

Why Does It Take So Long To Receive National Board Results?*

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Throughout their optometric education (and prior to optometry school as well), students are subjected to a barrage of multiple-choice tests. In the age of modern electronic data processing, students know, and indeed come to expect, that their examinations will be scored overnight, with the results posted the next day.

Students recognize that overnight processing is impossible on National Board examinations because of such factors as transit time of answer sheets from test centers to the National Board office, a large volume of data to be processed, and delivery time for the results to be received by the individual students.

However, students also recognize that these same considerations affect other standardized examinations such as the OAT examinations, the results of which are received by the candidate within three weeks. Therefore, why does it typically take the National Board 7-8 weeks** to process its credentialing examinations, particularly given the pressure of licensure deadlines? The turnaround time certainly cannot be attributable to lack of internal capabilities or equipment.

Is the "problem" then a matter of inefficiency? These are legitimate concerns that justify an explanation. This article will describe the procedures of the National Board in processing examination data, compared with data from a typical instructor's examination, as well as the OAT.

Processing of Raw Data

The National Board receives most of its answer sheets from the test centers within three days of the last day of the examinations. Machine scoring of the answer sheets using the optical scanner is begun almost immediately, and is usually concluded within five calendar days of the administration. It is at this point that the quality control process begins; these procedures require a great deal of time and significantly slow the turnaround time.

Internal Quality Control Procedures

Unlike instructor and OAT examinations, the National Board is a longitudinal examination; that is, it is given to students at several intervals during their optometric education. Since score reports must contain the candidates' history of National Board performance, the data processing requires that the current examination results be merged into the candidates' existing file. The problem is that there are candidates who miscode their social security number on their answer sheet or application form, thus impeding this data merger.

In order to identify these mismatches, the National Board runs a reconciliation program that identifies these problems, which then requires staff to make the necessary corrections.

This program also helps staff check that, with the exception of "no shows", all candidates who registered to take an examination were indeed present, and that everyone who sat for the examination had indeed registered. This aspect of the data processing requires nearly a week to complete.

Further slowing the process is the time taken to check and recheck for possible security violations and other irregularities that might have occurred, and which might become the basis for Board intervention, such as withholding scores from a candidate. The operational procedures routinely conducted for security verification include checking that every page of every test booklet has been returned. No scores can be processed until this task is completed.

There is an additional aspect of this procedure of which all candidates should be aware. This reconciliation procedure also identifies every candidate for whom the scanner has recorded one or more omitted responses or multiple marks for any test section. Its purpose is to insure 100% accuracy in scoring, yet it is a procedure that is not performed by many examining boards.

The most likely type of error made by a scanner is when the response selected by a candidate with his or her #2 pencil does not sufficiently darken the circle on the answer sheet. When this happens, the optical scanner does not "see" the mark, and interprets this light mark as an omitted response. Because of this, a candidate might not get credit for a correct response, and thus receive an inaccurate lower score. Similarly, when erasing a mark to change answers, a candidate may occasionally make a smudge or incomplete erasure that is sufficiently dark for the scanner to read as a mark. In this situation, the scanner treats the candidate as if two answers were recorded for the one item, and the candidate's response is therefore recorded as an "omit" and is scored as being incorrect.

The effort put forth by the National Board to identify and correct these problems requires a substantial amount of staff time, and slows the turnaround time.

Test Scoring

After this reconciliation procedure is completed, each candidate is scored a second time. This scoring, which includes an analysis of each test item, is done by the office computer. Staff evaluates the test and item data for each Part for council review, flagging items suspected of being either ambiguous or mis-keyed. Structurally, each of the three councils (one per part) consists of each of the component examination section chairs, plus an additional representative from lengthy section subtests.

Staff are also entering the text from the candidate test critique forms into a separate database. Each item that has a substantive critique is automatically flagged for council review. As you can imagine, this transcription of these critiques is a time-consuming process.

The scoring and test critique printouts are photocopied and disseminated to the appropriate examination council, for review during a telephone conference call. Because of the number of participants in each conference call and the thoroughness with which the test data are reviewed, these conferences generally last for several hours. It is also noteworthy that the incisiveness of some of the test item critiques has revealed a subtle flaw that was "missed" by the item's statistics, and has resulted in the item being deleted from the final scoring.

The council review process adds more time to the overall turnaround time than any other aspect of the data processing. This is because of the difficulty in coordinating the multiple council member schedules and the requisite lead-time.

After the conference calls, staff delete flawed items and re-key those that were mis-keyed based on the council discussions and directives; the candidates are then scored for a third time. The results of this third scoring are reviewed during a subsequent conference call by the Board's Examination Policy and Procedure Committee for approval and release. If approved, the scores are then transferred to the candidate files in the computer database, compiled, printed, and mailed. At this point, 7-8 weeks have usually elapsed since the actual test administration**. The time that this takes really begs the question as to whether this process is necessary or even worthwhile.

Further Data Processing Comparisons

The description of the National Board test scoring system should identify the data processing needs that an instructor does not face. Clearly then, one cannot fairly compare the turnaround time of an instructor's examination with the National Board examinations. However, that still does not resolve the much greater turnaround time achieved by other standardized examinations such as the OAT and SAT. There are several factors that require the National Board to have a longer turnaround time than standardized admissions examinations.

First, as mentioned earlier, the National Board is a longitudinal examination, whereas the OAT is not. The additional required processing time that this creates was also discussed.

Second, whereas everyone taking the OAT is taking the same test, the National Board administers a battery of tests (i.e., Parts); it takes more time to score fewer people taking a series of tests than a greater number of people taking the same test.

Third, the National Board has a pass-fail cutoff score that must be validated; admissions examinations do not have this parameter. If you remember, your scores on the OAT were reported on a scale, and that no person passed or failed. In using the results of an admissions examination, "beauty is in the eyes of the beholder," since academic institutions utilize the results differently in the selection process.

The parameter of a pass-fail cutoff score on a credentialing examination, particularly if it is set in a criterion-referenced manner (as in the National Board examinations) rather than graded on a curve, requires a considerable amount of judgment and analysis in order to determine its validity and fairness, as there is no benchmark indicating that the cutoff score is set in exactly the right place.

A fourth distinction between the National Board examinations and the OAT is that the latter is an "off-the-shelf" examination. There are several parallel forms of this test, but each item on each form has been pre-tested, and shown to be valid. Therefore, the analytic requirements preceding the dissemination of results are minimal. In contrast, a significant percentage of the items on a National Board examination is being used for the first time and therefore may contain some previously undetected flaws.

Therefore, rigorous statistical analysis is utilized to help determine where those flaws lie in order that the items may be deleted from scoring, and that candidates are not penalized. The test critiques that candidates are encouraged to write further help in this detection process.

In conclusion, the factors that require significantly greater turnaround time for the National Board examination as a credentialing examination are that they are longitudinal, are administered as a battery of tests, contain a pass-fail cutoff score, and contain many items being used for the first time. Furthermore, given the importance of credentialing examinations for a health care profession such as Optometry, a sophisticated set of internal quality control procedures is essential for the necessary high degree of confidence in the results.

The National Board has never claimed to be among the fastest of the credentialing boards with regard to turnaround time. In fact, it is probably about average or slightly slower. However, there is probably no other board that is as thorough or accurate as the National Board, or one that involves as many individuals in the decision-making process in order to promote representativeness, objectivity, and accuracy. The price of the resultant quality is speed.

The limitations and capabilities of data processing systems are often described as "garbage in, garbage out." In the case of the National Board, we prefer the converse: "quality in, quality out."

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**When this article was initially written (1985), the score report turnaround time was 10 weeks from the completion of the test administration. In 2001, that period of time is reduced to 6-7 weeks. This faster turnaround is the result of enhancements to the Board's data processing and inventory management systems, and larger staff.