

Increasing motivation of girls in STEAM

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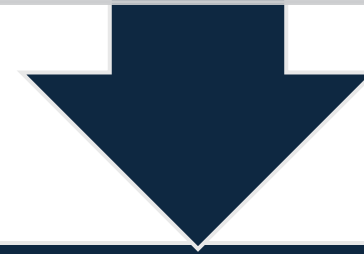
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From the inTruST Application Relevance of the Project - Priorities and Topics

All project proposals under the Erasmus+ Programme should contribute to one or more of the programme's policy priorities.

Please select the most relevant priority according to the objectives of your project.



SCHOOL EDUCATION: Promoting interest and excellence in science, technology, engineering, and mathematics (STEM) and the STEAM approach, and foster girls' interest in STEM

From the inTruST experts feedback

The objectives
are well aligned
with the selected
priorities

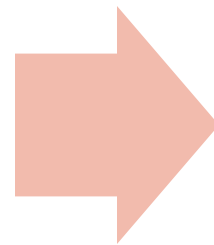
The focus
„research-based
learning“ can be
seen as
innovative

The project
addresses an
important issue
in our society

*However, the
project lacks
measures to
achieve the goal
„Foster girls
interest in STEM“*

How to increase the motivation of girls in STEAM?

Answer:



Adapt the
context!

Why
should we
believe
this?

IPN interest study (1998)

? Students in Germany

ROSE study (2010)

1247 students in Austria/Germany

IDa study (2018)

980 students in Darmstadt (GER)

Sources

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Main results of all studies

Connection of subject content and context is a key factor for the interest of students

Not the content (optics, thermodynamics, electricity, ...), but the context dominates the interests

Interests depend on age and gender

Girls react very sensitively to the choice of context

Some Results of IPN

36 % (mostly boys) are highly interested in physics and show interest in physics as a formalized science and in society-related applications

33 % (mostly girls) are not very interested in physics in general, but show high interest for physics in applications, social references and natural phenomena

Some Results of ROSE

Very
interesting for
all genders

- Human-biological, medical, social-relevant contexts as risks to human and natural phenomena

Especially
interesting for
boys and girls

- „Young body“, health

More
interesting for
girls

- Fitness, mysticism and wonder

More
interesting for
boys

- Spectacular phenomena

Some Results of IDa

Research of interesting contexts in teaching electricity

High variance in the evaluation indicates that the interests of learners also vary greatly within a context

Some Results of IDa

Very interesting for all genders

- Crime solving, electric fishes, lightnings, medical applications

Not interesting for all genders

- History of electricity, flashlight, body fat scale, air and water quality

Big differences in interest girls - boys

- Crime solving, safety from electrical accidents, the copier, medical applications, hairstyle, body fat scales

Big differences in interest boys - girls

- Batteries, history of electricity, electricity in the household, electric fence

Some Results of IDa - Very interesting questions for girls

How does the lie detector conclude that a statement is a lie?

Why don't electric eels electrocute themselves?

How do electric fish (e.g. the electric eel) generate electricity?

What does it depend on whether a lightning strike in the area football field can be survived?

How does a pacemaker work?

How does lightning occur?

Some Results of IDa - Not interesting questions for girls

Why don't the lead wires of a light bulb light up?

What is the function of the switch on a flashlight?

Since when have electric charges been known?

How are the lights on a bike with a dynamo wired?

Which direction does electricity flow in a flashlight?

Which physicists made important discoveries with electricity?

Some Results of IDa - Very interesting questions for boys

How do electric fish (e.g. the electric eel) generate electricity?

Why don't electric eels electrocute themselves?

How does the lie detector conclude that a statement is a lie?

How is a game console joystick determined what position is he currently in?

How is lightning created in a plasma ball?

Why do flashes from a plasma ball always go to the hand placed on it and why is it safe to touch it?

Some Results of IDa - Not interesting questions for boys

How are the lights on a bike with a dynamo wired?

What could be the cause if the light on the bike with a dynamo no longer works?

Which physicists made important discoveries with electricity?

What causes the value displayed by the scale of a fat measurement?

How is the temperature of the hair straightener controlled?

Why do commercially available body fat scales measure different values as medical body fat scales?