EDUCATOR RESEARCH

AI in Education, Career Readiness, and Lifelong Learning

> As the workplace undergoes rapid transformation, career preparation becomes increasingly clear. AI redefines skill requirements and job roles and underscores the necessity of lifelong learning.

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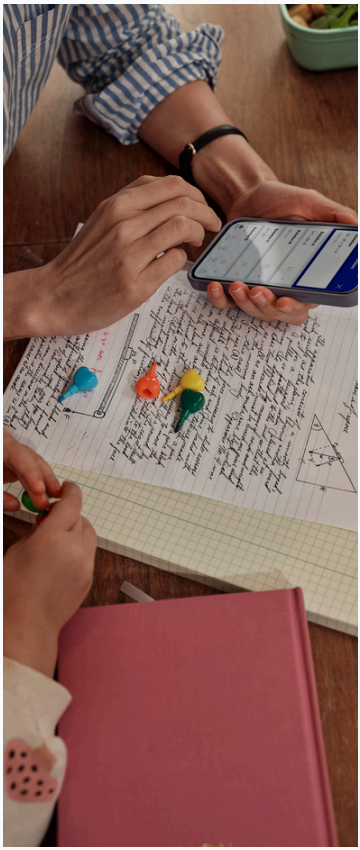
Introduction

This ebook showcases the work of Dr. Autumn B. Guel, a senior lecturer at Texas State University whose research focuses on the relationship between AI in education, career readiness, and lifelong learning.

Dr. Guel is a former participant of Course Hero's AI Academy, a 4-week online program where faculty exchanged ideas, shared experiences, and collectively solved challenges they faced with integrating AI into teaching and learning.



Key Insights You'll Gain:

- Discover how AI skills are becoming essential for students entering the workforce.
- Explore how AI can help students enhance their skill development across eight core career competencies.
- Learn practical strategies for how to enhance teaching and learning with AI tools.

The Impact of AI on Career Readiness

The words of President Kelly Damphousse[1] of Texas State University deeply resonate when considering the impact of AI on students' future career options. Damphousse notes "the globalization and digitization of today's workforce requires learning opportunities and partnerships that know no boundaries."

As the workplace undergoes rapid transformation, career preparation becomes increasingly clear. AI redefines skill requirements and job roles and underscores the necessity of lifelong learning.

AI has had a transformative effect on the skills, positions, and dynamics of the workplace. By acquiring AI-related skills and embracing a mindset of lifelong learning, professionals can thrive in this new world of work.

AI and Post-Graduation Career Readiness

As the AI future unfolds, “people can expect to switch jobs and see entire sectors disrupted.”[2]

Job requirements will also be in a state of constant flux with new technologies, methodologies, and market demands continually reshaping the skills needed for various roles.[3] These fluctuations will require professionals to be proactive with skill development and ethical awareness.

Understanding AI's multidisciplinary applications is an essential component of skill enhancement for AI readiness. As noted by author Juliet Jones-Vlasceanu,[4] “U.S. employers are looking for workers with AI-related skills across almost every sector for which there is data.”

Try This: Use authentic assessments that connect to the real world to help students understand the many applications of AI tools.

Here’s one activity to try in your classroom:

1. Divide students into interdisciplinary teams, ensuring representation from various majors such as computer science, business, and design.
2. Task each team with identifying a problem where AI could offer a solution.
3. Teams will then research and develop an AI-powered prototype, incorporating relevant tools and techniques from their respective disciplines.
4. Encourage collaboration and knowledge-sharing throughout the process.
5. Have teams present their projects, emphasizing the multidisciplinary nature of their solutions and the impact of AI across different fields.

This approach allows students to experience how AI can be applied across disciplines and gain a deeper understanding of its potential.

Rising Demand for AI Jobs

The demand for AI-related jobs is also on the rise. As writer Laurel Kalser[5] explains,

> "Postings that mention generative AI and AI have seen a 17% increase in interest in the past two years, according to a recent report from LinkedIn."

These jobs include a plethora of roles and permeate diverse fields including "health care, advertising and marketing, manufacturing, software development, financial services, and entertainment."[6]

"Once in the workforce, graduates who want to stay competitive must continually upgrade their skills, while those who want to switch careers must be ready to acquire new skills for their next job."[7] Upskilling in AI provides the prospect of obtaining rewarding career opportunities.

Career Adaptability and Upskilling

As AI continues to reshape the career field, career adaptability becomes vital.[8] Students must develop self-awareness and confidence in their abilities to adapt to new tools and technologies.

Students must also cultivate a growth mindset and a willingness to embrace change. Professor Huaruo Chen and collaborators,[9] explain that career adaptability can help individuals smoothly adapt to changes when coping with their career roles and maintain their ability to balance their career roles.

Graduates must also expect future skill requirements in their chosen fields. As Researcher Darrell West[10] explains, “the type of work they do at age 30 likely will be substantially different from what they do at ages 40, 50, or 60.” By acquiring technological skills, students can gain a competitive edge in the job market, making themselves more attractive to employers.

With each significant technological shift, the world around us has fundamentally changed. Each time, that has meant radical changes to how we work. Work did not go away, but evolved to meet the needs of business, society, and the individual.

– Barry McCall, The Irish Times[11]

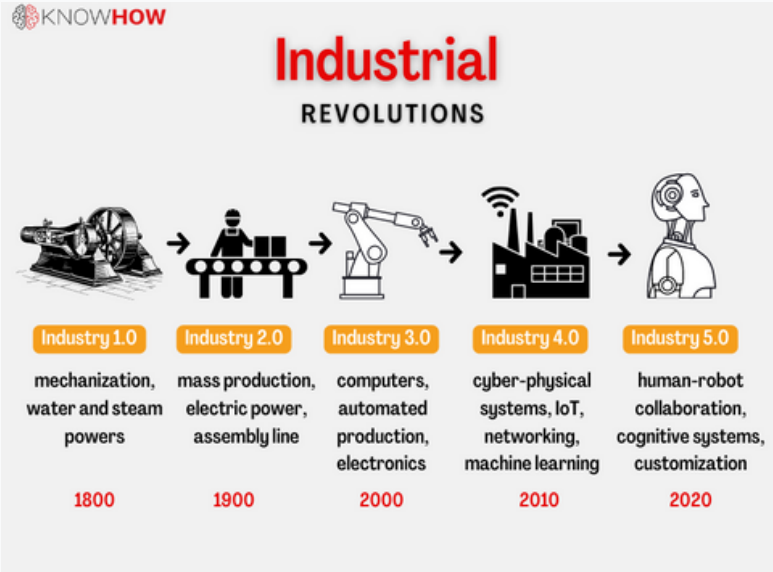


Image: KnowHow[12]

Try This: Throw a “wrench” in one of your activities to challenge students to adapt quickly.

Here’s an example scenario:

A science professor is conducting a lab experiment to test the effects of different fertilizers on plant growth. Each group has carefully measured out their fertilizer, planted their seeds, and begun their data collection.

The "Wrench":
Midway through the experiment, the teacher announces a simulated "supply shortage." One essential nutrient needed for plant growth is no longer available.

The Challenge:
Students must quickly adapt their experiment.

They can:

- Research alternatives: Investigate other substances that might provide the missing nutrient.
- Redesign their experiment: Modify their control and experimental groups to test new variables.
- Collaborate: Share resources and ideas with other groups to find the best solution.

AI and NACE Competencies

The National Association of Colleges and Employers (NACE),[13] has identified the following core competencies for career readiness: career development, communication, critical thinking, equity and inclusion, leadership, professionalism, teamwork, and technology.

These transferable skills are imperative in the rapidly changing career landscape. Whether soft skills, those "interpersonal skills that describe how you work and interact with other people,"[14] hard skills, "those objective, quantifiable skills gained through training, school, or work experiences,"[15] AI has the power to streamline and enhance the skill development process. This section will examine AI and its impact on the aforementioned NACE competencies.

Career Development

The first of the core competencies—understanding yourself and the skills needed for career readiness or ongoing advancement—is vital. AI tools offer a unique opportunity to enhance and expedite this process as they "can analyze vast amounts of personal data, such as your habits, preferences, and behaviors, and provide insights into your strengths and weaknesses." This level of self-reflection, often challenging to achieve on our own, is a key step toward personal growth."[16]

Communication

AI has revolutionized the way we communicate. Whether you are actively using tools to enhance your writing and research, or simply opening your phone or laptop to communicate on a personal level, AI is at the forefront.

Not only does AI allow for the automatic generation of mundane tasks such as drafting emails, reports, and summaries, it also allows for "automating repetitive reports, personalized communications, and frictionless multilingual exchanges"[17] as well as "translating languages, generating content, and chatting in real-time with chatbots or virtual assistants."[18]

Try This: Use AI to help you provide students with personalized, timely feedback.

Here's how to do this:

1. Familiarize yourself with the AI tool of your choice.
2. Prompt the AI tool by explaining the assignment in question and any rubrics or feedback parameters you'd like to use.
3. Enter a student's work into the AI tool and ask the tool to provide feedback based on your rubric, in whatever format you desire.
4. Copy the AI feedback and adjust it to your needs.
5. Distribute the feedback to students and let them know that you used AI for assistance.

Critical Thinking

Critical thinking cannot be understated, yet it is an underdeveloped skill among graduates.[19] Key elements of critical thinking include the ability to identify premises and conclusions for logical implications, clarify arguments, determine facts from fiction, and then make a logical decision based on that datum.[20]

As noted by educator and scholar Med Kharbach,[21] "The purpose of critical thinking is to inform our behaviors, actions, decisions." AI technology provides a pathway for continued growth and development of critical thinking skills as well as assisting the user in making decisions. As Markus Haidt[22] explains, "By analyzing your past actions and their outcomes, AI can help you make more informed choices."

Try This: Use AI tools to enhance students' critical thinking skills across disciplines.

Here are ideas for how to use AI for critical thinking practice:

- Literature Analysis: Have students use AI-powered tools to identify patterns, themes, and biases in literary works.
- AI-Generated Debates: Have students use AI to generate counter arguments or challenge student assumptions during debates or discussions.
- Simulations in Social Sciences: Use AI to simulate social interactions or economic systems, which will allow students to analyze human behavior or experiment with different policies.
- AI-Assisted Engineering Design: Let students use AI to assist them in designing and testing complex systems.
- Research Project Assistance: Encourage students to use AI when gathering and synthesizing information from diverse sources.

Equity and Inclusion

The need for ongoing improvement of equity and inclusion in the workplace is a must. It fosters a sense of belonging, provides for new viewpoints,[23] increases retention, and boosts innovation through diverse perspectives.[24]

Jia Rizvi[25] notes, "AI systems can monitor workplace interactions and feedback, pinpointing potential areas of bias or discrimination." Additional, AI can "facilitate mentorship and networking opportunities by connecting employees from diverse backgrounds."

Leadership

As explained by staff writers at Siena Heights University,[26] leadership improves communication, creates a better work environment, improves productivity, increases efficiency, decreases mistakes, motivates employees, sets a good example for others, inspires hard work, creates a strong vision and direction for the future, and helps keep employees on track. It is the lifeline of any organization.

As such, effective leadership now requires “the knowledge and wisdom to make ethical choices in the deployment of AI technologies.”[27] Whether it is for personal growth, communication, team building, inclusion, or innovation, accountability belongs to the leader to ensure safety, ethical conduct, and compliance with the organization's mission and purpose statement.

Try This: To build students’ ethical decision making skills, have them analyze AI-generated content to identify potential biases and develop strategies for responsible AI use.

Here are the steps:

1. Briefly discuss AI and its potential for bias. Explain the importance of ethical AI use.
2. Divide students into groups. Have each group use the AI tool to generate responses to both neutral and potentially biased prompts.
3. Provide groups with a bias checklist. Instruct them to analyze the AI-generated responses for any potential biases, using the checklist as a guide.
4. Facilitate a class discussion about the findings. What biases did students identify? How did the biased prompts influence the AI's responses?
5. Brainstorm strategies for responsible AI use. How can students critically evaluate AI-generated content? How can they ensure their own use of AI is ethical and unbiased?
6. Have students individually reflect on the activity. What did they learn about AI bias? How will they apply this knowledge in their future use of AI tools?

After the activity, provide students with the Ethical Learner: GenAI Checklist, which can help them monitor their own AI use.

Professionalism

Professionalism as defined by the U.S. Department of Labor[28] is "conducting oneself with responsibility, integrity, accountability, and excellence. It means communicating effectively and appropriately and always finding a way to be productive." So, what does this entail?

With a quick BingAI[29] search, we discover that AI has the potential to enhance professionalism through automated feedback and improvement on items such as:

- Written communication, presentations, and interactions
- Personalized learning paths that recommend relevant courses, workshops, or resources
- Decision-making support by analyzing data, identifying patterns, and suggesting optimal choices
- Time management and productivity tools to manage workloads, prioritize tasks, and optimize schedules
- Enhanced collaboration through real-time document editing, project management, and virtual meetings
- Assisting with ethical behavior and bias mitigation by detecting biases in decision-making processes
- Making predictive insights by analyzing trends, market shifts, and customer preferences
- Using AI chatbots to handle routine queries, freeing up employees' time

Teamwork

Most people are familiar with the colloquialism “teamwork makes the dream work,” but today's AI technology research is showing the possibility of enhancing teamwork’s productivity further through the use of such Personalized Learning and Development (L&D), and AI generative and collaborative tools.

These tools enhance teams by improving communication, removing language barriers, optimizing and generating new ideas for innovation, streamlining processes, creating schedules, and providing valuable insights for productivity.

> Organizations must prepare their teams not just to become better at cooperating with other people, but also to collaborate with technology.
>
> – Gustavo Razzetti, Author and Researcher, TLNT[30]

Try This: Have students use AI in the classroom to streamline group project planning and execution.

Here are ways AI tools can help students work together:

- Assigning Roles: AI can analyze individual strengths and suggest task assignments based on each student's skills and interests.
- Streamlining Communication: AI-powered tools can help students communicate clearly and concisely through writing assistance, translation, and automated reminders for meetings and deadlines.
- Enhancing Brainstorming: AI can facilitate idea generation by providing prompts, analyzing group discussions, and identifying patterns to help students synthesize information and develop solutions.
- Providing Objective Feedback: AI-powered tools can offer unbiased feedback on group projects, highlighting areas for improvement and recognizing achievements.
- Improving Accessibility: AI can make collaboration more inclusive by providing real-time captioning, text-to-speech capabilities, and diverse formats for information delivery.

Technology

As we've discovered, AI technology has the potential to augment and enhance learning, work productivity, and career readiness within all eight of the most important core competencies as identified by NACE. Likewise, "by focusing on skills that promote new career readiness, educators can build learners' confidence in their ability to succeed in the future job market." [31]

Image: Emerson[32]

AI Enhances Learning and Work

AI has revolutionized the way we learn, the way we work, and the way we play. It requires the development of new skills and has changed the way we look at career readiness. While the NACE's core career competencies are essential skills,[33] in the world of AI, how we advance these skills is an evolving process.

Here's how AI enhances learning and work for students, graduates, and educators:

Encourages Lifelong Learning

Education extends beyond obtaining a degree. As researcher Teck-Hua Ho[34] explains, students who want a head start in their careers must ensure they have the skill sets required for the jobs in which they are interested. Once in the workforce, graduates who want to stay competitive must continually upgrade their skills, while those who want to switch careers must be ready to acquire new skills for their next job.

AI democratizes education, personalizes learning experiences, and empowers individuals to continuously acquire new skills and knowledge throughout their lives, thereby fostering adaptability, resilience, and career advancement.

Important components such as "providing Americans with opportunities for lifelong learning will be central to helping displaced workers find new career pathways."[35]

Offers Personalized Learning Journeys

Graduates will need to be equipped with the tools to individualize their learning for emerging employment opportunities that were not covered within their collegiate area(s) of study. AI provides this pathway for graduates to gain timely training through targeted skill development in which content curation of AI-driven programs allows personalized learning within multiple contexts.

These personalized programs "tailor the learning journey to the individual student's needs, abilities, and interests."[36] As Momin Iqbal[37] explains, algorithms analyze student data, such as performance on quizzes, time spent on assignments, and areas of interest.

Makes Learning More Accessible

Another important consideration for AI technology and lifelong learning is accessibility for all learners. As noted by computer researcher Jennifer Mankoff,[38] "When technology changes rapidly, there's always a risk that disabled people get left behind."

Personalized learning companions, shaped by adaptive algorithms, foster a supportive skill and knowledge development environment.[39] Staff writers at My Learning Space[40] clarify that,

> "AI-generated content can also adapt to students' learning styles, making the learning process more engaging and effective. AI can also facilitate the translation of educational content into different languages, making it accessible to students globally."

By delivering personalized and adaptive learning experiences, AI ensures that individuals from diverse backgrounds have equal opportunities to pursue their educational goals and enhance their skills, thus contributing to a more inclusive society.

AI Literacy in the Classroom Leads to AI Literacy in the Workforce

The insights and strategies shared within this ebook offer a practical look at how AI is changing education. As we've explored, integrating AI is essential for preparing students for the AI-infused workplaces they'll enter. By using AI tools and understanding their potential, educators can help students develop important skills, have better learning experiences, and succeed in their careers.

Dr. Guel's research shows us a clear path toward a future where AI and education work together seamlessly. It's a future where students have the knowledge and skills to navigate an ever-changing world, where educators can create engaging and effective learning environments, and where AI's potential is used to create a better future for everyone. Let this ebook be your first step.

About the Author

Dr. Autumn B. Guel is a Senior Lecturer at Texas State University in the College of Education, where she instructs courses in Integrated Preparation, Integrated Project, and Adult Education. She earned a B.S. in Organizational Leadership and Management from Regent University, an M.S.I.S. in Interdisciplinary Studies, and a Ph.D. in Adult, Professional, and Community Education from Texas State University. Complementing her academic achievements, she possesses certificates in Mediation, Professional Ethics, Teaching with AI, Online and Hybrid Course Design, and Enneagram Conscious Living.

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