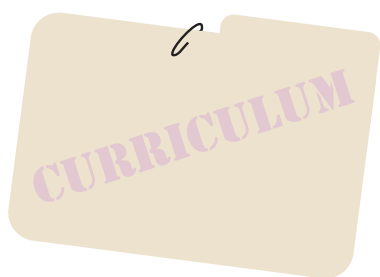


Instruction in Physics Classes

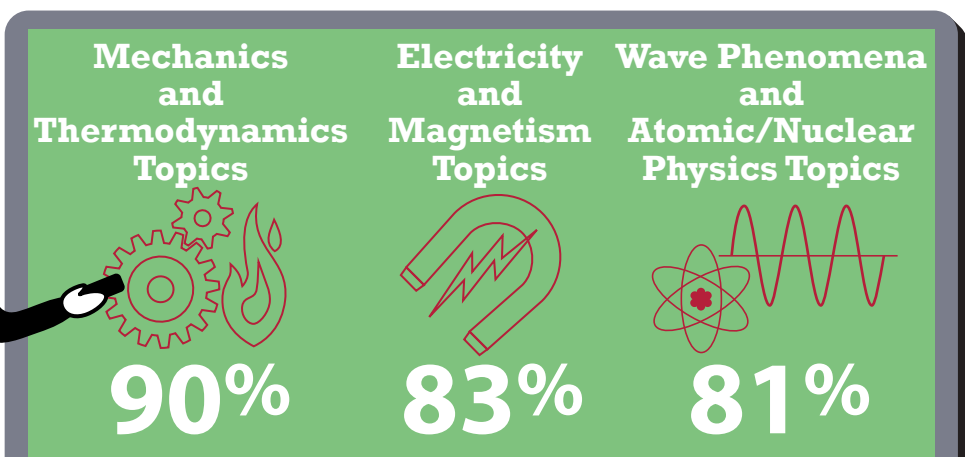
Curriculum

Covering a rigorous curriculum is key in students' opportunity to learn.

Eight of the nine countries participating in TIMSS Advanced had a national curriculum, with the United States being the exception. All but three (Italy, Sweden and the United States) had a "high stakes" test for students nearing the completion of secondary school.



There was variation in topic coverage within content domains. However, according to their teachers, on average, most Physics students had been taught the TIMSS Advanced topics.

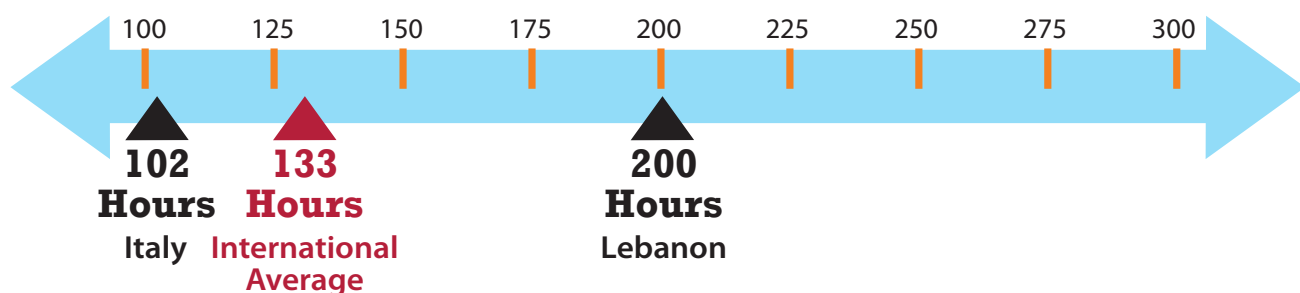


Instructional Time

Instructional time remains a crucial resource in considering students' opportunity to learn in their final year, even though there are many factors that influence the effectiveness of an educational system.

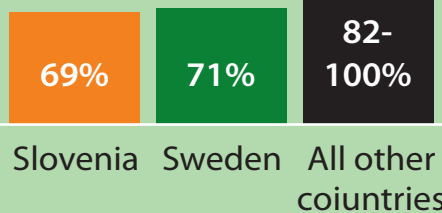


There was a considerable range in the yearly number of instructional hours in physics.



Students also studied outside of school:

Almost all students were assigned homework except in Slovenia and Sweden:



Except in the Russian Federation, Portugal, and France, few Physics students reported attending extra tutoring outside of school to improve their achievement.

52% attended tutoring in the Russian Federation.

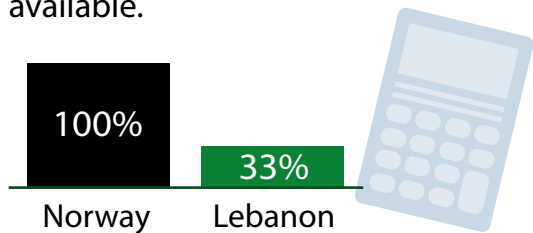
20-27% attended tutoring in France and Portugal.

On average, students attending extra tutoring had lower achievement.



Technology

Across the TIMSS Advanced countries there was a wide range in access to digital devices to use in physics lessons, with 79% of students on average having digital devices available.

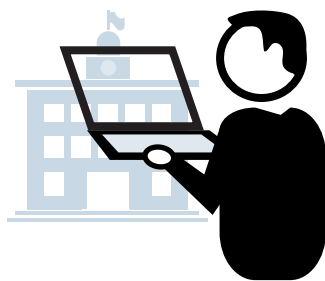


Teachers have students use their digital devices primarily to process and analyze data (71%), draw graphs of functions (67%), look up ideas and information (66%), and do scientific procedures or experiments (62%).

Students used the Internet for their TIMSS Advanced school work primarily to:

Find information about physics concepts or solve problems

Collaborate with classmates on physics assignments or projects



72-74%

64%