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Demystifying the GMAT: Computer-Based Testing Terms

By Lawrence M. Rudner

Computer-based testing can be a powerful means to make all aspects of test administration not only faster and more efficient, but also more accurate and more secure. While the GMAT exam is a computer adaptive test, there are other approaches. This installment presents a primer of computer-based testing terms.

Test Types

- **Computer-based tests (CBT)** are simply tests delivered by computer. The test is administered, and often scored, electronically. Numerous types of questions can be delivered by computer, from multiple-choice questions making a simple conversion from paper to computer screen, to questions that take advantage of the technology, such as in the upcoming Integrated Reasoning section of the GMAT exam. The questions may be housed on the individual computer, a local area network, or on an outside server accessible via the internet. Computer-based tests can be administered and scored more accurately, quickly, and securely than paper tests.
- **Fixed-form computer-based tests** are a form of CBT where all test takers see the same set of questions. Usually, this is a paper-and-pencil test administered on the computer. One variant is to randomize the questions, or present them in different order for different test takers.
- **Linear-on-the-fly tests (LOFT)** are a form of CBT in which questions are randomly drawn by the computer from a collection of questions so that every examinee receives a unique test with equivalent content and equivalent statistical characteristics.
- A **computer adaptive test (CAT)** is a form of CBT that takes advantage of the computational power of the computer by having the computer score each response as it is made and then select subsequent questions based on those responses. Typically, harder questions follow correct answers, and easier questions follow incorrect responses. Thus, examinees see few questions that are extremely difficult or extremely easy for them and have more questions of appropriate difficulty. Computer adaptive tests use question banks with far more questions than any one test taker will see. Like LOFT, they are more secure because each test taker takes a different test. CAT can be shorter and more accurate than LOFT because of the tailoring. CATs are also much more expensive to develop and administer. Many more test items must be developed for a CAT than a LOFT or a fixed-form test.

Test Delivery

- **Test delivery** refers to the process the test and test questions are delivered to individual examinees.
- **Internet-based tests (iBT)** are tests hosted by an outside server and delivered by computer through the internet. High-stakes iBTs are often delivered at test centers, where the tests can be monitored in a controlled environment, and require reliable, fast, and secure internet access, because the test itself is based on a different server. Some low-stakes iBTs, such as employment screening tests, are delivered to non-secure environments. Those individuals making the first cut are often invited to take a short verification test, in a secure environment.
- **LAN-based tests**, such as the GMAT exam, are tests hosted on a local area network. Typically, the test is highly encrypted and downloaded to a highly secure local server in advance. Each local server hosts secure software for test administration. Advantages to LAN-based tests are fast, consistent, reliable, and secure delivery of test questions. Most test centers with high-stakes tests use LAN-based tests with personnel and equipment requirements that are more stringent than that of iBT.

The GMAT exam is both computer adaptive and LAN-based. It is more expensive to develop and administer than other types of tests, but the combination provides for the highest degree of accuracy and security possible.

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