

Adventures in Teaching: Using meaningful Contextual Variation to enhance understanding and promote learning transfer

What do we mean by meaningful Contextual Variation?

Contextual variation is when learners are exposed to the same concept in two different contexts. When building in contextual variation the concept remains the same but the context is changed, making the original concept more salient to the learner. In order to introduce variation on the concepts learned in the Case-based learning (CBL), we have been creating “what if” questions/scenarios.

Teaching Point: One goal of providing contextual variation is so learners don't rely solely on one set of features or superficial elements (e.g. an MI is always left arm pain; knowing about different variations such as in women or South Asians would help them better understand the category). Moreover, understanding how a concept changes when it presents in a different context helps learner elaborate the concept itself.

Example of Contextual Variation in CBL

58 yr old female developed vaginal bleeding (post menopausal – no period for more than one year). History of cancer in family (mother breast CA, father colon CA, aunt colon CA, sister uterine CA, daughter ovarian CA). Pelvic exam: uterus slightly larger, firm 5cm right adnexal mass, pelvic ultrasound – endometrial hyperplasia, Biopsy: adenocarcinoma of endometrium, endometrial type, FIGO grade 1, and undergoes surgery .

What could be a core concept that students might be learning about in the case above that could be looked at in a new context and help students learn something important that you use in your daily practice?

- *The core concept is POST-MENOPAUSAL BLEEDING*
- *The two different context are 1. +biopsy result and 2. -ve biopsy result.*

See next page for steps to generate a “What if Scenario” that fosters Contextual Variation and how to facilitate discussion around these scenarios.

Creating “What If Scenarios”

You can use the following steps to generate a “What if Scenario” that fosters Contextual Variation:

1.	What is/are the concept(s) you are trying to teach? <hr/> <i>For example above: Differential Diagnosis of post-menopausal bleeding, the importance of ruling in/out endometrial cancer</i>
2.	How can you vary the scenario (new context) to reinforce or highlight different aspects of the main concept(s) you are trying to teach: <hr/> <i>For example above: Change the biopsy result</i> NOTE: Potential avenues for contextual variation? eg. things that can vary: <ul style="list-style-type: none">✓ patient demographics (age, gender, race/ethnicity)✓ history elements✓ physical exam findings✓ lab information (and access to information)✓ imaging and test results✓ time point (what if you were seeing this patient 5 yrs previous? 5 years after?)
3.	Why is this specific contextual variation important to learn and make visible for medical learners? <hr/> <i>For example above: Most commonly post-menopausal bleeding is atrophy of genital tissues, however a biopsy must be done to assess for endometrial cancer</i>
4.	Write the “What If Scenario”: <hr/> <i>For example above: What if the biopsy was negative? Why else could she be bleeding?</i>
5.	In the CBL Guide for CBL Tutors, explain the following: <ul style="list-style-type: none">✓ What is the concept that you are focusing on here?✓ What is the new context? Why did you choose this new context?✓ Why is this important that students learn this in a new context?

Teaching CBL Using “What If Scenarios”

It is important to fit in time during CBL tutorials to discuss the “What if Scenarios” that are provided in your CBL tutor guides. These are listed at the end with sample responses, but you can bring them up earlier if they fit more naturally following one of the assignment questions. Students have not seen these before the CBL tutorial.

How to facilitate tutorial discussion around What If Scenarios?

CBL tutors can be asked to prompt students during the tutorial in the following manner:

- Discuss the response to the What if scenario.
- Ask learners: Now that you have seen the situation in a different context how might you have addressed the initial situation differently?
- Ask learners: What do we understand now or know that that we did not think of when we first encountered the situation?