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Dreams for Science Education Research ... But Why Am I Laughing

My Vexation

In the summer of 2004, after John Settlage - my all time beloved hero in science education - left our department in search for a brighter future, many of our science ed doctoral students either changed their major or switched to another university. Only a small number of them were still holding tight to a dream – a dream that another science educator will soon be hired. Guess which category I belonged to? – I was a dreamer, so sad but true!

In Summer 2004, my department chair had repeatedly assured us that our department would find a new science educator in a few months. In Spring 2005, she again promised us that we would have a new science educator in a few months. Then in Fall 2005, she as well as the search committee stood up and again promised to us that they would definitely hire a new science educator before the end of Spring 2006. One promise, two promises, three promises - all were actually empty promises! And now she has left the University to work in another state.

Today, I am finally awake. I no longer believe in such dream. Yet, right at this time, we are having a new department chair. He, again, makes a promise to all the doctoral students that our department will soon find a new science educator, maybe not in 2007, but definitely in 2008. I started to laugh. I laughed so hard. This new department chair looked at me and smiled. I laughed again, shook his hand and said, “I trust you!!!” Then I laughed again.

I wonder why is it so difficult to find a science educator. Why is there a shortage of science educators in our nation? I am speculating that the main reason may be due to the values, attitudes and beliefs that our society places on education. We often talk about how education should be our priority in our country; we talk about scientific literacy for all; we talk about no child left behind, no teacher left behind and no body left behind. But, where are the actions? Of course, we see actions. Teachers/educators are underpaid compared with other professionals such as doctors, lawyers and engineers.

Educational research funding is limited compared with medical and pharmaceutical research. Too many graduate students in education are struggling in self-supporting themselves for their studies (and I am one of those!), whereas a vast majority of graduate students in chemistry, biology, psychology, sociology and other fields are enjoying full support throughout their years in graduate schools. As ironic as it can be, these are the exact values and beliefs that our society has in education – do more with less. Do you buy that? I certainly don't! If this trend continues, I can almost guarantee that a thousand years down the road, there still will not be much change in the American education, especially in the area of science education. We will still be laughing at the empty promises!

My Venture

Now, how can we make our dreams come true? How can we fulfill our promises? How can we resolve the shortage of science educators? How can we truly instill scientific literacy for all? How can we really leave no child behind? I claim that changing our values, attitudes and beliefs toward education will be the key.

In order to change our values and attitudes toward education, first and foremost, we as a nation ought to pay more respect to our teachers/educators. Instead of punishing them with different strategies such as “No Child Left Behind”, we should focus more on rewarding them with adequate funding, competitive salaries, benefits and so on. Instead of letting businessmen and others draft educational policies, we should ask teachers/educators to do so. Instead of allowing parents to complain about teachers for assigning too much homework for their kids, we should penalize parents for such non-sense, non-respectful, and non-responsible action. And you should know that I am a proud parent of two hard-working children.

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Secondly, we need to place more emphases on efforts. The American educational philosophy has long been emphasized on nurturing and maximizing one's zone of proximal development, one's innate ability, while neglecting efforts. In contrast, the educational philosophy in the Asian countries is rooted in efforts. I remember a Chinese saying which goes, "30% luck plus 70% effort equals to success". The outcome of efforts are clearly reflected in Asian parents' active involvement in their children's school work, the communities' support for their schools, the teachers' high status in their societies, the schools' emphases in discipline as well as students' obedience, lack of absenteeism, belief in hard-work and respect for their teachers. When we look at the TIMSS data from the past three cycles, it is not difficult for us to see that our students are showing mediocre performance in science compared to the Asian countries. Even the top students in our country are far lacking behind the top students in the Asian countries. Why is that so? I think we ought to re-examine our efforts.

Respects? Efforts? Are they really possible for our country to change? I am not sure. Undoubtedly, it will be very difficult. It will definitely require the commitment of our society as a whole. The war in changing people's values, attitudes and beliefs will surely be long. And I am interested in your ideas and suggestions.

I feel that an important step toward changing people's attitudes and beliefs is to better communicate statistical information to the general public. The U.S. Department of Education and the National Center of Educational Statistics gather an immense amount of data which is regularly released, at no cost, to the American public. Unfortunately, the significance of the data is only reported in specialized reports that do not even find their way into many educational research journals. As a result, teacher educators, let alone practitioners and policy-makers, are making choices based almost entirely on their own impressions. So here is what I would like to venture:

During my doctoral training, I am fortunate enough to have various opportunities to analyze large-scaled data sets and to develop an extensive knowledge base in research and statistical methods. But what I realize I should do is to combine my analytical skills with the interests of science educators. I also recognize that there may be ways of sharing the results of large data sets in ways that will inform policy makers so they can make better decisions. But before I can do that, I have a few questions:

- a. What would be some effective ways for sharing the results of my data analyses with those who have a role in shaping educational policies in science education?
- b. As I approach my graduation (finally!) I wonder what sort of work I might do in science education that would make effective use of my statistical backgrounds?
- c. What are some important questions and promising issues within science education that I should focus upon? In other words, what might I provide that would be most beneficial to improve the knowledge we have about effective science education practices?