

AGENDA

Will AI Help Train the Workforce of the Future?

Experts caution companies to address data privacy and other concerns associated with AI

By **Neanda Salvaterra** | August 21, 2023

Earlier this year, the **City University of New York** deployed an artificial intelligence and peer mentoring program to boost student retention and graduation rates. The move comes amid a national debate about the appropriate use cases for AI and how to determine who gets access to a quality education, as well as an ongoing shortage of talent in many fields.

AI has the ability to enhance the selection of talent along with transforming the workplace, sources tell Agenda. Board directors should consider what the workforce of the future will look like, as well as what skill sets — such as critical thinking and an ethical compass — may be required when AI is used, according to experts at EY.

“Predictive AI tools have been around for years to help employers identify potential talent through various data points such as academic achievements, performance records, individual strengths, and career aspirations,” said **Matt Barrington**, EY Americas emerging technologies leader.

“By scaling these efforts with newer, more powerful predictive AI tools, companies can analyze larger talent pools and expand the effort to identify potential hires that would be missed with traditional methods.”

Still, boards should ensure that their organizations carefully consider what laws and ethical guidelines they have to comply with in order to safeguard data privacy and ensure nondiscriminatory practices, according to market watchers. Organizations also need to frequently evaluate the outcomes of the AI process to ensure equitable results, according to Barrington.

At the College of Staten Island, part of the sprawling network of 25 colleges of the City University of New York, faculty administrators want to use the technology to prepare their students for the future workplace, according to **Daniel McCloskey**, a professor and the chair of the psychology department at the college.

McCloskey trained as a neuroscientist specializing in the brain and social systems. He says CUNY serves a diverse population of over 200,000 students, many of whom come from underrepresented minority groups and are the first persons in their families to attend college; often English is not their first language. Such student populations may also experience economic barriers that make pursuing — and completing — higher education difficult.

“Our students are our greatest resource in terms of the future. So, it’s worth developing the tools that we know serve them best,” said McCloskey, in an interview with Agenda.

At the College of Staten Island, more than half of students received an income-based federal Pell grant intended for low-income students, according to **data** from the **Department of Education**.

Notably, only about 35% of students graduate from the college, while a third of students drop out, according to federal statistics. McCloskey says that's where the school's deployment of an AI module owned and designed by the **company Decenture** comes into play. The program is called the Peer Enhanced Blockchain-Based Learning Environment, or Pebble.

The CUNY program, which recently wrapped up a successful pilot phase, is being supported by an almost \$700,000 grant from the **National Science Foundation**, a federal agency that supports research in the sciences and technology fields. The program offers employers and educators a case study in the application of AI programs to facilitate training and development, as well as the privacy concerns organizations will need to contend with in a workplace mediated by artificial intelligence.

In the pilot, which started in January and wrapped up in May, the school got written permission from 60 students and their legal guardians to take the introduction to psychology class with assistance from the Pebble module, which can be accessed on mobile phones and desktop computers.

The application tracks classroom attendance, when students are engaging online as well as in person, and students are encouraged to log how much time they spend studying or interacting with other students to complete joint assignments. The application also keeps track of what homework assignments, diagnostic tests and exams the student has completed so that educators can follow the pupils' learning curve and progress.

Finally, the data collected helps the AI module fill out a skills matrix that shows the abilities students have acquired, such as collaboration, communication, critical thinking, professionalism and technology literacy.

The five skills measured were derived from the **National Association of Colleges and Employers** that lists the top skills that employers in the U.S. seek in college graduates.

The matrix is displayed as a graphic on a dashboard in the AI module to give students a visual representation of their progress. Each student can see their own skills matrix compared to a general anonymized average for their peer group so that they can compare attendance and engagement rates.

The AI pilot program at CUNY is being hailed as a good way to boost retention and track student learning, according to **Leonardo Pignataro**, the academic program manager for student success at the College of Staten Island. He has a Ph.D. in neuroscience and helped tailor the program to the school's needs.

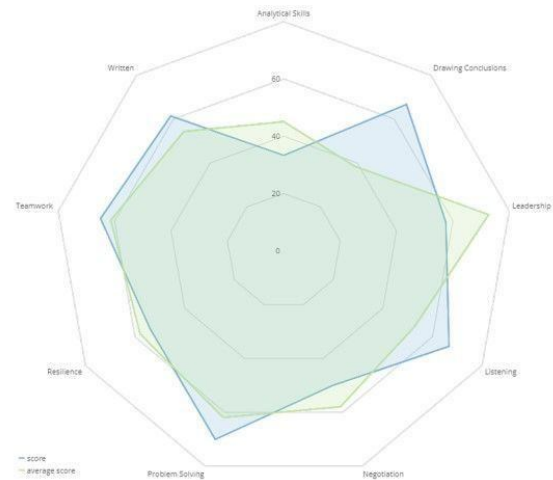
The data showed that the test class experienced a 50% reduction of deferrals, withdrawals and people who failed the class in the spring semester compared with the previous fall. Furthermore, students demonstrated a 28% increase in their test scores compared with the previous semester and a 37% increase in homework materials submitted, according to data from CUNY and Decenture.

The school will roll out the program to a larger class of 1,100 students in the fall and has ambitions to extend it to the entire CUNY system. Employers that want to be involved with the CUNY program can contact the department of psychology.

Sample Skills Matrix



PEBBLE Program (2023)



ADSTEM Program (2022)

Decenture skills dashboard copyright – Not for sharing without Decenture consent

DECENTURE

Two skills matrices used in different implementations. The green line represents the general cohort, while the blue line indicates the individual performance. Credit:

Decenture

Pebble has the ability to crunch the data about a student's behavioral patterns and make predictions for how the student may perform in future academic coursework.

The blockchain component of Pebble is an electronic ledger that helps track students' achievements and provides certificates to users that include the title of their diplomas. The application generates a code that can be scanned by, for example, future employers and the code contains all the information about the student's degree.

“This project enhances an established approach called peer-led team learning by leveraging blockchain technology to promote student success in STEM classes with large numbers of students,” said **Sonal Dekhane**, the program director in the Directorate for STEM Education at the U.S. National Science Foundation.

“Research shows the approach supports the academic success of both peer leaders and their classroom counterparts. Additionally, while it appears to benefit all students, it has been shown to be especially effective in promoting success among students from marginalized groups,” she added.

Overall, the rollout of technology including AI in the education sector received a boost from the Covid-19 pandemic that forced schools to turn to remote and online learning. The global market for educational technology — or edtech — for use in kindergarten through grade 12 was valued at \$103.5 billion in 2021,

with North America representing the lion's share of the segment, according to data from **Allied Market Research**.

Edtech encompasses technologies such as virtual online learning platforms, chat, conferencing and specialty software and student assessment programs. The sector is expected to experience robust growth in the next seven years.

Several large organizations such as the **Bill and Melinda Gates Foundation** and **The Chan Zuckerberg Initiative**, started by Meta founder **Mark Zuckerberg** and his wife, **Priscilla Chan**, are financial backers of companies, edtech products and charter school systems.

Ethical Considerations

Although AI is a powerful tool that can aid student learning and job training, humans still matter, sources say. Young people who participated in the program say AI can be hugely beneficial in developing skills, but appropriate guardrails must be maintained.

For one, a peer mentor in the program, **Elizabeth Obadimu**, used the module on her phone to track attendance as she met with fellow students she worked with in the class. The 19-year-old helped students organize themselves for group assignments and helped find solutions if her mentees reported that they were falling behind on their coursework. She received a stipend for her work. Overall, Obadimu said her experience was positive and that she sees a place for AI in education, provided schools take some precautions.

"I'm a major supporter of artificial intelligence because there's so many wonderful things that we can do with it," Obadimou said.

However, she said that privacy issues related to the general use of AI are a concern for students and should be addressed. "Where is all of this information going? Who's going to be seeing it? Those concerns are all valid. I believe that we should just try to limit the speed at which AI is growing."

Indeed, experts like **Adrienne Williams**, a researcher focused on AI in education and labor exploitation the **Distributed AI Research Institute (DAIR)** based in Palo Alto, California, have raised concerns about how companies are training their AI algorithm through accessing student data **without compensating** learners or teachers, along with flagging student privacy issues. Williams has also raised red flags about the potential for data breaches and the resale of student information to law enforcement agencies.

Williams says edtech tools are vacuuming up an immense amount of information on students, such as test scores; expulsion and suspension records; family income data; teacher observations of student behavior; ethnicity, gender and race; Social Security data; date of birth and disabilities.

The treasure trove of information is putting students at risk, she said. "It's a big problem — the lack of regulations, the lack of laws around it and the lack of understanding by those in charge of how dangerous it is," said Williams in an interview with Agenda.

Federal regulations such as the **Family Educational Rights and Privacy Act** require institutions to protect the privacy of student education records; however, experts question whether the law is enforced effectively.

Furthermore, some states in the U.S., such as California, have data privacy rules. New York adopted a law in 2021 requiring employers to notify job applicants if they are using AI in the hiring process, and businesses are obliged to conduct bias audits to ensure job applicants are not being discriminated against.

Meanwhile, **Loubna Hadid**, the founder and CEO of Decenture, the company that worked with CUNY to deploy Pebble, understands the concerns about using AI in an academic setting and in the workplace, which is why her company adheres to the somewhat stricter European regulations.

To comply with privacy laws in the U.S. and the General Data Protection Regulation in the European Union, Decenture has anonymized the data in the module and put in barriers that prevent the disclosure of student performance, grades and personally identifying information. The program can only confirm whether a student completed a particular assignment and how that assignment maps onto the skills matrix.

However, school administrators have the ability to identify and view the record of individual students, and all the data belongs to CUNY, according to Decenture.

“My goal is to help the student population, not to steal their identity and sell it. That’s completely antithetical to what I stand for,” said Hadid, who urges regulators and the technology industry to put in place data protection measures.

“We need serious industry standards and regulations to be developed as soon as possible, to safeguard privacy and data security matters. But it should be done in a balanced way so as not to stifle innovation.”

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