

IMPRESS discussion - Teachers

Teacher Preparedness and Motivation: What are the best methods to prepare and motivate teachers to instruct modern physics topics? How can we ensure teachers feel competent and enthusiastic about teaching these topics?

- A point often lost in curriculum development is the voice of teachers: it seems that changes are imposed on teachers rather than having teachers be an active agent in co-developing the curriculum
- A challenge is that there are many different stakeholders (curriculum authorities, examination authorities, etc.) in addition to the teachers – all of these stakeholders need to be accounted for and heard
- Teachers work in their own contexts, so they will have unique challenges and needs
- In modern physics education research we see a general shift from working with and targeting students to teachers: addressing teachers allows us to enact greater educational impact
- How do we get teachers up to date with the modern physics topics?
 - It is equally important to give teachers ownership in their didactical choices (this is why lesson studies is a well-suited research approach)
 - Teachers should “own” their lessons
 - Peer-to-peer learning works really well
 - Modelling the instructional activity in teacher professional learning helps teachers immensely
- Cooperation between teachers, academics, experts is key to being successful in preparing and motivating teachers
- It is invaluable to get teachers’ feedback in workshops
 - Common feedback: too much content in the lesson, the curriculum is overloaded
 - It is good that teachers challenge curriculum and lesson-plan developers
- Many teachers are afraid or scared to teach Einsteinian physics; however, teachers who have the greatest difficulties with Einsteinian physics are the most helpful resource if they share their struggles and questions
- Having good resources and material is essential: in different countries and contexts, there exist handbooks, videos, lesson plans, etc. which is currently being translated
- As often: time is the biggest challenge; this is particularly the case because modern physics is often only taught at the end of the final year
- One teacher in a school or district can be a pioneer, spreading the word to others