

International Mentoring – a new opportunity for physics undergraduates

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The basic idea:

- Physics undergraduates in the UK mentor groups of high school students overseas
- Typically 6×1 hour sessions delivered via Skype or alternative

The level:

- 3rd year BSc or Msci in Bristol
- 1st or 2nd year A-level (or equivalent) overseas

Our partners:

- English-language Schools in Pakistan
- Schools recruited either via personal contacts or with help of University representative

Our partners:

- Currently 7 schools in 4 cities
- More partners keen to join



Our partners:

- Schools are a mixture of for-profit and independent
- Students take A-levels or
Aga Khan University Examination Board
Higher Secondary School Certificate

The motivation for our students:

- To gain teaching experience
- To improve their communication skills
- To make a difference

The motivation for our students:

“I remember thinking teaching was a simple task when I was an A-level student but it is quite the opposite.”

The benefits for overseas students:

- Deeper insight into curriculum
- Discussion beyond curriculum
- Exposure to a different society

The benefits for overseas students:

“The fact that we were being mentored by a university student ... helped us overcome any hesitation that a student usually feels to discuss ...with a teacher.”

The benefits for overseas students:

“It was an enlightening experience overall ...

The benefits for overseas students:

“It was an enlightening experience overall ...

Extra points for showing us snowfall :P We don't get that here.”

A typical session:

- Organized via WhatsApp (time, topic)
- Delivered via Skype
- Examples etc. prepared in advance



A typical session:

- Mentoring \neq tutoring
- The best mentors show imagination



A typical session:

“My final example allowed them to find how fast a car would need to travel for a passenger’s head to break their window when it swung around a corner (with many simplifications).”

Assessment:

- Students keep journal describing mentoring sessions
- Unit mark derives from journal and final interview

| Brief Assessment Criteria | | A | B | C | D | E |
|--|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Mentoring performance (on basis of report and interview) | | | | | | |
| • Advance preparation <i>Was sufficient effort put into this?</i> | | <input type="checkbox"/> |
| • Physics content <i>Was an appropriate range of topics covered?</i> | | <input type="checkbox"/> |
| • Response to student questions <i>Was an honest attempt made to answer these?</i> | | <input type="checkbox"/> |
| • Development <i>Was experience from earlier tutorials used effectively?</i> | | <input type="checkbox"/> |
| • Creativity and originality | | <input type="checkbox"/> |
| Mentoring report | | | | | | |
| • Clarity | | <input type="checkbox"/> |
| • Fluency | | <input type="checkbox"/> |
| • Conciseness | | <input type="checkbox"/> |
| Interview performance | | | | | | |
| • Ability to describe mentoring experience clearly and fluently | | <input type="checkbox"/> |
| • Ability to convey enthusiasm | | <input type="checkbox"/> |
| • Ability to explain physics at an appropriate level | | <input type="checkbox"/> |
| Individual mark (21pt scale) | | | | | | |
| <ul style="list-style-type: none"> • Use above assessment criteria to determine a mark. • Warning: The 21pt scale is non-linear and uses integers only. | | | | | | |

A = Excellent, B = Good, C = Satisfactory, D = Poor, E = Unacceptable

Staff input:

- Initial interview
- Present at first meeting between mentor and mentees
- Formative feedback after 2-3 sessions
- Final assessment

Conclusion:

“I think this program has been extremely beneficial to me. Before embarking on this project, I did not realize how much impact I would have on the students or the impact they would have on me. The role of a mentor is not only to guide the students academic life but also take interest in other parts of their lives. On New Year’s Eve, I was very touched that some of the students messaged me to wish me a Happy New Year although we had not had a session for a while.

I was also very grateful to be able to teach physics to a group of female students as I wanted help inspire them and be an example of a woman studying physics. I hope that I showed them that there are many high achieving women in physics through my case studies.”