

Research-based teaching tip

Ask students to explain their answers

Ask students who answer in-class questions or activities to explain or defend their answers.

Rationale:

Prompting students to defend and explain their responses to in-class questions and activities increases use of logic and positively impacts learning outcomes.

Evidence:

- Prompting students to explain their answers improves learning outcomes, including exam performance.¹⁻³
- Students prompted to use reasoning in discussions increased evidence-based logic in their explanations and had improved conversations.⁴⁻⁵

Implementation:

When a student is responding to an in-class question or activity, prompt the student to defend and explain their answer. This could include prompting the student to explain their answer to the entire class, or during one-on-one interaction.

Sources:

¹Willoughby T, Wood E, McDermott C, McLaren J (2000). Enhancing learning through strategy instruction and group interaction: is active generation of elaborations critical? *Appl Cogn Psychol* 14, 19–30.

²Wood E, Willoughby T, Kaspar V, Idle T (1994). Enhancing adolescents' recall of factual content: the impact of provided versus self-generated elaborations. *Albta J Educ Res* 40, 57–65.

³Schworm S, Renkl (2006). Computer-supported example-based learning: when instructional explanations reduce self-explanations. *Comput Educ* 46, 426–445.

⁴Knight JK, Wise SB, Southard KM (2013). Understanding clicker discussions: student reasoning and the impact of instructional cues. *CBE Life Sci Educ* 12, 645–654.

⁵Turpen C, Finkelstein ND (2009). Not all interactive engagement is the same: variations in physics professors' implementation of peer instruction. *Phys Rev Spec Top Phys Educ Res* 5, 1–18.