Instructional Data Warehouse News

December 5, 2022

The Best Report in the IDW
When Collaboration Exceeds Individual Excellence
by Fred Cohen

Saying something is "the best" is an easy way to get attention, but the assertion gains more credibility if the statement's author had little to do with the report's creation. And that is the case with the report featured in this newsletter.

Let's let the suspense build (What report is it?) while I describe how this wonderful visualization came to be. Just before the pandemic began, in December of 2019, Nassau BOCES was part of a National Science Foundation Grant arranged by Columbia University's Teacher College. As part of this grant, groups of educators from around the country—school administrators, college professors, and data scientists—gathered at Columbia to study how better data visualizations might improve the teaching process.

All conference attendees worked in groups to create unique and original visualization to dramatize educational data. Each group was composed of professionals from various backgrounds. Nassau BOCES brought some of our most proficient data practitioners to participate. We were divided into different groups. My group produced the Advanced Placement Chart, a useful (but not spectacular in any way) new report you may have used.

But a second group produced the fourth generation of the Wrong Answer Pattern Analysis. The first generation was a primitive Excel pivot table that I created more than a dozen years ago. It enabled Excel proficient users to see what correct and incorrect answers students selected on a given test. Most useful was the ability to **disaggregate wrong answers by student achievement levels**. It was intriguing to discover that mastery students often chose different wrong answers than students who were not proficient. But that original report was amateurish and not user friendly at all.

Very quickly, Nassau BOCES programmers turned that pivot table into a **user friendly WrAP report** with links to the actual test questions. It was "love at first site" for many Nassau County Instructional Data Warehouse (IDW) users.

But some suggested a simpler, even more user friendly, report which would show wrong answers selected without disaggregating the students by performance level. This report was named the **WASA or Wrong Answer Summary Analysis.** This report became a welcome partner of the Gap Report. Teachers could easily see where their students outperformed or underperformed the Nassau County benchmark and which answers tended to distract them. Each report, of course, offered instant links to the released questions allowing for instant analysis of instructional strengths and areas of needed improvement.

Upcoming IDW Events

**12/7/22
IDW: Serving the Underserved**

**12/14/22
IDW: 3-8 Administrators**

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One group of educators at the Columbia University conference chose to tackle the WASA Report as the subject of its visualization challenge. To dramatize the effectiveness of the new visualization, let's first view a traditional WASA report for one teacher's 2022 Global Studies (NF) Regents exam. Below is a snippet of the WASA Report for Questions 19 to 23.

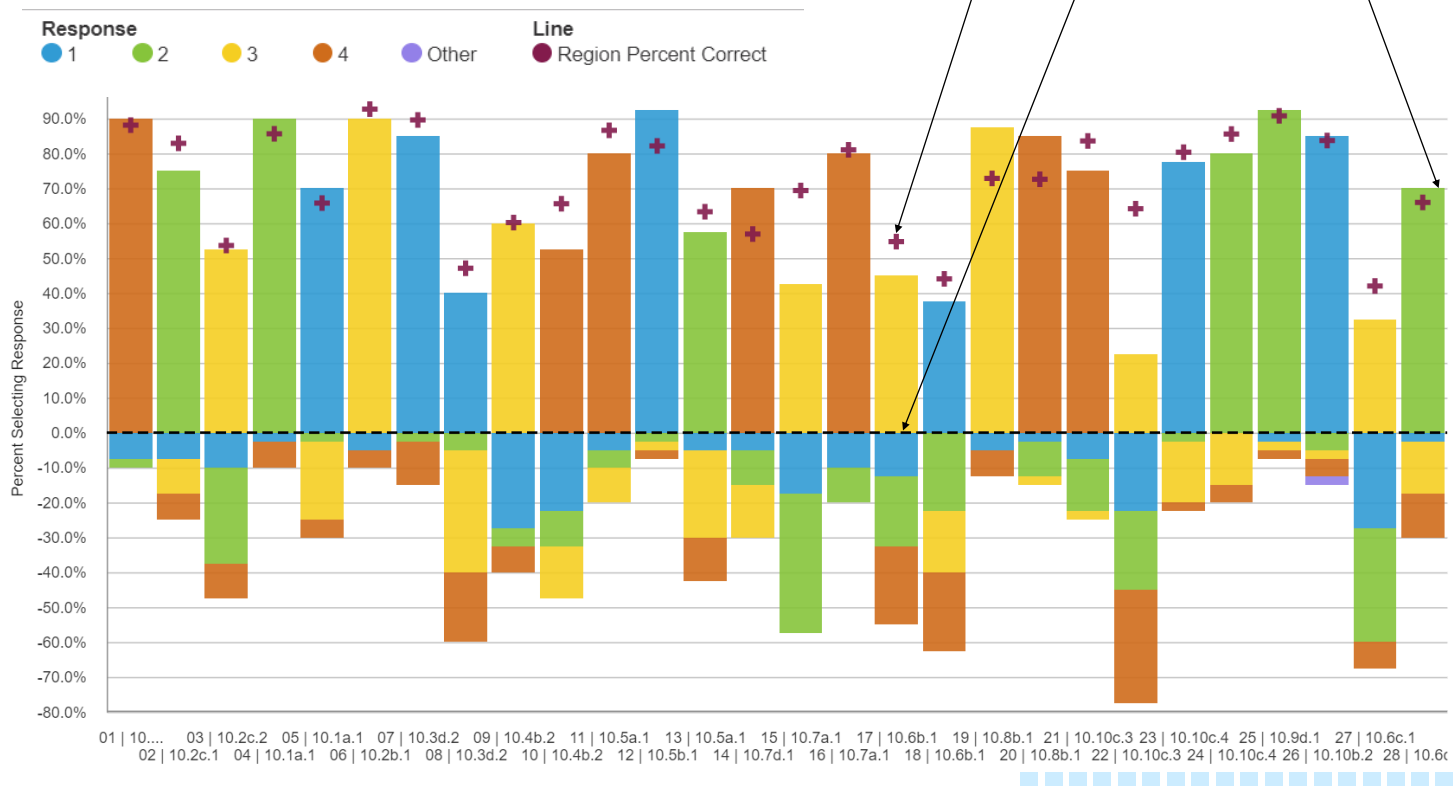| Q#	Skill Tested	Region %	Correct Resp	Blank #	Blank %	Resp 1 #	Resp 1 %	Resp 2 #	Resp 2 %	Resp 3 #	Resp 3 %	Resp 4 #	Resp 4 %
I-19	TENSIONS BETWEEN TRADITIONAL CULTURES AND MODERNIZ: 10.8b.1 Students will investigate, compare, and contrast tensions between modernization and traditional culture in Turkey under the rule of Kemal Atat++rk and in Iran under the Pahlavis and the Ayatollah	72.8%	3			2	5%			35	88%	3	8%
I-20	TENSIONS BETWEEN TRADITIONAL CULTURES AND MODERNIZ: 10.8b.1 Students will investigate, compare, and contrast tensions between modernization and traditional culture in Turkey under the rule of Kemal Atat++rk and in Iran under the Pahlavis and the Ayatollah	72.6%	4			1	2%	4	10%	1	2%	34	85%
I-21	HUMAN RIGHTS VIOLATIONS: Since the Holocaust, huma: 10.10c.3 Students will examine the policy of apartheid in South Africa and the growth of the antiapartheid movements, exploring Nelson MandelaGÇÖs role in these movements and in the post-apartheid peri	83.6%	4			3	8%	6	15%	1	2%	30	75%
I-22	HUMAN RIGHTS VIOLATIONS: Since the Holocaust, huma: 10.10c.3 Students will examine the policy of apartheid in South Africa and the growth of the antiapartheid movements, exploring Nelson MandelaGÇÖs role in these movements and in the post-apartheid peri	64.1%	3			9	22%	9	22%	9	22%	13	32%
I-23	HUMAN RIGHTS VIOLATIONS: Since the Holocaust, huma: 10.10c.4 Students will explore efforts to address human rights violations by individuals and groups, including the efforts of Mother Teresa, Aung San Suu Kyi, and the Mothers of the Plaza de Mayo.	80.3%	1			31	78%	1	2%	7	18%	1	2%

Correct response percentages (and actual numbers of students) are shown in green, and the percentage of students choosing the other responses are also shown. The columns in the red outline show both the correct response and the regional percentage of students who chose that correct answer. The teacher, viewing theses results, can see that his students outscored the county (Region) on some questions (#19 and #20) but not on others #21 through #23).

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This WASA Report has been one of the most used reports in the IDW enabling teachers to get a better understanding of what students were thinking when they answered questions incorrectly. The only problem was that teachers had to compare numbers, question by question, and pore over a lengthy report to determine key areas of need. The report was extremely useful but not very user friendly, especially for our modern graphic users.

Now compare the newer Visual WASA Report. At first glance, it's visually appealing but not immediately decipherable. A quick explanation, however, makes the report easy to master. It represents the collaborative work of the committee at Columbia who first envisioned it and the genius of the BOCES programmers who perfected it. Even in this small newsletter format, any user can see the answer patterns of the 40 students who took this Global History exam.

The legend at the top explains the color code. Blue represents answer 1, green for answer 2, yellow for answer 3, brown for answer 4, and purple for blanks and other responses. The brown + sign toward the top of each column shows the percentage of students who answered the question correctly countywide ("Region Percent Correct").

This teacher can see how his students scored compared to the rest of Nassau County noting whether the vertical column for each question is above or below the + sign. The height of the colored bar shows the percent correct for these students on each question. Note that on the last question the green bar (for answer 2) is above the + sign at 70% correct. The + sign for that question is at 66%. The next to the last question has the yellow bar (for answer 3) at 32% and the + sign at 42%. Hovering the cursor above the bar or the + sign reveals the exact percentage. The wrong answer choices are indicated, by color, below the black dotted line. An expanded detailed view for questions 19-23 is shown on the next page.

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In this view, it is easy to see how students performed on each question. (Note that a link to the test questions is at the top of the report.)

On question 19, almost 90% of the students chose correct answer 3 (in yellow). The **+** sign line is at 75% showing that only 75% of students in the Nassau County Region answered correctly.

A look at the bottom of the column for question 19 shows the wrong answers students chose. Just 4% chose answer 1 (in blue), and 6% chose answer 4 (in brown). But the real strength of the report is revealed when students have difficulty with a question. See question 22 in the red box below. (The actual passage referred to is not included.)

22 Which long-standing policy influenced the actions and words expressed in these passages by Nelson Mandela and F. W. de Klerk?
(1) tribal decision-making
(2) international cooperation
(3) apartheid
(4) non-aggression

The **+** sign, at 65%, shows that students, at only 22% correct, clearly had difficulty with this topic. But the real insight can be seen in the wrong answers chosen. Students were equally divided among the right answer and the wrong answers, suggesting that they were completely unfamiliar with the topic.

The power of the Visual WASA is that a teacher can quickly see what students learned well (compared to a regional benchmark) and the nature of students' incorrect thinking when they chose incorrectly. We hope this report serves IDW users well in the future.
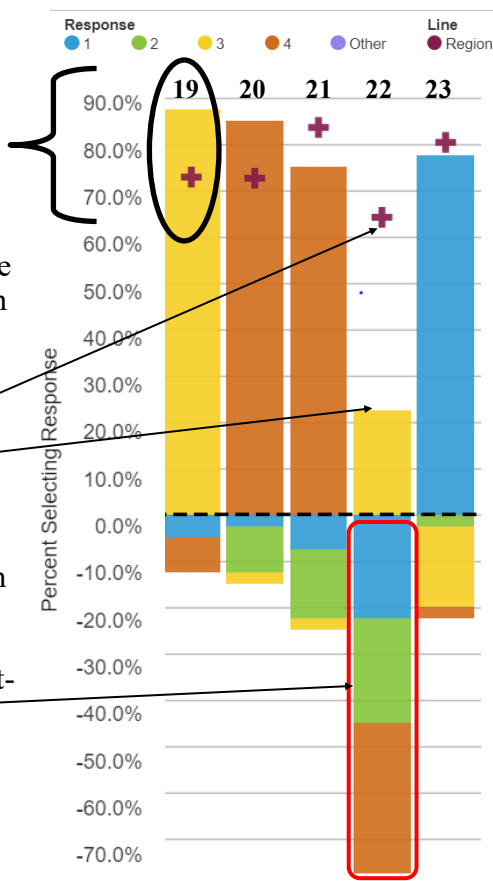
As always, IDW personnel are available to provide telephone assistance as well as virtual and in-district training for any district seeking to learn more about this newsletter, or about other best data practices. To schedule a training session or ask any IDW-related questions, please call Fred Cohen at (516) 608-6640, Stephanie Witt at (516) 608-6623, or Tammy Mazza at (516) 608-6633.

What's New in the IDW?

- Don't forget to view the full suite of IDW Reports for third party examinations
- NWEA and Star assessments have been completed (Don't forget to send Nassau BOCES your data), and iReady reports are expanding.

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