Variate Roadmap

Last updated date: 5/16/2022
Next update date: 8/22/2022

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In Research

Improve sort for list of assessments when publishing

What we're doing:

Make assessment list sorted/searchable when publishing.

Why we think you'll like it:

Currently assessments are sorted by ID number which displays oldest to newest. With improved sort and search options, instructors will be able to find their assessments more easily.

Add support for rich text for input box unit and prefixes

What we are doing:

Give instructors more styling options for the unit and prefix.

Why we think you'll like it:

Currently only plain text is supported for input box labels. With this change, instructors will be able to use superscripts, subscripts, and Greek letters.

Allow changes to score on a student problem submission

What we're doing:

Allow instructors to edit the value of a student's individual problem score.

Why we think you'll like it:

Sometimes instructors want to give students full or partial credit for responses that are close to the correct answer or for another valid reason.

Add comments to problems

What we're doing:

Add optional comment boxes to problems and variables.

Why we think you'll like it:

Sometimes instructors need to document why they created a problem or variable the way they did so they can remember in the future or tell others about it.

In Development

New variable type: Table randomization

What we're doing:

Allow variable associations so that they can be used together in a problem statement, for example, the names of various chemicals and associated values for chemical properties.

Why we think you'll like it:

Instructors will be able to create associations between text, images, and sets of values, so that they can use them together in one problem statement and don't have to create multiple problems and/or problem pools to assess a given learning objective

Conditional/Boolean logic in formulas

What we're doing:

Allow formulas for variables and responses to change their output depending upon if a preset condition evaluates to true or false.

Why we think you'll like it:

Allowing for conditional logic inside of variable and response formulas will allow for more flexibility in creating unique problem instances, as well as allow constraints to be added so that values better represent real-life scenarios or rule out impossible ranges.

Assessment and problem-level statistics

What we're doing:

Display overall assessment and problem level statistics for a published assessment.

Why we think you'll like it:

Currently, instructors must download scores and work in Excel to view assessment descriptive statistics. This feature will allow instructors to see problem and assessment level averages for a published assessment within the Variate user interface.

Completed

Add image/text variable types

What we did:

Allow instructors to create a variable that is a list of words or images.

Why we think you'll like it:

Varying text or reusing images in a problem part or multiple choice option can allow more forms of randomization or save time creating problems.

Add support for styling tables in a problem statement

What we did:

Allowing instructors to create a table with cells of text and/or variables in a problem statement.

Why we think you'll like it:

Currently, instructors must use an image if they want to include a table in problem statements. Adding the ability to create a table structure and add cell elements will allow instructors to create tables with higher fidelity and even allow them to place variables within cells.

Shared libraries

What we did:

Allow instructors and course coordinators to create shared libraries so they can save time and effort while easily sharing problems.

Why we think you'll like it:

Large courses with professional instructional staff need a way to share problems and assessments with instructors or other staff that change from semester to semester. In addition, if an instructor has others creating problems/assessments for them, they need an easier way to share ownership. Shared libraries would make managing this ownership sharing much easier.

High-stakes assessment (exam) mode

What we did:

Allow instructors to control student access to their work to better promote academic honesty on high-stakes assessments.

Why we think you'll like it:

In some circumstances, instructors may want to prevent their students from seeing their completed assessment until after the score release date. For example, when there are several sections of a course taking an exam at different times, the problems may need to be unknown to students who have not yet taken the assessment.

Improve student experience when an assessment is completed

What we did:

Clearly inform students when they've done everything needed for an assessment and can safely exit Variate.

Why we think you'll like it:

Right now, when students have answered all problems in an assessment, there's no obvious next step or sign that they've done everything they needed to do. We're looking into how we can make this clearer for students, so they're not left with a sense of uncertainty or unease that they forgot something.

Problem pools

What we did:

Allow instructors to create groupings of problems and have Variate randomly select one of the problems from the grouping to present to each student in their assessment.

Why we think you'll like it:

Right now, all problems added to an assessment are displayed to students. This feature would allow instructors to create comparable questions of equal difficulty that vary in their descriptions and/or what the student would need to solve. These question pools (or groupings) could be added to an assessment and Variate would randomly choose a question from each pool to display to each student when they take their assessment.

Investigate improvements for expression response

What we did:

Expression response problems currently rely on symbolic or form and symbolic validation techniques. This investigation will determine whether any added validation techniques are needed or if improvements are necessary to the existing validation strategy.

Why we think you'll like it:

We want students and instructors to have a positive experience answering expression response problems.

Problem health

What we did:

This feature will provide more transparent statistics about the success rate of a master problem and frequency of errors that could limit the number of available working variable combinations.

Why we think you'll like it:

Variate's strategy to prevent broken problems made it difficult to identify if a master problem had common errors that were reducing the number of unique variable combinations or causing unnecessary load on the Variate servers. By being more transparent about how often a master problem succeeds and fails, you will be able to confidently create better problems with more working variations.

Schedule exceptions per student

What we did:

Allow instructors to give a specific student a schedule exception on a Variate assessment. This feature should not be confused with late penalties.

Why we think you'll like it:

Currently, instructors can extend a due date on a Variate assessment for all students in a course, but not to individual students. Granting schedule exceptions per student can help you have flexibility when

unexpected circumstances arise, and a student needs to start an assessment earlier or needs more time to complete an assessment.

Problem generation performance improvements

What we did:

Generate working problems for each student prior to their assessment start date.

Why we think you'll like it:

Previously, problems (including their variable values), were not generated until a student opened their assessment. The extra loading time could cause students undue stress or mistrust in Variate, especially if students were taking an assessment synchronously. These improvements are designed to reduce loading time and identify any concerns before the assessment is opened to students.

Instructor view for student assessment scores and progress

What we did:

Created views within Variate to give the instructor a summary of the scores on an assessment and to drill down and view more details about the progress individual students are making on assessments.

Why we think you'll like it:

Previously, scores and attempts for assessments could only be viewed by downloading a CSV file and parsing through it. A user-friendly and navigable view of each student's progress and scores for an assessment provides a clearer picture of where the student excelled or got stuck.

LTI integration: Deep linking of Variate assessments

What we did:

Allow instructors to link to existing Variate assessments from their course in Brightspace.

Why we think you'll like it:

Linking directly to a Variate assessment from Brightspace improves communication with students about which Variate assessment they need to be working on. Deep linking will also allow links to Variate to be added within a Brightspace quiz, one of the steps required to eventually integrate with Respondus Monitor. Please contact tlt@purdue.edu if you are interested in using Respondus Monitor with a Variate assessment.

Learn more:

- [Variate integration with Brightspace](#)

Investigate Respondus Monitor integration options

What we did:

Respondus Monitor is integrated into Brightspace and is currently used for online proctoring of assessments in publisher platforms or Brightspace assessments. In our investigation we learned that a

direct integration with Respondus is out of scope. However, there are steps available to link a Variate Assessment within a Brightspace Quiz with Respondus enabled. Please contact tlt@purdue.edu if you are interested in using this feature.

Why we think you'll like it:

Proctoring for online high-stakes assessments has been requested by several instructors. Integrating with Respondus Monitor could allow instructors to use Respondus Monitor proctoring features with Variate assessments. This further supports one of Variate's goals to alleviate the need for using publisher platforms and provide a no-cost avenue for math-based online assessments.

LTI integration: Authentication, roster sync, and grade push

What we did:

Allow instructors to link to Variate from a course in Brightspace.

Why we think you'll like it:

LTI integrations take a little effort to set up, but then create a seamless experience between Brightspace and Variate. LTI linked courses allow students and instructors to open a link to Variate without having to login a second time. Roster sync will automatically keep your class list in Variate up to date. Automatic or manual grade push will add assessment scores from Variate into your Brightspace grade book.

Learn more:

- [Variate integration with Brightspace](#)

Multi-part and multi-statement problems

What we did:

Add the ability to make problems more robust by supporting more than one statement text box. Each statement can then have multiple responses associated with it.

Why we think you'll like it:

This gives instructors more creativity and flexibility. You can structure a problem to best fit your needs while using the same set of randomized variables.

Number formatting options for variables and solutions

What we did:

Allow the instructor to customize the way that calculated values appear to a student and is used in further calculations. This feature should not be confused with enforcing the student to input an answer in a specific format.

Why we think you'll like it:

Previously any calculated variable or the correct answer to a formula response would show as having 15 decimal places by default. Adding number formatting types means the instructor can control the

number of decimal places displayed and support the display calculated values in other formats, such as fractions or percentages.

Multiple choice questions

What we did:

An instructor can now choose multiple choice as a response type. The instructor can control how many choices they want to add to a problem.

Why we think you'll like it:

Adding multiple choice allows you more flexibility. Each multiple-choice box has the same features as the statement box, so you can add pictures, variables, images, and more to your choices. The instructor controls the number of choices, and the choice order will be randomized for students.

Timed assessments with accessibility accommodations

What we did:

Assessments can now be published with a time limit. Instructors also have the option to grant individual students a timer multiplier to account for any accommodation that may be necessary.

Why we think you'll like it:

Timed assessments can be enabled for higher stakes assessments to achieve your pedagogical goals for your class. The flexible timer accommodation is also set at the course level, so you do not have to add special access rules to every timed assessment.

Allow instructors to edit problems in published assessments

What we're doing:

Problems in live assessments that students are actively taking (or will take soon, i.e., published) can have certain things edited: problem statements and solutions, attempt limits, points, and correcting multiple choice options, to name a few. Some items are still blocked: you can't edit variables or add new problems to timed assessments.

Why we think you'll like it:

Sometimes a simple mistake will be found after students have already started taking an assessment. Cancelling an assessment and making a new version can be frustrating for both instructors and students, so we're trying to eliminate that need as much as possible by allowing certain edits to live assessments.

Learn more:

- [Editing Published Variate Assessments](#)