

Remarks by Eric Mazur

Panel on Blended Models of Learning: Bringing Online to On-Campus

The greatest revolution in information technology did not occur a few years ago. Nor did it occur 10, 50, or 100 years ago. It occurred over 500 years ago, when Johannes Gutenberg invented the printing press.

Until then teachers read from their manuscripts, and scribes dutifully copied. In my mind's eye I can see the Presidents of Universities in those days saying "We are on the eve of a new revolution. Imagine what we can do with this great new tool!"

Yet, reading notes and taking notes continued to be the predominant approach to teaching and learning.

Interestingly the great English writer Samuel Johnson is quoted to have said in the mid 1700's:

"Lectures were once useful; but now, when all can read, and books are so numerous, lectures are unnecessary. [...] I cannot see that lectures can do as much good as reading the books from which the lectures are taken."

He goes on to say that nothing can be best taught by lectures except, perhaps, chemistry and the making of shoes.

Fast forward a few centuries and we still mostly lecture. And now we are using this great new tool that constitutes the Internet to move lectures online for the masses.

Let me show you some very interesting data collected by Roz Picards group right here at MIT. I think we better pay attention to these data.

The data vividly illustrate the question. “How active are our brains in a lecture?” [show slides; elaborate on PICARD DATA – brains totally shut down in lecture]

There is ample research evidence that the lecture creates a perfect illusion of learning.

But learning in my mind is a two-step process not addressed by lecturing alone:

1. Information transfer
2. Making sense of that information

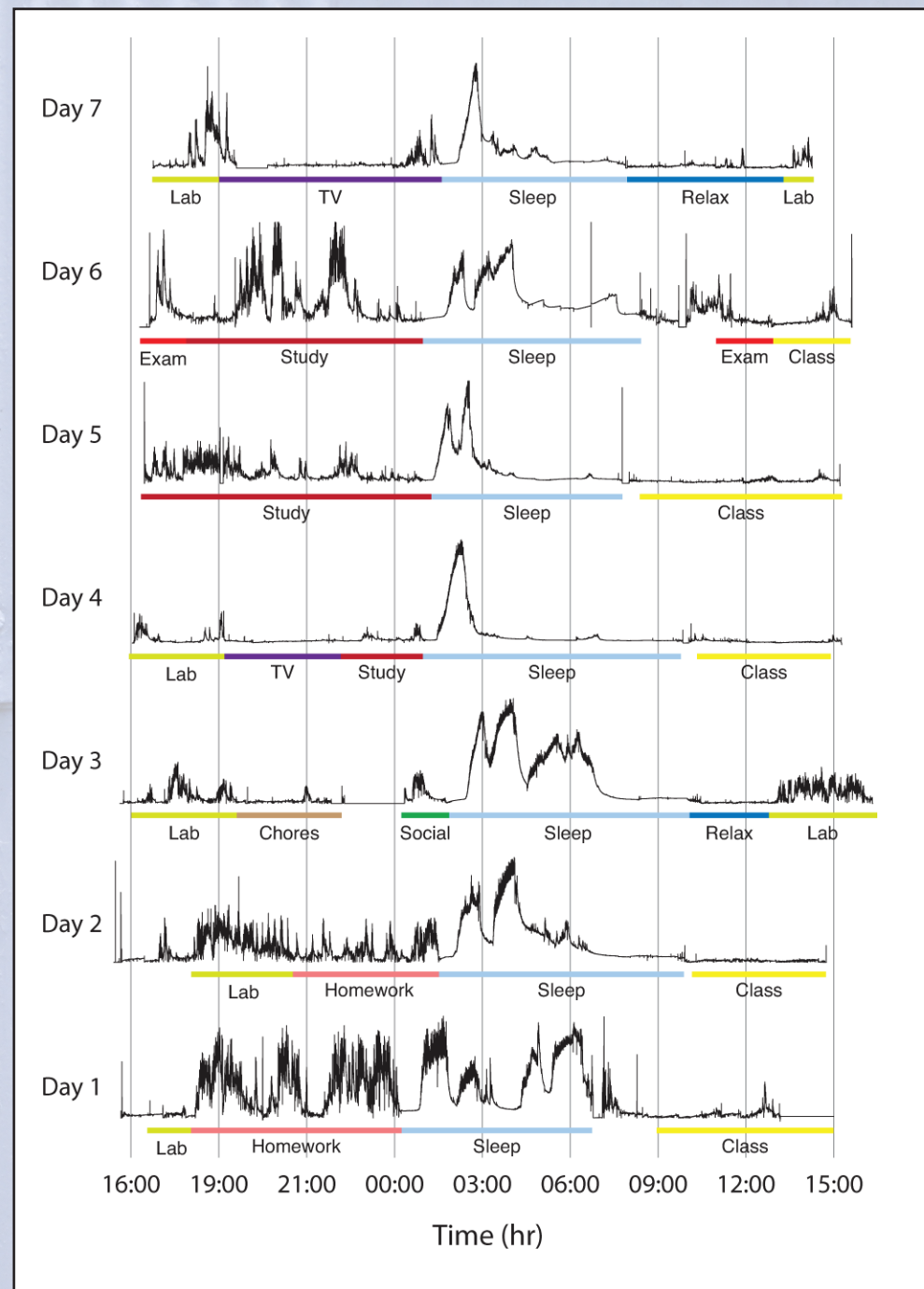
Most of the emphasis in our approach to education is on the transfer step — the lecture. The hard part – the sense making – is mostly left to the students to do on their own *outside the classroom*.

I think the data I just showed illustrates the danger of simply moving lectures online to the masses. I may have exaggerated a bit with my Happy Meal remark yesterday, but supersizing the lecture doesn’t make it any better for the brains of the masses than it was for that MIT student.

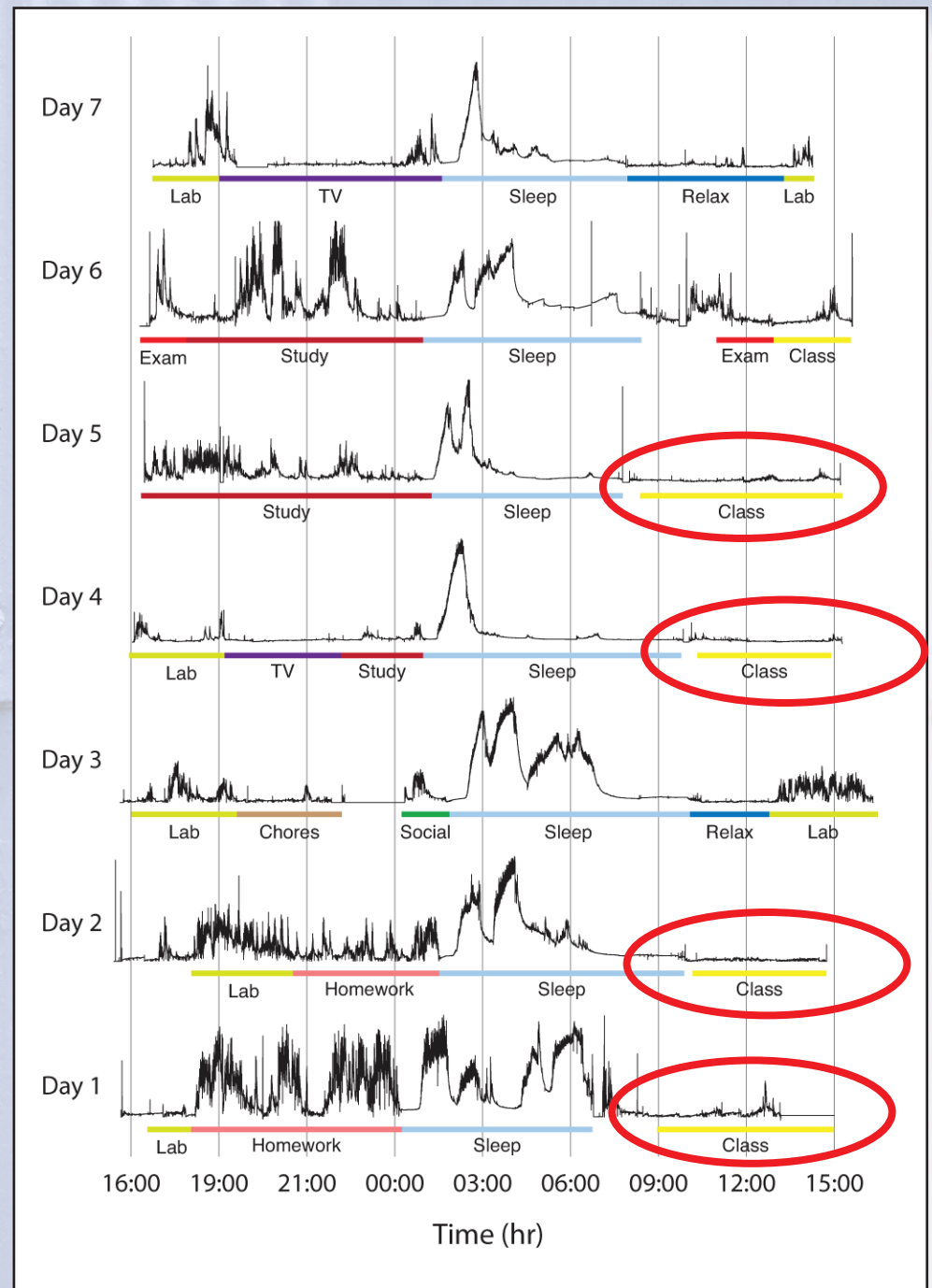
I believe the big opportunity of moving the information transfer to the web is that it frees us to use class time in a more meaningful way — to help our

students making sense of the information in a pedagogically sound manner. If that is the outcome, then I'm happy with the Happy Meals.

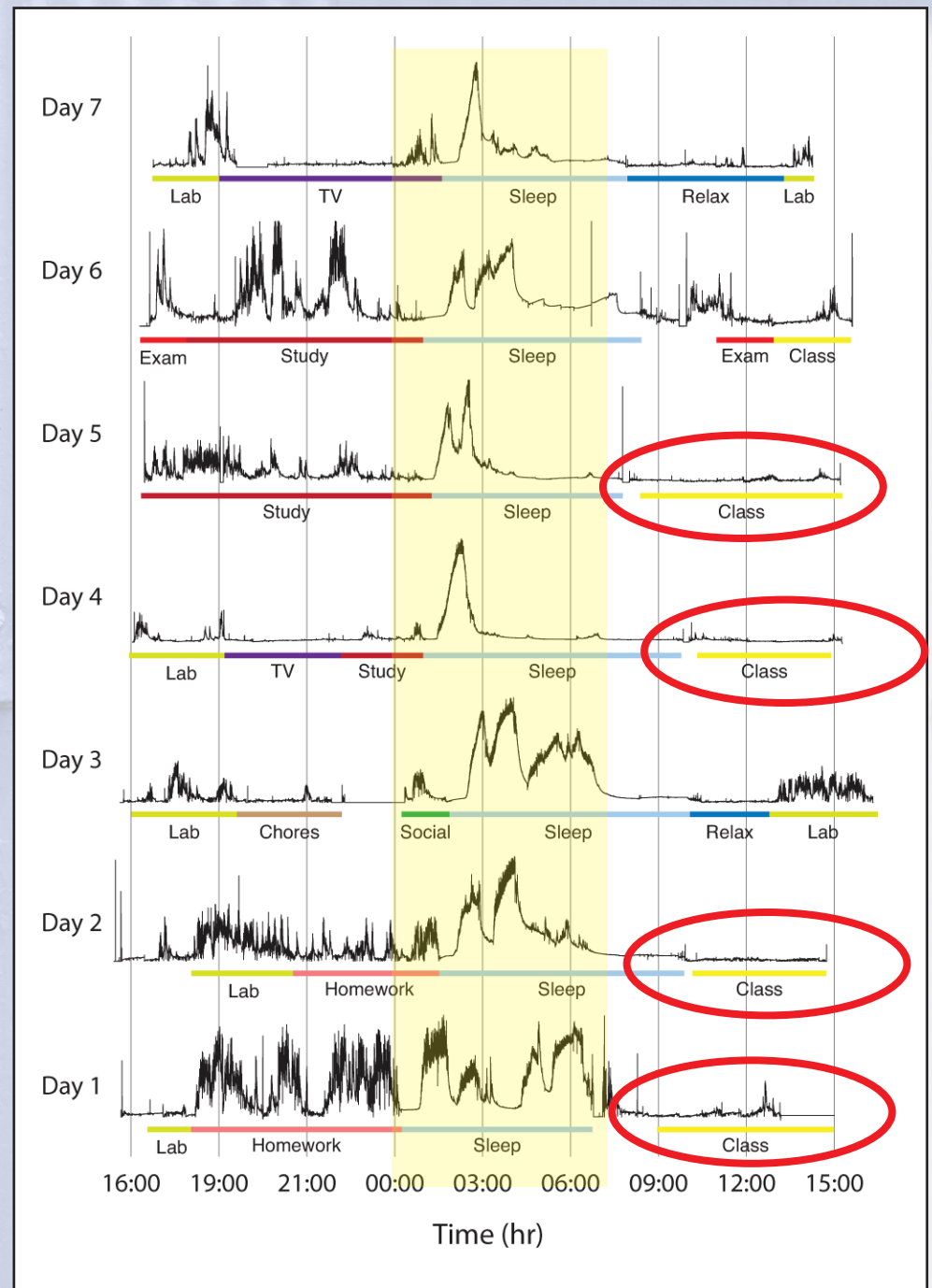
How active are our brains in a lecture?



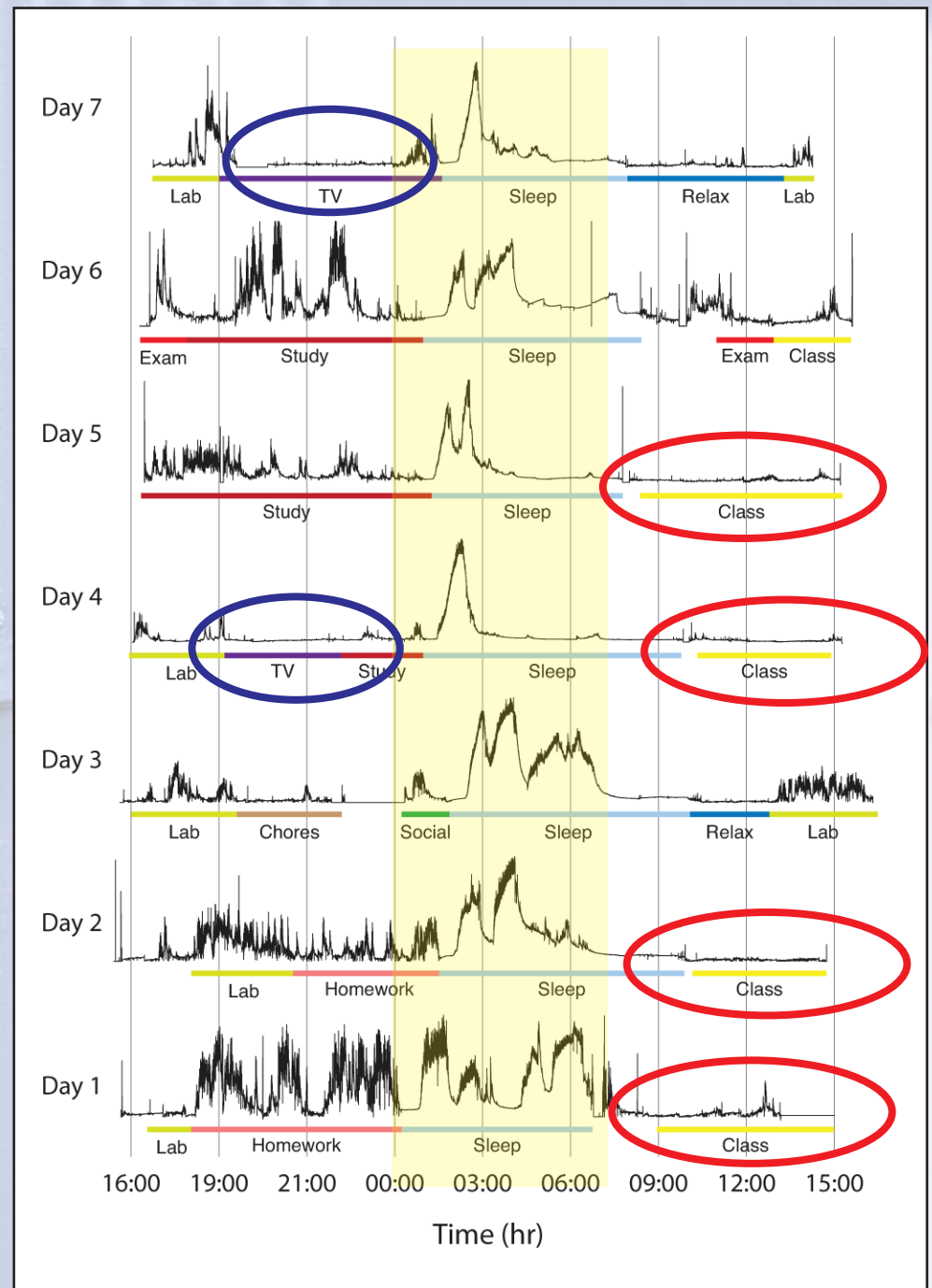
doi: 10.1109/TBME.2009.2038487



doi: 10.1109/TBME.2009.2038487



doi: 10.1109/TBME.2009.2038487



doi: 10.1109/TBME.2009.2038487

1 lecture

2 sleep

3 TV



1 lecture

2 sleep

3 TV

The background is a faded, classical-style painting. It depicts a face with multiple eyes, a common motif in religious art representing divine omniscience. The face is pale with soft, painterly features. The eyes are large and detailed, looking directly forward. The overall tone is muted, with soft blues, greys, and flesh tones. The text 'an illusion...' is overlaid in a bold, red, serif font, centered horizontally and slightly below the vertical center.

an illusion. . .

1 lecture

2 sleep

3 TV