Computer Science: Cool versus Cash

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The reasons behind an increasing enrollment rate in computer science programs say it isn't coolness driving interest, it's cash. But the reality of computer science is such that opportunistic degree chasers aren't likely to make it through the program.

Recently, infrastructure was declared "cool again". And this week computer science majors got the "cool" nod as well. My immediate reaction to both "news" announcements was: When were they *not* cool? My second was, how in the world does a rise in *enrollment* equate to *coolness?*

The fact that infrastructure is getting more attention and more college students are enrolling in Computer Science does not make them any cooler than they already are (which is pretty damn cool if you ask me!). It just means they're finally getting the recognition they deserve as being essential to not just a data center, but to the *business*. It means that folks are finally realizing that without infrastructure and without computer science most business would ground to a screaming halt.

But let's be realistic about this, okay? Let's not confuse "opportunities for cash" with "coolness". The aforementioned article on the rise of Computer Science enrollments in NetworkWorld lays it out pretty well:

> *CRA said the popularity of computer science majors among college freshmen and sophomores is because IT has better job prospects than other specialties, especially in light of the global economic downturn.*

This isn't about "cool", it's about opportunity. Kids aren't thinking about a career in IT because they necessarily think it's "cool", they're thinking it's good money and a good opportunity. And they're probably right, and there's nothing wrong with that. (Unless you tell people that's your motivating factor by tweeting that all you want out of your Cisco job is a "fatty paycheck" and will hate the work. Then you had best find a new profession, because you'll quickly become an Internet meme and get your fifteen minutes of fame in a bad way.)

But that doesn't make it cool; that makes it a savvy career choice in the face of harsh realities. The kids that enter the field because they see opportunity will likely never describe their degree as "cool". They'll likely never do a happy dance at 3am when their compiler project finally works, or clap their hands with glee at the sight of yet another hunk of metal with blinking lights. They'll sigh with relief at the former and with resignation at the latter knowing they'll be working overtime to get it deployed.

You can't instill cool. Cool, like beauty, is in the eye (and heart) of the beholder. And if that cool isn't there, then you end up with a lot of interest, but high attrition.

From the NetworkWorld article:

> "*We* [Carnegie Mellon] *limit our enrollment to 130 new freshmen, so we never had an enrollment dip here at CMU,*" *Lee says.* "*The quality of the applications is up. We're seeing some pretty amazing kids. Of the 2,600 applications we received, 600 to 800 of them deserve to be here.*"

Of the 130 enrolled, it's likely less than half will actually graduate with a degree in Computer Science, just based on the national college graduation rate in general, which appears from studies in 2008 to be hovering below 60%. Computer Science programs – at least the ones that turn out good computer scientists - have always had a very high attrition rate, and it's likely that if the driving interest behind an enrollment is "opportunity" or "gadget fascination", as cited by the NetworkWorld article and included study, rather than "it's cool!" that a majority of those enrollments won't make it through the program. Bob Sloan and Pat Troy of the University of Illinois at Chicago during a presentation at SIGCSE 2008 point out the high attrition rate of computer science students:

- *High Attrition Rate at Freshman and Sophomore level*

  - *19% National Average*
  - *As high as 66%*
  - *30%-40% at UIC*
  - *Worse for Female Students*

The NetworkWorld article cites social media and gadgets as part of the reason CS has a new "coolness" factor. That's coolness of the shallow kind. Kids are engaged and excited about technology and *how they use it*, not necessarily how it works, or how to architect and build a network capable of sustaining the use of that technology. The Sloan/Troy presentation appears to possibly support this, citing as reasons for attrition that "classes are describe as":

- *too boring*
- *overly technical*
- *lack creativity*

Overly technical? This is Computer Science, man! It's *supposed* to be technical. It's not **Facebook 101** or **Tweeting for Fun and Profit**. It's *Computer Science,* for crying out loud, what did you expect? A keyboarding class? Too many students enter computer science thinking it's about designing cool applications (it is), but are focused on *what* those applications do, not *how* they're going to have to do it. And that's what computer science is about: *how the magic happens.* Yes, it's hard. As Tom Hanks' character says in *A League of Their Own:* "It's supposed to be hard. If it wasn't hard, everyone would do it. The hard... is what makes it great". He was talking about baseball, but it's equally true of computer science.

In order to truly think infrastructure and computer science is cool one has to embrace their inner geek. And no matter what the studies say, most kids aren't willing to do that. Some of them don't even have an inner geek to embrace. That means the lack of "cool" is going to drive attrition rates even as the attraction of cash drives enrollment rates up.

Cool still wins over cash most of the time, and considering that innovation in any industry is almost always driven by passion, that's a good thing.