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Science/Chemistry Education
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Designing Sensible Science

An approach to jaunty and environmentally-friendly science

Since as long as I could remember, I had been interested on my father and older brother's fondness for books. Many of the books had fascinating colours, full with pictures of structures and shapes. They were about science and engineering.

During my schooling time, I came across passionate teachers, whom I was impressed by their methodical approach on the subjects they delivered, care for the students and eagerness to embrace the students to have the pleasure enjoying their subjects. It did not make the subjects any less difficult, but much more durable.

I took my undergraduate degree in Chemical Engineering, which gave me more lesson into critical thinking than enjoying the abundance physics. I learned more about life skill during my university time rather than the major I signed in for; but if I had given the opportunity to study again I will not hesitate to do it a lot better than I did.

Since I started teaching, caught in students' feedback and casual conversation, chemistry has always been tough and strenuous and it is almost impossible to find delight doing chemistry. However, I believe no science is not demanding on the pursuance. We could mould our response and approach to science, but drive is more often than not the most important role for anyone to connect.

It has always been a never ending quest for me to find ways to share my enthusiasm about chemistry to my students. I lack to a good extent about teaching and learning theory, although I can tell if my students are getting uninterested or starting to undergo difficulties and I can adjust myself to meet their need. I am convinced this is eminently because I took engineering rather than education as my undergraduate course. And I wish to have more pedagogical reserve to be able to conform my classes into proper research field and documented papers for colleagues to share.

I want my students to experience the exciting science independently. I thought it would be fulfilling for myself when later they also grow to enjoy chemistry and further apply what they have learned in class into their daily lives. And I came into realisation that my class could have been much better if I know better how human psychology work, how things work, how to align the tools and develop teaching materials, how to design a course to satisfy a purpose, how to cope with vast ability difference of the students, how to make a student comfortable with oneself and confidently taking measured steps toward one's goal, and most important of all is how to nurture the expected traits of future humans.

I am currently teaching in a UK-based curriculum (IGCSE and A-level qualifications) school. Despite the mounting substance of chemistry I have to teach, there is one thing that bothers me since I am also teaching environmental management subject; can chemistry subject be environmentally friendly? I felt intrigued that despite the good knowledge from both subjects, I could not abandon the notion that I am contradictory. I teach students to pay more attention to the environment, be more sensitive and responsible, and learn to manage ourselves from further destructing earth despite growing human's need. Yet, from what I have been doing, chemistry practical work always produces waste and for the most part it is hazardous to the environment.

Can chemistry be learned thoroughly without badly affecting the environment through the numerous practical works? Is there any certain method that could bridge and bring about the best of both worlds? To be more general, regardless that science must be objective, can teaching science be more sensible to environment and people?

I found 'chemistry education' as a very interesting topic of study because it could provide the answer to my questions. It should be able to cater to my need about pedagogy, chemistry, and looking at how Japan indulge sensibility to nature, also environment. No university in Indonesia has yet provided similar course either educational or engineering and science. I would like to learn about designing chemistry curriculum, that keeps students engrossed, with usefulness and kind to nature in mind. Hence I hope to be enrolled in this Teacher Training program to have the chance from the best relevant source: the experts in experienced fellow Asia country.

I have these courses in mind and am interested in:

- School leader course

- Secondary science education
- Chemistry education
- Organic chemistry
- Inorganic/analytical chemistry/chemical ecology
- Environmental science

I am convinced the assigned professors will be willing to help me going through the discussion and give the best advice on which lectures and seminars I should attend to comply with my requirement.