

EXAM SIMULATOR: STATS, STRATEGIES, AND FEEDBACK

Presented by: **MediaLab**
INCORPORATED

Let's Do This!
Studying Made Simple
with
LabCE's Exam Simulator

Exam Simulator at a Glance

- Online laboratory science exam preparation resource (MLS/MLT, HT/HTL, Phleb.)
- Students have one-year access
 - 9,326 current student/graduate subscribers as of 2/13/2018
- Unlimited practice exams pulled from over 3500 questions
 - Subject-specific: (chemistry, hematology, microbiology, blood bank, etc.)
 - ASCP MLS & MLT formats: standard and CAT mode
 - AMT MT and MLT formats
 - Questions missed most frequently, questions never seen, game mode
- Review mode (immediate scoring and feedback) and test mode (scoring and feedback at exam conclusion)
- Program Director/Educator access: assign and view scores and progress for students on-demand
- GOALS: Identify subject areas of weakness, aid in remediation with helpful explanatory feedback, prepare for the "feel" of the actual timed exam

Sample Question 1

MediaLab Exam Simulator

Question 15 of 100 Anna Admin

Progress: Time Elapsed: 0 On: 0m 15s
 Questions Details: Answer Provided: 0
 Answer Not Yet Provided: 100
 Correct: 0
 Incorrect: 0

The images below represent the results of normal and abnormal levels of control that are tested daily for a particular analyte. On which day should the run be repeated if assigned lots are used to evaluate quality control?

Please select the single best answer.

Questions

15. Which of the following would be the most appropriate method to monitor the stability of a control chart?

16. The images below represent the results of normal and abnormal levels of control that are tested daily for a particular analyte. On which day should the run be repeated if assigned lots are used to evaluate quality control?

17. Which of the following would be the most appropriate method to monitor the stability of a control chart?

18. The following control chart shows a shift in the mean. Which of the following would be the most appropriate method to monitor the stability of a control chart?

19. Which of the following would be the most appropriate method to monitor the stability of a control chart?

20. Which of the following would be the most appropriate method to monitor the stability of a control chart?

21. Which of the following would be the most appropriate method to monitor the stability of a control chart?

22. Which of the following would be the most appropriate method to monitor the stability of a control chart?

23. Which of the following would be the most appropriate method to monitor the stability of a control chart?

24. Which of the following would be the most appropriate method to monitor the stability of a control chart?

25. Which of the following would be the most appropriate method to monitor the stability of a control chart?

Submit Answer

Normal distribution, mean at center, within 2-sigma limits.

Normal distribution, mean shifted to the right, within 2-sigma limits.

Normal distribution, mean at center, but with a few points outside the 2-sigma limits.

Sample Question 2

MediaLab Exam Simulator

Question 28 of 100 Anna Admin

Progress: You answered the question correctly.
 Time Elapsed: 0 On: 0m 55s
 Questions Details: Answer Provided: 97
 Answer Not Yet Provided: 3
 Correct: 1
 Incorrect: 6

A ten-year-old boy came to a physician's attention because of recent jaundice and chronic ascites after taking the medication phenytoin before a flu vaccine. The immediate laboratory work revealed Hgb 24% (normal 38%–47%), MCV 79.3 fL (normal 78–98), RDW 13% (normal 11.3–15.0%). His blood smear findings are reflected in the images to the right. The upper image is Wright-Giemsa stained smear while the lower is a supravital smear. Which condition should be considered for this patient when analyzing his symptoms, history, and laboratory results?

The correct answer is highlighted below.

Questions

28. Spherocytes are an excellent example of red cells that are...
 29. A red blood cell with a...
 30. Which of the following conditions is most likely associated with...
 31. The following control chart measures the mean for a...
 32. The following control chart shows...
 33. The following control chart shows...
 34. The following control chart shows...
 35. The following control chart shows...
 36. The following control chart shows...
 37. The following control chart shows...

Feedback

None particularly the spherocytes in the upper image to the right. Some resemble a half dollar with the other half of the cell containing a pale staining hemoglobin. These are called eccentrocytes. When present, along with a supravital patient history, they should trigger an evaluation for G6PD deficiency.

Upper image: The blue areas in the upper photomicrograph are directed toward spherocytic spherocytes in which the cell membrane is distorted by inclusion within the cell membrane, suggesting the amount of deformed hemoglobin. Included in the image is a target cell, a red blood cell, a normal cell, and a few spherocytes.

Lower image: This is a supravital staining of the affected red blood cells, confirming the presence of Heinz bodies, a key diagnostic feature of this condition. Non-deficiency anemia is associated with a microcytic, hypochromic anemia and is not associated with the presence of Heinz bodies. Phthalimide-deficient anemia is considered a microcytic, normochromic anemia associated with abnormal red

Sample Question 3

MediaLab Exam Simulator

Question 43 of 100 Anna Admin

Progress: You answered the question incorrectly.
 Time Elapsed: 0 On: 2m 30s
 Questions Details: Answer Provided: 3
 Answer Not Yet Provided: 97
 Correct: 2
 Incorrect: 1

Most all genotypes that cause alpha thalassemia minor. The correct answers are highlighted below.

Questions

43. Which of the following genotypes is the most common cause of...
 44. Which of the following genotypes...
 45. Which of the following genotypes...
 46. Which of the following genotypes...
 47. Which of the following genotypes...
 48. Which of the following genotypes...
 49. Which of the following genotypes...
 50. Which of the following genotypes...

Feedback

Deletion of two out of four alpha chain gene loci results in alpha thalassemia minor. The deletions may be homozygous or heterozygous. In the homozygous state (–/–), both parents contribute one missing gene locus. In the heterozygous state (–/–), one parent contributes a normal gene while the other one a gene with both alpha chain gene loci deleted.

Basics of Exam Simulator Scoring

- Each completed practice exam earns a score, stored in student's profile and organized by session
- Score data is available for students and educators (depending on the subscription style)
- Reports come in various formats:
 - Best Scores by User
 - Average Scores by User
 - Score Comparisons with other Exam Simulator users
 - Detailed Review for each exam session
- Students can view only their own exams (not started, incomplete, complete) and scoring with helpful charts to monitor their progress
 - Including printable PDF summary reports showing:
 - Highest and lowest scores
 - Breakdown and comparison by subject area
 - Total time spent practicing
 - History table of all practice sessions and scores

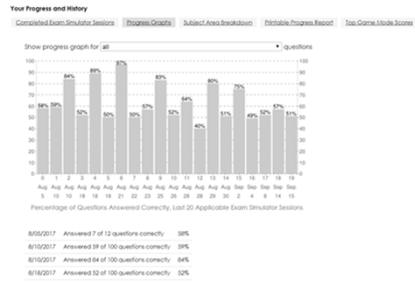
Student View: Exam Session Data & Review Options

Your Progress and History

Completed Exam Simulator Sessions | Progress Graphs | Subject Area Breakdown | Printable Progress Report | Top Grade Mode Scores

Date Completed	Type	Questions Correct			
9/15/2017	ASCP Board of Certification NLT Computer Adaptive Testing	51 of 100 (51%), o-g difficulty 4.44	Detailed Results	Duplicate & Retry	Hide Session
9/08/2017	ASCP Board of Certification NLT Computer Adaptive Testing	52 of 100 (52%), o-g difficulty 4.8	Detailed Results	Duplicate & Retry	Hide Session
9/14/2017	ASCP Board of Certification NLT Computer Adaptive Testing (retake of a prior session)	57 of 100 (57%), o-g difficulty 4.8	Detailed Results	Duplicate & Retry	Hide Session
9/04/2017	ASCP Board of Certification NLT Computer Adaptive Testing	49 of 100 (49%), o-g difficulty 4.01	Detailed Results	Duplicate & Retry	Hide Session
8/29/2017	Questions you've missed most frequently	8 of 10 (80%)	Detailed Results	Duplicate & Retry	Hide Session
8/28/2017	Questions you've missed most frequently	4 of 10 (40%)	Detailed Results	Duplicate & Retry	Hide Session
8/28/2017	ASCP Board of Certification NLT	64 of 100 (64%)	Detailed Results	Duplicate & Retry	Hide Session
8/24/2017	ASCP Board of Certification NLT Computer Adaptive Testing	53 of 100 (53%), o-g difficulty 5.38	Detailed Results	Duplicate & Retry	Hide Session
8/23/2017	ASCP Board of Certification NLT	57 of 100 (57%)	Detailed Results	Duplicate & Retry	Hide Session

Student View: Exam Session Progress Chart



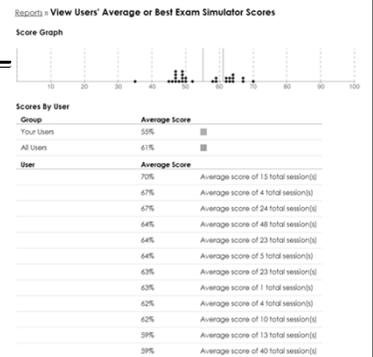
Score Report by Subject Matter

- Aggregate report
- Shows your users' data vs. other Exam Simulator users
- Identify high-level areas of weakness
 - This example: Micro and Immuno seem to be weaker than other subjects

Difficulty Level	Number of Questions Answered Correctly	
	Your Users	All Other Users
Level 1: Knowledge, Comprehension	2643 of 4276 62%	1203154 of 1873739 64%
Level 2: Application, Analysis	1049 of 1943 53%	388438 of 640413 59%
Level 3: Synthesis, Evaluation	214 of 384 56%	100474 of 181458 55%
Subject Area	Your Users	All Other Users
Blood Bank	627 of 1071 59%	286882 of 446870 64%
Chemistry	975 of 1598 61%	356746 of 589504 64%
Hematology	748 of 1332 56%	376864 of 618695 61%
Immunology	207 of 423 49%	131097 of 214471 61%
Laboratory Operations	529 of 771 69%	154195 of 242027 63%
Microbiology	494 of 1155 43%	317149 of 586547 54%
Urinalysis & Other Body Fluids	644 of 927 69%	480402 of 995130 68%

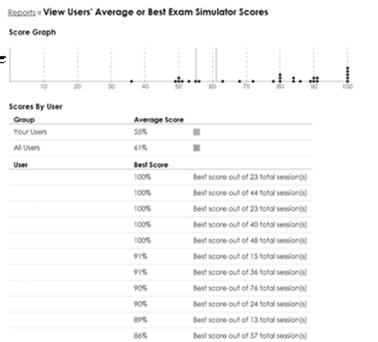
Score Report by Averages

- Average exam scores earned by your students



Best Scores Report

- Best scores earned by your students



Detailed Session Result Reports

- Review detailed score reports for each student test session completed
- Viewing actual questions answered correctly and incorrectly
 - Including which option was chosen instead

Assignments > View Complete and Incomplete Assigned Sessions

Show / Only Complete | exam sessions from Feb (02) | 13 | 2017 | 15 | 2018 | View

Name	Mode	Due Date	Date Completed	Exam Type	Questions Correct		
Review	12/1/2018	12/16/2017	ASCP Board of Certification NLT	46 of 100 (46%)	Detailed Results	Delete	
Review	12/1/2018	12/11/2017	ASCP Board of Certification NLT	46 of 100 (46%)	Detailed Results	Delete	

COMPARING TO ASCP SCORES

Reviewing Self-Reported Score Data

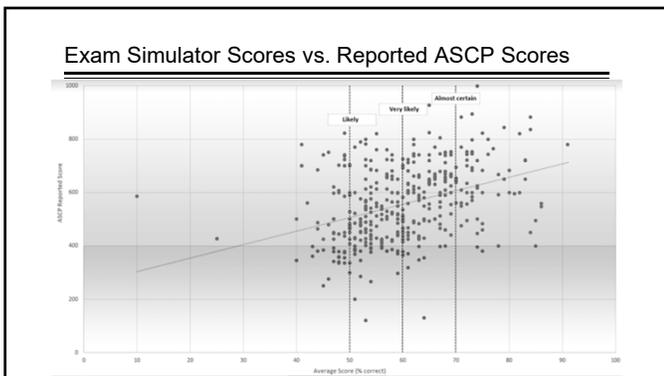
412 total Exam Simulator vs. ASCP score data points collected

Pass/Fail Data:

- 360 of 412 users reported a passing score on the ASCP exam = 87.4%
- 52 out of 412 users reported a failing score on the ASCP exam = 12.6%

Combining MediaLab's retrospective analysis of survey respondent system activity:

- Average exam prep sessions per user for this group = 60 sessions
- Average time spent per exam prep session = 35 minutes
 - Slight negative correlation noted. Longer exam prep sessions were slightly associated with lower ASCP scores.
- Correlating average Exam Simulator scores versus ASCP scores = strong positive correlation observed.
 - The better your average score, the more likely you are to pass the ASCP exam.



Aggregate Average Score Data (Current)

Analyzing active Exam Simulator users who have completed multiple exam prep sessions since Jan 1, 2017

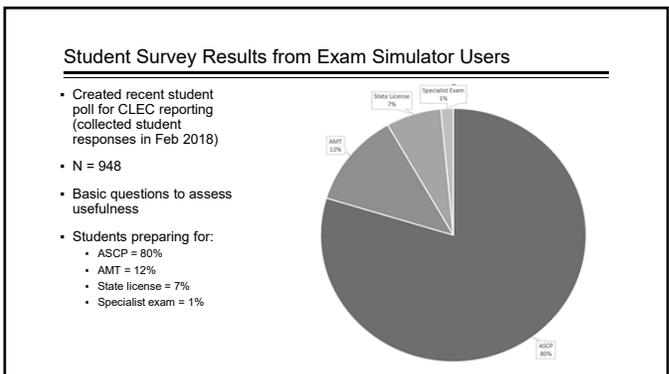
Big Picture Stats:

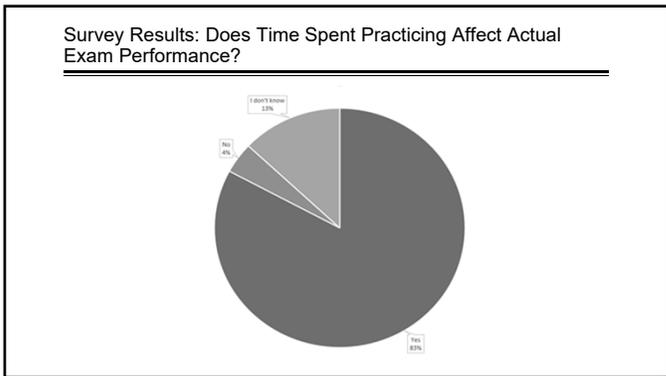
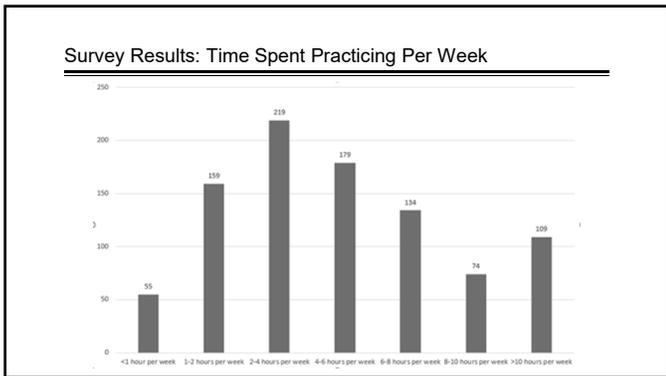
- Users with scoring averages in the 50-60% range in the Exam Simulator are 75% likely to pass the ASCP exam
- Users with scoring averages in the 61-70% range in the Exam Simulator are 90% likely to pass the ASCP exam
- Users with scoring averages in the 71+% range are >99% likely to pass the ASCP exam (only one failure was reported)

- 50 out of 4945 users have an average score of 50% or less = 1%
- 1976 out of 4945 users have an average score of 51% - 60% = 40%
- 1904 out of 4945 users have an average score of 61% - 70% = 38.5%
- 1015 out of 4945 users have an average score of 71% or above = 20.5%

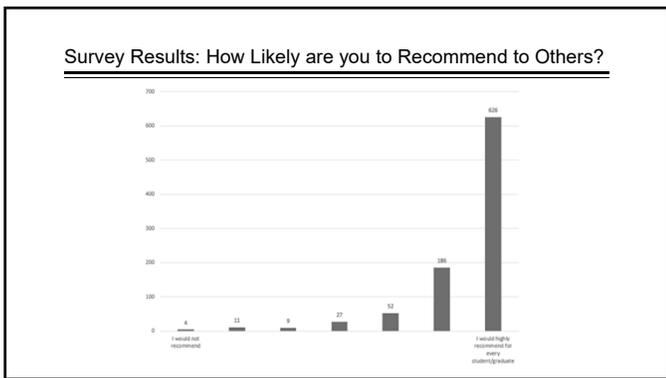
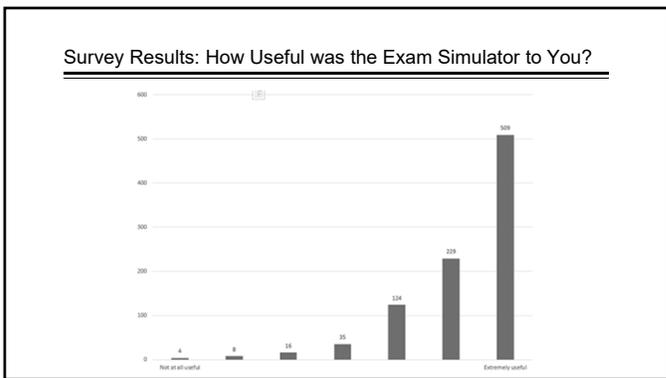
STUDENT SURVEY FEEDBACK

*Timely data collected in February 2018 for this presentation





- ### Survey Results: Ranking of Study Methods
- Answered as #1 or #2 in importance
 - Exam Simulator voted #1 – 443 votes
 - Exam Simulator voted #2 – 129 votes
 - Exam Review Textbooks voted #1 – 245 votes
 - Exam Review Textbooks voted #2 – 231 votes
 - Using Flashcards voted #1 – 138 votes
 - Using Flashcards voted #2 - 193 votes
 - Review Notes from Program voted #1 – 29 votes
 - Review Notes from Program voted #2 – 118 votes



PROGRAM DIRECTOR/EDUCATOR FEEDBACK

*Timely collection of feedback from February 2018

Educator Strategies for Incorporating the Exam Simulator into the Curriculum

- Required for Program vs. Optional
 - Some add to bookstore lists, MediaLab creates vouchers
 - Some require students to purchase on their own and link to the program account
 - Some purchase group subscriptions
 - Some suggest as optional resource
- Assigning exam preparation sessions:
 - Throughout the program year(s)
 - X number of assigned practice exams per month or week
 - At the end of a didactic course
 - During clinical rotations to stay current with content
 - During scheduled review courses/Capstone courses
 - Emphasis on year-end
 - Extra credit assignments/bonus points

Educator Strategies for Incorporating the Exam Simulator into the Curriculum

"We have added Exam Simulator to several courses, and require that students take a minimum of 5 practice exams to earn a small "Credit/No Credit" portion of their overall grade in the course. Students must also analyze the results of their 5+ exam attempts, noting their areas of weakness and developing a plan to improve in those areas."

-Stacy Walz, Arkansas State University

"Our classes are 6 weeks long (a "term"), and during the term I give them 3 LabCE (50 questions) exams, on the areas they have covered in the past terms. They retake each exam striving for a "90," with their second attempt. They are to concentrate on the questions they are not getting correct. We incorporate a LabCE grade into each MLT course. They continue to do this until they take the Capstone and Certification Review course. Then, when the student goes out on Clinical rotations, they get one 50 question LabCE exam to do each week, this is for 16 weeks total. Every time they take an exam, they must retake the exam striving for a "90."

-Elizabeth Zaricor, MBA MT(ASCP), Fortis Institute

Educator Testimonials

"My students and I absolutely love the Exam Simulator! I open it up for them during their didactic courses so they can study for each course's final exam. Once the students begin clinical rotations, they use the CAT function of the Exam Simulator as a primary tool for preparing for the certification exam. If a student is struggling with a particular course, I assign additional tests for them to complete for bonus points. I also use the administrative dashboard to monitor how students are preparing for the certification exam."

My graduates have reported a great satisfaction with the Exam Simulator in preparing them for the Board of Certification exam!"

-Holly Covas, MPH, MLS (ASCP)^{CM}
Manager, Medical Laboratory Science Program and Continuing Education
Vanderbilt University Medical Center

Educator Testimonials

"I track their progress and print a report for them each month – this way they can see their improvements and I can suggest areas where they need to focus more study time. I also tell them to let me know if they run across any material that we haven't covered. Thankfully it doesn't happen often, but there have been a couple times that they come upon a concept that I wasn't lecturing on, and I've incorporated it into my lectures."

I think that using exam simulator has helped improve our overall BOC scores. More importantly, I think it really helps our students focus on what they need to spend their time studying. It is very overwhelming to students the amount of material they need to know for the board, and exam simulator helps them see where their strong areas are, and what subjects or concepts they need to work on."

-Christine Wheary, MS, MT(ASCP)
Program Director- Clinical Laboratory Science Program
Susquehanna Health

Educator Feedback

"We received our 10 year accreditation from NAACLS last year. We highlighted MediaLab products in our curriculum and it was a positive addition to our collection of resources."

-Jana Bagwell, University of Mississippi Medical Center

"We instituted Exam Simulator in the 2015-16 year. Our graduating class in 2014 had a first time pass rate of 75% and dipped even lower in 2015 to a first-time low of 60%. Our pass rates have increased to 100% and 91% in the last 2 years with the addition of Exam Simulator."

-Brandy Greenhill, DrPH, MS, MLS(ASCP)^{CM}, MD Anderson Cancer Center

Improvement Ideas

- *"I would love to set an exam for them to do, have it timed for 2.5 hours and it lock them out once the time is up. That would be very helpful in helping them to learn to manage their time."*
- *"One request students have asked me is can they set up for a specific subject. For example, in chemistry, could they just select blood gas questions or if a student feels weak in anemias, could they select only that subject matter. I think having subsections for each subject matter would be helpful."*
- *"Some of the students notice that there are more mycobacteriology or mycology questions in the Exam Simulator than are on the actual ASCP exam. Could you adjust that percentage?"*
- *"Improvements would be to alert me when students miss the same questions on the assigned test/reviews each week and let me know more easily what the commonly missed questions are. Currently I review each student test to try to find any often missed questions."*

QUESTIONS FOR
MEDIALAB?

Thank you for attending our session!

