

SCENARIO-BASED ASSESSMENT

DEFINITION

Scenario-based assessment (SBA) is a method that uses detailed narratives (in written, visual, or video formats) to place individuals in simulated situations so as to provoke reflection and elicit responses that provide insights into participants' viewpoints, offering a deeper understanding of their behaviors in specific contexts.

IN COMPUTING

SBA offers a dynamic method for positioning CS students in real-world contexts that prompt reflection on essential professional dispositions. These narratives encourage students to share honest insights into their personal beliefs and actions and highlight the role of dispositions in professional interactions. Aimed at freshman computing students, this approach to assessment not only deepens their understanding of critical traits but also fosters their development through both pedagogical and evaluative means. Instructors can utilize scenarios in classroom discussions to explore students' perspectives, while a curated set of scenarios can assess students' comprehension and application of dispositions.

SBA APPROACH

An instructor may employ any set of scenarios for each assessment, the number of which may vary based on the class size and the objectives and duration of the assessment. The focus can be on one particular disposition or a mixture of distinct dispositions in each testing set. Each narrative is designed to be concise, minimizing the reading time for test-takers and reducing the amount of class time required for testing. For testing purposes, each scenario is crafted to emphasize a single disposition. However, in real-life scenarios, distinctions among dispositions are not easily delineated. Situations are complex, and individuals may draw upon multiple dispositions in any given circumstance.

The implementation is notably straightforward, utilizing a multiple-choice framework to facilitate ease of administration and grading. Students are required to read each scenario and select the option that most accurately reflects the disposition demonstrated in the scenario. A follow-up question can be added asking about the reason behind their choice, so the educator can have valuable insights into the students' comprehension, allowing for tailored adjustments to their teaching approach.

Considerations to prepare a test set:

- *Number of questions* (how many students? How much class time for the test?)
- *Type of disposition* (Focus on a particular disposition or a mixture of some?)
- *Method of administration* (Testing platform? On paper, Google Forms, H5P, etc?)
- *The context of the narratives* (Does it reflect class discussions? Does the narrative need modifications?)

THEORETICAL PERSPECTIVE

The importance of dispositions in the workplace is well acknowledged, yet it is only recently that curricular frameworks for computing courses have started to view professional dispositions as essential components of competencies, alongside knowledge and skills (Tagare et al., 2023). There is a limited amount of research on the application of scenarios in undergraduate computing education or on the most effective methods to cultivate these dispositions in students (McCauley et al., 2023). SBA serves as an effective tool for both introducing students to the topic and evaluating their understanding of it.

EXAMPLES

Here is one example scenario highlighting the ‘Being a team player’ disposition.

Launch Day Looms



In the bustling office of a small but ambitious software startup, the development team is racing against time to finalize their latest project, a comprehensive project management tool designed to cater to small businesses. The tool, which combines task management, time tracking, and resource allocation features, is the result of months of hard work and the team's aspirations for making a significant impact in the market.

As the launch day approaches, a critical issue emerges: the integration of the time tracking feature with the task management component is not functioning as smoothly as expected, leading to inaccuracies in reporting and potential data loss. The problem lies in the overlap of code written by two key team members, Priya and Carlos, who have been working in parallel on these separate features. While both features work well independently, their integration has been overlooked, resulting in a significant setback.

With the deadline just a week away, the team gathers for an urgent meeting. The atmosphere is tense; frustration and concern are evident on everyone's faces. The project lead, Amir, realizes that overcoming this hurdle requires more than just a quick fix—it demands a unified effort and a shift in how the team has been operating. Amir contemplates the best strategy to encourage a collaborative spirit that could salvage the project and ensure a successful launch. *

OpenAI. (2024). Scenario & photo provided by ChatGPT.

What type of dispositions should the team prioritize to overcome their challenge?

- **Being Ethical:** The quality of being exact and accurate, especially in the coding and debugging process.
- **Being a Team Player:** The willingness to work jointly with others, pooling knowledge and efforts to achieve a common objective.
- **Develop and Test Mindset:** The ability to assess and initiate things, taking charge of the situation without waiting for directions.
- **Lifelong Learning Mindset:** The readiness to adapt to new challenges, changing plans, or approaches as required by the situation.

What is your reasoning for your choice? You can quote sentences from the Scenario as a reference.

REFERENCES

- McCauley, R., Sabin, M., Kumar, A. N., Kiesler, N., MacKellar, B., Raj, R. K., & Impagliazzo, J. (2023). Using Vignettes to Elicit Students' Understanding of Dispositions in Computing Education. *2023 IEEE Frontiers in Education Conference (FIE)*, 1–5. <https://doi.org/10.1109/FIE58773.2023.10342915>
- Tagare, D., Janakiraman, S., Exter, M., Duan, S., Sabin, M., & Tavakoli, J. (2023). Dispositions that Computing Professionals Value in the Workplace: Systematic Literature Review and Interviews with Professionals. *Proceedings of the 2023 ACM Conference on International Computing Education Research - Volume 1*, 1, 270–283. <https://doi.org/10.1145/3568813.3600118>