

Research using eye-tracking glasses reveals the learning process of novice medical students

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Using eye-tracking glasses, Queen's University professor Adam Szulewski (Emergency Medicine) has developed a new method to determine how novice medical students learn compared to more experienced medical professionals.

"Many traditional assessment strategies in [medical education](#) rely on tabulating learners' scores in order to obtain grades," says Dr. Szulewski. "In the [real world](#), medical learners are faced with the need to make many decisions in a short time period, which increases their cognitive load and puts a strain on working memory. We have shown that we can now measure cognitive load in an unobtrusive way during medical assessments."

For the study, Dr. Szulewski recruited 10 novice medicine trainees and 10 trained physicians and outfitted them with eye-tracking glasses to assess changes in pupil diameter during a test. Changes in pupil size correlate with changes in cognitive processing demands. It was revealed novices expend more mental effort than experts when answering medical questions - which is true even when both the novices and the experts answer the same question correctly.

"These results are preliminary still, but have implications for optimal assessment strategies in medical testing," says Dr. Szulewski. "This is especially true in the new era of competency-based medical education

where trainees are required to demonstrate competence in particular skills before they move forward in their training."

Dr. Szulewski is continuing his research and evaluating cognitive load and expert versus novice performance in simulated as well as real world resuscitation scenarios. This new research will continue to enhance understanding of decision-making in medicine.

The research was published in *Academic Medicine*.

More information: *Academic Medicine*,
[journals.lww.com/academicmedic ... sponse as an.31.aspx](https://journals.lww.com/academicmedic...sponse%20as%20an.31.aspx)

Provided by Queen's University

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