SOAPBOX SCIENCE

An Elevator Pitch for a Research Project

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Rey Katz graduated this June with a Bachelor of Science in Physics from MIT. She received first place in the 2011-2012 DeWitt Wallace Prize for Science Writing for the Public, from the MIT Department of Writing and Humanistic Studies. From June 2011 to May 2012 she was employed at the MIT Quanta Lab, an experience which inspired this post.

Communication about science doesn't need to be time-consuming or distracting from research — it can be as simple as being able to excite someone about your research in one sentence. Scientific projects are often considered too complex to be understandable with only a short explanation. While articles in national magazines are crucial for the distribution of scientific knowledge to the public, a quick chat with a prospective lab assistant, new acquaintance at a party, or your next door neighbor is also a great opportunity to disseminate information about cutting-edge research and the scientific process.

Think of the positive impact if you could sell a research project with an elevator pitch – a description of an idea that is concise yet exciting enough for an entrepreneur to sell to a potential investor during a short elevator ride. Condensing an entire research project into a few short sentences is a difficult challenge, but my firsthand experience with an extremely well-thought out explanation of a lab's research has convinced me that the elevator pitch for science is a worthwhile goal to work towards.

When I first walked into the lab in which I did my senior project for undergrad, I was utterly intimidated by the equipment. Tables and cabinets were everywhere, and every surface was covered with metal and plastic boxes with dials and lights, most of which probably cost a small fortune. Metal cylinders were bolted to other equipment and to the tables. The tables themselves were made of metal, and their surfaces were metal plate with evenly spaced holes drilled into it like an erector set. Cables ran along the ceiling and walls. Lights flashed, both from the caution signs warning us about the lasers and from the laser beams making their way through the dense mazes of mirrors and lenses on the tables.

To add to my confusion, when I first walked in that door, I didn't know that much about what the lab did other than they worked on quantum computing, with atoms. The topic seemed so complex that I wouldn't have been surprised if I was referred to ten or fifteen papers describing the work. I might have had to spend a couple of weeks studying the material before I even had a basic understanding of what was going on.

The professor introduced me to one of his graduate students and suggested that he explain what the lab does to me. The grad student complied, describing his work in one or two sentences that were simple, clear, and accurate.

He told me how the lab had the equipment to capture and study a single atom in the middle of a chip inside a vacuum chamber. By investigating one atom at a time, they could study the basic physics of matter and light. Also, a single atom can be used to perform computations more efficiently than the corresponding unit in your desktop computer, called a classical computer to distinguish it from a quantum computer. Classical computers perform calculations by essentially using combinations of on-off switches.

A trapped atom can be used as one of the “on-off switches” that make up a quantum computer, because it can be placed in a ground state with lower energy, or an excited state with higher energy. However, the state of the atom can be more complicated than simply “on” or “off.” The additional states can allow some calculations to be more efficient on a quantum computer than a classical computer.

I still spent a few weeks reading papers and asking questions about the equipment, but my initial introduction to the basic concepts being researched in the lab was incredibly helpful so that I could pick up the details quickly. I was very grateful to have such a quality, well thought out introduction to the research.

That first introduction was what I needed to start asking questions about the equipment and the theory. I became comfortable working on hardware in the lab as I developed an understanding of the tools available. My initial introduction stuck with me because it was the turning point towards familiarity and understanding. The few sentences assured me that the basic concepts were not too complex for me to grasp and set me on a path towards figuring out the rest of the skills and knowledge that I would need.

Although I learned a great deal about research while working in the lab, one of the most important things I took away from that experience is that being able to describe my work clearly in a sentence or two is something worth spending some time on. After all, if I can’t explain to a stranger within a minute the heart of why my research is worthwhile and exciting, could I convince myself in a moment of self-doubt? The elevator pitch can form a crucial part of the documentation, publicity, and motivation for any project, from fast to lengthy, and from simple to complex.

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