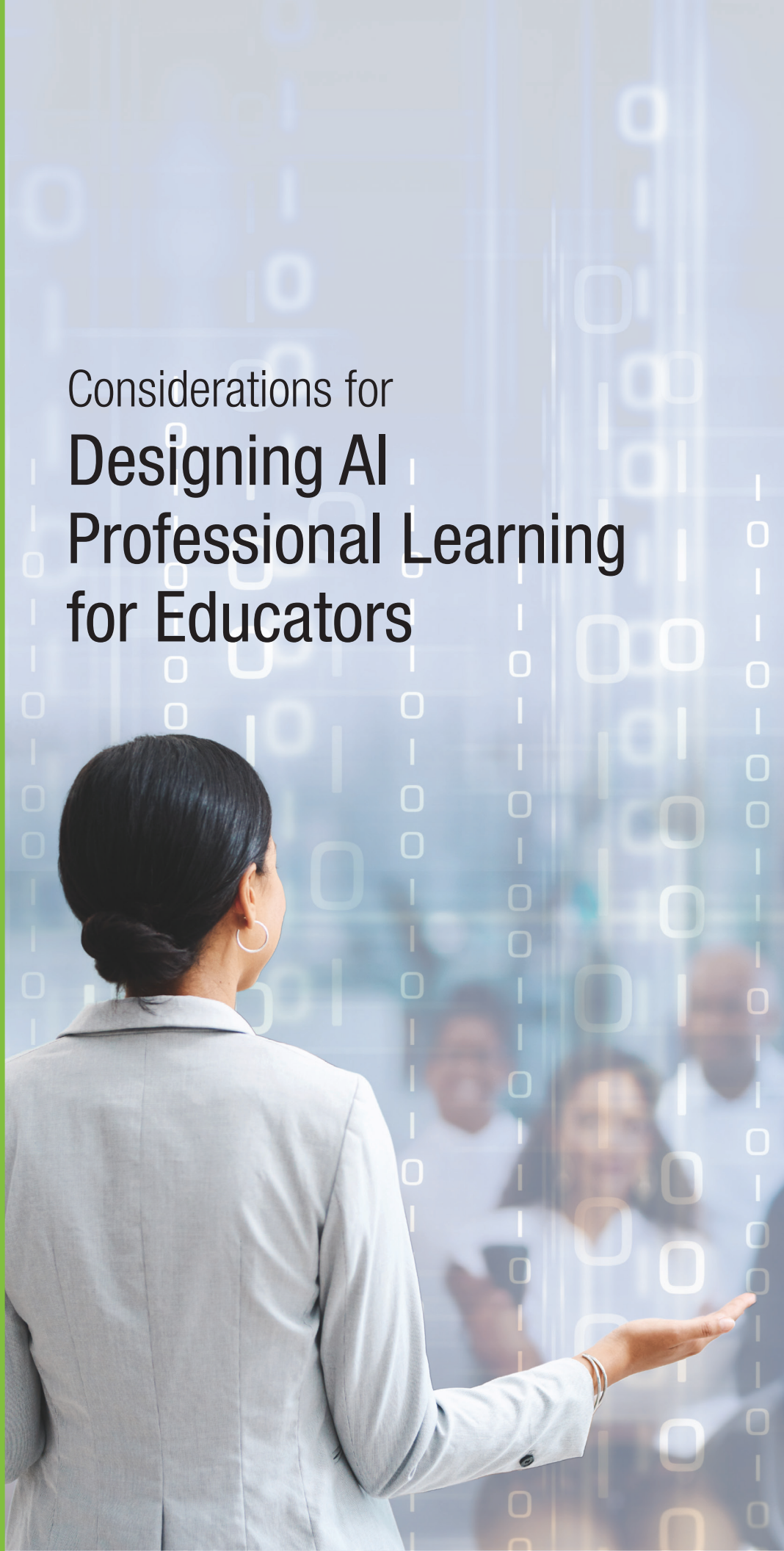
SREB

Considerations for Designing AI Professional Learning for Educators



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This report was written by Leslie Eaves, SREB Project-Based Learning program director, and Jason Adair, SREB director of curriculum and instruction, in partnership with members of SREB's Commission on AI in Education's K-12 Instruction Subcommittee.

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Summary

This report outlines considerations for educational entities in designing high-quality professional learning plans that enable current K-12 educators to ethically and effectively integrate the use of artificial intelligence. In developing these guidelines, the Southern Regional Education Board purposefully considered the broad use of AI, rather than any specific tool. AI is both a tool with broad uses, such as creation, data analysis and productivity, as well as a source of information. It is up to each school, district or state agency to determine AI guidelines for students and staff, and how AI can be used to meet the unique needs of their student population.

This document aims to provide guidance for state departments, local education agencies and individual schools to develop educators and eventually their students in the use of AI for learning. SREB considered definitions and characteristics of high-quality professional learning, and recognized that many types of educational professionals support the teaching and learning process with K-12 students. Therefore, throughout this report, we use the term 'educator' to encompass all types of professionals working within a K-12 system, including classroom teachers, counselors, administrators and support staff. Each educational entity will start using AI at different stages based on their unique needs.

This document aims to provide guidance for state departments, local education agencies and individual schools to develop educators and eventually their students in the use of AI for learning.

This report for SREB's Commission on AI in Education, which provided guidance for schools, districts, states and policy leaders to thoughtfully, ethically and effectively incorporate AI at all levels of education. SREB aligned this professional learning framework with recommendations and other reports for the commission.

Educators at all levels will need high-quality professional development opportunities to build their capacity to use AI tools and resources within their specific contexts. Separate professional development plans may be necessary to accommodate different educator roles and their intended uses of AI.

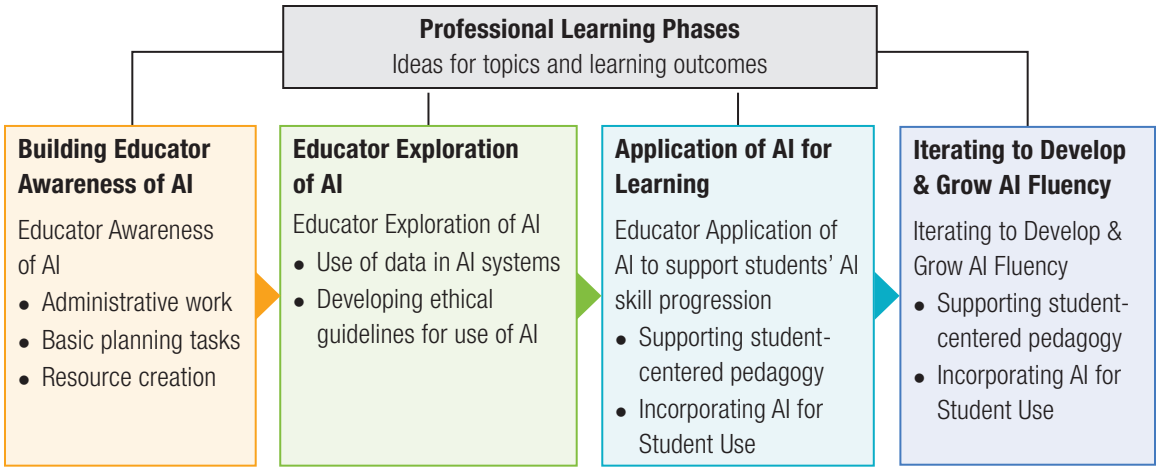
Based on this guidance, the commission developed four considerations for designing a professional learning plan to upskill educators.

- **Consideration 1:** Develop a professional learning plan that builds in the complexity of AI use over time.
- **Consideration 2:** Design professional learning plans around best practices for adult learning.
- **Consideration 3:** Develop expectations for how adults and students should ethically and responsibly use AI for teaching and learning.
- **Consideration 4:** Integrate AI career readiness with professional learning outcomes.

Consideration 1

Develop a professional learning plan that builds on the complexity of AI use over time

Recommended professional learning phases for incorporating artificial intelligence into the K-12 classroom



With numerous initiatives and directives imposed on K-12 educational entities, the instinct is often to adopt a "one-size-fits-all" or "one-and-done" approach to professional development. However, the complexities involved with effectively integrating AI into the learning process, along with developing educators' skills with AI, require a phased approach over time and need to be designed around research-based adult learning theory.

States, districts and schools will need to design a professional learning plan that empowers educators to consider how best to incorporate AI into their context, content and classrooms. Educators and students will also need to understand the ramifications of using any personally identifiable information and data in AI systems. They will need to be prepared to layer AI-generated decisions and content with their professional expertise and judgment. SREB's report *Guidance for the Use of AI in the K-12 Classroom* offers opportunities and cautions for using AI in the K-12 educational environment. Any professional learning plan should seek to capitalize on the opportunities AI provides while minimizing the risks.

We recommend a phased approach to the professional learning plan that progresses from awareness to exploration to application to fluency, as described in SREB's *Skills for an AI-Ready Workforce*. This means building educator awareness of AI and its abilities, exploring various ways AI can support student learning, applying it to support learning and solve problems, and developing educators' and students' fluency over time. Whether educators use AI to develop lesson plans, support student inquiries, or launch AI-focused clubs and workshops, the plan needs to harness the power of AI to enrich teaching and learning in meaningful ways.

We recommend the following four phases as a framework for developing professional learning phases: building educator awareness of AI, educator exploration of AI, application of AI for learning and iterating to develop and grow AI fluency. While we are capturing these in phases, some of these phases can be done concurrently, depending on the readiness of the audience and access to technology. Each phase should be supported by instructional coaching or collaborative learning communities to support teachers as they work to incorporate these new skills into their teaching practice. It is also crucial for leadership to attend professional learning sessions alongside teachers so they understand how to support them within their school or district communities.

Phase 1: Building Educator Awareness of AI

Drawing from the *Skills for an AI-Ready Workforce* report, this phase is characterized by curiosity-driven activities through guided exploration. Professional learning topics in this phase may include using AI to generate lesson ideas, developing engaging resources, translating materials for English language learners, students and parents, and analyzing data to identify trends in assessment results. Educators will work to develop the skills of:

- **Generative AI:** Use of generative AI to enhance productivity, innovation and decision-making in workplace environments.
- **Language Models:** Develop an understanding of how these large language models are used to enhance communication, streamline workflows and support decision making.

Starting with educators and other support personnel allows schools and districts to provide adult access to AI tools while procuring AI tools that support student learning and comply with federal, state and local technology and data privacy regulations.

Just as people need to know the basics of how a car works, understanding the basics of how AI functions and uses data will enable educators to become more informed AI users.

Background work at this phase may include discussions and planning on how to meaningfully integrate AI-Ready skills into academic and workforce programs. The *Skills for an AI-Ready Workforce* report lays out a six-step process to help institutions examine current standards and skills and consider where AI will best fit into the curricula. This can be done concurrently with phases 1 & 2 of this professional development cycle, but it will be necessary as they start integrating AI with student learning.

Phase 2: Educator Exploration of AI

As educators gain comfort with using AI, they will need a foundational understanding of AI, including what AI is and is not, types of AI, common terms and prompting strategies. Professional learning planners do not need to delve too deeply into how AI systems work, but educators will need sufficient information to make informed decisions about how to use AI, when it is most beneficial for their work, and how it can be integrated in teaching.

Just as people need to know the basics of how a car works, understanding the basics of how AI functions and uses data will enable educators to become more informed AI users.

During this phase, educators and educational entities will need to carefully consider the ethical and data privacy concerns of using AI. The very nature of AI means that it stores data and uses that data to improve its output. K-12 educational institutions are also responsible for maintaining student data privacy through federal, state and local regulations, such as Family Educational Rights and Privacy Act, Children's Internet Protection Act, Children's Online Privacy Protection Rule, Health Insurance Portability and Accountability Act and Guidance on the Protection of Personally Identifiable Information.

Educators will need to know what information they can use in their prompts and how to prepare student work that can be effectively used in an AI system. Some of these concerns can be addressed by selecting AI-enabled software and systems that are compliant with these regulations, such as those vetted by an organization like 1EdTech. We also recommend adopting a procurement process and checklist, such as the one outlined in the AI Tool Procurement, Implementation and Evaluation Checklist developed for the SREB Commission for AI in Education.

The procurement checklist asks technology teams to examine AI tools from the perspectives of

- AI capabilities and learning goals;
- Mitigating biases;
- Security, ethics and data use;
- Human oversight and overreliance;
- Evidence of impact; and
- Distribution and ease of use.

The tool gives questions for technology teams to consider as they seek to determine the best use of AI tools and procure, distribute and monitor the effectiveness of AI tools and resources.

Finally, ethical guidelines and standards for technology use for educators and students may need to be reviewed and revised during this phase. If AI systems are used for grading, feedback or checking for plagiarism, schools and districts will need to ensure that a feedback loop is in place to verify that the AI output is accurate and appropriate. Failure to have checks and balances in place may result in students receiving erroneous grades, feedback or penalties. This can deter students from learning and unknowingly create cycles where grades do not reflect students' efforts, leaving them discouraged and susceptible to dropping out.

Similarly, as schools and districts adopt AI tools for student use, they will need to consider how AI can be integrated into the learning process. They will need to consider what constitutes plagiarism, as well as how to cite AI as part of the research and writing process. Just as SREB's Pillar 4 for AI Classroom Use seeks to develop students as ethical and proficient users of AI, this phase starts with adults who can model what this looks like for their students.

Professional learning topics that can support this phase include: further experimentation of AI tools in educators' work, prompt engineering and solving simple problems with AI. Sessions may also want to integrate topics and skills such as AI fundamentals, the ethical use of student information within AI systems, and limitations of AI products and decisions. Districts and school support personnel would also benefit from the use of AI tools that can streamline their tasks and processes.

As new AI tools and software options become available, any professional learning plan will need to incorporate ways to further develop educators' and students' toolboxes.

Phase 3: Application of AI for Learning

AI can be a catalyst for reimagining how educators teach and how students learn. Central to this phase is the transition from adult-only use of AI to allowing students to use AI within the learning environment. In SREB's report on *Guidance for the Use of AI in the K-12 Classroom*, Pillar 1 calls for teachers to shift from rote memorization and direct application activities to more in-depth problem-solving tasks that engage students in a critical thinking and creative process.

Similarly, the *Skills for an AI-Ready Workforce* recognizes the importance of developing students' success skills alongside their use of AI. These include communication skills, problem solving, adaptability, continuous learning, creativity, critical thinking, collaboration, leadership and project management. The most effective way for students to develop these skills is to incorporate them into the learning process. It will be important to integrate these skills into the learning process regardless of whether or not the lesson uses AI.

This professional learning phase is crucial for helping educators make this transition so they can empower students to take ownership of their learning through inquiry, creativity and critical thinking.

Schools and districts will need to support classroom-facing educators by developing their ability to design and implement more personalized, engaging and cognitively rich learning experiences. Instructional leaders within schools

and district communities will also need to learn and consider how AI fits into the learning process and be prepared to provide feedback and support as teachers become comfortable with integrating AI as a part of their teaching practice.

Within this phase, incorporating educator collaborative learning groups will help educators learn from each other as part of this process. Within these groups, educators can give and receive collegial feedback on lesson or unit plans and work through dilemmas regarding the use of AI in the classroom.

Instructional coaches may also support this transition by working alongside teachers to connect standards to AI-ready skills within their content. They can provide one-on-one support to develop and implement lessons or units that integrate AI to enrich the learning process rather than circumvent it.

Professional learning topics in this phase may begin with a focus on developing project-based learning units and designing cognitively demanding tasks that use AI as part of the learning process, rather than circumventing it. This lays the groundwork for using AI within creative or critical thinking processes. Topics may then shift to exploring and incorporating AI tools that support these processes, as well as tools that personalize learning within a unit of study (see *AI Pillar 3*).

Professional learning in this phase will need to highlight strategies for guiding students in the responsible and effective use of AI tools, ensuring they become not just consumers of technology but thoughtful and ethical innovators (see *AI Pillar 4*). This might include guided conversations with educators to seek their input on AI policies related to research, creating, writing and plagiarism.

Phase 4: Iterating to Develop and Grow AI Fluency

Technology continuously changes and grows. As new AI tools and software options become available, any professional learning plan will need to incorporate ways to further develop educators' and students' toolboxes. This phase focuses on supporting the unique and ever-evolving needs of schools and districts to incorporate new or improved AI tools that enhance the learning needs of their students.

It will be essential to use feedback loops within educational systems to iterate and adapt professional learning plans to meet new challenges or deepen educator and student skill sets. Professional learning in this phase should support schools and districts in expanding their AI toolboxes, while cultivating a culture of curiosity, creativity and responsible technology use.

Consideration 2

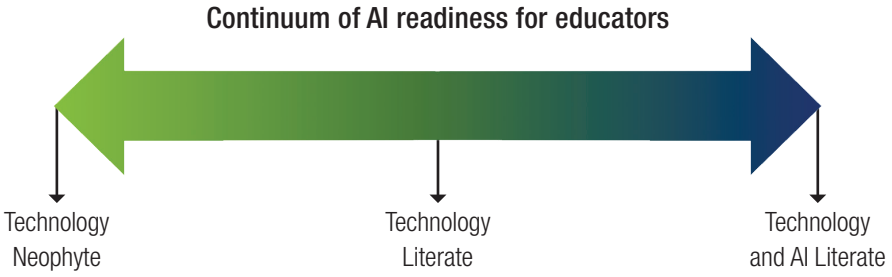
Design professional learning plans around best practices for adult learning

High-quality professional learning aims to create a change in educator practice. One-off professional development classes often do not lead to changes in practice, and a significant amount of money can be wasted for little results. As educational entities develop professional learning plans to upskill teachers in the use of artificial intelligence, they must design these experiences around best practices for adult learning. Often referred to as the "father of the theory of andragogy," Malcome Knowles' foundational research on adult learning provides these key principles of adult learning:

1. **Involvement:** Educators need to be involved in the process of developing and applying the new knowledge in their classroom, and they need feedback on their progress.
2. **Experience:** Adult learners bring their experience and expertise into professional learning sessions and, to grow, they need to learn and make mistakes.
3. **Relevance:** Educators need to know how the learning will impact their work and why this tool or idea is important to the students they serve or their teaching practice.
4. **Focus:** Learning should be oriented around solving problems or dilemmas within their context.

Applying these principles to the upskilling of teachers in the use of AI, several considerations need to be made in professional learning plans:

1. **Use active learning strategies:** Time needs to be built into sessions for teachers to practice the new technology alongside experts or expert users of the tool. During the session, educators should engage in active learning practices, such as questioning, discussion, reflection or collaboration as part of the learning process. This allows for their prior knowledge and expertise to be used and shared within the professional learning workshop.
2. **Incorporate Practice-Based or Problem-Based Learning:** Along with active learning strategies, it is also essential for educators to have time to apply the new tool to their unique needs or to solve a problem in their practice. Educators need to start making connections about how a tool can be used to support their own needs or those of their students. It can be helpful for educators to bring a dilemma or piece of work they can apply the new learning to.
3. **Provide opportunities for differentiation:** Each educator will have varying levels of readiness and experience with the new tool or learning. Educators may range from having little to no technology skills to those who are technology literate to those who are AI literate. A professional development survey can help determine where participants stand with respect to their use of technology and AI. Technological novices may require preparatory sessions to develop the foundational technology skills necessary for success with AI-enhanced technology. Conversely, educators with experience in incorporating the tool may serve as facilitators in workshops.



4. **Provide follow-up support through job-embedded coaching or collaborative learning communities:** In conjunction with workshops, educators need follow-up support as they integrate new ideas and tools into their practice. Job-embedded coaching provides educators with one-on-one support as they work to implement new ideas and concepts into their practice. Collaborative learning communities give teachers support from colleagues as they test new skills, work through dilemmas and consider the impact on student learning.

5. **Build in feedback and reflection loops:** It is essential for K-12 educational leaders to be present and involved in AI professional development sessions. Leaders need to understand how the new skill or tool is intended to be implemented, especially when it supports teaching and learning. At each phase of the process, educators will need specific, actionable feedback on how they are using the new tool or skill. This will help track the progress of educators as they incorporate new learning into practice, while also providing them with concrete next steps. Similarly, it enables leaders to assess the impact of the AI tool or new strategy on student learning.

   It may be necessary to develop metrics to help measure the impact of the new tool or skill. Example metrics may include: classroom observational tools aligned with anticipated changes in practice, professional development surveys, educator surveys to track their continued use of a tool, student assessment data, or student work derived from the use of AI.

   To ensure the AI tool is not adversely affecting students' thinking or other pedagogical strategies, it may be helpful to include secondary observational metrics such as levels of student discourse and collaboration, student and teacher questioning practices, example student tasks, or Depth of Knowledge levels. This data should inform the next steps in the learning process.

Consideration 3

Develop expectations for how adults and students ethically and responsibly use AI for teaching and learning

Prior to implementing any AI tool, it is imperative that schools, districts and states develop guidelines for how adults and students will use AI in their local context. As stated in Consideration 1, this can be built into the professional learning plan; however, it is also important to have draft guidelines prior to implementing any AI tool. It is also essential to review and revise these guidelines as new AI technology is developed and to address any issues or concerns that arise from its use. Questions to consider include:

1. What will be considered appropriate use of AI?
2. How will we support students to engage in the learning process rather than using AI to circumvent the learning process?
3. How will we monitor AI use and its effects on learning?
4. What will we do if someone is suspected of misusing AI?
5. How will we protect student data and information and adhere to local, state and national policies?
6. What precautions must we take when using AI to assess student work or make decisions that may affect a student's grade or future?

In developing a professional learning plan, it will also be crucial for educational entities to revise their vision for what high-quality teaching and learning look like in their context, alongside the use of AI. Furthermore, classroom practices and teaching strategies to support the vision will need to be identified. Educators may need professional development on these practices and strategies prior to or along with the AI-focused professional learning.

Consideration 4

Integrate AI career readiness with professional learning outcomes

AI literacy is increasingly becoming a durable skill that will be essential to success in careers, learning beyond K-12, and integrated in various aspects of daily life. Professionals have already begun to harness AI to draft written documents and communications, brainstorm ideas, problem-solve and analyze data. Even if students do not plan to pursue a career in computer science or engineering, they will need to develop the skills necessary for using AI ethically and effectively to be competitive in the workforce.

In our *Guidance for the Use of AI in the K-12 Classroom*, Pillar 4 further emphasizes the importance of developing students' ability to recognize AI-generated media as an emerging life skill, along with understanding the ramifications and consequences of blindly trusting AI-generated decisions and results. The *Skills for an AI-Ready Workforce* report lays out the skills needed to be AI-ready and provides progressions for each skill that can be used to develop these skills with students across the K-12 spectrum.

As a part of the process for developing an AI professional learning plan, SREB suggests connecting with local businesses and industries that offer growing, high-wage, high-demand career opportunities and determining how they are using AI. Gather insight from them on what future graduates will need to know, understand and do regarding AI. This insight, along with the skills identified in the *Skills for an AI-Ready Workforce*, can help guide conversations on integrating AI literacy into powerful teaching and learning within districts and schools.

SREB recommends integrating these AI-ready skills into educators' professional learning as they seek to develop those skills with students. Examples include using AI in writing and communicating, the research process, learning and data analysis. It may also be helpful to bring workforce professionals into AI-focused professional development sessions to discuss how they are incorporating specific AI skills or tools into their work. Similarly, professional learning experiences may include summer externship opportunities or industry tours, allowing them to see, experience and better understand how AI is being used in the local workforce so they can better integrate it into authentic learning experiences for students.

Voices from the Field

District AI Professional Learning Plan

Kevin Wright, Instructional Media Coordinator, Appoquinimink School District, Delaware

Kevin Wright is an instructional media coordinator in the Appoquinimink School District in Odessa, Delaware. He directly supports teachers in integrating technology into their teaching practices while also addressing broader technology issues within the district, such as grading, assessment and policy. AI began as a curiosity for him, particularly regarding its potential impact on students. Wright became curious as to how students learn in their personal time. He believed that being aware of their interests and activities outside of school could help make learning more relevant in the classroom. He posed the question: "If you want to get better at a video game, what do you do? If you want to improve your makeup skills, how do you learn that?"

"I wanted people to be intrigued by (AI) but not fully trust it."

Building Awareness

Wright started noticing how AI was popping up on social media, and he wondered how it might be used in his work. He dabbled with different aspects of generative AI, such as helping to craft emails and recognized that he was sitting on Pandora's box. He could see the power of using it for administrative-type work, and as it grew, it had potential for supporting teaching and learning. He posed the question to district leaders, "Do we open this up now or do we wait?" and gave them a small demonstration of AI's capabilities. They gave him the go-ahead to open up some tools for staff and start showing them what they could do with them.

He developed some initial professional development sessions he called, "AI for Educators," and opened it up broadly across the district. More than just teachers showed up to learn more about AI and how they can use it for their work. He designed the experience so participants could feel "comfortable with the uncomfortable." This is a new technology, and they needed to dive in and experience it for themselves. He provided some prompts to get them engaging with the AI chat system.

After modeling some other uses for the AI chatbot, he gave teachers time to try something on their own that relates to a need for their work. He wanted teachers to provide a prompt (not necessarily a good or perfect one) and try some follow-up prompts to refine the output. After they played with the chat system, he asked participants to share both something they could use and something that went "off the rails" to show both the good and the bad of what AI can provide.

"I wanted people to be intrigued by it but not fully trust it," he said.

In parallel with more formal workshops, Wright also worked with teachers one-on-one and in teams through job-embedded coaching. He recalled that advanced placement teachers in particular liked AI's capacity to help with letters of recommendation for students. They would still provide the specifics of how a student stood out in their classroom, but AI could help them with different ways to phrase different parts of the letter. In teacher planning meetings, they appreciated that AI could serve as a thought partner to offer alternative approaches to a lesson or provide different approaches to solve a problem.

Shifting the Exploration

After building educators' comfort level with AI, especially with more administrative or procedural tasks, Wright saw they were ready for a deeper exploration of what AI could do. Subsequent workshops or one-on-one sessions focused on developing and refining teachers' prompting skills.

They needed to develop an affinity for what language is useful in an AI system.

"While we use synonyms in common speech, AI does not," Wright said.

During this phase, the district began to create or refine its current technology policies to ensure that AI was used responsibly. Some early policy additions include that no personal information is to be input into an AI chatbot, do not use AI to provide medical or psychological advice, and only use district-approved platforms.

"Everything you do with AI is a risky click," Wright said. "Teachers need to approach it with a healthy skepticism. At the end of the day, teachers are the experts."

"Keep humans in the loop, never put personally identifiable information in an AI chatbot, and don't put students on platforms we don't have terms and conditions with," Wright said.

One piece of advice he would give to teachers is to not, "use AI for things that you don't know a lot about, so you can call out its errors."

While students were still not permitted to use open AI platforms in the district, during this phase, they were allowed to access platforms that embedded AI into their normal functioning. Examples include assessment platforms like iXL, visual creation tools like Canva or writing support tools like Writeable.

Applying AI for Learning

Going into its second year with AI, the district had a good base of teachers who had developed an expertise in using AI. During the district-wide professional learning conference at the beginning of the year, the district tapped into those teachers to plan and deliver AI-focused sessions.

Appoquinimink Schools established some ground rules that every session must stress.

"Keep humans in the loop, never put personally identifiable information in an AI chatbot, and don't put students on platforms we don't have terms and conditions with," Wright said.

Coming into this year, the district opened up access to certain AI tools to students. In particular, students will have access to an AI chatbot embedded in the district's learning management system. The district is able to develop the chatbot's machine learning model by feeding it approved informational sources. The tool can toggle between research mode, where students can get answers based on information found in the system, and Socratic mode, which will guide students to answers or understanding through the use of questions.

This year will be an experimentation year to see how students and teachers use it as part of the learning process. He is excited about the possibilities of AI's capacity as an on-demand tutor and helping teachers differentiate learning for students in their classrooms. Every student has seen AI tools or engaged with them in some capacity.

As teachers dive into the deeper work of transforming learning within classrooms, they are examining and asking questions like, "How might our policies need to change to better incorporate how we are using AI?" or "What do we want students to know about their experiences of AI in school and in their personal lives?"

Supporting the Process

In his role, Wright continues to support teachers with job-embedded coaching. He may introduce a concept or tool in a short session, but teachers can sign up with him to go deeper and plan how this tool can be useful in their classroom. He also recommends bringing in outside educators and other professionals to observe classrooms and offer feedback. Teachers may feel like what they are doing is not enough or innovative, but outside perspectives can provide positive feedback along with data on how the tool or strategy is working to support student learning.

The district has also begun looking at how AI skills and principles need to be integrated into media literacy standards and course content standards. Officials are also having conversations and looking at data about how AI is being used in the local workforce and determining what skills their students will need to be future-ready. Part of this exploration involves determining how to better align current career pathways with the evolving needs of the workforce in this new AI era.

Professional Learning within a Career Pathway

Juan Tovar, AI Teaching in Residence, EQuIPD, University of Florida

Juan Tovar serves as an AI teacher in residence at the University of Florida. He is a member of the Engaged Quality Instruction through professional development team, which, in collaboration with the Florida Department of Education, developed an AI-focused career pathway curriculum. The curriculum was piloted during the 2022–2023 school year at his school.

Beyond curriculum design, he also provides professional development and coaching for high school teachers, supporting them in implementing the program and strengthening their understanding of how AI can be effectively integrated into classroom instruction.

AI Career Pathway Curriculum

Florida's Department of Education saw a need for an AI-focused career pathway option for high school students. They partnered with the EQuIPD team to develop the curriculum and professional development to support this pathway. During the piloting year, the program faced several obstacles. As part of this pathway, students dive into topics such as:

- History and basis of AI
- Systems and computational thinking
- AI systems
- Using and understanding data use within AI systems
- Large language models
- Generative AI
- Ethics and responsibility around the use of AI

Since these courses fall under the umbrella of career and technical education, an initial hurdle was securing an industry-standard credential. The team eventually found alignment with Microsoft's Azure certification; however, this solution brought its own challenges. The practice labs could only be provided to students over the age of 18, and K-12 institutions are required to protect students' personally identifiable information and data.

To address this, in partnership with Microsoft and the third-party contractor Spektra, they created a secure environment called CloudLabs, which enables students to access Azure AI. This ensured that minors could safely engage with data and resources in a monitored space under teacher supervision.

Professional Learning to Support Career Pathways

Professional learning is offered during the summer to support teachers in learning how to use AI and implement the materials with fidelity. Over the last few years, while the workshops are designed for teachers who will teach the curriculum, Tovar shared that they also see and welcome teachers from any subject area who want to learn how to integrate AI into their teaching.

"In some districts, teachers receive stipends to take these courses during the summer, which attracts educators who are curious about AI and its classroom applications," Tovar said.

The first workshop in the series, Foundations of AI, seeks to engage participants in both conceptual exploration and hands-on activities. Within this workshop, participants begin with the fundamentals of how a computer works and processes information, allowing them to develop a framework for understanding how AI operates.

At their core, AI systems analyze and interpret large amounts of data to produce a desired result. Topics in this initial experience include:

- Exploring and comparing intelligence, with participants reflecting on human intelligence, consciousness, and AI.
- Creating an AI history timeline where they map milestones in AI's evolution.
- Lesson plan design with AI tools so they can create a lesson plan from scratch using a generative AI tool, compare outputs across tools, and practice prompt engineering.
- Case study development to analyze a real-world AI application, assess its functionality and ethical impact, and then create a full lesson plan around it.

Following the summer workshop, teachers have the opportunity to receive job-embedded, instructional coaching. It supports teachers to go from theory to practice. Each participant comes to a workshop at different levels of understanding with AI; instructional coaching can provide much-needed targeted support as they work to apply the new concepts to their unique circumstances.

"You need to understand the basic process of computing and programming," Tovar said. "If not, it's gonna be hard to understand the concept and what AI really does."

In his coaching work, Tovar continues the learning process through providing resources to help answer conceptual questions, troubleshoot technical issues that may arise, offer extra tutoring on the AI tools, or work through student dilemmas when implementing the curriculum.He tries to align his support based on the needs of the teacher.

"I always ask: What is your demographic? What is the type of student? What is the type of school? Then I can provide guidance and resources tailored to that," Tovar said.

Incorporating Certification Support

After the first year of implementation, Tovar noticed a significant learning gap with participants in grasping the fundamentals of how AI works. As teachers sought to implement the Year 2 curriculum, they needed to pass the Microsoft Azure certification exam. The sheer volume of new vocabulary and concepts posed a barrier for teachers and students to know where to start in the AI-focused courses.

"You need to understand the basic process of computing and programming," Tovar said. "If not, it's going to be hard to understand the concept and what AI really does."

To support participants, he developed a Fundamentals of AI workshop for teachers in Year 2 that would build on the concepts from the Foundations of AI workshop to deepen their understanding of AI, prepare them to implement the second course in the curriculum, and prepare them for the Azure certification.

Similar to the Foundations of AI workshop, participants engage in collaborative learning as they refine their understanding of AI by learning about Cloud and AI service platforms, various models of AI and machine learning, and different applications of AI. He builds on these concepts to help them understand how AI systems process and use information to complete tasks. Participants will also explore and complete various tasks in CloudLabs and Microsoft Azure to gain a deeper understanding of natural language processing, computer vision concepts, and information extraction. Finally, participants have time to plan for the school year and develop and share strategies for unfolding AI concepts and Azure tools with students.

Both workshop options, Foundations of AI and Fundamentals of AI, were designed using best practices of adult learning. Tovar says that it is critical for teachers to have opportunities to apply new learning through the use of real AI tools, so they can put the pieces together of how AI works.

"When they go into the application of that concept, that's when they start to understand," he said. "That's when they say, 'Okay, I understand the concept now.'"

He interweaves concept development with practice on the AI tools, which allows him to be there to help teachers over the initial hump of learning a new tool. He encourages them to practice with the tools and try the same task or prompts on different AI systems to compare results and engage in discussions on which one is better suited for a given task. He uses this to help them develop an awareness of how natural language processing works within AI systems and to develop their own internal guidance on which AI tool is best to use in different circumstances.

Further Professional Learning Considerations

Tovar advises that everyone would benefit from learning how to develop better prompts for AI. There will always be a margin of error associated with any result obtained from an AI system. However, prompt engineering can help a person reduce that error or spend less time iterating to get the desired results. He also shared that ethics and digital citizenship need to be a key learning theme in any AI curricula or professional development.

"We need to understand the impact—positive and negative—of everything we do in computer science and technology, and now in AI. There is impact with everything you do."

Within his professional learning practice, he integrates ethical discussions on how these tools can be used as a benefit and to consider what issues may arise with the use of these tools or technology. He emphasized the responsibility we all share in how these tools can be used to benefit society rather than for nefarious purposes.

While Tovar's main role is supporting computer science teachers within an AI-focused career pathway, he believes that all students (and people in general) will need to develop an understanding of how AI works and what it can do for them.

"No matter what you're going to do — lawyer, artist, doctor — AI is going to help you improve your role," Tovar said.

Connecting Digital (AI) Fluency with Careers

Bob Stokes, SREB Director, State and District Partnerships
Marsha Moseley, SREB Senior Leadership Coach

Connecting Digital Fluency to Career Readiness and Pathways

Five years ago, the New York State Education Department adopted K-12 computer science and digital fluency standards to ensure that all students were prepared for an increasing number of careers that require medium to high-level technology skills.

In its computer science and digital fluency standards, the department wrote, "NYSED understands and respects the fact that not all students will pursue a career in technology. It is important to note, however, that for all other occupations, the number of jobs that require medium- to high-level technology skills are growing, and the number of jobs requiring no technology skills are shrinking."

To meet this demand, the Syracuse City School District received a grant to support its K-8 teachers in learning about the new standards while developing an understanding of the high-growth, high-demand career pathways offered within their career and technology education programs. The district partnered with SREB in 2019 to provide the professional learning workshops and instructional coaching for this initiative. While the current standards predate the recent surge in AI tools and resources, this professional learning series provides a model for integrating digital and AI literacy with career pathways.

Each year, K-8 teachers are invited to participate in a weeklong workshop series where they:

- Integrate New York's new computer science and digital fluency standards into their current curriculum,
- Develop an understanding of the district's career pathway opportunities for students, and
- Develop strategies for engaging students in career readiness skills to prepare them for high school career pathways.

A cornerstone of this professional learning experience is supporting teachers to design standards-based, powerful learning experiences for students.

"We are educating for a skilled workforce. A skilled workforce, from here on out, and has for some time, required some form of digital fluency. It is becoming more and more imperative as you layer on that AI piece. There is not a difference between being career-ready and digitally fluent."

"We are trying to develop the concept that teachers are teaching their content standards to help a student become proficient in those subjects so they can get a job somewhere," SREB Director of State and District Partnerships Bob Stokes said. "That is the end result. We are not educating for the sake of educating. We are educating for a skilled workforce. A skilled workforce, from here on out, and has for some time, required some form of digital fluency. It is becoming more and more imperative as you layer on that AI piece. There is not a difference between being career-ready and digitally fluent."

The table below provides an overview of each day of the workshop, which included a mix of whole-group and small-group sessions, tours, and lesson planning.

Syracuse, in particular, is laying the groundwork for a new semiconductor plant coming into the area. There is an economic need for students to be ready to jump into a variety of careers that will support this industry. To this aim, the workshop kicked off with unpacking the digital fluency standards. Facilitators led teachers to review the standards, highlighting where they were already incorporating them and identifying standards they might be able to better integrate into their current curriculum.

Syracuse City School District Professional Learning Summer Workshop Series

	Morning	Afternoon	
Day 1	Opening Session Digital Fluency Standards Career Ready Practices	Workshop Choices – two time slots – One-hour workshops Career Pathway Webquest	
Day 2	High School Tours – Career Pathway Exploration Rotations		
Day 3	Business and Industry Tours	Reflection on Tours	5E Lesson Planning
Day 4	Introduction to CTE in the District Student Supports for Integration Advanced Integration of Career Ready Practices through Work-Based Learning	Workshop Choices – two time slots – One-hour workshops	
Day 5	Business Panel Discussion Lesson Planning with Coaches	Lesson Planning with Coaches	

Teachers had access to a growing library of resources and lessons based on prior years. Throughout the week, teachers could choose small group sessions to dive deeper into the standards, career readiness skills or teaching strategies that can be leveraged when developing digital fluency or career-connected lessons. Topics included teaching strategies to support career-ready practices, integrating math in career-connected lessons, and using artificial intelligence to support planning.

Two days of the series were dedicated to touring career pathway programs at the local high schools, as well as local businesses and industries. To prepare teachers for these career-based experiences, they conducted a webquest on district career pathway programs and explored the jobs available in those pathways, including salaries and job outlooks. During the high school tours, teachers experienced activities relating to the eight career pathways programs at the district and had opportunities to talk to CTE teachers about these programs.

"These K-8 teachers got to see what career programs are available to their students once they hit high school," Stokes said. "Teachers couldn't believe all that was available to their students, even things they had never heard of, like the drone program."

The industry tours enabled teachers to see firsthand the jobs available in their local area and observe career readiness and digital fluency skills in action. Teachers could choose which tours they wanted to visit. The tours included visits to National Grid, Upstate Health Care, Syracuse University E-Sports, Elite Gaming and the Museum of Science and Technology. A final career-integrated element of the workshop was a panel of local business leaders. Teachers were able to ask questions and get answers about business growth in the local area and what they were looking for in their future workforce.

At the end of the week, teachers took these experiences and developed lessons that integrated digital fluency standards, career readiness skills, and career pathways with their core content standards. An important aspect of this time was the inclusion of the instructional coaches who would be supporting the teachers during the upcoming school year.

"Building in protected time along with the coaching that goes with it is one of the biggest pieces of our success story," Stokes said. "We are shoulder to shoulder with them as they design their lessons or units, talking about different ideas, being thought partners with them, sharing resources we have and connecting them to resources within their district and community."

Going into the school year, teachers will continue to receive instructional coaching as they implement their lesson plans and craft new ones that integrate computer science and digital fluency standards, career readiness practices and career-connected problems with their content standards.

Scaling and Customization

Based on the success of the Syracuse model, SREB collaborated with the nearby Utica City School district to tailor this approach for their own district. Introducing K-8 teachers to the new computer science and digital fluency standards and career pathways in their local area remained a common thread.

However, in this model, there were fewer days to deliver the professional learning experiences, and the district wanted to highlight project- and inquiry-based learning as key instructional strategies. They also wanted to provide more time lesson planning within the workshop. With this in mind, teachers could choose from several one-hour workshop options in five different themes.

- Unpacking and integrating the NY Computer Science and Digital Fluency standards in core classes — teachers had to attend at least one session in this category
- STEM exploratory learning with LEGO, Scratch programming and Dashbots
- Career-connected learning and district career pathways
- Teaching strategies to support project- or inquiry-based learning
- Introduction to using AI for teaching and learning (added this year)

In the afternoon, teachers attended longer, in-depth sessions where they could plan lessons or have extended time to explore the STEM kits and resources. Similar to Syracuse, the lesson planning sessions were guided by SREB instructional coaches who supported teachers to plan learning activities that integrate digital fluency standards or career-connected learning with core content standards.

While teachers could choose their own professional learning adventure, SREB's Senior Leadership Coach Marsha Moseley stressed that each session tried to interconnect the other themes.

"If I know one of the sessions is supporting inquiry-based learning, I'm going to support it in my digital fluency workshop," she said. "I knew AI was a focus this year, so we used AI to help plan integrated lessons. That way, they are hearing it multiple times."

Within the digital fluency standards sessions, an important aspect was to help teachers see where they are already hitting some of these standards.

"We tried to break the digital fluency standards and career readiness practices and show teachers what they were already doing these things," Moseley said. "If you are an early childhood teacher you are going to teach about community helpers, and they fit into building career awareness. With the digital fluency pieces, while their lessons in elementary may be structured with a set curriculum, they still have leeway to build those lessons where there is a natural fit, like using SeeSaw or Storyboard to tell about something you have read."

The table below provides an overview of the professional learning series.

Utica Professional Learning Summer Workshop Series

	Morning	Afternoon
Day 1	Opening Session Workshop Choices – three time slots – One-hour workshops	STEM deep-dives, or Lesson planning with instructional coaches • Integrating digital fluency • Developing career-connected lessons
Day 2	Opening Session Workshop Choices – three time slots – One-hour workshops	STEM deep-dives, or Lesson planning with instructional coaches • Integrating digital fluency • Developing career-connected lessons
Day 3	Opening Session Workshop Choices – three time slots – One-hour workshops	STEM deep-dives, or Lesson planning with instructional coaches • Integrating digital fluency • Developing career-connected lessons

Afternoon planning sessions delved deeper into the digital literacy standards, enabling teachers to begin integrating them into their lesson plans. To support the process, Moseley brought in example lessons that showed how digital literacy, careers, and inquiry-based learning could be used to teach core academic content.

"We wanted them to see that you don't leave your standards in order to incorporate the digital fluency," Moseley said. "It all fits together."

This year, the district wanted to leverage teacher thinking in how AI might be used within the district for teaching and learning. During the workshop choices, teachers had three AI-focused workshops they could attend:

- **AI for Teacher planning:** Teachers "played with" and explored various AI tools to plan a learning experience or lesson for their classroom. One teacher in the session commented that they were so excited because they were able to develop a whole lesson with graphic organizers and resources on butterflies for their kindergarten students.
- **AI for Student Use:** This was a guided conversation on what the district needed to do to lay the foundation for students within the classroom. Teachers read and discussed SREB's Pillars of AI Use in the K-12 Classroom before holding team planning discussions to provide ideas and considerations about AI to the district.
- **Ethical Considerations of AI:** Teachers jigsawed and read various articles about different ethical considerations of AI's use in the K-12 classroom. They then participated in a fishbowl discussion about what they discovered about how to use AI ethically and responsibly from both a teacher and student perspective.

The goal was to use teacher insights from these sessions to help craft and refine their policy on AI use while also helping teachers better understand its ethical and responsible use in their roles. As a starting point, the sessions stressed two important points: you never put in personal identifiable information, and AI is not 100% accurate. Finally, another goal was to show teachers that AI can support good pedagogical practices. It should not be used as a replacement, but it can be a way to enhance teaching and learning.

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SREB's AI in Education Commission

The Southern Regional Education Board Commission on Artificial Intelligence in Education convened leaders in education and business to chart a course for how AI is used in classrooms and how to prepare people for a workforce transformed by technology.

The Southern Regional Education Board Commission on Artificial Intelligence in Education convened leaders in education and business to chart a course for how AI is used in classrooms and how to prepare people for a workforce transformed by technology.

- Create policies for states, K-12 schools, colleges and universities
- Prepare students for careers in AI
- Use AI to enhance, not replace, faculty instruction and student learning across K-12 and postsecondary
- Upskill educators to guide ethical and responsible use and ensure student data privacy

Chaired by South Carolina Gov. Henry McMaster and co-chaired by Brad D. Smith, president of Marshall University and former Silicon Valley CEO, the Commission brought together policymakers, education leaders and business executives across SREB's 16 member states during 2024 and 2025.

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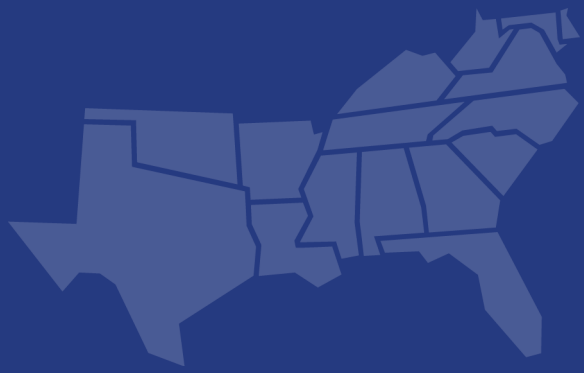

The Southern Regional Education Board works with states to improve education at every level, from early childhood through doctoral education and the workforce. An interstate compact and a nonprofit, nonpartisan organization based in Atlanta, SREB was created in 1948 by Southern governors and legislatures to advance education and improve the social and economic life of the region. SREB states are Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia and West Virginia.