

Kansas State Department of Education | Region 12 Comprehensive Center Kansas Can School Redesign Project

Kansas Redesign Training Cadre Personalized Learning References

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This personalized learning reference description outlines some of the emerging evidence regarding personalized learning. Trainers may wish to use this document to augment understanding of the Kansas definition of personalized learning and support school redesign efforts.

INTRODUCTION

Kansas envisions leading the world in the success of every student.

As Kansans think about the future, the Kansas State Department of Education (KSDE) has invited many to consider the kind of graduates we want from our schools. To align our education system with this vision, we must begin with the unique experiences and interests of every student and imagine “school” to be whatever best supports each child to thrive. In many ways, that process began long ago, as individual teachers, counselors, principals, and others realized that they must support social and emotional development, that students learn in living rooms as well as classrooms, and that students must try out ideas in the real world. The impact of the COVID-19 pandemic may accelerate our efforts, as it raises fundamental questions about the relationships between learning, time, and place. School will definitely be different, and if the only question is how, we might serve students and society better than ever before.

The principles of design, including iteration, small-scale intervention, and scale-up, can help us think about how to make these changes (Mintrop, 2016). Design efforts engage users to notice and frame a problem. Kansas has done that by listening to Kansans across the state. We know that Kansans see student success as broader than math and reading proficiency, and they are interested in many measures of life and career success (Kansas State Department of Education, 2019a). Personalized learning is a principle of redesigning schools to achieve success for every student.

This document shares Kansas’ definition of personalized learning, summarizes several studies on the effectiveness of personalizing instruction in improving student outcomes, and identifies commonalities in the studies that connect to those outcomes.

WHAT IS PERSONALIZED LEARNING?

KSDE defines personalized learning this way:

Personalized learning places the whole child at the center of instruction. It is informed by strong educator/student/family/community relationships to provide equity and choice in time, place, path, pace, and demonstration of learning (Kansas State Department of Education, 2020).

Teachers intentionally design instruction. Teachers base instruction on academic standards, and personalize learning by

- » employing a variety of evidence-based instructional modes, strategies, and activities
- » exercising strong educator/student/family/community relationships to make learning relevant
- » enlisting students in the co-creation of individual learning paths
- » utilizing a variety of instructional and digital tools to monitor, enhance, and manage rigorous learning
- » facilitating intrapersonal, interpersonal, and cognitive competency development (Kansas State Department of Education, 2019b)

EVIDENCE OF EFFECTIVENESS OF PERSONALIZED LEARNING ON STUDENT OUTCOMES

Kansas emphasizes teacher actions in personalizing learning, and describes the use of digital tools alongside other instructional tools. Therefore, our review of literature focused on studies articulating a personalized learning approach to pedagogy and the effect on one or more student outcomes in a PK–12 setting. It serves as a starting point for thinking about the commonalities in approaches that have found desirable results.

The base of empirical knowledge about the positive effect of personalized learning on a range of student outcomes is growing. This document identifies six studies that meet What Works Clearinghouse criteria for high-quality research on personalized learning (see Appendix for study details). Studies connecting personalized learning to increased student outcomes in reading, math, social studies, and science, as well as future earnings, graduation rates, student agency, and social and emotional development were found (Connor, et al., 2013; Connor, et al., 2017; Hanover Research, 2014; Herlihy & Quint, 2006; Kemple & Willner, 2004, 2008; Loyd, et al., 2017; Pane, et al., 2015). Students our education system has historically served less well, including students with disabilities, African-American students, and students attending previously underperforming schools, have also demonstrated these gains (Basham, et al., 2016; Pane, et al., 2015; Lane, et al., 2014).

Students in early grades who receive personalized reading instruction show stronger reading outcomes than students in a control group (Connor, et al., 2013). Students bring a variety of individual experiences with them that inform their comprehension and reading ability, as well as their knowledge and understanding of social studies and science. Students receiving social studies and science instruction tailored to their individual characteristics learn significantly

more social studies and science as measured by post-unit assessments and improve in reading as measured by standardized tests of achievement (Connor, et al., 2017). In contrast to this finding among elementary students, a study of problem-based and personalized learning in six STEM high schools found mixed effects in science achievement in two schools after two years, and no or negative effects in other high schools and content areas (Gnagey & Lavertu, 2016).

Using a value-added model, Loyd and colleagues (2017) compared the academic growth of students whose teachers had received training in personalizing learning to students whose teachers had not. The training included five principles of personalizing learning: whole child, ownership, mastery progression, instructional shift, and an emphasis on college and career readiness. The researchers found statistically significant gains in math, as well as gains for African-American and “non-identified” students in reading and math. The category of non-identified students excludes students with disabilities, the academically gifted, and students acquiring English as an additional language. Notably, the research team found less learning gains among students with disabilities. Conversely, Basham (2016) published an analysis showing the potential for students with disabilities to “thrive” with personalized learning, claiming students both with and without disabilities benefit from personalized learning.

Pane and colleagues (2015) examined NWEA Measures of Academic Progress test data in reading and math for students in 62 schools implementing a variety of approaches to personalized learning and compared them to scores for students in a set of comparison schools. They found that the lowest performing students made substantial gains relative to their peers, and positive effects of personalized learning in both math and reading for all students.

PERSONALIZED LEARNING: FIVE COMMONALITIES

Research supports many teaching practices aligned to personalized learning, including meta-cognitive strategies, useable feedback, and mastery learning (Hattie, 2009; Kulik, Kulik, & Bangert-Drowns, 1990). Whether a particular approach to personalized learning includes these teaching practices depends on its design and implementation. Few studies showing the benefits of personalized learning have explored the discrete elements of these approaches (Pane, 2018).

In reviewing the programs and interventions of the research studies cited in this document, several commonalities emerged in the descriptions of successful implementation of personalized learning. These include

- » student agency, which can include student voice, setting goals, and some degree of choice (Basham, et al., 2016; Loyd, et al., 2017; Pane, et al., 2015)
- » progression based on mastery of competencies rather than duration of study (Bill & Melinda Gates Foundation, 2014; Loyd, et al., 2017; Pane, et al., 2015)
- » knowledge of both content *and* students, derived from relationships, such that an individual student’s experiences and interests inform teacher decision-making (Bill & Melinda Gates Foundation, 2014; Connor, et al., 2017; Loyd, et al., 2017; Pane, et al., 2015)

- » flexibility in the learning environment (Basham, et al., 2016; Bill & Melinda Gates Foundation, 2014; Connor, et al., 2017; Loyd, et al., 2017; Pane, et al., 2015)
- » integration of social, emotional, and academic development (Basham, et al., 2016; Bill & Melinda Gates Foundation, 2014; Connor, et al., 2017; Loyd, et al., 2017; Pane, et al., 2015)

PERSONALIZED LEARNING IN THE PRESENT CONTEXT

The Kansas definition of personalized learning aligns to the elements of personalization that have provided a variety of benefits to students. The Kansas definition maintains an important professional role for the teacher alongside promotion of student agency through the co-creation of a learning path. The definition emphasizes how relationships inform flexibility in path, place, pace, time, and demonstration of learning. The knowledge teachers gain from these relationships and the actions they take to emphasize rigor and the integration of social and emotional competencies also appear multiple times in the literature. Neither the Kansas definition, nor the commonalities noted, emphasize any particular learning software. Other principles of redesign exist in synergy with the commonalities found. For instance, an emphasis on real-world applications offers new possibilities for flexible learning environments.

Most recently, personalized learning has taken on a new urgency in light of disruptions to schools throughout the state as a result of the COVID-19 pandemic. Kuhfield and colleagues (2020) used data on other types of school absences to estimate the potential learning loss caused by nationwide school disruptions in spring 2020 due to the COVID-19 pandemic. They estimate that students may experience 63–68% of typical gains in reading and 37–50% of the typical gains in math. It may well be the case that learning gaps will appear and grow as schools continue to experience disruptions. Personalizing learning is a potentially powerful response. To avoid long-term gaps, it will be necessary to ensure that students have learned the content before moving on to new learning. The instructional practices associated with redesigning our educational system around personalized learning enable students to proceed at an accelerated pace, if needed, and to receive instruction based on their existing competencies.

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APPENDIX: SELECT STUDIES REVIEWED BY WHAT WORKS CLEARINGHOUSE ON THE IMPACT OF PERSONALIZED INSTRUCTION ON STUDENT OUTCOMES

Study Author (Year)	Every Student Succeeds Act Rating	Study Description	Impact on Student Outcomes
Bill & Melinda Gates Foundation (2014)	Tier 2: Moderate Evidence	Study included 23 predominantly urban charter schools (5,000 students from low income families) that implemented personalized learning practices for two years.	Greater gains in math and reading for treatment school students.
Connor et al. (2017)	Tier 1: Strong Evidence	Study included 40 kindergarten through fourth grade classrooms across six schools in a large Florida school district. Teachers used content-area literacy instruction as an individualized instructional program. Student makeup was 75% White, 10% Black, 15% other, and 50% of students qualified for free and reduced lunch (FRL).	Students participating in the program improved their social studies and science knowledge, as well as had improved oral and reading comprehension skills.
Connor et al. (2013)	Tier 1: Strong Evidence	Six schools in north Florida participated in a three-year study that examined the effects of personalized learning in grades 1–3. A total of 357 students participated in all three years of the study. Student makeup was 81% White, 6% Black, and 13% other, while 47% of students qualified for FRL.	Students who received individualized reading instruction in all three grades showed the strongest reading skills by the end of third grade.
Connor et al. (2011a)	Tier 2: Moderate Evidence	Seven schools in southeastern U.S. participated in a study that measured the effect of the Individualizing Student Instruction intervention. Participants included 33 teachers and 448 third grade students. Student makeup was 51% Black, 36% White, 3% Asian, 3% Hispanic, 3% multiracial, and 4% other. The percent of students who qualified for FRL ranged from 4–92%.	Students in the Individualizing Student Instruction intervention made greater gains on reading comprehension.

Study Author (Year)	Every Student Succeeds Act Rating	Study Description	Impact on Student Outcomes
Connor et al. (2011b)	Tier 1: Strong Evidence	Seven schools in a north Florida school district were studied to determine the effects of the Individualizing Student Instruction intervention on 396 first-grade students. Student makeup was 45% White, 32% Black, and 23% other. The percent of students who qualified for FRL ranged from 4–87%.	Students in the Individualizing Student Instruction intervention classrooms demonstrated significantly greater reading skill gains.
Kemple, J. J. (2004)	Tier 1: Strong Evidence	Study followed 1,764 students for four years after being enrolled in grades 9 or 10–12 in Career Academies. One of the multiple distinguishing features of the Career Academies is the small learning community which creates a personalized learning environment.	High school completion rates and postsecondary enrollment and attainment rates were higher than national averages.

Note. Tier 1 – Strong Evidence: supported by one or more well-designed and well-implemented randomized control experimental studies. Tier 2 – Moderate Evidence: supported by one or more well-designed and well-implemented quasi-experimental studies.

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