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Newsletter

"Dataveillance," Algorithmic Bias, and Other Concerns About Learning Management Systems

Even before COVID moved much of the educational system online, learning management systems (LMS) were a fact of life in many colleges and K-12 schools. LMS software streamlines many of the more tedious administrative tasks associated with teaching and learning, such as printing and binding course packets (content can be stored in a single spot online); collecting and returning assignments (they're also stored by the software); and documenting and calculating grades.

Those are the advantages.

The disadvantages are that your LMS may be watching you, as NEPC Fellow Roxana Marachi and Lawrence Quill, both of San Jose State University, find in a recent study published in the peer-refereed journal, *Teaching in Higher Education*. And it's unclear what is happening to the data it collects—or what will happen in the future.

"A new digital ecology is emerging with the ability to monitor the progress of students from a very young age, through high school, college, and into the corporate space," Marachi and Quill write.

Experts in the field call this "dataveillance."

For instance, Marachi and Quill write that learning management systems may collect personal stories submitted in student assignments, as well as biometric data such as the fingerprints used to log into software, and data about physical activity collected via wearables like watches.

The LMS called Canvas, which is the focus of Marachi and Quill's study, boasts of its seamless integration of K-12 with postsecondary or even employment data. On the surface, this seem like a positive development that streamlines recordkeeping, but it can also stigmatize users. For instance, is it fair for a child's bad grade—real or caused by a technological or data-entry mistake—to follow that individual into adulthood? What about algorithms that penalize students for exams they never complete because they lack reliable internet access, or for papers that appear to be missing or late because students with poor home bandwidth turn in their assignments as a hard copy? Will those incompletes or Fs remain on the books? When an algorithm's opaque process flags children "at-risk" of failing, misbehaving, or worse, will this record persist as they apply for colleges or jobs?

Marachi and Quill call for "algorithmic transparency" that would reveal "algorithm bias" and other risks of putting the most minute details of an individual's life into the hands of a company like Canvas owner Instructure, which was sold last year to a private equity firm. Canvas also integrates with dozens of third-party applications, some of them outside the jurisdiction of U.S. privacy laws because they are based abroad, Marachi and Quill write.

They add,

> What these third parties do with student information is, of course, the question . . . [E]ducational data collected serve as 'leads,' not just one time but multiple times for different vendors. Contact information, academic interests, and educational background are an invaluable component of targeted marketing programs within the educational sector.

An additional concern is that learning management systems sometimes highjack the learning process with standardized, multiple choice tests, as well as rote, scripted lessons and other methods selected not so much for their educational value as for their ability to be created or administered by a computer.

"(T)hey define how teachers, students, and administrators interact—by defining how they understand what 'learning' means, what 'counts,' and what is important," Faith Boninger, Alex Molnar, and Kevin Murray write in a section of a 2017 NEPC report that addresses such learning management systems. "They also increasingly script the teaching and learning process, crowding out the kind of unanticipated teaching moments that teachers can capitalize on even when they are not in their planbook. Those unplanned opportunities cannot be coded into any software."

Although Marachi and Quill's paper focuses on Canvas, many of the problems they highlight also apply to the platform's competitors such as Blackboard, Moodle, and D2L. Many problems are also relevant to Zoom, Google Docs, and other technologies that schools have increasingly relied upon during the pandemic-induced shift to remote learning.

"We are experiencing a watershed moment with these shifts," Marachi and Quill wrote last year in the *Washington Post*.

> At no other time in history have we seen such an epic, massive move from in-person learning experiences to online instruction. The idea that nothing can be

done to resist the kinds of technological disruption we are now witnessing in education must be resisted. It betrays a misunderstanding about how technologies develop in the first place, ignores power dynamics in the shaping of education policies, and too readily sacrifices the social commitments that have held our society together; values, moreover, that are now being tested as a result of the coronavirus pandemic.

NEPC Resources on Computing, Technology, and Information Systems

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