

# Multiple pathways to the development of a physics identity

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SALLY

BOB

(May 2012) Sally is a sophomore chemistry/education major who has just declared a minor in physics. She is about to do undergraduate research in physics.

(Sep 2012) Sally wants to be thought of as a physicist. She wants to declare physics as a major as she has fallen in love with the subject but does not feel she has time to declare it.

(Jan 2013) Sally declares a physics major and herself a physicist.



Like as a chemist, I love the atomic scale... [Physics has] stuff that you just can't learn in a chem class...[it's] just beautiful. (May 2012)

Before I started researching at all I had this view of physicists sitting in a room, staring at a board (laughs) not doing anything exciting. (Sep 2012)

I have come to realize...that even theoretical physicists get to see the application of their work, at least a little bit. It is still more exciting than I had envisaged before, definitely more rewarding. (Sep 2012)

I don't even have a degree, I'm not even a major, a physics major, I would love to be able to consider myself a physicist but I don't know if I am qualified to do so...I am more comfortable calling myself a chemist. (Sep 2012)

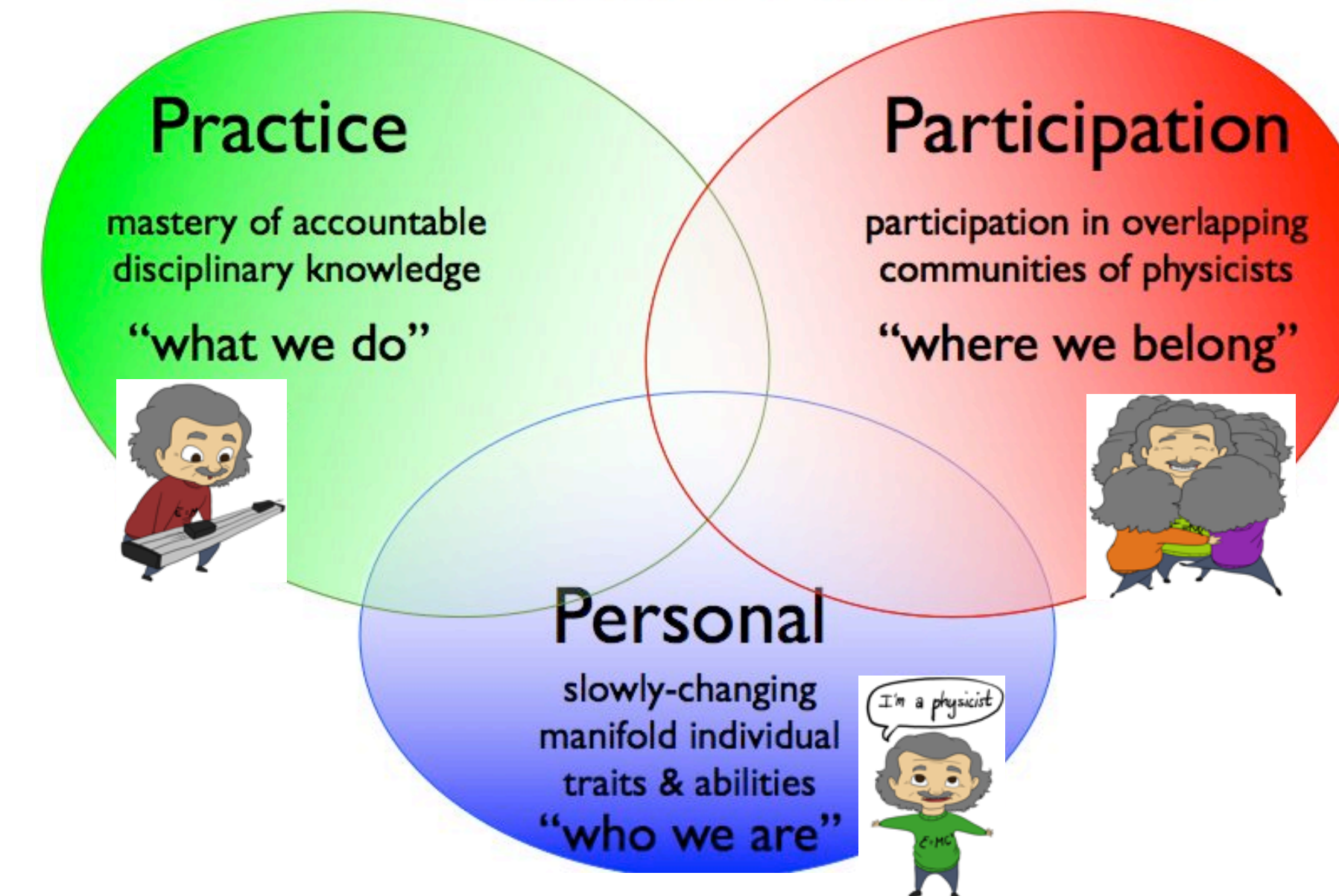
Interviewer: When you are at some sort of social event and someone asks you what do you do, what do you tell them?

(laughs) I tell them I'm a chemist and it makes me really sad because I want to say I'm a physicist (laughs). (Sep 2012)

Yes I now define myself as a physicist partly because I officially added it as a major ... Thinking about [physics] made me realize how

I enjoy it and actually made me consider doing physics for you know, the rest of my life. (Jan 2013)

## Theoretical Framework



Transcripts for the interviews were analyzed using the following color codes.

Perceptions of physicists

Commitment Mindset Affinity

Perceptions of doing physics

LARRY

(Sep 2012 and Jan 2013) Larry starts our study as a 19yo sophomore. He wanted to be a physicist since he was younger, as is typical for his peers. His opinions about doing physics and what being a physicist entails do not change over time.



I guess I would kind of consider it (being a physicist) you know a mindset, through, where you kind of look at things analytically and try and break a problem into its elements...see where you can go with it from there..you know, just the resourcefulness in problem solving and things like that.

Interviewer: What makes a physicist to you?

Well first off, you have to be involved in physics somehow, I don't think you necessarily have to be, like, doing research...actively to be a physicist. I just think you have to have an appreciation for physics and be involved with it in some capacity. (Sep 2012)

I think you can solve problems and be a physicist without necessarily having to do physical experiments. (Jan 2013)

Interviewer: Given that description are you a physicist then?

I would like to think so, I might be a little biased...I like to think I am. (Sep 2012)

(Sep 2012) Bob is a sophomore doing a double major of physics and engineering, stating a preference for physics

(Jan 2013) He enrolls in the advanced lab course but decides to drop down to a physics minor early in the semester. He still professes a preference for physics as a career.

(Mar 2013) After stating that he still preferred physics, he posits that he would start making money faster if he takes the engineering path instead.



I'm interested in, I guess the actual science, instead of the engineering, I still like the engineering, I just decided to double major... I pretty much just decided that I wanted to do physics as well and that's probably what I am most interested in. (Sep 2012)

I feel like if you're going into physics you're more interested in the topic than people going into engineering really, they were maybe decent at Math in high school and saw the dollar signs. (Sep 2012)

Having a PhD in physics. That would qualify [me as] being a physicist. (Jan 2013)

Yeah I'd say I'm leaning more towards physics...cause it's more interesting and lots of engineering jobs are boring and you sit at a desk with a whole bunch

of engineers and physics is a lot more, I guess a lot less people do it and there is just more interesting stuff. (Jan 2013)

The main reason was how long I had to be in school before I could go out and start making some money...I get a masters in engineering what I want to do is fluids or aerodynamics which is

pretty physics intense anyways. So, I still pretty much do both things I like anyway...I felt I could still pursue something. I'm interested in physics. (March 2013)