urban OR suburban. Finally, researchers and other professionals from the American Institutes for Research with expertise in personalized learning were consulted and asked to provide related resources. Resources were excluded if they were not available publicly.

Section 1. Personalized Learning and Equity

This section has been organized into four subsections:

- Personalized learning and equity
- Personalized learning and students with disabilities
- Personalized learning and English language learners
- Personalized learning in urban, suburban, and rural schools

The first section focuses on resources that discuss and approach the issue of equity on a more general basis (e.g., historically underprivileged students). The latter three sections contain resources that focus on a particular subgroup or geographical region. Each section may contain a mix of reports, briefs, webinars, and studies. This literature review also includes resources on educational practices associated with personalized learning and equity. Because of this, resources on topics such as deeper learning, student-centered learning, blended and online learning, and others have also been included in this review.

Personalized Learning and Equity

Corry, Michael, and Angela Carlson-Bancroft. "Transforming and Turning Around Low-Performing Schools." *Journal of Educators* 11, no. 2 (May 2014).
<https://files.eric.ed.gov/fulltext/EJ1033256.pdf>.

- **Taxonomy:** Literature review
- **Method:** This literature review looks at online learning as a turnaround strategy for improving low-performing K–12 schools. Literature selected for inclusion in this review was located by searching education journals for information related to school turnaround and online learning; searching electronic databases, including EBSCO, ERIC, JSTOR, and ProQuest; and exploring federal websites.
- **Key Takeaways:**
 - Online learning can benefit school turnaround by
 - Broadening access and opportunities for all students to recover course credit
 - Potentially engaging students through a self-paced structure
 - Providing individualized environments that allow for personalized learning

Digital Promise Global. *Making Learning Personal for All: The Growing Diversity in Today's Classroom*. Washington, DC: Digital Promise Global, 2016. http://digitalpromise.org/wp-content/uploads/2016/09/lps-growing_diversity_FINAL-1.pdf.

- **Taxonomy:** Report
- **Method:** The report maintains that existing personalized learning models are too often simplistic and not rooted in research. The report indicates that these simplistic models risk perpetuating achievement gaps for underserved students. It also examines current research on how learning happens and promotes the importance of research-based learning approaches.

- **Key Takeaways:**
 - Personalized learning needs to be
 - Guided by both educators and family members
 - Supported by administrators that support the capacities of educators to teach
 - Aligned with the interests and abilities of each learner
 - Informed by research

Nellie Mae Education Foundation. *Centered on Results: Assessing the Impact of Student Centered Learning*. Quincy, MA: Nellie Mae Foundation, 2015.

<https://www.skills21.org/writable/images/Centered-on-Results-April-2015-3.pdf>

- **Taxonomy:** Report
- **Method:** This report summarizes three studies that examine what student-centered learning looks like in schools that focus on equity.
- **Key Takeaways:**
 - Teachers who applied a higher level of student-centered practices had larger gains in student outcomes.
 - School culture can influence how student-centered learning takes place in schools.
 - Teachers need support to develop the skills and understanding necessary to implement student-centered learning effectively.

Newstead, Barry, Caitrin Moran, and Susan Colby. *Next generation learning: Can we crack four problems to unleash quality education for all?* Boston, MA: Bridgespan Group, 2010.

<https://files.eric.ed.gov/fulltext/ED535858.pdf>

- **Taxonomy:** Report
- **Method:** Every student should receive a high-quality education. This article outlines the barriers that prevent students from receiving the education they deserve. It examines four systemic problems not widely discussed in education reform and offers several solutions.
- **Key Takeaways:**
 - Barriers to students receiving high-quality education
 - Lack of personalization of content
 - Lack of appeal to different learning styles
 - Teachers unable to play to their strengths
 - An absence of effective reforms at a reasonable cost
 - Promising solutions:
 - Make personalized learning pathways available to all students.
 - Offer students options to learn that go beyond the traditional lecture format.
 - Leverage the individual strengths of teachers.
 - Look for cost-competitive solutions.

Noguera, Pedro, Linda Darling-Hammond, and Diane Friedlaender. *Equal Opportunity for Deeper Learning*. Boston, MA: Jobs for the Future, 2015.
<https://files.eric.ed.gov/fulltext/ED560802.pdf>

- **Taxonomy:** Report
- **Method:** This report informs current efforts on preparing all students for college, careers, and civic life. It examines the various obstacles that impede high-quality instruction, looks at educational models and instruction practices that leverage deeper learning, and considers how to align deeper learning practices with policy and research.
- **Key Takeaways:**
 - Students benefit when given the opportunity to
 - Participate in rigorous instruction that is tailored to their individual needs and interests
 - Advance to the next level, course, or grade by demonstrating their skills and mastery of content
 - Learn outside of the school and the typical school day
 - Take an active role in determining their own educational pathways

Pane, John F., Dion Burns, Heather Lewis-Charp, Channa Mae Cook-Harvey, and Linda Darling-Hammond. *Student-Centered Schools: Closing the Opportunity Gap*. Stanford, CA: Stanford Center for Opportunity in Education, 2014.
<https://edpolicy.stanford.edu/sites/default/files/scope-pub-student-centered-research-brief.pdf>

- **Taxonomy:** Four case studies and cross-case analysis
- **Method:** The study used quantitative data to track achievement as well as observations, surveys, and interviews to document relevant practices in student-centered schools. In all schools, African-American, Latino, economically disadvantaged, and English learner students achieved above similar students in their districts and state.
- **Key Takeaways:**
 - Educators should be prepared with a wide range of strategies that support student-centered learning.
 - States should document and disseminate successful practices and support schools in learning from research and from each other.
 - States should adopt a limited set of state-level assessments that support opportunities central to student-centered learning, and they should encourage local use of assessments that align with student-centered practices.

Ray, Rashawn, Lynne Sacks, and Janet S. Twyman. *Equity and Personalized Learning: A Research Review*. Washington, DC: Council of Chief State School Officers, 2017.
https://www.ccsso.org/sites/default/files/2017-12/Advancing%20Equity%20through%20Personalized%20Learning%E2%80%9494A%20Research%20Overview_0.pdf.

- **Taxonomy:** Literature review
- **Method:** This literature review synthesizes peer-reviewed research on personalized learning in five student groups: students of color, students living in poverty, students who have experienced trauma, English learners, and students with disabilities.
- **Key Takeaways:** The literature review of personalized learning for underserved students revealed common barriers and policy considerations:
 - Barriers
 - Lack of policy makers’ awareness and understanding of the needs of students
 - A mismatch between expectations of high standards and the relegation of underserved students to classrooms with less rigor
 - Inadequate access to technology
 - Policy considerations
 - Policy makers should engage a variety of stakeholders, including advocates of historically underserved students, in policy discussions related to all levels of personalized learning efforts.
 - Policy makers should consider how personalized learning systems will seamlessly meet the needs of historically underserved students.
 - Policy makers need to set high-quality standards for learning outcomes for all students and to align systems of continuous improvement and accountability to provide better information about access and outcomes.

Rose, Raymond. *Access and Equity for All Learners in Blended and Online Education*. Vienna, VA: International Association for K-12 Online Learning, 2014.
<https://files.eric.ed.gov/fulltext/ED561307.pdf>.

- **Taxonomy:** Report
- **Method:** This report provides guidance, direction, and resources to help blended learning programs ensure that all students have access to the educational opportunities provided for them in digital learning.
- **Key Takeaways:**
 - Online teachers need to ask themselves if the course designer has met his or her responsibility in designing an accessible course. If not, teachers need to take the appropriate steps to ensure accessibility.
 - Having an accessibility policy can help address issues of student support.
 - School employees should have a good understanding of their school’s online programs.
 - Programs should find ways to collect student enrollment data accurately.

- Policies about any online learning program should require all digital materials to be accessible.

Sturgis, Chris. *In Pursuit of Equality: A Framework for Equity Strategies in Competency-Based Education*. Denver, CO: National Summit on K-12 Competency-Based Education, 2017. <https://www.inacol.org/resource/in-pursuit-of-equality-guiding-principles-for-equity-strategies-in-personalized-competency-based-education/>.

- **Taxonomy:** Report
- **Method:** The National Summit on K–12 Competency-Based Education explored and developed recommendations on how to improve equity in a personalized, competency-based system. This report analyzes the concept of equity, reviews equity strategies that serve historically underserved students, and offers an initial framework that includes a set of guiding principles.
- **Key Takeaways:**
 - The National Summit on K–12 Competency-Based Education identified eight core competencies that must be addressed when creating an equity framework:
 - Culture of learning, safety, trust, and inclusivity
 - Student agency
 - Transparency
 - New definition of success that informs graduation outcomes
 - Pedagogical philosophy
 - Responsiveness, success, and continuous improvement
 - Consistency and reliability
 - Progress, proficiency, pace, and school or district performance

Taege, J., Krauter, K., & Lees, J. *Personalized Learning in Wisconsin: FLIGHT Academy*. Philadelphia, PA: Temple University College of Education, Center on Innovations in Learning, 2015. <https://files.eric.ed.gov/fulltext/ED558049.pdf>.

- **Taxonomy:** Report
- **Method:** This report describes the FLIGHT Academy, a personalized learning program that functions within a traditional school model in Waukesha, Wisconsin. The students involved in this program are diverse and include students with learning and emotional disabilities, students who are English learners, and students who are gifted. The report describes the FLIGHT Academy in detail and the positive impact it has had on students.
- **Key Takeaways:**
 - Personalized learning in the FLIGHT Academy has significantly impacted students in the program by
 - Reducing the number disciplinary referrals
 - Improving attendance
 - Increasing engagement and enthusiasm to participate in and complete assignments
 - Allowing students to work at their own pace

Wilusz, Becky, and Ken Templeton. "A Personalized Approach to Equity." *Educational Leadership* 74, no. 6 (March 2017). <http://www.ascd.org/publications/educational-leadership/mar17/vol74/num06/A-Personalized-Approach-to-Equity.aspx>.

- **Taxonomy:** Journal article
- **Method:** Personalized learning might be defined differently by states, districts, and schools because of the unique challenges faced by each. Whatever the definition of personalized learning, it must always aim to achieve outcomes that are more equitable. The article describes five elements of personalized learning that can lead to outcomes that are more equitable.
- **Key Takeaways:**
 - Five elements of personalized learning can lead to more equitable outcomes:
 - Developing common standards
 - Higher order thinking and transfer
 - Feedback and reflection
 - Support and extensions
 - Choice

Yonezawa, Susan, Larry McClure, and Makeba Jones. *Personalization in Schools*. Boston, MA: Jobs for the Future, 2012.

https://create.ucsd.edu/_files/publications/Personalization%20in%20Schools.pdf

- **Taxonomy:** Report
- **Method:** This report highlights opportunities to support students, particularly students in at-risk populations and nontraditional students, through personalized learning. The report discusses interventions that can promote personalization and considers challenges and next steps for different aspects of personalized education.
- **Key Takeaways:**
 - Creating alternative grade spans and small-school reform are research-supported interventions that can foster personalization in schools. Challenges and next steps for different aspects of personalized education include work-based learning and technology use, among others.

Zielezinski, Molly B., and Linda Darling-Hammond. *Promising Practices: A Literature Review of Technology Use by Underserved Students*. Stanford, CA: Stanford Center for Opportunity Policy in Education, 2016.

<https://edpolicy.stanford.edu/sites/default/files/publications/scope-report-promising-practices-v1.pdf>

- **Taxonomy:** Literature review
- **Method:** This literature review summarizes research findings about the different practices that support positive outcomes of technology use for underserved students. It also offers a set of recommendations for supporting underserved youth through technology use.

- **Key Takeaways:**
 - Successful digital environments require the right blend of teachers and technology.
 - Underserved students benefit from technology interactions that are designed to promote high levels of interactivity.
 - Underserved students benefit from learning activities that focus on the development of higher order thinking skills.
 - Underserved students benefit from learning activities that provide them with opportunities to drive their own learning.

Personalized Learning and Students with Disabilities

Jones, Lindsay, Maria Worthen, Meghan Casey, and Raymond Rose. *Realizing the Promise: Making Personalized Learning Accessible to All Learners*. Webinar. Vienna, VA: International Association for K-12 Online Learning, 2015. <https://www.inacol.org/resource/realizing-the-promise-making-personalized-learning-accessible-to-all-learners/>.

- **Taxonomy:** Webinar
- **Method:** This webinar explores how blended and online learning can create personalized learning environments that are unrestrictive and tailored to the educational needs of students with disabilities. It features a conversation with national experts on making blended and online learning with a focus on equity available to students with disabilities.
- **Key Takeaways:**
 - Topics addressed in this webinar include
 - Course access quality reviews
 - Assessment policies
 - New learning model design and implementation

Jones, Lindsay E., & Meghan C. Casey. *Personalized Learning: Policy & Practice Recommendations for Meeting the Needs of Students with Disabilities*. New York, NY: National Center for Learning Disabilities, 2016. <https://www.nclld.org/wp-content/uploads/2016/04/Personalized-Learning.WebReady.pdf>.

- **Taxonomy:** Report
- **Method:** Interviews from experts and data from site visits with schools and parent-focused surveys were used to develop 10 policy and practice recommendations aimed at ensuring that students with disabilities have opportunities to engage in personalized learning.
- **Key Takeaways:**
 - School and district leaders must thoughtfully consider how personalized learning systems will seamlessly meet the needs of students with disabilities.
 - Parents should be informed about the role of personalized learning systems in the education of their children.

- Educators need a greater understanding of the diverse learning needs of students with disabilities to include these students in personalized learning.
- Students with disabilities must be provided with multiple ways to demonstrate their knowledge.
- Learner profiles need to be comprehensive and provide a dynamic snapshot of each learner.

National Center for Learning Disabilities. *Personalized Learning: Meeting the Needs of Students with Disabilities*. New York, NY: National Center for Learning Disabilities, 2017. https://www.nclld.org/wp-content/uploads/2017/07/NH-Recs.Fin_.pdf.

- **Taxonomy:** Report
- **Method:** This report was developed through discussions with leaders in policy, practice, and research about how to ensure that students with disabilities graduate prepared for success in college, careers, and civic life.
- **Key Takeaways:**
 - Prepare educators to support personalized learning for students with disabilities.
 - Facilitate interventions to provide access to the full range of opportunities in personalized learning.
 - Facilitate effective assessment and accountability systems that meet the needs of students with disabilities.
 - Engage families of students with disabilities regarding personalized learning efforts.

National Center for Learning Disabilities. *Personalized Learning: Meeting the Needs of Students with Disabilities: Key Considerations from the Research*. New York, NY: National Center for Learning Disabilities, 2016. https://www.nclld.org/wp-content/uploads/2016/04/PL-KeyConsiderations.Fin_.pdf.

- **Taxonomy:** Brief
- **Method:** This resource provides a quick overview of key considerations from research on personalized learning and students with disabilities including the benefits and challenges.
- **Key Takeaways:**
 - Benefits of personalized learning
 - Increases student engagement and achievement
 - Encourages growth mindsets
 - Builds decision-making and self-advocacy skills
 - Gives students multiple ways to show what they have learned
 - Challenges of personalized learning
 - Students with disabilities have widely varying needs that, if not met, may cause them to fall behind.
 - Assessments and accountability systems need to be aligned with personalized learning and equitable for students with disabilities.

- Students with disabilities must have access to appropriate technology.
- Parents of students with disabilities must be informed and included.
- Educators need to be aware of the demand that personalized learning systems place on the executive functioning skills of students.

Parsi, Ace, Meghan C. Whittaker, and Lindsay E. Jones. *Personalized Learning for All: Actions for States to Make Aspirations a Reality*. New York, NY: National Center for Learning Disabilities, 2017. https://www.nclld.org/wp-content/uploads/2017/11/Extended-Learning-Opportunities.Fin_11092017.pdf.

- **Taxonomy:** Report
- **Method:** This report examines the benefits and challenges of personalized learning in the context of students with disabilities. Interviews with nearly 100 leaders in Colorado, New Hampshire, and North Carolina—including practitioners, researchers, policy leaders, and parents—revealed the benefits and related challenges of personalized learning for students with disabilities.
- **Key Takeaways:**
 - Personalized learning offers benefits for students with disabilities, including
 - A strength-based and student-focused approach
 - A more positive and engaging experience for parents
 - Increased development of skills needed for twenty-first century success
 - Ongoing support for students
 - Multiple ways to access content
 - Fuller inclusion
 - A focus on special education principles

Rivera, Jennifer H. "The Blended Learning Environment: A Viable Alternative for Special Needs Students." *Journal of Education and Training Studies* 5, no. 2 (February 2017). <https://files.eric.ed.gov/fulltext/EJ1125804.pdf>.

- **Taxonomy:** Journal article
- **Method:** This journal article discusses how technology has opened a new realm of possibilities when it comes to engaging students with disabilities, especially through blended learning.
- **Key Takeaways:**
 - Blended learning environments not only give students with disabilities a face-to-face teacher to seek guidance from, but also provide various virtual assets and resources that can enrich the learning experience.

Worthen, Maria. "The Future of Personalized Learning for Students with Disabilities." *The State Education Standard* 16, no. 3 (September 2016): 35-40. http://www.nasbe.org/wp-content/uploads/Future-of-Personalized-Learning-for-Students-with-Disabilities_September-2016-Standard.pdf.

- **Taxonomy:** Journal article

- **Method:** This article discusses how the Every Student Succeeds Act presents a golden opportunity to redesign K–12 education in ways that support personalized learning, especially for students with disabilities. The article highlights and deliberates on three outcomes from the Every Student Succeeds Act.
- **Key Takeaways:**
 - State policy makers should ensure that professional development gives educators and administrators the supports and resources they need to meet the diverse needs of students with disabilities.
 - Multiple pathways for learning create opportunities for students to learn real-world skills.
 - Blended and online learning tools support personalized pathways.

Personalized Learning and English Language Learners

Ferlazzo, Larry. "Student Engagement: Key to Personalized Learning." *Educational Leadership* 74, no. 6 (March 2017): 28-33. <http://www.ascd.org/publications/educational-leadership/mar17/vol74/num06/Student-Engagement@-Key-to-Personalized-Learning.aspx>.

- **Taxonomy:** Journal article
- **Method:** This article describes four research-based elements that spark intrinsic motivation for students, especially English language learners.
- **Key Takeaways:**
 - Autonomy is the amount of power a student has to determine what he or she is doing and how he or she will do it.
 - Competencies are the skills a student needs to complete assigned tasks.
 - Relatedness is actions that result in developing closer relationships between students and those whom they respect.
 - Relevance is when students perceive tasks, which they have been asked to complete, to be in their own self-interest.

Gándara, Patricia. *The Implications of Deeper Learning for Adolescent Immigrants and English Language Learners*. Boston, MA: Jobs for the Future, 2015. <http://www.jff.org/sites/default/files/publications/materials/The-Implications-of-DL-for-Adolescent%20Immigrants-and-ELLS-110415a.pdf>.

- **Taxonomy:** Report
- **Method:** This paper states that immigrant students and English language learners are overlooked for deeper learning opportunities far too often because of their assumed remedial status. The author maintains that immigrant students and English language learners stand to benefit from deeper learning instructional approaches, even more so than monolingual, nonimmigrant students do.

- **Key Takeaways:**
 - Immigrant students and English language learners share key characteristics that are naturally associated with deeper learning (e.g., motivation, resilience, self-reliance), which makes them ideal students for deeper learning instruction.

Personalized Learning in Urban, Suburban, and Rural Schools

Galloway, Charles, and Thomas J. Lasley, II. "Effective Urban Teaching Environments for the 21st Century." *Education and Urban Society* 42, no. 3 (2010): 269-82. <http://journals.sagepub.com/doi/pdf/10.1177/0013124509357005>.

- **Taxonomy:** Journal article
- **Method:** This journal article explores the historical context around the struggle of urban schools to create engaging learning environments for students. It states that the development of more personalized learning environments could alleviate this struggle.
- **Key Takeaways:**
 - Listening to students talk and tuning into mental processes are significant first steps in creating teacher environments for the twenty-first century.
 - Reform will require a full agenda of effective teaching practices that support learner-, knowledge-, and leadership-centered practices.
 - Personalized learning environments not only build upon individual interests of students, but also provide those interests with a rigorous academic structure.

Kellerer, Paula, Eric Kellerer, Eric Werth, Lori Werth, Danielle Montgomery, Rozella Clyde, Joe Cozart, Laura Creach, Laura Hibbard, Jason LaFrance, Nadine Rupp, Niki Walker, Theresa Carter, and Kathryn Kennedy. *Transforming K–12 Rural Education through Blended Learning: Teacher Perspectives*. Vienna, VA: International Association for K-12 Online Learning, 2014. <https://files.eric.ed.gov/fulltext/ED561327.pdf>.

- **Taxonomy:** Semistructured interviews
- **Method:** This qualitative study explored the perspectives of teachers in rural schools regarding the impact of blended learning on students. Interview candidates came from a potential pool of more than 600 teachers in the state of Idaho who had been part of a blended learning training program. From this pool, 19 teachers were invited to participate in the interview process. Of the 19 teachers, eight gave consent to be interviewed.
- **Key Takeaways:**
 - Teachers reported that student engagement increased in blended learning environments.
 - Teachers reported that blended learning empowered them to meet challenges in the classroom and created opportunities to meet the needs of a diverse student population.

Rutledge, Stacey A., and Lora Cohen-Vogel. "Understanding Effective High Schools: Evidence for Personalization for Academic and Social Emotional Learning." *American Educational Research Journal* 52, no. 6 (2015): 1060-1092.

<http://journals.sagepub.com/doi/pdf/10.3102/0002831215602328>.

- **Taxonomy:** Comparative case study
- **Method:** A comprehensive framework was developed from school effectiveness research to guide data collection and analysis at four urban high schools. Using value-added methodology, two higher and two lower performing high schools were identified.
- **Key Takeaways:**
 - High-performing urban high schools had strong structures, programs, and practices that served the academic and individual social learning needs of students. Some of these practices included
 - Promoting a culture of learning and a college-going culture
 - Using explicit teaching of academic and social emotional skills
 - Using advanced course taking as a way to institutionalize rigor

Section 2. Leveraging Personalized Learning in Schools and Classrooms

The information in this section focuses on resources that help leverage personalized learning in schools and classrooms. This section also includes resources on educational practices that are associated with personalized learning and equity. Because of this, resources on topics such as deeper learning, student-centered learning, blended and online learning, and others have also been included in this review.

Leveraging Personalized Learning in Schools and Classrooms

Alliance for Excellent Education. *Deepening your Understanding of Deeper Learning Toolkit—Introduction*. Washington, DC: Alliance for Excellent Education, 2017
<https://all4ed.org/wp-content/uploads/2017/09/IntroToTools-Deepening-Your-Understanding.pdf>

- **Taxonomy:** Toolkit
- **Method:** This toolkit was designed to help ensure that all students have equitable access to college and career ready outcomes. Each section in the toolkit provides information on carefully chosen instructional approaches that support deeper learning outcomes.
- **Key Takeaways:**
 - Topics in the toolkit include
 - Personalized learning
 - Competency-based assessments
 - Opportunities within the Every Students Succeeds Act

Bray, Barbara, and Kathleen McClaskey. *A Step-by-Step Guide to Personalized Learning*. Arlington, VA: International Society for Technology in Education, 2013.
<https://files.eric.ed.gov/fulltext/EJ1015153.pdf>

- **Taxonomy:** Guide
- **Method:** This guide looks at six different steps of personalized learning that affect the teacher and learner to create positive student outcomes.
- **Key Takeaways:**
 - Learn who your students are and how they learn best.
 - Create learning zones based on student learning styles and provide choices on how they choose to learn and express what they know and understand.
 - Develop universally designed lessons.
 - Facilitate driving and supporting questions.
 - Choose tools, resources, and strategies for learning and teaching.
 - Use assessment as learning.

Glowa, Liz, and Jim Goodell. *Student-Centered Learning: Functional Requirements for Integrated Systems to Optimize Learning*. Vienna, VA: International Association for K–12 Online Learning, 2016. https://www.inacol.org/wp-content/uploads/2016/05/iNACOL_FunctionalRequirementsForIntegratedSystems.pdf

- **Taxonomy:** Report
- **Method:** This report explains the technical requirements needed for schools to make the move toward student-centered instructional models. It provides a framework intended to help districts and schools bring student-centered learning into the classroom. Educators can use this report to improve student learning and encourage innovation in student-centered learning environments.
- **Key Takeaways:**
 - This report provides guidance on
 - Helping school leaders understand the complex technologies required to improve personalized learning
 - How to use data to improve practices
 - How to re-engineer systems to support the key features of student-centered learning

Grant, Peggy, and Dale Boyle. *Personalized Learning: A Guide for Engaging Students with Technology*. Washington, DC: International Society for Technology in Education, 2014. <https://www.k12blueprint.com/sites/default/files/Personalized-Learning-Guidebook.pdf>

- **Taxonomy:** Book
- **Method:** This book provides examples of what learning looks like at different grade levels and explains how the needs of individual students can drive that process. It offers a step-by-step guide on how to plan a personalized learning initiative for schools. The book also includes planning and evaluation tools that administrators and teachers can use to drive personalization.
- **Key Takeaways:**
 - Personalized learning requires a radical shift in the design of schooling and a better leveraging of modern technologies.
 - Technology tools, such as mobile devices, can give students more control over the learning methods in which they engage and personalize their educational experiences.
 - Personalization allows students to take ownership of their education.
 - Students flourish when dynamic learning experiences are collaborative, relevant, and engaging.

Hanover Research. *Best Practices in Personalized Learning Environments (Grades 4–9)*. Washington, DC: Hanover Research, 2012 <http://www.hanoverresearch.com/media/Best-Practices-in-Personalized-Learning-Environments.pdf>.

- **Taxonomy:** Report
- **Method:** This report describes what makes personalized education different from traditional education. It also reviews and discusses promising practices that districts and schools should consider when implementing personalized learning.
- **Key Takeaways:**
 - Consider developing school- and districtwide data systems.
 - Use real-time student assessment to improve instruction.
 - Create flexible learning options.
 - Use competency- and performance-based curricular frameworks.
 - Use online and blended learning approaches.

Haynes, Erin, Kristina Zeiser, Wendy Surr, Alison Hauser, Lauren Clymer, Jill Walston, Catherine Bitter, and Rui Yang. *Looking Under the Hood of Competency-Based Education: The Relationship between Competency-Based Education Practices and Students' Learning Skills, Behaviors, and Dispositions*. Quincy, MA: Nellie Mae Education Foundation, 2016.

<https://www.air.org/sites/default/files/downloads/report/CBE-Study%20Full%20Report.pdf>.

- **Taxonomy:** Quasi-experimental
- **Method:** This study examined the relationship between competency-based education practices and changes in the capacity of students to learn. In three states, surveys were administered to Grade 9 students, teachers, and administrators in high schools that were implementing competency-based education and in a set of comparison high schools that were not implementing competency-based education.
- **Key Takeaways:**
 - Competency-based education practices varied, even among the schools implementing the practice.
 - Teachers in the competency-based schools were far more likely to leverage competency-based practices than the comparison schools.
 - Findings from the study also showed that, regardless of school type, students' experiences of competency-based, education-aligned practices were associated with positive changes in several areas:
 - Intrinsic motivation
 - Clarity of learning targets
 - Flexible instructional practices and self-regulated learning skills

Murphy, Marilyn, Sam Redding, and Janet S. Twyman. *Handbook on Personalized Learning for States, Districts, and Schools*. Temple University. Philadelphia, PA: Center on Innovations in Learning, 2016. <https://files.eric.ed.gov/fulltext/ED568173.pdf>.

- **Taxonomy:** Handbook
- **Method:** This handbook focuses on personalized learning for states, districts, and schools. It provides guidance and insight on how to maximize personalized learning opportunities created by the Every Student Succeeds Act. This handbook is organized into chapters that address a wide range of personalized topics, including code signing instruction with students, the pace of learning and blended classrooms, and using technology to manage the learning process. The chapters also describe action steps that are meant to guide states, districts, and schools in personalizing learning.
- **Key Takeaways:**
 - Empowering students to become partners in learning
 - Co-designing instruction with students
 - Using games and gamification to create personalized instruction
 - Using learning analytics in personalized learning
 - Preparing educators to engage students and families
 - Using universal design for learning to personalize an evidence-based practice for students with disabilities

Norford, Jennifer S., and Robert J. Marzano. *Personalized Competency-Based Education: Creating a Cohesive and Coherent System*. Centennial, CO: Marzano Research, 2016. http://soltreemrls3.s3-website-us-west-2.amazonaws.com/marzanoresearch.com/media/documents/Personalized_CBE_Whitepaper_September_2016.pdf?utm_source=direct&utm_campaign=mr-pcbe&utm_content=whitepaper.

- **Taxonomy:** Report
- **Method:** This white paper outlines seven characteristics required to achieve a personalized, competency-based education system. It describes the type of content that personalized, competency-based education systems should cover (e.g., metacognitive skills) and how to create learning environments that support student agency. In addition, this paper discusses how to measure student proficiency under a personalized, competency-based system and how pacing and reporting can facilitate learning.
- **Key Takeaways:**
 - When designing personalized, competency-based education systems, each piece of the system must work together.
 - When designing personalized, competency-based education systems, start with these seven design questions:
 - What content will be addressed in the system?
 - How will the learning environment support student agency?

- How will instruction support student learning?
- How will student proficiency be measured?
- How will scheduling accommodate student learning?
- How will reporting facilitate student learning?
- How do we transition to a personalized, competency-based education system?

Pane, John F., Elizabeth D. Steiner, Matthew D. Baird, and Laura S. Hamilton. *Continued Progress: Promising Evidence on Personalized Learning: Executive Summary*. Santa Monica, CA: RAND Corporation, 2015.

https://www.rand.org/pubs/research_reports/RR1365z1.html.

- **Taxonomy:** Quasi Experimental
- **Method:** This report is based on a study that focuses on achievement data, school design characteristics, and teacher and student perceptions of personalized learning. Findings focus on 62 public charter and district schools that were pursuing a mix of personalized learning practices. In a smaller set of 32 schools, the report looks at details of personalized learning implementation and implementation outcomes.
- **Key Takeaways:**
 - Students in schools utilizing personalized practices made greater progress over the course of two years.
 - Students who started out behind made greater strides toward performing at or above national averages.

Patrick, Susan, Kathryn Kennedy, and Allison Powell. *Mean What You Say: Defining and Integrating Personalized, Blended and Competency Education*. Vienna, VA: International Association for K-12 Online Learning, 2015. <https://www.inacol.org/wp-content/uploads/2015/02/mean-what-you-say.pdf>.

- **Taxonomy:** Report
- **Method:** This paper provides a literature scan on integrating personalized learning, blended learning, competency education, and standards. It describes personalized learning and its characteristics; explains how blended learning can support personalization; details the importance of competency-based education in creating student-centered learning models; and discusses the essential role of standards in supporting personalized, blended, and competency-based learning.
- **Key Takeaways:**
 - Ensure rigorous competencies and high standards for all students.
 - Use standards to benchmark progress.
 - Build on standards-based design and bring choice to the lesson level.

Rickabaugh, Jim. *Including the Learner in Personalized Learning*. Philadelphia, PA: Temple University, Center on Innovations in Learning, 2015.
<https://files.eric.ed.gov/fulltext/ED558048.pdf>.

- **Taxonomy:** Brief
- **Method:** This brief details crucial insights from the Institute @ CESA #1, Wisconsin's education innovation lab, in terms of essential aspects of student learning under personalized instruction—that is, turning students from passive recipients of instruction into partners in learning.
- **Key Takeaways:**
 - The brief suggests the following sequence of activities to make students partners in learning:
 - Students should document the purpose of the standards they endeavor to achieve.
 - Students should set specific goals to achieve mastery.
 - Students and educators should work together to plan instructional needs aimed at completing their goals.
 - Students and educators should design a plan to track mastery together.
 - Students should help to decide how they show proof of mastery.

Zeiser, Kristina L., James Taylor, Jordan Rickles, Michael S. Garret, and Michael Segeritz. *Evidence of Deeper Learning Outcomes*. Washington, DC: American Institutes for Research, 2014.
https://www.air.org/sites/default/files/downloads/report/Report_3_Evidence_of_Deeper_Learning_Outcomes.pdf.

- **Taxonomy:** Quasi-experimental
- **Method:** The study examined whether students attending high schools that promoted deeper learning opportunities had improved outcomes. Personalization was one of the core strategies used in these schools. To examine the effects of attending each deeper learning school on student outcomes, a matched comparison school for each deeper learning school was selected.
- **Key Takeaways:**
 - Students from the deeper learning schools
 - Achieved higher scores on the OECD PISA-Based Test for Schools
 - Reported more positive interpersonal and intrapersonal outcomes
 - Were more likely to graduate on time
 - Were more likely to enroll in 4-year institutions