MPS 9 Translation

Evidence-based targets for problem solving

Evidence-based targets	Progress toward internalizing these targets				
	20%	40%	60%	80%	100%
M Know your preferred style. Each has preferred style of working with information; some prefer symbolic, mathematical; some prefer words; some prefer pictures, drawings and diagrams. (24, 25, 40)					
M Skilled in translating abstract and unfamiliar situations into familiar ones (1)					
M Skilled in translating from words into equations (4,12,15)					
M Skilled in translating from words into a diagram (24, 25)					
M Skilled in creating accurate representations that are useful to you (24); **do not** misinterpret your own representations later in the problem solving process (12)					
M Skilled in drawing explicit and detailed diagrams that include key definitions (20)					
M Skilled in drawing many different drawings; include initial and final state representations where appropriate and include the goal or unknown on the diagram; include key concepts on diagrams (12, 20, 16, 24)					
M Skilled in identifying the system (what is and what is not included for analysis); do **not** fake it by drawing an ambiguous boundary (24)					
M Skilled in selecting unambiguous symbols for all different variables and concepts, use mnemonic notation (12, 20, 24); **do not** confuse yourself by using the same symbol to denote similar but different quantities; **do not** confuse symbols for coding; (12, 20, 24)					
M Skilled in representing changes in *time* (11, 12)					
M In drawing graphs, skilled in placing the coordinate system (12), **do not** make several choices and use different ones in different parts of the same problem (12);					

References 1 to 26 are based on Novice versus expert research summarized in PS News **55**.
40 Felder and Silverman