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Conductor, orchestra wired for brain study

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By Ken Maguire, The Associated Press



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By Lisa Poole, AP

Keith Lockhart, conductor of the Boston Pops, fitted with sensors to measure the effects of music on the human brain, leads the Boston Symphony Orchestra.

BOSTON — Mozart and Dr. Seuss provided the inspiration Saturday as researchers measured the emotional responses of a Boston Symphony Orchestra performance.

Boston Pops conductor Keith Lockhart, five members of the orchestra, and 50 audience members were the guinea pigs — wired with sensors as researchers stationed at two banks of computers backstage collected data about heart rates, muscle movement, and other physiological responses.

"Science has come an awful long way in the last 250 years," Boston Pops conductor Keith Lockhart told a Symphony Hall audience of about 2,000 parents and young children during a family concert.

The concert consisted of four Mozart pieces, including the Overture to *The Marriage of Figaro* — celebrating the 250th anniversary of the composer's birth — followed by two Seuss interpretations, including *Green Eggs and Ham*.

Among researchers' questions: Do orchestra and audience members have strong physiological responses, as they suspect, to the conductor's thrusts and dramatic head tosses? Is there much difference between responses at a live show compared to watching on television, as a control group will do later?

"We want a window into the brain," said research director Daniel J. Levitin, a cognitive neuroscientist at McGill University in Montreal. "We want to understand more about how the brain works."

"If the conductor is conveying excitement, we expect to see that in the musicians, and a second or two later in the audience," Levitin continued. "Of course, we might not. It might be that the musicians are not conveying what we think they are. Is the audience taking from this what we think they are?"

Researchers, who will analyze the data over the next few months, say their results may eventually help doctors treat victims of strokes or Alzheimer's disease.

Lockhart, the guest conductor, wore a tight-fitting shirt with electrodes snaking all over his upper body. The sensor on his right wrist popped out of place early in the performance, forcing technicians to reattach it.

Lockhart said the loose sensor was a distraction, but not a deterrent. He's looking forward to being wired up during more challenging pieces.

"A Puccini opera ... something that takes peoples' breath away," Lockhart said. "I'm proud of everything we do, but some music is intended to take you out on a limb, and some music is a little more balanced. People generally don't have incredibly tragic responses to Dr. Seuss, so you're not going to get the full gamut of emotional range."

Overall, he said it was "a good way to start."

Eric Graber, 35, wore a sensor, as did his wife, Lara, and their young son, Sebastian. He agreed that researchers may not get the best results from a family concert.

"One hundred percent of your emotions are not going to be engaged with the music," said Graber, a financial services professional from Boston. "You're also going to be engaged with your children."

Graber thinks there is plenty of room for additional research.

"I'd be curious how any medium affects your emotions, how you react to what's around you," he said. "Classical music is a nice start. There's plenty of room for experimentation."

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