

# Students' Types of Interest in Physics

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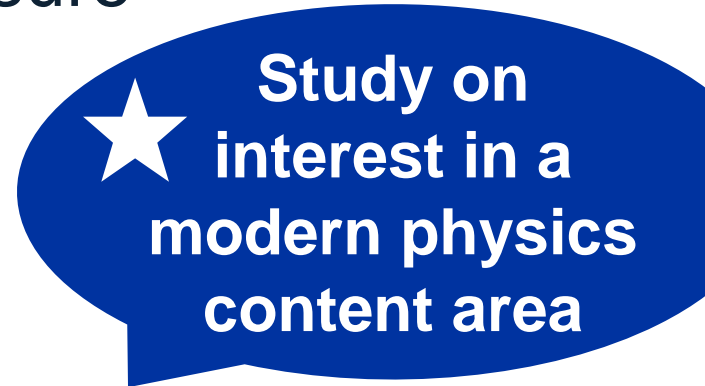
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# Research Design

- ❖ **Online instrument** in German language to measure
  - **Interest in Mechanics**  
from IPN study (Häußler et al., 1998)
  - **Interest in Particle Physics (IPPI)**  
modelled on IPN study (Zoechling et al., 2022; Häußler et al., 1998)
- ❖ **Cross-cohort study:** 1219 German-speaking students aged 14-16 years
- ❖ **Analysis method:** Mixed Rasch rating scale model



# Results

## Mechanics

❖ **86% of the students** have similar interest

❖ **14% of the students** are interested in physics relating to the motion of cars

Physics?  
Only in certain contexts!

## Particle Physics

❖ **79% of the students** have similar interest

❖ **21% of the students** are highly interested in particle physics

Particle physics lovers

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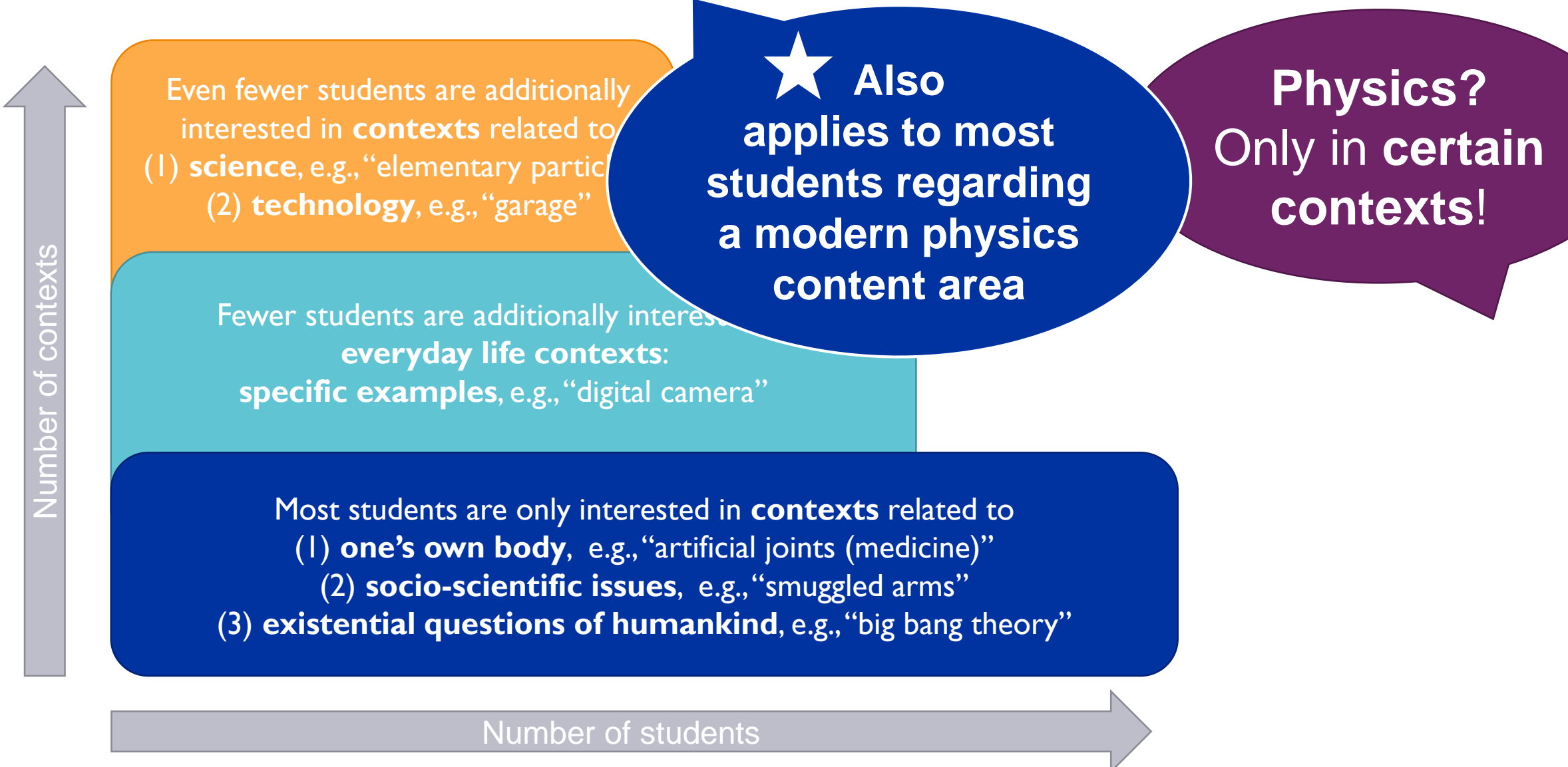
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Particle physics lovers

# Hierarchy of levels of interest in physics (HOLIP)





**Thank you very much  
for your attention!**

Looking forward to your comments and questions!



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# References

1. Häußler, P., Lehrke, M., & Hoffmann, L. (1998). *Die IPN-Interessenstudie Physik*. Kiel: IPN.
2. Zoechling, S., Hopf, M., Woithe, J., & Schmeling, S. (2022). Students' interest in particle physics: conceptualisation, instrument development, and evaluation using Rasch theory and analysis. *International Journal of Science Education*, 44(15), 2353-2380, <https://doi.org/10.1080/09500693.2022.2122897>
3. Student group photo created by lookstudio - [www.freepik.com](http://www.freepik.com)



## Back-up Slides



# Questionnaire

## Mechanics

*How interested are you in doing the following?*

**My interest in it is ...**

very high

high

medium

low

very low

Getting insight into the artificial organs (e.g., heart as blood pump) and joints used in medicine today



# Questionnaire

## Particle Physics

*How interested are you in doing the following?*

**My interest in it is ...**

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low

very low

Getting insight into the  
workflow in a medical  
diagnostic centre

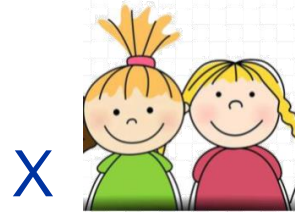
# Analysis of the Main Study

## Mixed Rasch Analysis:



1. *Latent class analysis*: latent, “**qualitative**” person variable, according to which persons are sorted into groups

⇒ **Type of interest**



2. *Rasch analysis*: individual **quantitative** parameter within each class

⇒ **Degree of interest**





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