Supplementary File 3 – Summary of the quality of evidence

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	adaptive and intelligent e-learning environments	other educational interventions	Relative (95% CI)	Absolute (95% CI)		
Knowledge												
6	randomised trials	serious [a]	serious [b]	not serious	serious [c]	none	552	583	-	SMD **0.7 SD higher** (0.08 lower to 1.49 higher)	⨁◯◯◯ VERY LOW	IMPORTANT
Competence												
7	randomised trials	serious [a]	not serious	not serious	serious [c]	none	1105	702	-	SMD **1.19 SD higher** (0.59 higher to 1.79 higher)	⨁⨁◯◯ LOW	CRITICAL

CI: Confidence interval; **SMD:** Standardised mean difference

Explanations

a. Most studies have unclear or high risk of bias with regard to random sequence generation and allocation concealment. The risk of bias for similarity of baseline measurements was unclear for some studies. Thus, groups in these studies could be disproportionate and the distribution may not be normal since sample size is generally small.

b. Studies yield widely differing estimates of effect (heterogeneity or variability in results). The individual confidence intervals of some studies almost do not touch.

c. Most studies include few participants and few events and have wide confidence intervals. Measurement instruments often not validated. Sample size often unsufficient.