Nurturing What's Next

Imagining the Future of Education in Southwestern Pennsylvania

Southwestern Pennsylvania has a vibrant legacy of innovation in and beyond education.

The coming decade will invite people across the region to imagine and realize new approaches to teaching and learning.

This forecast will seed conversations and thinking toward a future where learners, educators, and families can flourish.

At the Confluence of Changes

"Imagining something may be the first step in making it happen, but it takes the real time and real efforts of real people to learn things, make things, turn thoughts into deeds or visions into inventions."

– Fred Rogers

Southwestern Pennsylvania has a legacy of turning imagination into reality and has long been fertile ground for innovation. From Jonas Salk's development of the polio vaccine to the creation of the Freedom House Ambulance Service, the region has consistently blended ingenuity with creativity through collaboration. It is the birthplace of the Ferris wheel and the Jeep, as well as of the first commercial radio station, KDKA. Pittsburgh, the region's urban heart, is known as the "cradle of AI" for its global leadership in artificial intelligence.

This legacy of bold imagination, invention, and reinvention is equally alive in the region's approaches to learning. Southwestern Pennsylvania is world-renowned for its leadership in educational innovation. Remake Learning – a network of educators, technologists, community leaders, and others – has earned international praise as one of the world's foremost learning ecosystems. This culture of collaboration has led to groundbreaking innovations in everything from education policy to creative uses of physical space, with school districts reimagining teacher evaluations; adopting playful learning approaches; and breathing new life into unexpected places of learning, including a century-old hospital. Higher education institutions continue to lead in AI and robotics, while out-of-school-time learning spaces offer rich, diverse, and deeply community-rooted experiences.

With this vibrant legacy in mind, this 10-year forecast explores what the future of learning in Southwestern Pennsylvania might look like in 2036. It is an invitation to imagine – just as Pittsburgh's own Fred Rogers, affectionately known as Mister Rogers, encouraged generations of children to do. He believed in the power of imagination to shape not only individual lives but entire communities. In his words, "You can grow ideas in the garden of your mind." Today, that garden beckons us to use our imaginations to seed the future of learning.

Shifting Soil

The soil that feeds future possibilities for the region is changing rapidly. Those changes include broad structural challenges: staffing shortages; shifting policies at the state and federal levels; questions about adequate funding and resources; and concerns about AI's implications for education, work, and the economy.

At the same time, these changes also include opportunities. There is a sweeping appetite for change, with the vast majority of the general population (71%) calling for an overhaul of the nation's education system, including 21% who say that nearly everything should change. In addition, new state policies offer increased flexibility for graduation requirements, seat-time mandates, competency-based education, and learning pathways.

Today's conditions invite us to imagine the world of tomorrow. The gateway to transform learning is wide open, and this moment beckons us to turn our visions into reality.

Sowing the Seeds of the Future

As you read this forecast, take note of the ideas that germinate in the garden of your mind. Consider the following questions:

- How might we imagine learning 10 years from today?
- What future(s) do we most want for our schools, libraries, museums, and other sites of learning?
- What might it take to make those futures real?

Each section of this forecast will help you consider these questions from a different vantage point.

Drivers of Change: Monitoring Growing Conditions

Recognize big forces and emerging trends that could have a major impact on teaching and learning in Southwestern Pennsylvania over the next decade.

Images of the Future: Walking the Garden of Imagination

Imagine possibilities for the future of learning, including hopeful and challenging ideas about what might come to fruition.

Strategic Questions: Planting the Garden of Imagination

Reflect on strategic questions that seek to help you make the most of the current moment.

Drivers of Change: Monitoring Growing Conditions

The future is complex and uncertain. It is shaped by a seemingly endless number of trends, patterns of change, plans and intentions, future events, and more. The six drivers of change at right were developed through a process that included in-depth research; community discussions; and interviews with parents and caregivers, school leaders, and out-of-school time educators. They represent some of the most pressing, relevant forces of change shaping the future of learning at the national and regional levels. They are likely to have a major impact on teaching and learning in Southwestern Pennsylvania over the next decade, changing the conditions in which education innovation can take root.

1

Unstable Education Staffing

Regionally and nationally, schools and other education programs are experiencing persistent staffing shortages across roles as fewer people enter the education workforce.

2

Influx of Opportunities

Southwestern Pennsylvania is experiencing a surge of new programs, partnerships, and initiatives.

3

Shifting Demographics

The region's population is aging, decreasing in size, and becoming increasingly diverse.

4

Disruptions Small and Large

Learning environments across Southwestern Pennsylvania are facing a host of large- and small-scale disruptions, ranging from unreliable technology to weather.

5

Delicate Trust

Nationally, public confidence in and satisfaction with education and other civic institutions are becoming more brittle, influenced by economic pressures and political polarization.

6

Digital Reliance

Digital technologies, especially AI, are reshaping how young people learn and connect.

The next few pages describe these drivers of change in more detail.

1 Unstable Education Staffing

At the regional and national levels, staffing shortages are affecting everything from instruction to transportation to school cafeterias. Along with an increased turnover rate among principals and superintendents and a decrease in people entering the education workforce, these trends signal growing instability, along with decreasing institutional knowledge and leadership continuity. They are also reshaping how schools and other learning environments recruit, retain, and support staff.

2 Influx of Opportunities

Building upon the 20-year foundation of Remake Learning – and with the support of a committed philanthropic community – Southwestern Pennsylvania is experiencing a surge of future-focused programs, collaborations, and initiatives. This influx reflects a deep regional commitment to reimagining education within and beyond school walls. It is being driven by factors such as new funding opportunities that encourage experimentation, partnerships between local entities and national organizations, and the formation of new regional partnerships and collaborative efforts in response to an environment of uncertainty and constraint.

3 Shifting Demographics

Southwestern Pennsylvania is facing an overall population decline, largely due to factors such as natural change and out-migration. Its population is also aging, with more and more residents now aged 65 to 84. At the same time, cultural and linguistic diversity are bringing new dimensions to the area's demographic landscape.

4 Disruptions Small and Large

Communities and learning environments across Southwestern Pennsylvania are facing a range of everyday disruptions, which pose questions about how schools and other learning providers manage daily operations, maintain continuity, and support student engagement. These disruptions range from unreliable technologies to "swatting" hoaxes, from infrastructural challenges to weather-related events. They are impacting school schedules, threatening to deepen inequities in student outcomes, and posing challenges to student and staff safety and stability.

5 Delicate Trust

Nationally, public confidence in and satisfaction with education and other civic institutions are becoming more brittle, influenced by economic pressures and political polarization. In addition, families and caregivers, educators, and policymakers have a growing appetite for innovation in education. At the same time, many community members report satisfaction with their local schools, often citing teachers as their most trusted source of information about education.

6 Digital Reliance

Digital technologies, especially AI, are reshaping how young people learn and connect. While many people see promise in these technologies' ability to personalize learning and improve efficiency, some tools also raise concerns about learners' ability to think independently, connect with their friends and peers, evaluate information, and wrestle with complicated questions. Likewise, the increasing ability of AI tools to act as autonomous agents may further complicate their role in education. Other digital technologies, such as virtual reality, augmented reality, extended reality, spatial computing, and robotics, are also evolving at an accelerating rate. Alongside AI, they are rapidly becoming more powerful. In many cases, they are also decreasing in price and becoming smaller, more user-friendly, and more integrated into daily life.

It's Time to Cultivate Imagination

These six drivers of change make a powerful case for reimagining learning for a rapidly changing world. An invitation to let our imaginations wander, they present both challenges and opportunities for Southwestern Pennsylvania to navigate as the region aims to shape the future of learning.

Of the drivers outlined within this section, which could have the greatest impact or consequence on your aspirations for the future of learning?

How are these drivers of change emerging in your community or context?

Images of the Future: Walking the Garden of Imagination

This section presents a variety of provocations that explore the many ways in which learning in Southwestern Pennsylvania might change over the next decade. Provocations are bold ideas that help people consider how the future might be different from today. They depict potential futures that imagine how the six drivers of change outlined in the previous section might combine and unfold. These depictions of the future were informed by community discussions with parents and caregivers, nonprofit leaders, educators and school leaders, ed-tech providers, and more. The provocations below reflect two major assumptions: that the spirit of collaboration that characterizes the region today will remain integral, and that the application of technology will support people without replacing them.

Some provocations might feel exciting, aspirational, or concerning. All of them are intended to inspire and stretch ideas about what might be possible for learning in Southwestern Pennsylvania.

The provocations explored in this section are expressed as "Imagine" statements, followed by more specific "What if?" questions that help make each future possibility more tangible. They are organized into three themes:

1. **Learning Spaces and Systems**
   How spaces and systems are designed to support learning experiences

2. **Community-Powered Education and Support**
   How learning is woven into and co-created by the region's community

3. **Human-Machine Relationships**
   How people productively partner with AI to enhance learning

For each theme, three emerging changes are listed. They describe present-day examples of how changes related to the provocations are beginning to emerge.

Learning Spaces and Systems

How spaces and systems are designed to support learning experiences

Emerging Changes

Carlynton School District: Project HOLO

Learners in the Carlynton School District are using AI and holographic technology to create interactive 3D holograms through hands-on learning experiences that combine AI, STEAM education, and cutting-edge technology.

Outdoor Learning Spaces

The Shaler, Highlands, and California Area school districts have been embracing outdoor learning. Among these school districts, nature-based opportunities for young people abound, including learning experiences at farms, an off-grid science school, experiments with solar-powered backpacks, and more.

Immersive Learning Environment at Watson Institute

The Watson Institute in Bridgeville created an immersive learning environment for students with special needs to help build confidence in and comfort with real-world tasks and experiences. The environment uses laser projectors, fog and vibration machines, and sensory inputs to improve motor skills, provide sensory input, and make learning engaging and interactive.

Learning Environments That Respond

Imagine learning spaces that could sense and respond to learners in real time. These environments could adapt their layouts to match group needs while anticipating emerging interests. Examples of such adaptations include reconfiguring seating for collaboration or adjusting sensory inputs based on engagement patterns.

- What if some learning spaces functioned like full-scale holodecks – immersive digital environments – that surrounded learners and educators with the sights, sounds, and sensations of what they were studying?
- What if immersive design became standard practice in learning spaces, leveraging digital and analog technologies to engage learners?
- What if learning environments could sense the wellness and learning rhythms of students and staff and adapt to them by adjusting class schedules in real time, giving periodic breaks, and extending or shortening class time as needed?

Ready for Disruption

Imagine that education systems and learning providers shouldered greater responsibility in addressing the impacts of large-scale disruptions.

- What if Southwestern Pennsylvania created a regional learning resilience fund to help community members navigate broad disruption and ensure educational continuity?
- What if Pennsylvania created a "regenerative learning environment" designation for schools and out-of-school-time programs whose built infrastructure helped restore and enhance the environment?
- What if learning providers used their learning environments as launchpads for civic action, community care, and innovation to support learners in designing and leading initiatives that responded to disruptions?

Learners Building for Learners

Imagine that learners could leverage a variety of tools to reimagine and configure classrooms, out-of-school-time spaces, parks, playgrounds, and other physical environments in ways that best suited them.

- What if learners acted as the chief architects of learning spaces, collaborating with peers and experts to co-design their shared physical learning environments?
- What if every learner could use extended-reality eyewear to layer personalized content over classrooms and other environments – projecting information, translating text in real time, and overlaying contextual visuals such as historical data or scientific diagrams?
- What if new approaches to teaching and learning brought learning environments to life for young people, encouraging a sense of care, commitment, and stewardship for the community around them?

Community-Powered Education and Support

How learning is woven into and co-created by the region's community

Emerging Changes

Local X Change's Studio Stream

Local X Change's Studio Stream uses a customized Japanese mini-truck as a mobile recording studio to bring programming to rural learners across the region.

Intergenerational Learning at Crawford Central School District

Crawford Central School District has created a one-stop shop to remove barriers for parents, caregivers, and community members who wish to play an active role in the classroom.

LIGHT Education Initiative

LIGHT Education Initiative partners with school districts to reimagine how teachers and community members help inspire, prepare, and empower the next generation of humanitarians for active participation in civic life.

Evergreen Learning Journeys

Imagine that learners engaged in year-round, personalized learning journeys. Shaped and supported by schools, families and caregivers, mentors, and community-based organizations, these perennial learning journeys would nurture each young person's growth, curiosity, and wonder.

- What if learners curated portfolios of curiosity that tracked their passions, projects, and discoveries across a network of learning spaces?
- What if retirees were funded through tax credits or other incentives to serve as micro-educators who mentored learners in community-based settings?
- What if schools coordinated learning hubs that organized personalized learning journeys across a wide range of organizations, sites, mentors, and educators?

Deep-Rooted Networks

Imagine that seamlessly coordinated services connected providers; created coherence around a learner's journey; and provided the infrastructure needed to make learning accessible, navigable, and responsive.

- What if Southwestern Pennsylvania shared a learning operating system that transparently maintained resources and relationships to reveal learning opportunities, build trust, and ensure coherence for every learner's journey?
- What if local governments pooled education, workforce, and social services budgets to create unified learning funds that addressed learners' holistic development across sectors?
- What if the region connected learners to opportunity by investing in learning transit networks that included dedicated shuttles, bike shares, autonomous vehicles, and mobile classrooms?

Boundless Learning

Imagine that Southwestern Pennsylvania were designated as an innovation zone. This designation would formalize the flow of learning across providers, recognizing learning experiences both in and out of school.

- What if real-time feedback loops between schools and communities enabled responsive programming that adapted learning experiences and pathways to meet evolving learner needs and community priorities?
- What if assessment became a collaborative process through which learners, educators, and community members worked as peers to review evidence of learning?
- What if pre-certification training for educators included time in both classrooms and out-of-school-time learning environments?

Human-Machine Relationships

How people productively partner with artificial intelligence to enhance learning

Emerging Changes

Human-Centered AI as a Pathway to Re-envisioning K-12 Education

West Allegheny School District invited high school students from four school districts to reimagine kindergarten through 12th grade using AI and human-centered design principles.

AI Fellows Program

This fellowship offered by the Allegheny Intermediate Unit brought together educators from across the region to learn about and apply AI by developing projects and lesson plans to help integrate AI into classrooms.

Proposed Charter School AI Instructor Ban

A Pennsylvania lawmaker has proposed legislation to ensure that charter school students use certified educators instead of AI instructors, raising questions about when and how technology might replace educators instead of supporting them.

AI for Autonomy

Imagine that AI's primary purpose in education were to help learners pursue their passions and interests in life and learning and amplify their voices.

- What if a learner's AI-enabled digital twin interacted with a school district's AI-powered agents to personalize the young person's learning?
- What if, as a learner moved through the world, AI agents helped power personalized, location- and context-driven micro-learning instances that counted toward a graduation requirement or another learning goal?
- What if school districts created AI-supported learning cooperatives, where learners self-organized and AI monitored progress and carried out assessment while coordinating logistics such as meeting times and transportation?

Partnering with Trusted Tools

Imagine that learners, educators, and learning providers had full agency over how, when, and why they engaged with AI in learning. Instead of being passive users of the technology, educators and learning providers would become co-designers of AI-powered learning environments, while learners would choose when to collaborate with intelligent systems.

- What if learners had the right to request a human-involved approach to any educational experience, with AI use requiring explicit justification?
- What if, before being implemented, every educational technology had to pass a community-led "human dignity audit" that sought to ensure the safety, privacy, and well-being of every learner?
- What if an overwhelming demand for AI-based learning applications helped drive the reclassification of AI as a public utility, prioritizing its development in the public interest and guaranteeing broad access, affordability, and transparency?

Rethinking Readiness

Imagine that readiness for life, work, and further learning were no longer defined by standardized tests or static credentials. Instead, readiness would become a living, evolving concept that would be shaped by the realities of a constantly changing world.

- What if definitions of readiness included embracing uncertainty and intellectual humility?
- What if Southwestern Pennsylvania had explicit learning targets related to productively partnering with teams of people and effectively leveraging multiple AI platforms?
- What if AI-enabled simulations projected a variety of futures to help learners explore possible pathways and then connect them with peers, mentors, and experts to help find ways forward?

Sowing Seeds of Possibility

The future of learning is a vast garden of untapped possibilities. Just as not every plant can exist within the same garden, the provocations presented above represent only a few of the many possible futures. They can help education leaders, changemakers, and other constituents tend to the garden of their imaginations by widening their perspectives on what is possible, challenging assumptions, exploring unintended consequences, and considering their aspirations for the future of learning.

What questions, concerns, or hopes do these provocations raise for you?

What tensions, if any, surfaced between the provocations and your vision for the future of learning?

Strategic Questions: Planting the Garden

Today's conditions are ripe for transformation, with possibilities on the horizon presenting both exciting opportunities and complex challenges for learning. This section presents strategic areas of focus for the coming decade. It includes key questions to help you consider the areas in your own context.

Apply Technology Thoughtfully

This forecast assumes that technology will be used to support learning in positive, transformational ways. However, that usage is not a given, as technology's application can often have unintended consequences. Paying attention to long-term impacts and considering how proposed uses relate to your purpose and goals can help ensure that technologies' use in educational settings is deliberate and beneficial.

Consider these questions:

- How might adopting new technologies bring your vision for learning to life?
- How might you and others pair human-driven approaches to teaching and learning with tomorrow's innovations?
- How might you support people in developing the knowledge and skills needed to use new technologies to their fullest appropriate potential?

Tend to Everyone

This forecast explores futures of learning where learners have access to a vast menu of opportunities, even as they navigate escalating disruptions and other circumstances. Reimagining how to meet the persistent or emerging needs of learners and adults – and how to foster access to opportunities for learners – can inspire new approaches to supporting everyone.

Consider these questions:

- How might you and others create and nurture well-being and safety for all learners?
- What new services or programming could facilitate access to new learning opportunities that emerge?
- What fresh roles and responsibilities might be needed to navigate changing circumstances?

Cultivate Collaboration as a Strategic Asset

This forecast points toward increased turbulence at both the national and regional levels. In keeping with Southwestern Pennsylvania's legacy of deep collaboration, continuing to use collaboration as a strategic asset promises to help navigate disruption and to support educators, along with learners and their families and caregivers.

Consider these questions:

- In what ways might existing partnerships and collaborative efforts become more resilient and adaptive in the face of increased turbulence?
- How might future collaboration leverage intergenerational perspectives?
- How might disruption impact the future of collaboration within the region?

Strategic Resourcing

This forecast implies that financial support and resourcing for learning providers could become increasingly uncertain due to factors such as shifting demographics and increased disruption. Developing adaptive strategies to help with financial resilience can help learning providers and communities sustain high-quality learning opportunities amid ongoing changes.

Consider these questions:

- How might the region leverage funding and investments in ways that are responsive and future-focused?
- What innovative funding models could learning providers adopt to reduce reliance on traditional public and philanthropic sources?
- What approaches might unlock opportunities for financial sustainability in the region?

Preparing for the Future

These strategic questions can serve as starting points for exploring with curiosity how to design and adapt responses over the next decade while making the most of the current moment and navigating the changes on the horizon.

Which of these strategic questions seem most urgent?

Which of these strategic questions are already shaping your plans and aspirations?

Flourishing Forward

The confluence of changes impacting Southwestern Pennsylvania makes this a fertile moment for the region to lay claim to a future of learning that honors and builds upon its collaborative and innovative past. Leveraging the same spirit that has fueled breakthroughs in medicine, technology, and culture, the region's learning ecosystem can help ensure that learners, families and caregivers, educators, and communities have the tools they need to flourish, no matter what tomorrow might bring.

As with any harvest, a host of circumstances can affect which approaches take root and which seeds mature. Even after laying the necessary groundwork, it will be vital to continue to tend the region's soil. This is the call: take what you have gathered from this forecast – the knowledge, the insights, the questions – and sow it into the work of building a future where every learner can thrive.

May the garden of your imagination flourish beyond your mind.

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