



framing my research

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all folks can develop a positive stance towards science

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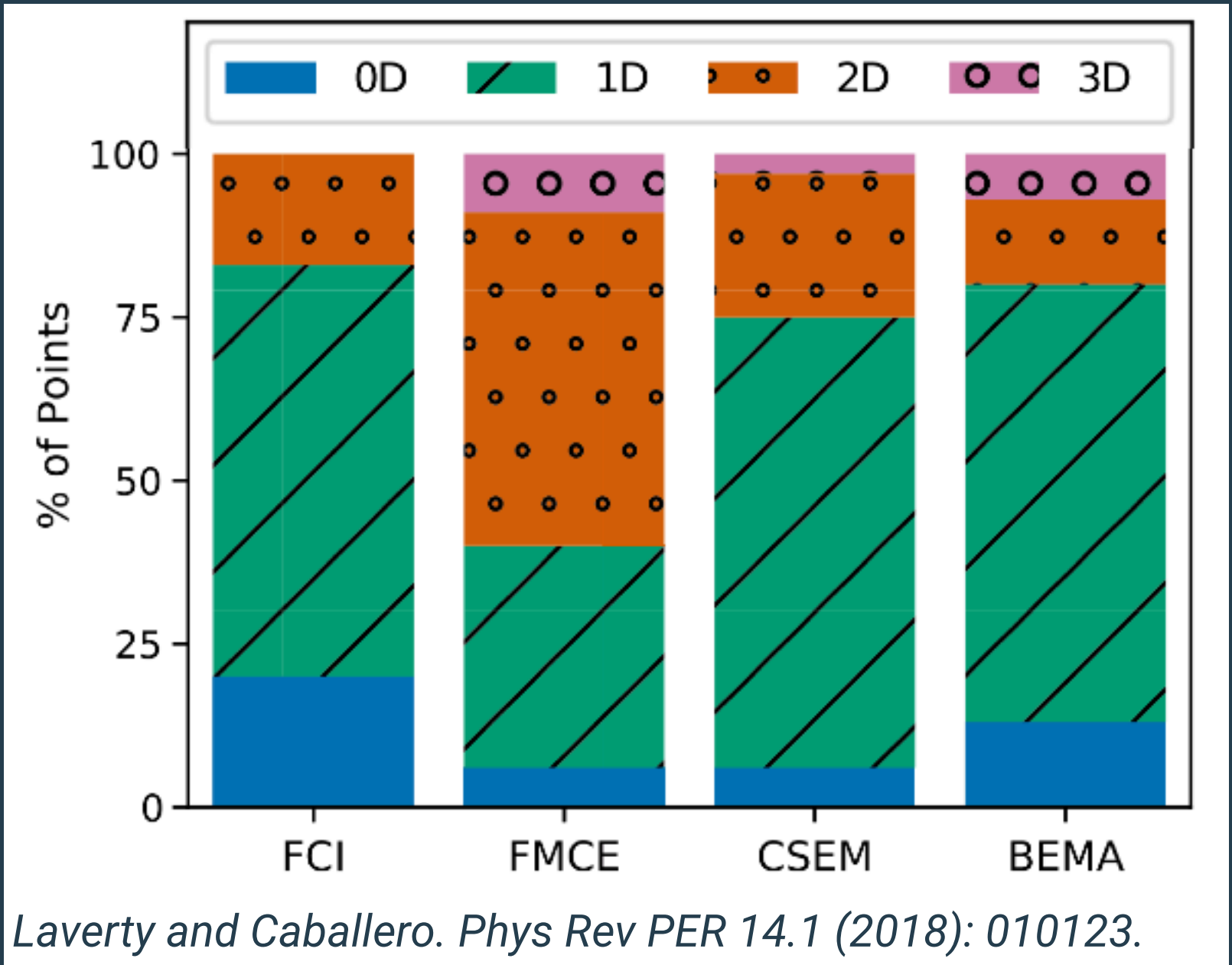
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# moving beyond active learning

## three-dimensional learning observation protocol (3DLOP)

Topics	Admin	Review: Gravity, Potential Energy, Circular Motion	Intro to Kepler's Laws	Kepler's First Law	Kepler's Second Law	Kepler's Third Law	Synthesizing Kepler's Laws
Teaching Activities	Admin	CQ CQ CQ	Lecture			CQ CQ	Lecture
SP		None	None	None	None	None	None
CI		–	–	–	–	–	–
CC		–	–	–	–		

Bain, et al. PLoS One 15.6 (2020): e0234640.

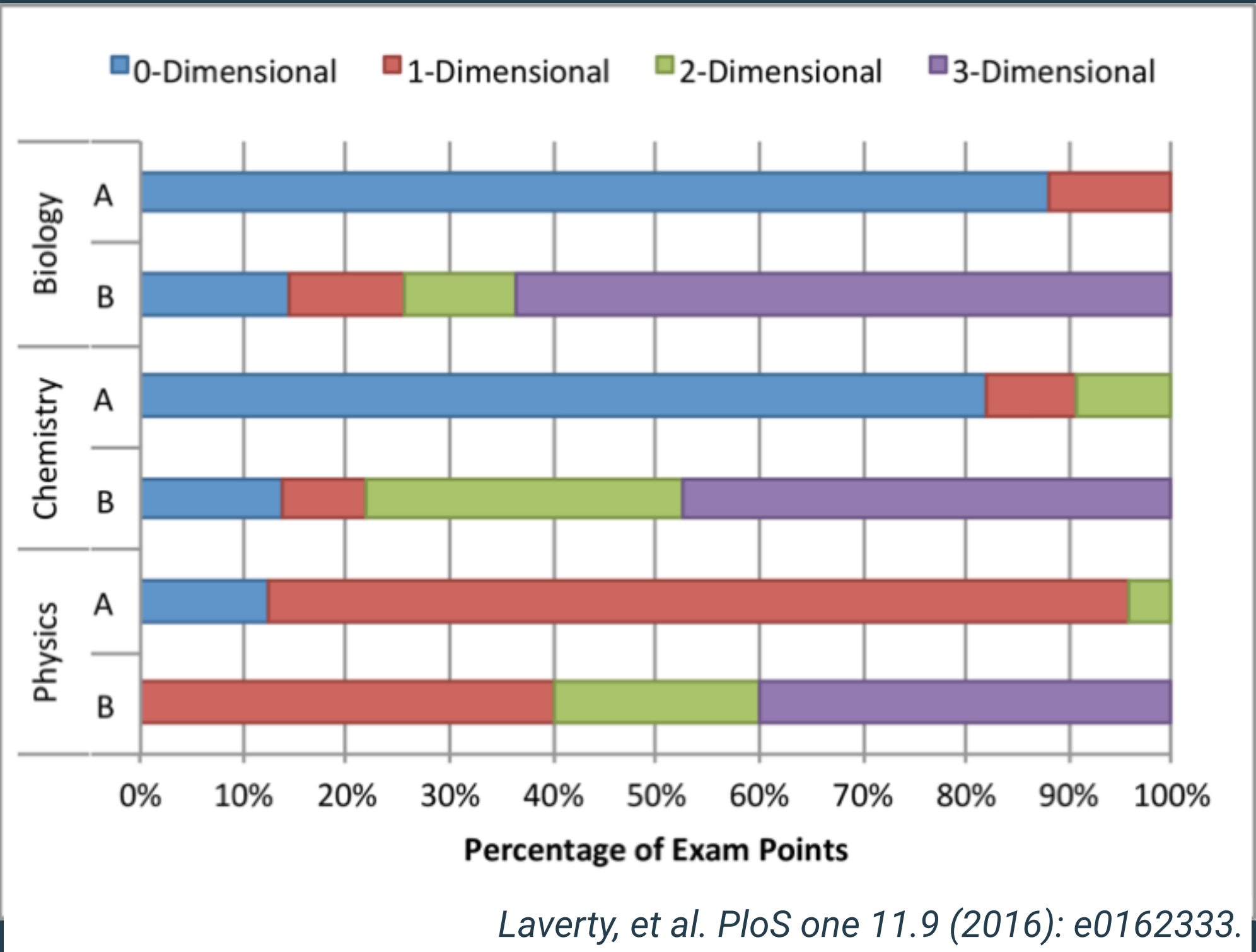


Laverty and Caballero. Phys Rev PER 14.1 (2018): 010123.

active learning is not necessarily 3d learning



## three-dimensional learning assessment protocol (3DLAP)



Laverty, et al. PloS one 11.9 (2016): e0162333.

