

This month, we spotlight our secure exam system, ExamSoft. ExamSoft has been in use at MCW since January of 2013, and is an industry standard Software-as-a-Service platform for delivering secure exams.

ExamSoft

Are you interested in offering secure exams for your students? Are you interested in improving your exam quality? Are you interested in receiving visual reports of exam results? Please welcome Chris Glasel, our ExamSoft Key Administrator, with tips to help you maximize the use of our secure exam service.

MCW (Medical College of Wisconsin) has been working with ExamSoft since 2013. This is a dual interface platform, one interface for Faculty and one for Students. ExamSoft portal is for educators and faculty to manage exam content and access assessment data Examplify is the test taking application for students. This software has safeguards built in for exam security.

The Conversation [published an article](#) on how Exams fit into the curriculum, and how they improve learning.

How ExamSoft Works

The faculty portal is several libraries – referred to as banks in the portal - that link together. There is a Question Bank, a Category Bank, an Assessment Bank, and a Rubric Bank.

Questions are stored in the Question bank. Questions can be retired, but not deleted. Additionally, users can open any questions to see use statistics. Questions can have categories attached (learning objectives). When an Exam is built, it is created in the Assessment Bank, and the desired questions are added to the Assessment from the Question Bank.

After faculty review, the exam is posted to students by the Exam Team. Upon completion of the exam, faculty can get a Summary Report of several statistics on the exam, and they can see how learners scored based on the category or learning objectives.

Students download the posted exam file to their computer. This download is encrypted and secure, in a folder that this also secure. Upon entering the exam password, Examplify will open, and will use the components of the computer, such as the camera/microphone for virtual proctoring and connectivity for the sole purpose of the exam. Internet connectivity is needed to download and upload the exam but will be turned off during the exam for security reasons. Upon completion of the exam, the connectivity and other components are restored, and the exam is uploaded. If the Exam Monitor tool for virtual proctoring is in use, the recording is uploaded as well.

The Category Bank

The category bank ties to the question bank, allowing exam makers to connect and track exam questions to specific learning outcomes and competencies. After an exam is complete, faculty can generate a report showing how students performed on the specific outcomes and objectives. Using categories provides you with actionable data to improve learning outcomes and course performance.

Why is exam security so important?

Exam security ensures that learners have mastered concepts taught, there are no unfair advantages for any learners, and the exam questions have not been distributed outside of the exam time frame. Examsoft has authored a video on [exam security and the benefits](#).

What Reports are available to me?

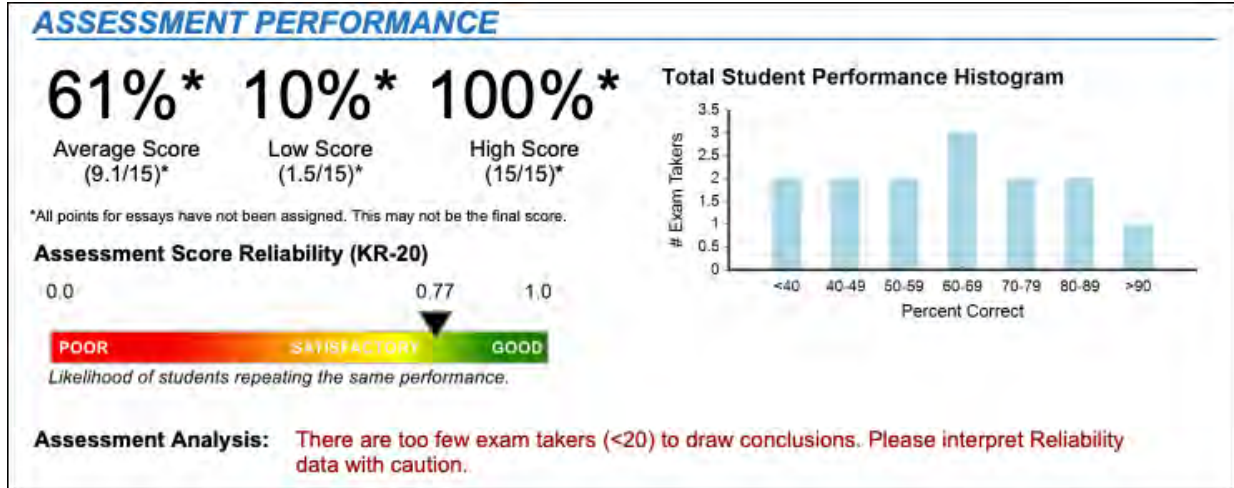


Figure 1

Figure one shows an example of a snapshot of the exam and student performance, highlighting the score histogram and overall assessment reliability.

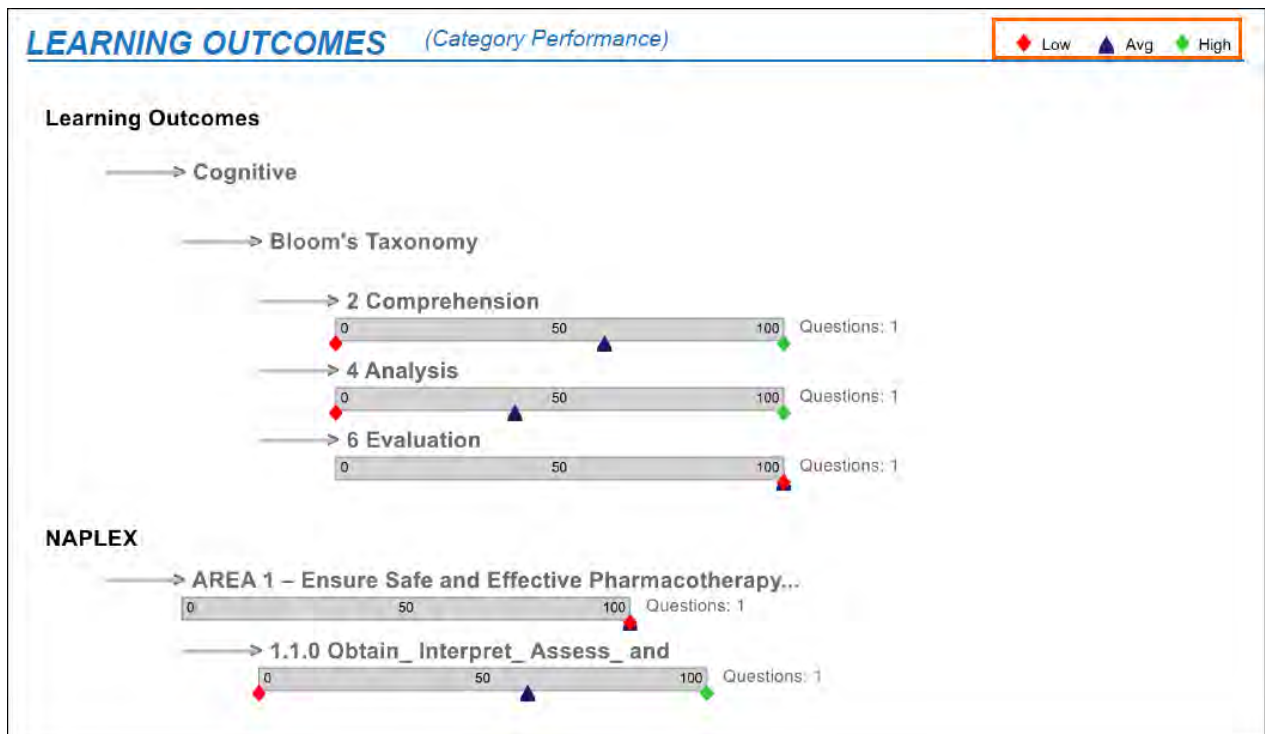


Figure 2

In this report, each selected category is represented by a number line with indicators for the Low, Average, and High score. You'll also see the total number of questions that were tagged with each category. (Some questions might have been tagged with multiple categories.)

QUESTION PERFORMANCE <small>(Items; Shows Up to 5 Distractors/Choices per Question)</small>													
Seq #	Item ID	Item Stem	Correct	Upper	Lower	Point	Disc	Response Frequencies					
				27%	27%			BiSerial	Index	A	B	C	D
1	1001	Item Stem 1	79%	100%	50%	0.53	0.50	*11	3				
2	1002	Item Stem 2	21%	50%	0%	0.41	0.50						
3	1003	Item Stem 3	71%	75%	50%	0.34	0.25	2	2	*10	0		
4	1004	Item Stem 4	71%	75%	0%	0.54	0.75						
5	1005	Item Stem 5	29%	25%	0%	0.42	0.25						
6	1006	Item Stem 6	71%	100%	0%	0.74	1.00	*10	4				
7	1007	Item Stem 7	71%	100%	0%	0.66	1.00						
8	1008	Item Stem 8	93%	100%	75%	0.24	0.25	1	*13				
9	1009	Item Stem 9	21%	75%	0%	0.66	0.75	*11	*6	*10	3		
10	1010	Item Stem 10	86%	100%	75%	0.48	0.25	*12	*12	2	1		
11	1011	Item Stem 11	86%	100%	50%	0.66	0.50	*12	1	1	0		

How can reviewing question statistics help me improve my exams?

Using the structure and measures that are available in Examsoft, it is easy to visualize how students are performing on key objectives. It is also possible to gather information on how questions are performed.

Different statistics that are measured:

- **KR20:** used to measure the internal consistency reliability of test in which each question only has two answers – right or wrong.
- **Sequence #, Item ID, and Item Stem:** These details help you to identify the question.
- **Correct:** The percentage of exam-takers who answered this question correctly.
- **Upper 27%:** The percentage of high-scorers who answered this question correctly.
- **Lower 27%:** The percentage of low-scorers who answered this question correctly.
- **Standard deviation:** Standard deviations are typically used in the norm-referenced assessment to establish a scale for determining the significance of differences between scores.
- **Discrimination index:** The Discrimination Index indicates the difference in performance between the upper 27% and the lower 27% of exam-takers. If this question was a mastery-level item, a score from 0 to 0.2 is acceptable. If it was intended to be highly discriminating, a score of 0.25 to 0.5 should be expected.
- **Point Biserial:** The correlation between an exam-taker's response on this question and the exam-taker's overall performance on the assessment. A score close to 1 indicates a very strong correlation; success or failure on this question is a strong predictor of success or failure on the exam as a whole.
- **Average answer time (on question):** how much time a student took to answer a question. This can help determine how much time should be allotted for a complete exam.
- **Response Frequencies:** For True/False and Multiple-Choice questions, you'll see the number of times that each answer choice was selected. For Hotspot questions, column A represents correct responses, and column B represents incorrect responses.

How ExamSoft Improves the Exam Process for the Institution

- With multiple banks, Examsoft offers a 1-Stop shop for exams, from content to learning objectives to reports
- Students become more familiar with the computer-based testing environment
- Exams are graded upon submission, reducing faculty grading time
- Analysis is available to faculty to determine the efficacy of exam questions
- The folder structure of ExamSoft allows for alignment of categories and can help find overlap in content
- Faculty could clearly chart performance on key metrics, showing improvements in student learning and outcomes
- By tagging questions to subject matter as well as program- and course-level outcomes, faculty can see recurring issues or areas where each student needs intervention.
- use of psychometrics, integrating best practices for teaching and used point biserial to identify variances in performance