

## My Earth science educator story – Chun-Yen Chang ('Jim' to his friends) What I did, why I did it and what happened



### “What Happened? No Choice.”

#### Scene 1

(It all starts on a country road, on a summer day in 1981. Two normal Taiwanese boys from an all-boys senior high-school, wearing school uniforms, are walking home after school. Discussing their lives and futures.)

Little Jim: Three years in an all-boys high-school. I can't wait to choose a program with co-ed classes! Education. That's what I want to get into. I heard the classes are all girls!

Little Tom: I'm sure you scored better than me anyway. So I'm gonna try and get into Earth science.

Little Jim: What's that? Never heard of it. Why Earth science? Are there girls?

Little Tom: I don't know; I just can't take the pressure from my parents anymore. My Dad said that: (imitating a deep father's voice) “After senior high-school, you are gone. I don't want to support you anymore.”

Little Jim (walking but turning his face sideways to Tom). Our scores are pretty close. I'm not that much above the class average. Why not apply for some subject that someone's heard of? Or, something that makes money?

Little Tom: (smiles) That's just it. I checked everywhere to see what I can get into with my marks – like science, or engineering or math. Nothing with my score. (pulls out a paper) Wanna see what we can choose from? (points index finger to the sheet) This is the only one we can get into.

Little Jim: (Looks at paper and stops walking) So, we have no choice?

Little Tom: Look at our marks on the chart. We do have a choice: National Taiwan Normal University, department of Earth Science. Don't worry. I'm sure there are some girls there too.

Little Jim: (jokingly, pushes Tom) Maybe there will be girls there thinking “No choice,” when they see you.



## “Why I Did It. A Lucky Guy”

### Scene 2

(Present day, near the end of 2016. Jim, now an NTNU Chair Professor as well as the Director of the Science Education Center within National Taiwan Normal University, and a journalist, sit together relaxed in a bright and simply furnished office. The two are comfortably seated facing one another, across the corner of a medium-sized white meeting table, with some Chinese tea on the side, the interview begins.)

Inter-viewer: I'm going to record this, if you don't mind. (fiddles with a small black rectangular device)  
Testing...Dr. Chun-Yen Chang, Biography...Take 1...

Jim: (With a warm smile) No problem. Go ahead. And, you can call me, Jim.

Inter-viewer: Great. Let's start. Jim, your biography has been included in many editions of '*Who's Who in the World*', '*Who's Who in America*', and even in the upcoming 2016-2017 '*Who's Who in Science and Engineering*'. These honors are not simply for your work in Earth Science are they?

Jim: These are the results of teams of international researchers, from all areas of learning, not simply one person's achievements in Earth Science. My dream is that we can all collaborate within and beyond our own fields. We're working together towards general scientific literacy. In simple terms, we hope everyone can learn, as well as share what they know.

Inter-viewer: I remember hearing somewhere, that you didn't even choose the field of science on your own.

Jim: In Asia, the educational system is, for the most part, focused on student testing and university entrance exams. I am a lucky guy, so I was placed into Earth Science at NTNU. But, I want my son Austin's life to be more than just about tests. The freedom to learn is a right that future generations should have.

Inter-viewer: So you want to change the system, so to speak. But, how can we do that just through Earth Science?

Jim: The way I see it, Earth Science is very much an Interdisciplinary Science: which means it touches upon many areas of science education, including the fields of mathematics, physics, chemistry, as well as all the people in these fields.

Inter-viewer: So do you have a vision for changing the education system?

Jim: I believe that if we can connect with each other, as individuals from different fields, and find ways of working together, that connection will change the system. It will change your world, my world and our world for the better.

Inter-viewer: Wow. So, you want to change the world?

Jim: Our world is changing. But we can help each other to learn how to change it for the better.

Inter-viewer: So how do we all connect with each other to start this off? I mean really changing the world, what can we do? How can I really start?

Jim: I like to make things simple. If you're interested, let's start by clicking on the links below.



(Click on the link below)  
<https://youtu.be/o25iLLkhu6g>

*Chun-Yen, Chang, aged 49, Taipei City,  
 Taiwan, December 2016,  
 changcy@ntnu.edu.tw*

#### References

- Liou, W. K., Bhagat, K. K. & Chang, C. Y.\* (2016). Beyond the flipped classroom: A Highly Interactive Cloud-classroom (HIC) embedded into basic materials science courses. *Journal of Science Education and Technology*, 25(3), 460–473. **(SCI) (SSCI)**
- Chien, Y. T., Chang, Y. H., & Chang, C. Y.\* (2016). Do we click in the right way? A meta-analytic review of clicker-integrated instruction. *Educational Research Review*, 17, 1-18. **(SSCI)**
- Wu, L. Y., Chang, C. Y.\*, Liu, H. H., Wu, P. H., Lei, Y. C. & Lu, H. Y. (2015). Piloting a collaboration between education and broadcast journalism in Taiwan. *Science Communication*, 37(4), 542-548. **(SSCI)**
- Liou, W. K. & Chang, C. Y.\* (2014). Utilizing a low-cost, laser-driven interactive system (LaDIS) to improve learning in developing rural regions. *Educational Technology & Society*, 17(3), 93-107. **(SSCI)**
- Rundgren, C. J., Chang Rundgren, S. N., Tseng, Y. H., Lin Pei-Ling, & Chang, C. Y.\* (2012). Are you SLiM? – Developing an instrument for civic scientific literacy measurement (SLiM) based on media coverage. *Public Understanding of Science*, 21(6), 759-773. **(SSCI)**.
- Wang, H. C.\*, Chang, C. Y.\*, & Li, T. Y. (2008). Assessing creative problem-solving with automated text grading. *Computers & Education*, 51(4), 1450-1466. **(SCI, SSCI)**.