How much museumgoers know about art makes little difference in how they engage with exhibits, according to a study by a German cultural scholar who used electronics to measure which items caught visitors’ attention and how they were emotionally affected. The scholar, Martin Tröndle, also found that solitary visitors typically spent more time looking at art and that they experienced more emotions.

Mr. Tröndle and his team of researchers outfitted 576 volunteers drawn from adult museum visitors with a glove equipped with GPS function to track their movement through the galleries of Kunstmuseum St. Gallen in Switzerland for two months beginning in June 2009.

The gloves contained sensors that could measure physical evidence of emotional reactions, like heartbeat rates and sweat on their palms. When the volunteers left the galleries, they were asked follow-up questions about where they had spent the most time, about particular works they had gravitated toward and about the feelings these works evoked.

Among Mr. Tröndle’s more surprising conclusions was that there appeared to be little difference in engagement between visitors with a proficient knowledge of art and “people who are engineers and dentists,” he said, adding that artists, critics and museum directors often walk into the middle of an exhibition space, scan it and then maybe look at one work before continuing on, while visitors with moderate curiosity and interest tend to move diligently from work to work and read text panels.

“We could almost say that knowledge is making you ignorant,” he said.

The Kunstmuseum St. Gallen is a medium-size institution whose collection includes a range of paintings and sculptures dating from the Middle Ages to the present. Its manageable size and variety of artwork proved ideal for Mr. Tröndle and his team of some 20 researchers from diverse fields like psychiatry, art sociology, cultural studies and fine arts. Participating visitors were assigned a number and were asked basic questions before entering the galleries, “about their profession, their education, if they recognized certain artists, styles and artworks, and whether or not they worked in the art industry,” said Mr. Tröndle.

When Mr. Tröndle first approached museum administrators about the study, he said he encountered considerable resistance. “My visitors are not white mice,” Mr. Tröndle said one museum director told him. Another, he said, scoffed, “Museums are the last mystical place in society,” adding that he would never allow his to be turned into a scientific laboratory.

Mr. Tröndle eventually found an ally in Roland Wäspe, the director of the Kunstmuseum St. Gallen, who attributed his initial interest in the project to his youthful background in physics and the fact the project, known as eMotion, was supported by the Swiss National Science Foundation. “I could not refuse,” he said.

At the core of Mr. Tröndle’s study was a fascination with museum settings in general and a curiosity about how particular arrangements of art objects affected human behavior, he said, speaking from his office at the Zeppelin University, in southern Germany, where he serves as a professor of arts management and art research. His study was conducted over two months, and during the intervening years processing data, he said he and his team established for the first time that “there is a very strong correlation between aesthetic experience and bodily functions.”

Mr. Tröndle defined the “art-affected state” as a sense of immersion in an artwork, or of feeling addressed by it. “These moments of art experience are fleeting and subtle,” he said, adding, “Whoever communicates with an artwork cannot converse with those in their company simultaneously.”

That visitors tended to feel more stimulated by sculptures and installations that impeded their progress through the gal-
eries was also noteworthy. “People want to trip over the art,” he said.

Mr. Tröndle’s research has generated considerable excitement in Germany. During the opening of the prestigious Documenta art festival in Kassel, in June, for example, Die Zeit magazine published a feature with diagrams, presenting the various visitor types and their habits.

It has piqued the interest of museum administrators and arts scholars, and Mr. Tröndle was invited to present his findings at cultural conferences in Barcelona, Taipei and Vienna over the summer. This month he’s on a speaking tour at American universities, like the University of Chicago, the Massachusetts Institute of Technology and New York University. And Oct. 29, he is scheduled to give a lecture, “Experiencing Exhibitions — Empirical Findings,” at the Smithsonian Institution in Washington. (His paper “A Museum of the 21st Century” is scheduled to be published in December in the journal Museum Management and Curatorship, he said.)

Still, although American museum administrators have expressed interest in Mr. Tröndle’s research, initial reactions to his study have been guarded.

“This technology is so new and so young,” said Paul C. Ha, director of the List Visual Arts Center at M.I.T. “We don’t know what we have yet. And, as we all know, data can be interpreted in any way.”

Bonnie Pitman, distinguished scholar in residence at the School of Arts and Humanities, University of Texas, Dallas, and co-author of the 2010 book “Ignite the Power of Art: Advancing Visitor Engagement in Museums,” said: “I’m not sure that just because you have more data, that gives you a better understanding of the very complicated set of issues involved in experiencing works of art.”

Ms. Pitman spent seven years studying visitor responses to art during her tenure as deputy director, and then director, of the Dallas Museum of Art, and is considered a pre-eminent scholar on the subject. Referring to Mr. Tröndle’s conviction that an elevated heart rate signals a more profound art experience, she said: “Those transcendental moments when you’re just completely awash in the color and beauty of a great Pissarro or Sisley or Monet — those moments aren’t necessarily going to raise your heart rate. They’re going to slow you down.”

Ms. Pitman offered an alternative view of Mr. Tröndle’s suggestion that visitors with more knowledge of art had a less profound appreciation of what was on exhibit. “As viewers become more experienced, their databank builds up, so they don’t need to spend as much time going from work to work and reading wall labels,” she said.

And at the suggestion that visitors to museums should check their friends at the door, she all but balked. “It doesn’t necessarily surprise me that a person participating in this study enjoys viewing art on their own. But the reality is certainly that the experience of looking at art is often a highly social one, so I think the accommodation of that in any study is really critical.”

Back at the Kunstmuseum St. Gallen, Mr. Wäsper has interpreted Mr. Tröndle’s findings more literally.

Given all of the recent attention on blockbuster exhibitions at vast museums, “you might assume that our future is not very rosy,” said Mr. Wäsper, referring to his smaller museum. He added that Mr. Tröndle’s research suggested that “we now have an advantage, because we see that, for an optimal art experience, museums have to be small, they have to be more empty, and they have to be, in the most positive sense, a place of contemplation.”

Of Mr. Tröndle’s suggestion that the more social one’s visit, the less one can remember of it, Mr. Wäsper said, “This means never go with your best friend through an exhibit, because you don’t do them any favors.”
you were used to going exploring with Sam and Colby and the how heart pounding the expirences could be. you had almost been caught, surrounded by ghosts and even chased out and nothing bad had really happened - yet. the abandoned factory had graffiti all over the place, glass shattered on the floor and beams that had fallen from the ceiling. the goal was obviously getting to the roof, so were carefully trying to find a way up. Sam whispered, pointing to the beams and then to the window. from the outside, you saw