



NEWS RELEASE

## New AI Enhancement to McGraw Hill's ALEKS Math and Chemistry Program Leads to Notable Increase in Student Learning

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Columbus, Ohio (April 13, 2023) – Following three years of research and development, McGraw Hill has announced the deployment of deep learning neural networks into the artificial intelligence behind its ALEKS math and chemistry program, making it more efficient and effective for student learning. This is the latest innovation to the award-winning digital program that has been used by students and educators in K-12 schools and higher education institutions for more than two decades.

"Our year-to-date results reflect the strength of our execution and consistency of our delivery," said Simon Allen, CEO of McGraw Hill. "During the quarter, we continued to strategically invest in those parts of the business that we believe will strengthen our leadership position, sustain our strong margins and expand our digital transformation."

ALEKS is intuitive and easy to use for both instructors and students, but under the hood is a sophisticated and deeply researched engine. Using deep learning neural networks, which is a form of machine learning that uses algorithms in a way that resembles the human brain, the ALEKS AI is now able to reduce the amount of time students spend on the program's assessments by more than **20%**, therefore allowing students more time to learn new topics within the program. Research comparing student learning in the program before and after the neural network update was implemented shows that for the same amount of time spent in ALEKS, students now master

**9% more course material** with the improved AI.

“Given the scarcity of time to learn and teach new material in the busy lives of students and educators, this is meaningful improvement,” said Lori Anderson, Chief Product Officer for ALEKS. “We’re fortunate at McGraw Hill to have access to billions of learning data points from over 20 years of ALEKS use. Using this anonymized data, our product development teams have been able to continually enhance our algorithms to deliver more personalized learning experiences that successfully improve student outcomes.”

## How ALEKS leverages Deep Learning to more efficiently assess knowledge

ALEKS is built on the foundation of Knowledge Space Theory, the mathematical approach to the modeling, assessment and guiding of student knowledge and learning. Students are assigned periodic Knowledge Checks, or mini assessments, that evaluate precisely what they know and what they are ready to learn next. This groundbreaking adaptive technology has been shown to improve student outcomes by **several independent research studies**.

This latest AI innovation was implemented to strengthen the ALEKS platform’s adaptive learning technology, to meet evolving student learning behaviors and pedagogical approaches. Deep learning algorithms leverage the large trove of ALEKS data to help identify subtle patterns in the ways students learn and perform, resulting in assessments that more quickly and accurately measure a student’s knowledge state.

ALEKS can also precisely identify when a student may need additional testing and practice to enforce long-term retention and ensure that each student’s dynamic learning path is pedagogically sound. ALEKS will continue to apply the most impactful AI principles to its product portfolio to evolve with student and educator needs.

For more information about ALEKS, visit <https://www.aleks.com/>.

## McGraw Hill

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## Contact

Tyler Reed

McGraw Hill

(914) 512-4853

[tyler.reed@mheducation.com](mailto:tyler.reed@mheducation.com)