



# Research Brief

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## Personalized Learning

**AUTHOR:** Hope E. White, Ph.D., Program Evaluation Specialist  
Department of Planning, Innovation, and Accountability

**OTHER CONTACT PERSON:** Donald E. Robertson, Jr., Ph.D., Assistant Superintendent  
Department of Planning, Innovation, and Accountability

### ABSTRACT

*For many within the field of education, the concept of personalized learning is being hailed as a solution to the one-size-fits-all, century-old educational model. This research brief focuses on various definitions for personalized learning, the role of technology, as well as the role of the teacher in effectively implementing the personalized learning model. A few common tenets associated with personalized learning include flexible, anytime/everywhere learning, personal learning paths, shared ownership for learning, and continuous monitoring of student progress. Technology in the form of mobile devices, adaptive learning programs, feedback systems, data backpacks, and online learning/blended learning allow for flexible pacing, personalized instruction, immediate interventions, and anywhere, anytime learning which are all paramount to the personalized learning approach. Within the personalized learning model, teachers play a more facilitative role, one that requires them to mentor, coach, and guide students to find their own knowledge in their own way, at their own pace. Teacher advisories and personalized learning plans are also discussed as educational strategies that are instrumental in offering personalized learning. Advisories are used as a means to strengthen the teacher-student relationship and to ensure that every student in the school building is known well by at least one adult, while personalized learning plans developed by students, teachers, and parents are used as a vehicle to engage and motivate students to take ownership of their education.*

### BACKGROUND

*"If I don't understand something, I can try and learn it in a new way and take my time. I don't have to learn it the same way everyone else does. It helps me more, and I get to understand it. I get to know more of the teachers."*

School of One student – New York City

Numerous studies have indicated that a large percentage of high school graduates are not being adequately prepared for life beyond high school (Barnes, Slate, & Rojas-LeBouef, 2010; Berliner, 2006). Research points to the current overall educational system that is generally based on one teacher, one textbook, and one pathway to learning objectives as contributing to the lack of preparedness among high school graduates (Miliband, 2006; Ravitch, 2010).

#### Key Topics:

<i>Background.....</i>	<i>p. 1</i>
<i>Personalized Learning Model.....</i>	<i>p. 2</i>
<i>Role of Technology.....</i>	<i>p. 6</i>
<i>Role of Teachers.....</i>	<i>p. 8</i>
<i>Summary.....</i>	<i>p. 10</i>

## *Personalized Learning Model*

Educators, policymakers, and administrators continue to grapple with what efforts need to be employed in order to address this ever-growing issue. One such concept that has been suggested as a way to address the lack of preparedness among high school graduates is personalized learning. Personalized learning is in direct opposition to the one-size-fits-all model because it focuses on the direct needs of the individual student. While there are a number of definitions offered for personalized learning, the most cited definition is from the U.S. Department of Education (DOE) as stated in the 2010 National Education Technology Plan, “Transforming American Education: Learning Powered by Technology” report. The U.S. Department of Education defines personalized learning as:

Instruction that is paced to learning needs, tailored to learning preferences, and tailored to the specific interests of different learners. In an environment that is fully personalized, the learning objectives and content as well as the method and pace may all vary (so personalization encompasses differentiation and individualization).

Several educational organizations have made efforts to expand upon the basic tenets related to personalized learning that are student-focused as opposed to teacher- or curriculum-focused. According to the Bill and Melinda Gates Foundation, personalized learning should consist of experiences for all students which include:

- Learner profiles that capture individual skills, gaps, strengths, weaknesses, interests and aspirations;
- Personal learning paths that encompass learning goals and objectives and learning experiences that are diverse and matched to the individual needs of students;
- Individual mastery that involves continually assessing progress against clearly defined standards and goals, with advancement based on demonstrated mastery; and
- Flexible learning environments which could include multiple instructional delivery approaches that continuously optimize available resources in support of student learning (Laurans, Derr, & Turco, 2013).

Participants at an Innovate to Educate: System [Re]Design for Personalized Learning 2010 symposium agreed on five essential elements of personalized learning which included:

- Flexible, anytime/everywhere learning;
- Redefining the teacher role,
- Project-based authentic learning;
- Student-driven learning paths; and
- “Mastery/competency-based progression/pace” (Wolf, 2010).

The symposium participants also agreed on five policy enablers which included redefining the use of time (Carnegie Unit/Calendar); focusing on performance-based, time-flexible assessments; ensuring equity in access to technology infrastructure, assessing funding models that incentivize completion; and working towards a P-20 continuum and non-grade band system (Wolf, 2010).

According to Miliband (2006), there are five stages of personalized learning. These stages include the assessment stage where teachers and students work together in a formative manner in order to identify strengths and weaknesses, which is followed by the second stage

which consists of teaching and learning that allows teachers and students the opportunity to select learning strategies. The third stage is the curriculum choice stage which allows students to choose the curriculum which creates a pathway for student choice. The fourth stage is a radical departure from a typical education model and is based on student progress, and, in addition, provides teachers the flexibility to choose their own teaching strategies. The final stage is education beyond the classroom which allows for the use of social and community connections, permitting students to personalize their surroundings (with assistance from the teacher, when needed) to create their ideal learning environment.

The Association of Personalized Learning Schools and Services (APLUS+) provided their framework for personalized learning which included key concepts such as:

- Putting the needs of students first;
- Tailoring learning plans to individual students;
- Supporting students in reaching their potential;
- Providing flexibility in how, what, when, and where students learn;
- Supporting parent involvement in student learning;
- Encouraging relationships between student, parent, teacher, school, and community;
- Preparing students to be life-long learners; and
- Engaging and motivating students by supporting their learning in a way that is relevant to each student's life, interests, and goals.

Among these various definitions and frameworks for personalized learning are similarities as well as a few differences depending on the focus of the organization. For example, participants at the Educate: System [Re]Design for Personalized Learning symposium framework do not include the role of the parent, community, or the relationship between teachers, parents, and students. However, these features are included in the Association of Personalized Learning Schools and Services' definition and to a lesser extent Miliband's framework (Hanover, 2012).

In an effort to delineate personalized learning, discussions have centered on how personalized learning is different from other customized learning models. While the concept of customized learning is not new to educators who are familiar with terms such as "individualized learning" and differentiation of instruction," personalized learning is viewed as a more comprehensive idea, even though the terms are sometimes used interchangeably (McLester, 2011). As indicated previously, the U.S. Department of Education (DOE) provides a definition for personalized learning, but in an effort to clarify the meaning of personalized learning, the DOE juxtaposition the definition for personalized learning with other customized learning models, which are outlined in Table 1. According to the DOE's definition, personalized learning encompasses differentiated and individualized learning and is tailored to the learning preferences and specific interests of each student as compared to other customized learning models.

**Table 1**

<b>Personalized Learning</b>	<b>Differentiated Learning</b>	<b>Individualized Learning</b>
Instruction that is paced to learning needs, tailored to learning preferences, and tailored to the specific interests of different learners. In an environment that is fully personalized, the learning objectives and content as well as the method and pace may all vary (so personalization encompasses differentiation and individualization).	Instruction that is tailored to the learning preferences of different learners. Learning goals are the same for all students, but the method or approach of instruction varies according to the preferences of each student or what research has found works best for students like them.	Instruction that is paced to the learning needs of different learners. Learning goals are the same for all students, but students can progress through the material at different speeds according to their learning needs. For example, students might take longer to progress through a given topic, skip topics that cover information they already know, or repeat topics they need more help on.

Source: U.S. Department of Education

In addition to the DOE’s efforts to distinguish the differences among various customized learning models, educational researchers have also provided insight into the differences among customized models. According to Joel Rose, the founder of New York City’s pioneering School of One math program, the difference between personalized learning and individualized and differentiated learning is that personalized learning makes the student the primary focus. He further contends that personalized learning is different because it involves “a learner’s needs, abilities, aptitudes, motivations, interests, skill levels, and most successful learning situations [that are then] combined to provide a 360-degree view that reveals his or her best pathway to success” (McLester, 2011, p.31). Bray and McClaskey (2013b) developed a chart that delineates the differences between personalized, differentiated, and individualized learning. Bray and McClaskey indicate that the primary difference is that personalized learning is student- or learner-centered, while differentiation and individualization are teacher-centered. In order to illustrate how personalized learning is different from differentiated and individualized learning, the authors provide examples of how instruction occurs within each model. Within the individualized learning model, the teacher accommodates the student’s learning needs by customizing instruction and is responsible for modifying the instruction based on individual student needs. In the differentiated learning environment, the teacher provides instruction based on the learning needs of different groups of learners and is responsible for adapting instruction based on the needs of diverse groups of students. With individualized and differentiated learning, learning is monitored based on the Carnegie unit or seat time as well as grade level. In contrast, personalized learning begins with the student. Within this model, the student is an active participant in the design of their learning, and the student is responsible for choosing how and what they learn with the teacher. Further, with personalization, learning is demonstrated through the master of content within a competency-based system (Bray & McClaskey, 2013b).

In addition to the numerous definitions and frameworks for personalized learning and the discussions delineating the differences among personalized learning models compared to other customized models, many educators also used concepts to distinguish personalized learning from the current educational system. According to some educators, one fundamental reason for the inadequate preparation of high school graduates is the structure of the current educational system. Many view personalized learning as a viable option in place of the current one-size-fits-all model. Table 2 compares the current educational model to the personalized learning model. The “differences between the two models do not represent minor changes but more of a transformative systems restructure” (Wolf, 2010, p.8). Table 2 underlines the extended reach of the personalized learning system, as the system considers the many ways to change as well as improve generally every aspect of the current educational model (Hanover, 2012).

**Table 2**

<b>Current System</b>	<b>Personalized Learning System</b>
Mass Production	Mass Customization
Time Constant/Achievement Variable; Seat Time	Time Variable/Achievement Constant; Mastery/Competency Based (with concern for student readiness for learning new/advanced concepts)
Industrial Age, Assembly-Line, Common-Pace Instructional Model	Knowledge Age, Individualized, Variable-Pace Learning Model
End of Year/Course Assessment of Knowledge	Ongoing, Embedded, and Dynamic Assessment of Knowledge/Skills, Learning Styles, and Interests
Institution/Teacher Centered	Student-Centered
Fixed Place; School-Based	Anywhere and Everywhere; Mobile
Academics Addressed in Isolation	Learning Plan Recognizes and Integrates “Whole Child” range of social, emotional and physical needs
Fixed Time; September-June; 9 a.m. – 3 p.m.	Flexible Schedule; Anytime; 24/7/365; Extra Time as Needed
One-Size-Fits-All Instruction/Resources	Differentiated Instruction
Teach the Content; Sage at the Stage	Teach the Student; Guide at the Side; Collaborative Learning Communities
Comprehensive Teacher Role	Differentiated and Specialized Teacher Roles
Geographically Determined and Limited Instructional Sources (Teacher and Textbook)	Virtually Unlimited, Multiple Instructional Sources (Online Resources and Experts)
Limited/Common System Determined Curriculum-to-Life Path	Unique Student Voiced Curriculum-to-Life Path
Limited and Locked Student Report Card	Portable Electronic Student Portfolio Record
Printed, Static Text as Dominant Content Medium	Digital, Interactive Resources as Dominant Content Medium
Isolated Data and Learning Objects	Interoperable Data and Unbundled Learning Objects
Physical/Face-to-Face Learning	Online Learning Platform to Enable Blended Learning
Informal Learning Disconnected	Informal Learning Integrated

Source: Software & Information Industry Association. (2010, November). Innovate to Educate: System [Re]Design for Personalized Learning: A Report from the 2010 Symposium. In collaboration with ASCD and the Council of Chief State School Officers. Washington, DC. Author: Mary Ann Wolf.

Having reviewed the various perceptions, definitions, and frameworks related to personalized learning, there appears to be several overarching broad concepts that are woven into most of the definitions and frameworks for personalized learning. These concepts are usually mentioned directly or indirectly in describing personalized learning. These themes include:

- A focus on the student/learner (student-centric)
- A consideration for flexibility in the pace and location of learning
- Instruction that is tailored to learner preferences, learning patterns, and needs
- Shared ownership for learning
- Continuous monitoring of student progress
- Using assessment data to inform instruction
- Individual student learning plans.

With an overall understanding of what constitutes personalized learning, educators can utilize these general themes to infuse and restructure the learning environment to provide valuable instruction to all students in preparation for high school and beyond (Gatner Consulting, 2013). At the heart of personalized learning is a shift from teaching content to teaching students who are active participants in their learning, and while there are several strategies and components that are essential in effectively implementing personalized learning (assessments and grading, facilities and space, time and pace), two of the most central elements relate to the role of technology and the role of teachers.

## ***Role of Technology***

The use of technology allows for flexible pacing; personalized instruction; immediate interventions; anywhere, anytime learning; and offers students control of their learning. According to the U.S. Department of Education's National Educational Technology Plan, technology can be used "to provide engaging and powerful learning experiences, content, and resources and assessments that measure student achievement in more complete, authentic, and meaningful ways" (U.S. Department of Education, 2010, p.7). Mary Wolf, an educational consultant and advisor to the U.S. Department of Education, indicated that while personalized learning "has and can take place without technology, [it would be difficult] at scale" (Wolf, 2010, p.10).

Mobile devices, adaptive learning programs, feedback systems, data backpacks (electronic student records), and online learning are just a few examples of how technology is currently being used to implement personalized learning. More K-12 schools are considering or have adopted the bring-your-own-device (BYOD) strategy in order to make the 1:1 device-to-student ratio a reality. Tablet adoption has increased with several educational apps available as well as customized versions that are appropriate for educational purposes and safe for student and teacher use. In addition to mobile devices such as tablets, adaptive learning technologies are also revolutionizing educational software offerings. Adaptive learning programs focus on the students' learning styles, deficiencies, and strengths by employing interesting game-like platforms to assist students in grasping new material. The programs also record students' "scores, speed and accuracy, delays, lags, drop-offs and keystrokes. Formative assessments are collected by the program and then used to customize learning on the fly, giving students new tasks based on results, interest and learning style" (Center for Digital Education, 2013, p.11). Results from the adaptive learning programs can identify students who could be placed in small groups for specialized instruction.

Bailey, Carter, Schneider, and Ark (2012) propose two data repository systems that would be able to efficiently handle personalized student records—the data backpack and the Learner Profile. The data backpack is an expanded electronic student record: an official transcript that follows a student through every change—grade to grade and school to school. The data backpack includes traditional data such as demographic information, state testing data, and supplementary student supports. In addition, the backpack would include student achievement data such as a grade book of standards-based performance data and a portfolio of personal bests. Data found in the data backpack could provide a context for attendance, behavior patterns, supplementary support services, grades, and other performance information such as proficiency scores and learning gains. The Learner Profile would contain information specific to each student such as sources of motivation and a college/career readiness tracker. These two systems working together would ensure that personalized learning began at an early stage for all students and would assist students in charting their personalized pathway toward college and career readiness.

Online learning, including hybrid or blended learning, is yet another educational strategy that incorporates technology to provide flexible, anytime, and anywhere learning opportunities. Advocates of blended learning argue that the education system is failing to keep up with the 21st century. The chief executive of a New York City school remarked "the idea that every iota of learning needs to come through an adult at the front of a room is very 18th century. We know kids can also learn online, in groups, or through virtual tutors or live ones" (Linn, 2010, p.36). This remark is indicative of the tenants associated with blended learning. Blended learning is defined as anytime a student learns at least in part at a supervised brick-and-mortar location

away from home and in part through online delivery with some element of student control over time, place, path, and/or pace (Horn & Staker, 2011). Patrick, Kennedy, and Powell (2013) outline what blended learning entails by denoting what the learning strategy is not.

Blended learning is not teachers simply putting lesson plans online or content resources online. It is not just having teachers recording lessons so that all students do the exact same lesson in the same format with the same pacing each day. While there may be certain educational benefits to these examples of integrating technology in education, such as increased learner engagement, the concept and definition of blended learning is more focused on transformation of instructional models toward student-centered learning (Patrick, et al., 2013, p.14).

In the simplest terms, blended learning environments provide students with opportunities to develop critical thinking, problem solving, communication, collaboration, and global awareness by extending teaching and learning beyond the classroom walls (Hanover, 2012). The concept of blended learning can be fractioned into four models: rotation, flex, a la carte, and enriched virtual. The rotation model allows students to spend one period in an online-learning room for concept introduction and one period in a traditional classroom for application and reinforcement. For the flex model, students are able to move on an individually customized, fluid schedule among various learning modalities. The majority of instruction is delivered through online content, and teachers plan face-to-face support on a flexible and adaptive basis. The a la carte model allows students to take one or more courses entirely online with an online teacher of record and at the same time continue to have brick-and-mortar educational experiences. The enriched virtual model is a “whole-school experience in which within each course (e.g., math), students divide their time between attending a brick-and-mortar campus and learning remotely using online delivery of content and instruction” (Patrick, et al., 2013, p.13).

The literature points to several benefits of blended learning for K-12 schools in addition to providing instruction tailored to individual levels, learning styles, and interests. Additional benefits include the opportunity to add core courses, advanced placement, dual credit, foreign language, and other selective courses; offering sessions in 9-, 12-, and 16-week blocks; adding highly qualified faculty to school districts; providing students another opportunity for credit recovery; reducing scheduling conflicts; and easing the costs associated with medically homebound students (Werth, Werth, & Kellerer, 2013). Blended learning addresses these challenges since it is rooted in personalized instruction that is tailored to the specific needs of students and allows students to have instruction that is not always tied to the physical classroom setting (Lips, 2010). Results from a U.S. Department of Education’s study on K-12 online educational programming suggested that blended instruction has a positive impact on learning and found that “students in online conditions performed modestly better, on average, than those learning the same material through traditional face-to-face instruction” while “instruction combining online and face-to-face elements had a larger advantage relative to purely face-to-face instruction than did purely online instruction” (Means, Toyama, Murphy, Bakia, & Jones, 2010, p.xiv-xv). Blended learning also assists in the preparation of students for postsecondary education and employment. Within this educational strategy, students are introduced to 21st century skills such as acquiring information, analyzing data, and applying knowledge. Teachers work with students to help them “develop digital media and research literacy skills as students gather, authenticate, validate, synthesize, and present information they need to solve problems” (Watson, Murin, Vashaw, Gemin, & Rapp, 2010, p.53).

Personalized learning coupled with technology can improve student engagement. Project RED, an organization that studies what factors contribute to the successful implementation of technology, discovered that intervention classes that included technology geared towards English Language Learners, Title I schools, special education students, and those students who struggle with reading were successful because the technology allowed students to move at their own pace, such as with electronic curriculum (Center for Digital Education, 2013). In addition, a paper entitled “Unleashing the Future: Educators ‘Speak Up’” (2010) focused on the use of emerging technologies for learning. Within the paper, teachers reported that technology increased factors of student engagement such as cognitive, affective, behavioral, academic, and social engagement. Further, the paper stated that outcomes of increased access to technology in classrooms increased various components of student engagement, “such as taking initiative and responsibility for learning, using resources wisely, time on task, and having interest and desire to pursue information and learn in and beyond classrooms” (Project Tomorrow, 2010; Taylor & Parsons, 2011).

### ***Role of Teachers***

Personalized learning is a transformation of the “one-size-fits-all” educational model and will require a paradigm shift in the role that teachers play in implementing it. In this new role as facilitators, teachers are not expected to be “all-knowing providers of information, but instead are needed as coaches and guides, leading students to actively find their own knowledge.” Personalized learning is a model that requires teachers to be facilitators as well as part of a collaborative team that works with a larger group of students. These new expanded roles for teachers are a significant departure from the way teachers have been trained to teach as well as how they were taught as children. Changing the role of the teacher will require ownership among teachers. Teacher contracts and other regulatory constraints may also need to be addressed to provide the flexibility in a teacher’s role needed to make this dramatic shift in instruction (Center for Digital Education, 2013, p.20; Wolf, 2010).

Bray and McClaskey (2013a) offer a framework of how this new facilitative role for teachers would look in a personalized learning setting. It’s a framework or process that requires an inclusion of the “voice and choice of the student.” The first stage of Bray and McClaskey’s process involves determining each learner’s needs to garner an understanding of the student’s strengths, challenges, aptitudes, interests, talents, aspirations as well as his/her preferences for accessing and processing information, how the student prefers to engage with the content, and how the student prefers to express what he/she knows and understands. The next stage includes using the information from stage one to redesign the instructional environment to support the best way in which the learner acquires information. For example, if a learner is fidgety and has trouble sitting still, then the learning environment may include an area to pace with high desks, or if a learner cannot sequence what is occurring in a story, the learning environment may include a teacher area with an interactive whiteboard. The framework’s next stage includes the creation of instructional goals, methods, and assessments using a variety of flexible approaches that work for everyone. “If you are going to transform learning so learners have a voice and a choice, you involve them in unpacking and how they meet standards when learners co-design their learning strategies, they become better prepared for college and the workforce because they are more engaged in the learning process and can continue to use these skills throughout their life” (McClaskey, 2013, p.18).

Personalized learning is a model that aims to include the learning styles, needs, and motivations for each individual student. The teacher-student relationship helps to foster an

environment in which the individualistic value of all students is properly addressed. Advisories are used as a means to strengthen the teacher-student relationship and to ensure that every student in the school building is known well by at least one adult. As indicated by one school system, advisories are “for students to have someone in their corner, day after day, no matter what challenges present themselves” (Dumartino & Clarke, 2008, p.18). The concept of an “advisory” is based on an arrangement in which an adult and a small group of students meet on a regular basis in a noncontent-specific setting to address the academic and emotional needs of students and to “foster a more supportive school climate overall” (McClure, Yonezawa, & Jones, 2010, p.5). As students move from grade to grade, they encounter increasing complexity. Students indicated that what helped them flourish, in spite of the challenges, were the relationships they developed with adults in their schools. When there are opportunities for students to connect with adults who view these relationships with a “spirit of caring, empathy, generosity, respect, reciprocity and a genuine desire to know students personally, they can make a unique contribution to young peoples’ emerging adaptive capacity, self-sufficiency, resiliency, confidence, and knowledge of themselves as learners” (Taylor & Parsons, 2011, p.10).

The National High School Alliance (2005) supports the creation of advisories as well as similar relationship-building structures that leads to an increase in higher student achievement. When coupled with personalized learning plans, “portfolios, student-led conferences, project-based learning, and student exhibitions, the advisory becomes the hub of quality relationships that catalyze student learning in a school.” Advisory activities could include revisiting student’s personalized learning plans where the advisor checks the student’s progress and ascertains whether the student needs any additional support. Activities could also include tutoring; in-class advice on such matters as course schedules and the postsecondary transition (e.g., college applications, senior exhibitions); and counseling and mentoring (Champeau, 2011, p.38; Yonezawa, McClure, & Jones, 2012).

In addition to advisories, teachers are closely involved in assisting students with their personalized learning plans. Personalized learning plans, or individual learning plans, are developed by students generally in collaboration with teachers as well as parents and are based on a “student’s talents, interests, and aspirations” as a way to assist them in achieving their learning goals, mainly at the middle school and high school levels (Dumartino and Clarke, 2008, p.36). Personalized learning plans, or PLPs, are centered on the belief that students will be more motivated to learn, more engaged, will achieve more in school, and will feel a stronger sense of ownership over their education if they decide what they want to learn, how they are going to learn it, and the reasons they need to learn it to achieve their personal goals. According to the Great Schools Partnership organization (2013), generally, PLPs tend to include the following features:

- Personal life aspirations, particularly collegiate and career goals
- Learning strengths and weaknesses
- Specific learning gaps or skill deficiencies that need to be addressed
- Personal interests, passions, pursuits, and hobbies, and ideas regarding ways to integrate those interests into a student’s education
- Outline of a personal educational program that would allow achievement of educational and aspirational goals and the meeting of state standard requirements and credit/course requirements for graduation
- Major learning accomplishments or milestones

In a survey of students, parents, and teachers conducted to determine the effectiveness and value of PLPs, all three groups perceived engaging in PLPs as valuable and contributing to students selecting more rigorous coursework; improving the connections between teachers, students, and parents; increasing access to a wider range of career exploration activities; clarifying postsecondary college and training opportunities; and increasing academic motivation, goal-setting, and career search competence (Solberg, Phelps, Haakenson, Durham, & Joe Timmons, 2012).

## SUMMARY

The personalized learning model has become a focus of educators and policy makers. Based on a review of the literature, there were several overarching concepts woven into most of the definitions and frameworks for personalized learning. These themes included a focus on the student or learner being an active participant in his or her learning. Further, within personalized learning models, there is flexibility in the pace and location of learning; instruction tailored to learner preferences, learning patterns, and needs; shared ownership for learning; continuous monitoring of student progress; use of assessment data to inform instruction; and individual student learning plans.

This literature review also provided a brief synopsis of how technologies such as mobile devices, adaptive learning programs, feedback systems, data backpacks, and online learning as well as the facilitative role of teachers, advisories, and personalized learning plans relate to the personalized learning model. Seen by some in the educational field as a much needed anecdote to the ills of the current educational system, personalized learning continues to “challenge every aspect of the traditional school culture, including what is taught, how it is taught, and where it is taught” (Tanenbaum, Le Floch, & Boyle, 2013, p.1). In addressing such a challenge, various efforts are being employed that include technologies ranging from mobile devices to online learning, as well as shifting the role of teachers.

Educators have identified the changing role of the teacher as critical in achieving the authentic, student-centered approach required for personalized learning. To this end, teachers will require support through ongoing as well as sustainable professional development in order to acquire the needed skills to implement personalized learning. Educators agree that for teachers to bridge the gap between students and the personalized learning approach, they will need “a comprehensive set of tools and resources, easy access to data, curriculum and content resources, and technology to implement the lessons and resources. Additionally, teachers, administrators, and other educators need professional development, models, and peer support for changing their role as educators and how they interact with students” (Wolf, 2010, p.28).

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