

Using physics lectures to change students' belief about road safety

Competency

„Competencies are the cognitive abilities and skills possessed by or able to be learned by individuals that enable them to solve particular problems, as well as the motivational, volitional and social readiness and capacity to use the solutions successfully and responsibly in variable situations.“ (Weinert, 2001)

Used as a starting point for german curricula, to define a desired competency

Competencies

- Analyse the physics of typical traffic situations
- Analyse local traffic accident report and present findings to each other
- Judge certain behaviours in traffic

Evaluation and Conclusions

- Effects are stronger than in previous impact evaluations
- Change of students' attitude towards behavior in certain traffic situations can be attributed to improved competencies in the area of evaluation competencies
- Personal experience and knowledge are more important than previously expected, students' interests change very rapidly
- Physics lessons can, correctly used, be used in prevention programs, even to change strongly ingrained behaviours

Goal

Evaluation

Observe

Action

Plan

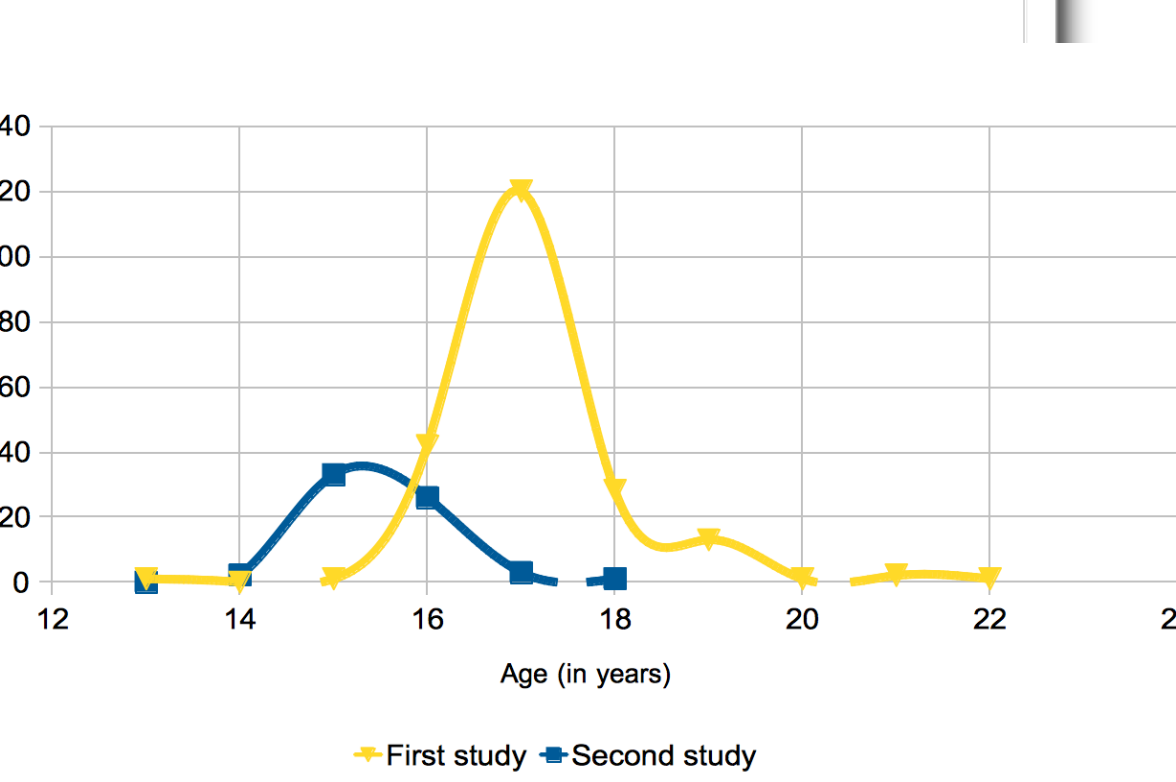
Decide

Presented in in-service-training of physics teachers

Observation

Question	First survey	Second Survey
E2	0,19	0,33
E4	0,20	0,20
E7	0,04	0,39
E9	0,23	0,06
G_2_3	0,01	0,40
G_2_4	0,27	0,22
G_3_1	0,39	0,05
G_5_3	0,30	0,31
G_5_4	0,13	0,44
G_6_1	0,27	0,21
G_6_3	0,10	0,48
G_7_2	0,02	0,32
G_8_4	0,21	0,26
W_2_1	0,19	0,45
W_2_2	0,07	0,28
W_4_2	0,20	0,15
W_5_c	0,19	0,56

Driving experience (first survey)		#	Relative number
No drivers license		63	30.1 %
Getting formal drivers education		7	3.3 %
License till 2012		31	14.8 %
License till 2013		45	21.5 %
License till 2014			



Action

First study:

- Conducted in three schools (grade 10-12)
- Very different backgrounds (non-privileged vocational education vs. high schools of high renown)

Second study:

- Improved worksheets after evaluation of first study
- One high school with two physics courses
- Lessons had to be shortened (90 min down to 60 min)

Physics Lecture

Traffic accident report

