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Delivering Excellence in Teaching STEM in Schools

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What is excellence in Teaching STEM?

Science Teacher

Recruitment retention, support, in-service PD

Curriculum

Coherent, logical, relevant

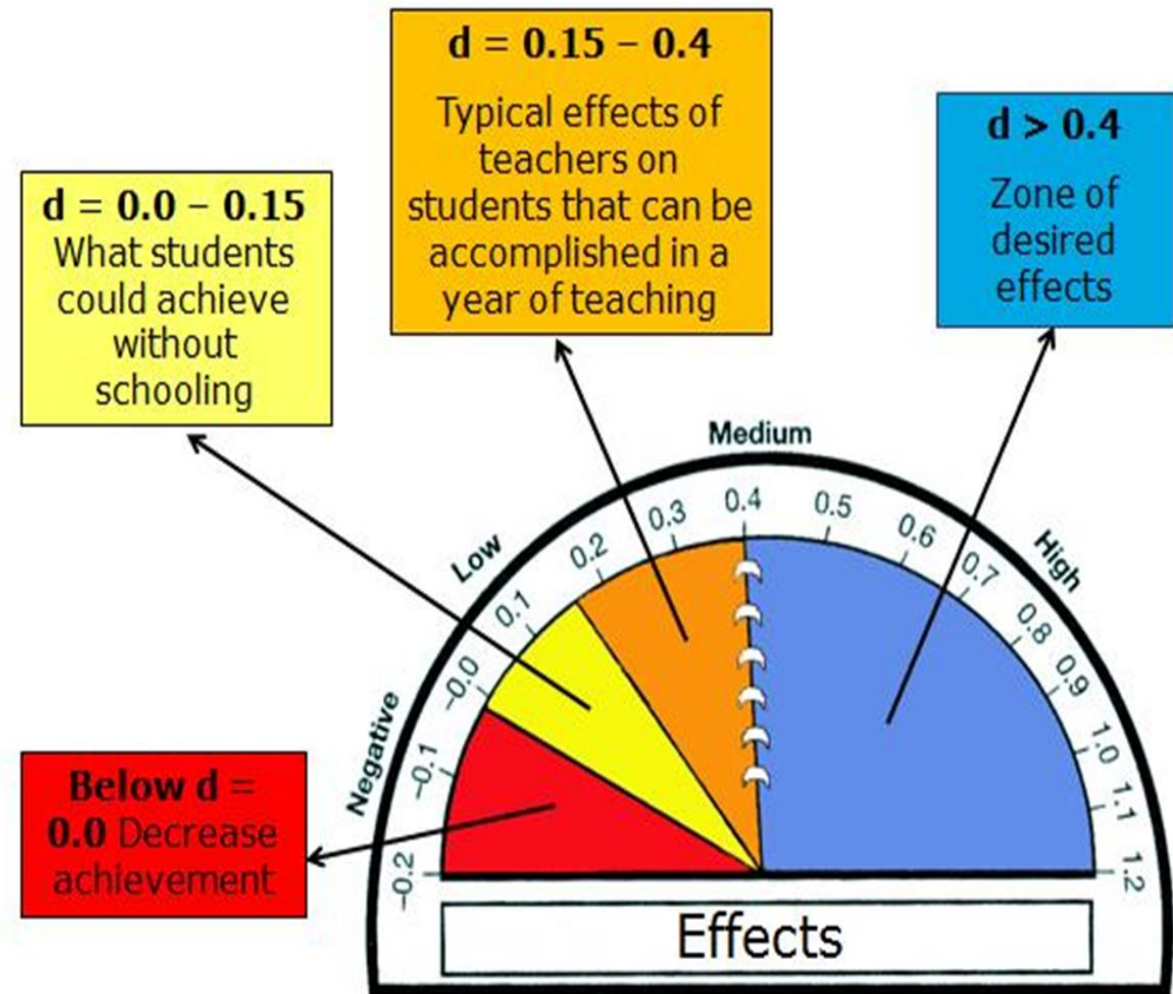
Beyond the curriculum

Access to enrichment, close the gaps

Evidence-informed

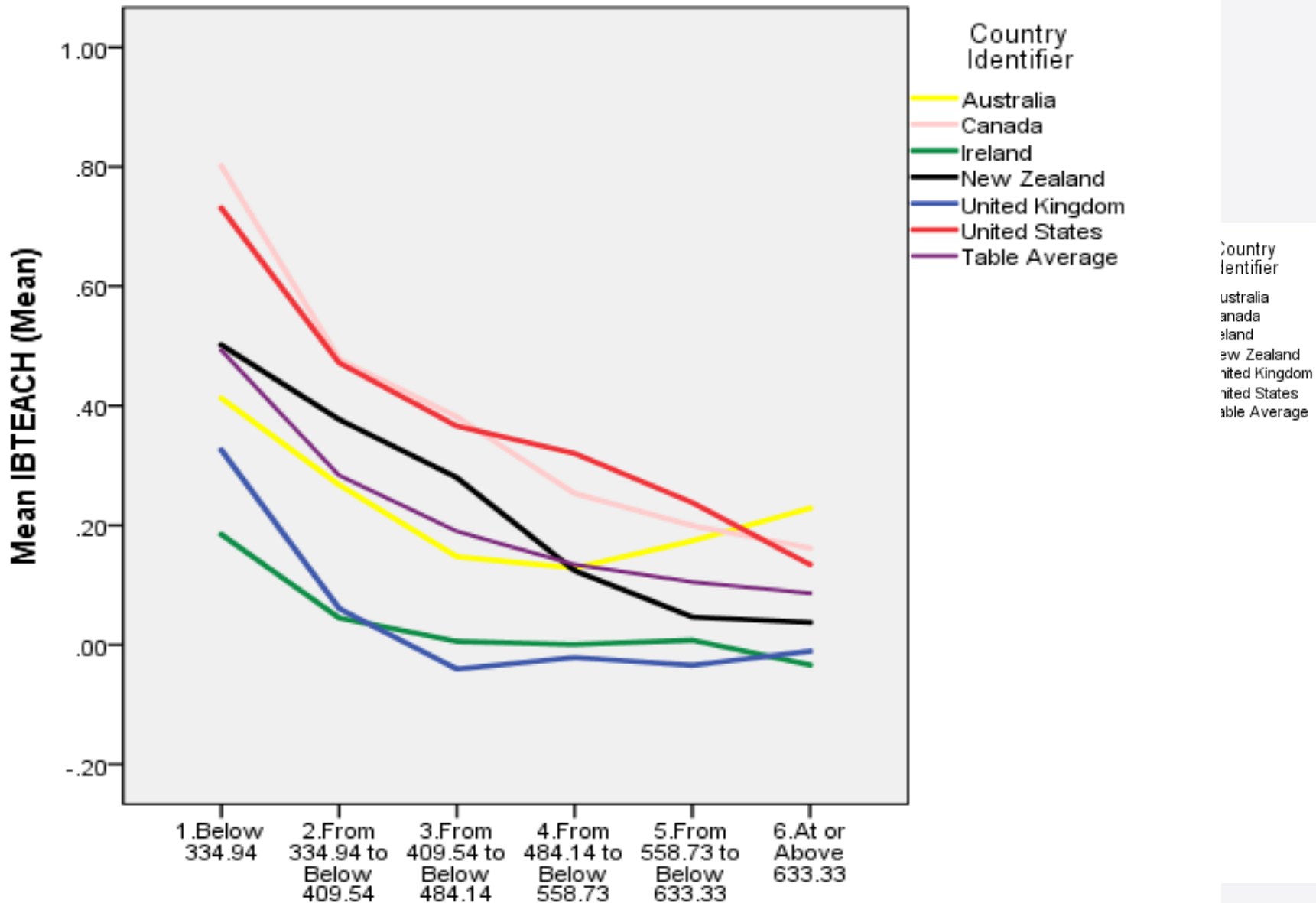
Teaching strategies, resources, risks and resistance

Barometers of Influence





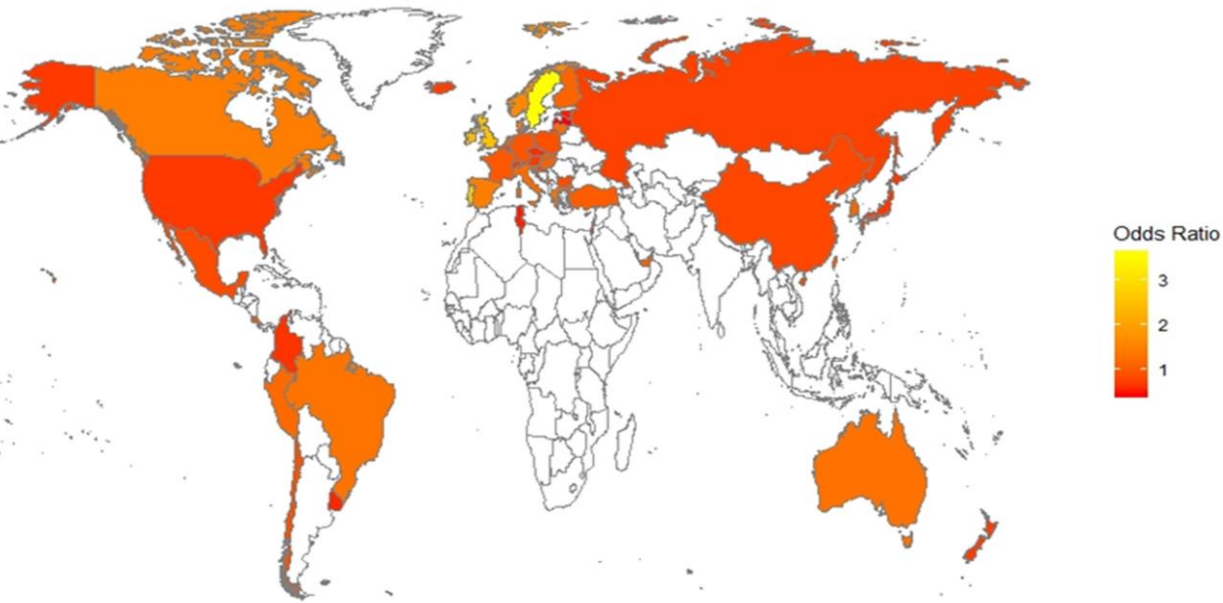
PISA 2015: Teaching strategies and student achievement





Analysis of PISA 2015 data

How well-informed are students about greenhouse gases?



OECD countries

- Geopolitical differences
- Local / national politics
- Curriculum content



What we measure and count

Not the same

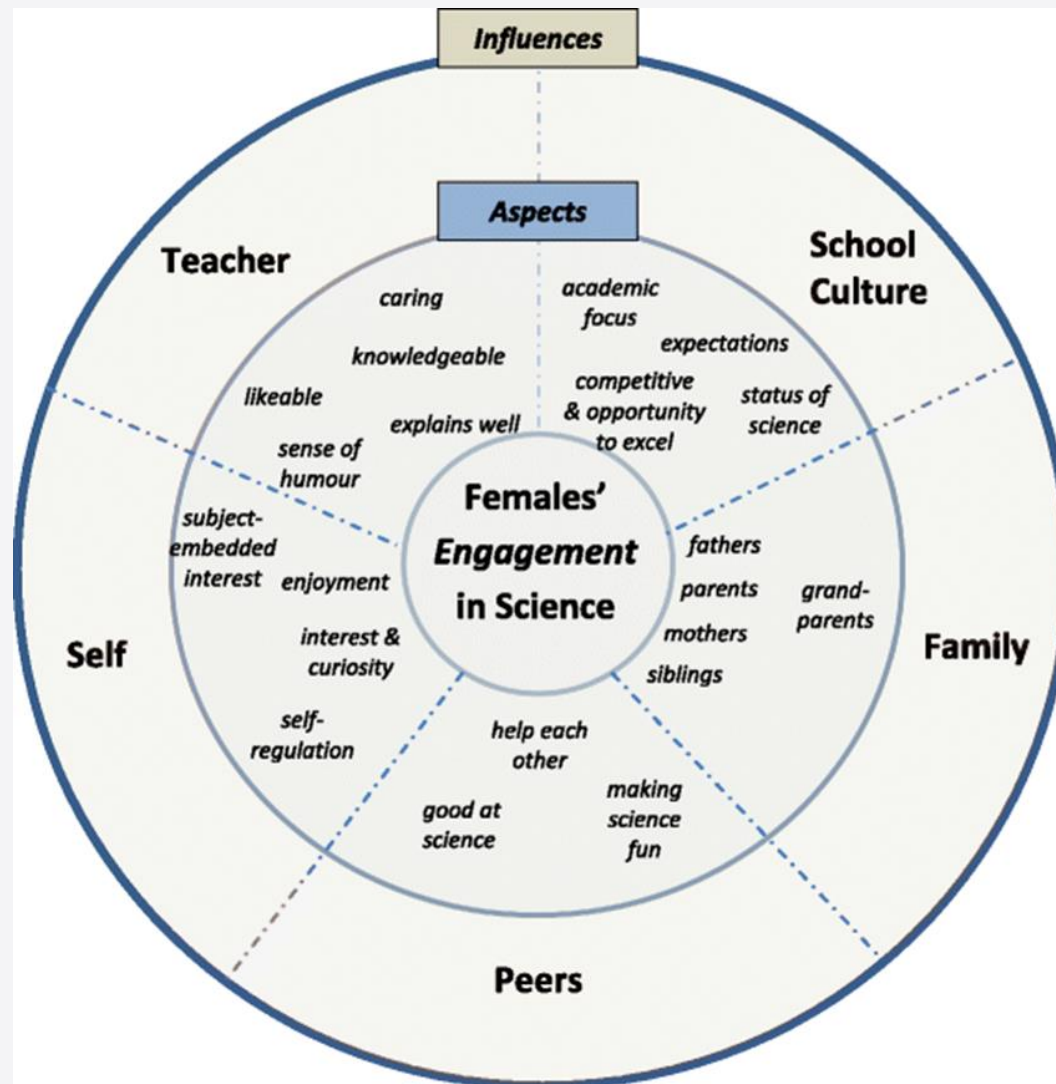
- ‘Driven by results’
- Progress 8
- ‘Value-added’

The ‘affective’

- Self-concept
- Self-efficacy
- Interest
- ...



Female participants' engagement in physics





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- Oliver, M., & Adkins, M. (2021). "Hot-headed" students? Scientific literacy, perceptions and awareness of climate change in 15-year olds across 54 countries. *Energy Research and Social Science*, 70, 101641. doi:<https://doi.org/10.1016/j.erss.2020.101641>
- Oliver, M.C., Woods-McConney, A., Maor, D., McConney, A. (2017). Female senior secondary physics students' engagement in science: a qualitative study of constructive influences *International Journal of STEM Education*, 4:4. <https://doi.org/10.1186/s40594-017-0060-9>
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Thank you

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