Connecting with students

Alessandro Carlotto

ETH
Department of Mathematics

March 11th 2021
The key objective: connect two planes

Instructor

Students

\[ \tau_1 \sigma_2 \sigma_3 \]
The key objective: connect two planes

Instructor

Students

Apparent distance: physical, age, cultural ...
The key objective: connect two planes

Apparent distance: physical, age, cultural . . .

Connecting means try to fill this gap and create a relation of mutual trust.
Level 1 - human connection

For practical reasons, courses are (often) held in large auditoria, with a huge number of students in front of a single instructor.

Yet, every student always perceives him/her self as an individual and as such would like to be recognised and treated. To that aim, one must shift the interaction dynamics from a $1 \rightarrow k$ to a $1 \leftrightarrow 1$ scheme.

Figure: Physical distance (still life).
How to offer a tailor-made teaching experience?

Some concrete suggestions:

- learn your students’ name (best sounding word principle)
- the number 0 homework assignment (not just a name but a person!)
- let your students be protagonists of the course with you (questions, remarks, diversions ...)
Level 2 - emotional connection

When I was working at Stanford University a senior colleague (later awarded a Fields medal) once told me ‘here students want to be entertained’.

Not sure that is exactly the case (here or elsewhere), but associating positive feelings to a course/an instructor/a subject makes the learning process much lighter.
How to offer an experience?

Some concrete suggestions:

- design your lectures ‘out of the box’ and perform as if on a stage
- let your students be part of the show at multiple levels (the referendum example)
- stimulate your students’ imagination and create memorable moments (the ‘three things’ game)
Based on my own experience as a student, it is sometimes hard to perceive/transfer the joy of reaching the border of human knowledge.

Every time we enter in class we should make it clear why we love what we do. Idea: more focus on the process of discovery (=creation) rather than the result itself (=digestion).
How to reach this goal?

Some concrete suggestions:

- emphasis on questions rather than on answers (open versus closed model of knowledge)
- abolish the popular ‘do as you were taught’ scheme (especially in Math)
- as in our professional life, not a course but a community (we are all part of the same workshop).
Conclusions

I have focused on three levels of connection:

- **human**  
  (1 ↔ 1 instead of 1 → k)
- **emotional**  
  (experience instead of lesson)
- **scientific**  
  (creation instead of digestion)
I have focused on three levels of connection:

- **human** \((1 \leftrightarrow 1\) instead of \(1 \rightarrow k\))
- **emotional** (experience instead of lesson)
- **scientific** (creation instead of digestion)

Each step is a prerequisite for the following ones and the three combine together to the scope of filling the gap between the two parties we started from.
Conclusions

I have focused on three levels of connection:

- **human**  \((1 \leftrightarrow 1 \text{ instead of } 1 \rightarrow k)\)
- **emotional**  \((\text{experience instead of lesson})\)
- **scientific**  \((\text{creation instead of digestion})\)

Each step is a prerequisite for the following ones and the three combine together to the scope of filling the gap between the two parties we started from.

Thanks a lot for your **attention** and for your valuable **feedback**!