How to Interpret Navigate's Test Item Analysis Results

This document contains an overview of the statistical data provided in your course's test item analysis page.

1. The test item analytics page may be access for any online quiz by clicking the **actions menu (gear icon)** from the quiz page and selecting the **Statistics** option from the resulting dropdown menu.

2. Scroll down to the **Quiz structure analysis** section. This section displays various statistics which may be used to evaluate students' collective performance.

Quiz structure analysis

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Q#			Question name	Attempts	Facility index	Standard deviation	Random guess score	Intended weight	Effective weight	Discrimination index	Discriminative efficiency
1	☰	🔍 ⚙	"Chondro" in the word chondritis means:	2	100.00%	0.00%	25.00%	10.00%	0.00%		
2	☰	🔍 ⚙	"Gastro" in the word "gastroenteritis" means:	2	100.00%	0.00%	25.00%	10.00%	0.00%		
3	☰	🔍 ⚙	"Myo" in the word myocarditis means:	2	100.00%	0.00%	25.00%	10.00%	0.00%		
4	☰	🔍 ⚙	A 5-year-old boy has fallen and has a severe deformity of the forearm near the wrist. He has possibly sustained a fracture of the _____ forearm.	2	50.00%	70.71%	25.00%	10.00%	50.00%		
5	☰	🔍 ⚙	A diabetic patient has polydipsia. This means that she:	2	100.00%	0.00%	25.00%	10.00%	0.00%		
6	☰	🔍 ⚙	EMTs should have a strong working knowledge of medical terminology in order to:	2	100.00%	0.00%	25.00%	10.00%	0.00%		

3. Questions highlighted in red indicates that the question has a low **Discrimination index**. This is the correlation between the achieved score for the question and the scores reported for the whole quiz. In other words, it measures the variation between how stronger performing students scored on the question versus the weaker performers.

   a. If the Discrimination index is a positive and higher number, this tells you that the question is valid as best performing students were more likely to answer the question correctly.

   b. If the Discrimination index is a very low and/or negative number and the question is highlighted, this indicates that there could be a problem with how the question was written or programmed, as your higher performing students may have answered it incorrectly, whereas weaker performers got it right.

Quiz structure analysis

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Q#			Question name	Attempts	Facility index	Standard deviation	Random guess score	Intended weight	Effective weight	Discrimination index	Discriminative efficiency
1	☰	🔍 ⚙	An overdose of acetaminophen, the active ingredient in Tylenol, will MOST likely cause:	3	66.67%	57.74%	25.00%	5.00%	9.34%	100.00%	100.00%
2	☰	🔍 ⚙	As you enter the residence of a patient who has possibly overdosed, you should:	3	33.33%	57.74%	25.00%	5.00%		−100.00%	−200.00%

4. To its right, the **Discriminative efficiency**, a variation on the Discrimination index, estimates how effective the discrimination index is relative to the difficulty of the question. Thus, a higher discriminative efficiency score indicates that the question is a reliable indicator of your stronger students' performance versus the weaker students' performance.

Quiz structure analysis

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Q# ⊖	⊖	⊖	Question name ⊖	Attempts ⊖	Facility index ⊖	Standard deviation ⊖	Random guess score ⊖	Intended weight ⊖	Effective weight ⊖	Discrimination index ⊖	Discriminative efficiency ⊖
1	☰	🔍 ⚙	"Chondro" in the word chondritis means:	3	100.00%	0.00%	25.00%	10.00%	0.00%		
2	☰	🔍 ⚙	"Gastro" in the word "gastroenteritis" means:	3	66.67%	57.74%	25.00%	10.00%	22.83%	94.49%	100.00%
3	☰	🔍 ⚙	"Myo" in the word myocarditis means:	3	100.00%	0.00%	25.00%	10.00%	0.00%		
4	☰	🔍 ⚙	A 5-year-old boy has fallen and has a severe deformity of the forearm near the wrist. He has possibly sustained a fracture of the _____ forearm.	3	66.67%	57.74%	25.00%	10.00%		−50.00%	−50.00%

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5. Both the **Intended** and **Effective weight** columns' data are only meaningful if you have chosen to assign certain questions a higher point value, or weight, than others within the quiz. The **Intended weight** column displays the question's weight as a percentage of the total test score, and the **Effective weight** column will show an estimation of the actual weight the question had in contributing to the overall variation in scores.

    a. If the effective weight is greater than the intended weight, this means that question had a larger impact in the spread of scores than may have been intended.

    b. If the effective weight is less than the intended, this tells you the intended weight did not have much impact in the variation of scores.

Quiz structure analysis

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Q#			Question name	Attempts ⊖	Facility index ⊖	Standard deviation ⊖	Random guess score ⊖	Intended weight ⊖	Effective weight ⊖	Discrimination index ⊖	Discriminative efficiency ⊖
1	≔	🔍 ⚙	"Chondro" in the word chondritis means:	3	100.00%	0.00%	25.00%	10.00%	0.00%		
2	≔	🔍 ⚙	"Gastro" in the word "gastroenteritis" means:	3	66.67%	57.74%	25.00%	10.00%	22.83%	94.49%	100.00%
3	≔	🔍 ⚙	"Myo" in the word myocarditis means:	3	100.00%	0.00%	25.00%	10.00%	0.00%		
4	≔	🔍 ⚙	A 5-year-old boy has fallen and has a severe deformity of the forearm near the wrist. He has possibly sustained a fracture of the _ _ _ _ _ _ _ _ _ _ _ _ forearm.	3	66.67%	57.74%	25.00%	10.00%		−50.00%	−50.00%

6. A **Random guess score** only applies to multiple-choice questions and displays the percent chance a student has of submitting the correct answer choice if they were to randomly select an option by guessing.

Quiz structure analysis

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4	☰	🔍 ⚙	A 5-year-old boy has fallen and has a severe deformity of the forearm near the wrist. He has possibly sustained a fracture of the _____ forearm.	3	66.67%	57.74%	25.00%	10.00%		−50.00%	−50.00%

7. **Standard Deviation (SD)** is a common calculation used to measure the variation of scores for a given question. A low SD indicates that there is less variation across the scores, thus putting most scores closer to the average. A higher SD tells you that student scores are wider spread, meaning that a greater number of students are receiving either lower or higher scores than the average performer.

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4	☰	🔍 ⚙	A 5-year-old boy has fallen and has a severe deformity of the forearm near the wrist. He has possibly sustained a fracture of the _____ forearm.	3	66.67%	57.74%	25.00%	10.00%		−50.00%	−50.00%

8. The **Facility index** is the most basic of the statistics. This column reflects the percentage of students who submitted the correct answer choice for each question. Using the Facility index, you can quickly spot if a question may have been too difficult or if the class requires remediation on the subject matter of the question if the index is a lower number (<50%).

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