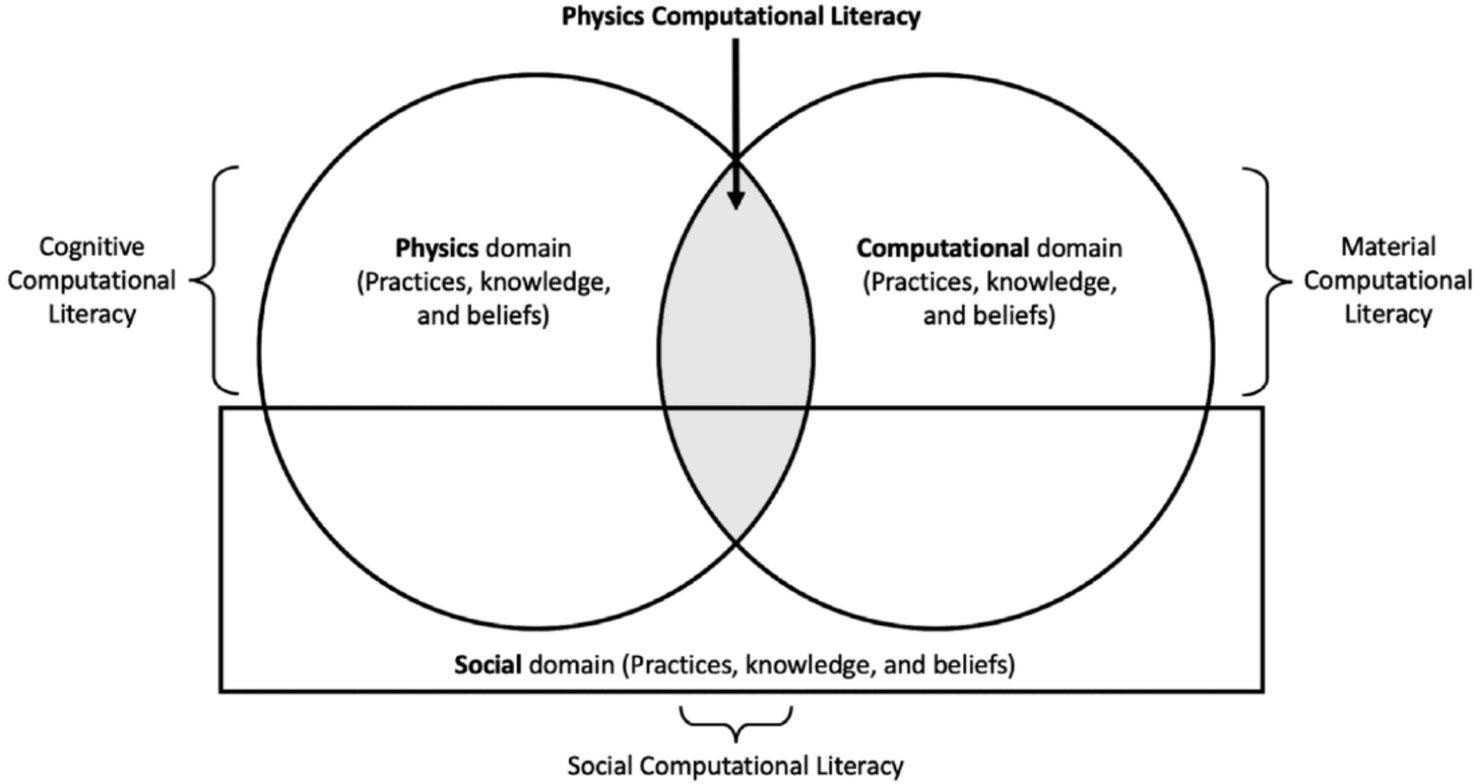
PHYSICAL REVIEW PHYSICS EDUCATION RESEARCH **15,** 020152 (2019)

Editors' Suggestion

Physics computational literacy: An exploratory case study using computational essays

Tor Ole B. Odden,[1] Elise Lockwood,[2] and Marcos D. Caballero[1,3]

[1]*Center for Computing in Science Education, University of Oslo, 0316 Oslo, Norway*
[2]*Department of Mathematics, Oregon State University, Corvallis, 97331 Oregon, USA*
[3]*Department of Physics and Astronomy & CREATE for STEM Institute, Michigan State University, East Lansing, 48824 Michigan, USA*



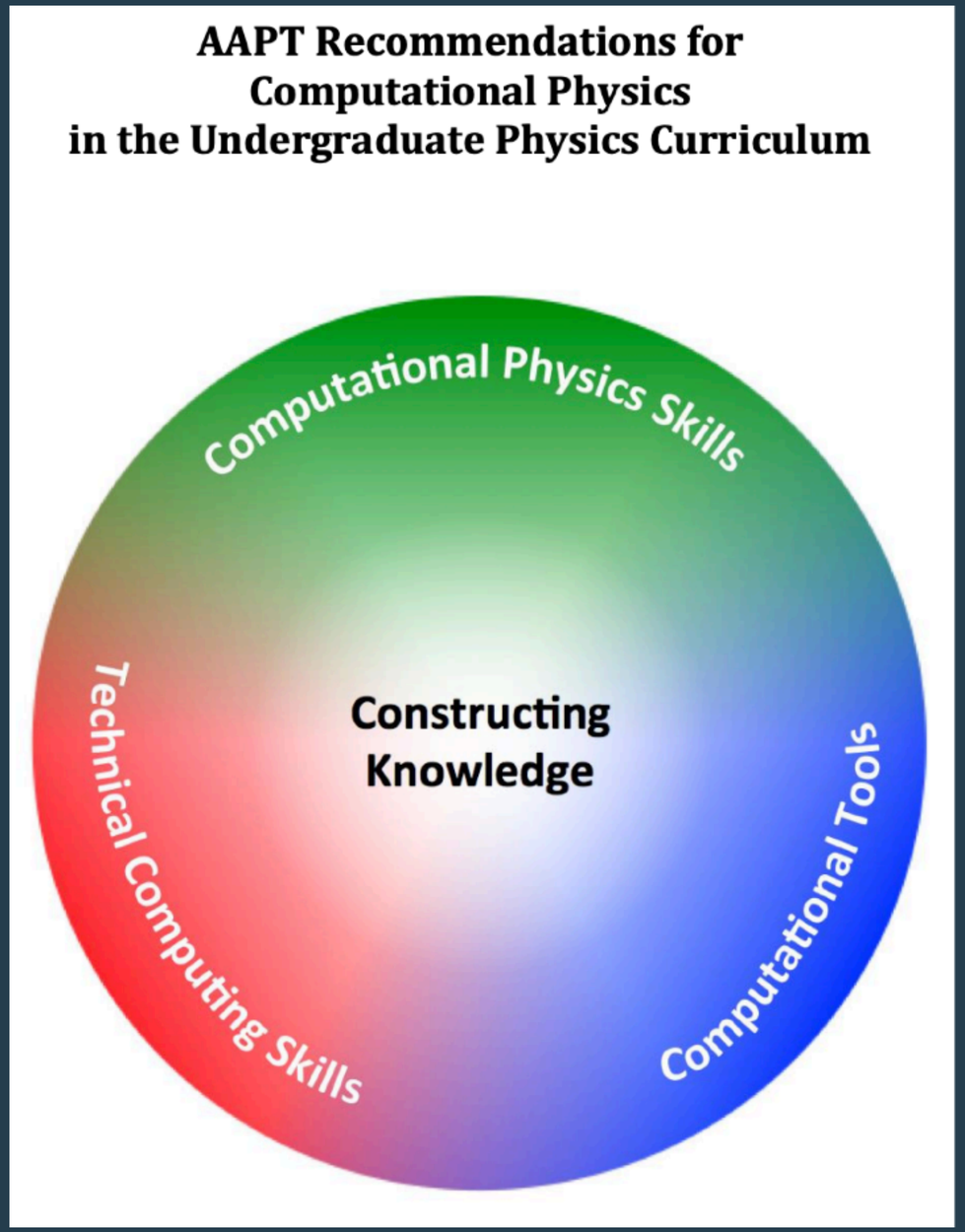
The Research Council of Norway

NSF

Computational Literacy involves cognitive, material, and social literacies

Overlapping practices, knowledge, and beliefs

Requires further R&D



https://www.aapt.org/resources/upload/aapt_uctf_compphysreport_final_b.pdf

What should students know and be able to do with computing in physics?

Computational Physics Skills
Translate a model into code
Subdivide a model into a set of manageable computational tasks

Technical Computing Skills
Process data
Represent data visually

Computational Tools
Spreadsheets
MATLAB, Mathematica
Python, C, Fortran