20 13

Issues in
Contemporary
Evaluation

Edited by

Olajide Olorunnisola
Adams Otuoze U. Onuka
Oyebamiji Babalola
Aderemi I. Alarape
S. A. Babarinde

Chapter 9

Test Security

Adams O. U. Onuka

Test Security Clarification

Tests are vital in the educational process. Tests are being used to determine the extent and how much learners have gained in a particular course of instruction. Anybody who undergoes any training, whether formal (schooling) or non-formal (trade) is expected to go through an examination during or at the end of the training exercise. This examination, which could be either practical or theoretical, is intended to determine the extent to which the trainers have mastered the programme content exposed to them. Test could also be referred to as examination which could be formative or summative in nature. In formal schooling, students often write examinations at the end of the term or session where they are exposed to standardized examinations like the Senior School Certificate Examination.

A test is defined as a systematic procedure for observing a person's behaviour and describing it with the aid of numerical scale or category. It is any series of questions or exercise or other means of measuring the skills, knowledge, intelligence, capacities or aptitude of an individual or group. A test is primarily made up of test items usually drawn from a pool of items, especially with respect to public examining. A test normally undergoes a multi-stage process. It is important to mention that each stage must be well protected from any form of fraud or theft from the outset. This multistage process includes the pooling of items, to trial/pilot testing the pools of items with a view to drawing the items with moderate discriminating power and difficulty level and the determination of the reliability and validity coefficients or indices. The validated test items are then standardized to determine the degree of its generalisability ('psychometric properties of the test').

The purpose of this multistage process is to ultimately administer a standardized test on the testees in such a way that the results will give a very fair assessment of the intelligence level of each testee in relation to his/her peers on the test or behaviour in case of an achievement or

aptitude test. The entire process could be regarded as testing and it includes design or construction of test which is a part of the stages described above. Standardized test is then administered on the testees, scored, graded and results collected as well as disseminated for several purposes, namely: feedback, certification, admission to higher institutions and employment, among others.

Over the years, it has been found that examination malpractices/frauds are traceable to every stage of the testing process: pool of items, the test itself, and the conduct and ·management of examinations, scoring, grading and dissemination of the examination results (Uwadiae, 2003). The fact that there is no test until the last stage of the entire process has been concluded should inform the reason to ensure security of the test. However, malpractice is not restricted to only one but occurs at every stage whether noticed or not. It is the responsibility of every examining body to ensure that security measures are put in place at every stage but in varying degrees as malpractices are not in the same quantum in every stage of the testing process.

Studies and evidence about examination fraud, malpractices or threats to test security abound (Ojerinde, 2005; Onuka and Obialo, 2004; Onuka and Amoo, 2004). According to these scholars, examination malpractices which take various forms had continued to be on the increase in spite of the efforts to curb the menace. Test security is the vehicle that can be used to restore and sustain public confidence in public testing. The major import of these revelations is the fact that the African examining system is fraught with the danger of test insecurity that must be squarely addressed (Onuka, 2008). Onuka (2009) identifies the following types of test security measures: Proactive (preventive) test security – which spans test development through production stages; this can otherwise be taken as diagnostic test security measure; Concurrent (defensive) security – which is undertaken during test administration and the marking exercise. This can be viewed as a developmental security measure; Retroactive (restorative) test security which is investigative or retrospective to find out any anomaly after the examination in order to forestall a future repeat of such anomalies. This can be regarded as summative test security. It can also be seen as prognostic evaluation.

Abolurin in Onuka (2009) submitted that security has more than one component. These are largely foresight, prevention, emergency and restoration. Foresight as component of security deals with the acquisition of information in order to understand the risks and variables within any defined area and in the context of this discourse, with particular reference to test, to each of the stages of the testing process mentioned earlier. The next component of security provision is the prevention which is derived by way of having adequately coordinated policies regarding the entire testing process management, the human resources or capital and the available tools. Another component in security provision is the emergency security measure that comes by way of opportunity or chance, because it was not originally envisaged, so it is usually intended, in the first instance to control the emergency and find permanent security measures. It however implies that security measures that ensure rapid response to such unanticipated security problems are in place at all times. Restoration is the next component in security provision. This dimension ensures that security mechanisms that help to restore normalcy and in our context credibility and integrity to the system in the shortest possible time is in place. Restoration security is a follow-up security dimension that is put in place to restore normalcy to a damaged testing situation.

Consequently, test security can be referred to as the totality of the actions, steps and measures taken to ensure that (1) candidates do not have prior knowledge of the test items before the examination; (2) the process of conducting the examination is safe from the examination halls to the coordination and marking rooms (3) the scripts are preserved for years after the results of the test are released for reference purposes or in case the results are contested.

It should, however, be noted that test security is not limited to public examinations alone; it extends to school based examinations. Proactive (preventive) test security should be put in place at outset of the preparatory period up to the point just before the conduct of the examinations. This is to ensure that the test is secured all through the pre-examination period. It is important to state that all stakeholders must be involved in test security but in varying degrees and manner and at the relevant stage in order to avert insecurity of the test we set out to protect. To buttress this, Onuka (2009) found that stakeholders

who are causes of the various forms of malpractice have to be sensitize
on the need to fight the menace.

Security of Item at Generation and Validation Level

Item generation is an activity that requires teachers (in school exam
and examination bodies (in public exams) to write out or prepare tl
questions that will be answered by students (candidates) in tl
examination. Items are generated based on the contents (syllabu
which the students are exposed to in the classroom. To write questioi
for an examination, a teacher or examination body must first prepare
Test Blue Print otherwise known as Table of Specification). The te
blue print ensures that the teacher or exam body does not go out of tl
content/syllabus which the candidates are expected to cover for tl
examination. The items are then written or generated to cov
appropriate taxonomies of the cognitive domain as stipulated in tl
blue print.

After the items are written, it is administered on students of equivale
norm as those the test is intended. The result is then analysed
determine (1) the ambiguity or otherwise of the items; (2) the difficul
or otherwise of the items; (3) the properties of the test, i.e. its validi
and reliability (suitability of administration) among other reasons. Tl
process is known as "validation of the test items or instrument".

Test Security at this level requires that items writers and develop
must not let the students, especially those on whom the test
administered on in the validation process to know (1) the purpose of t
test; (2) the target population for the test; (3) the year the test w
eventually be administered.

Security at Production and Administration Level

After validation, the final form of the test is written and produced in t
appropriate quantities to be administered on the actual candidates.
the validation and production level, the test items are typed and pack
by people (staff members of exam bodies) who may have childr
and/or other relations who will sit for the test. Usually, there is t
temptation of giving such children/relations prior knowledge of the t
items, thus giving them undue advantage over other candidates in t
examination.

It is also necessary to keep test items safe and secure even when the candidates are attempting/responding to them in the examination. The following security measures can be taken to ensure that test items are safe at this level:

The personnel involved in generation, validation, typing, packaging and administration of the test items must be made to swear an oath to keep test items confidential until the day of eventual administration on the candidates;

- They should officially notify authorities of the exam bodies, in writing, if any of their children or relations is to sit for such examinations;
- Special allowance must be given to them for performing such duties; and
- The authorities of examination bodies must stipulate and strictly enforce appropriate disciplinary actions on any personnel who leaks test items at any stage of the testing process.

Security at Production and Administration Level
Testing does not end in the examination. When candidates are done with attempting the questions in the examination halls, the scripts are collated (i.e. put together) to be examined by examiners. Usually, a marking scheme is developed to be used by the examiners in marking the scripts.

After the script collation, comes the coordination. Coordination is where the marking scheme is standardized. To standardize the marking scheme, examiners are required to mark dummy answer scripts to determine how marks are to be awarded to candidates' responses to the test items. The scripts are then given to the examiners to examine and return after five or six days as the case may be. The coordination does not end until the examined scripts are vetted by the Chief Examiners.

It is, therefore, not impossible that an examiner may stumble on the scripts of relations in the process of marking. The tendency is there for the examiner to inform and/or be biased in marking such scripts. The examiner may also want to be biased in marking scripts of candidates who bear same names as the examiner, examiner's children or good friends of the examiner.

Where such bias exists, it endangers the security of responses of candidates on the scripts. To keep the scripts secured at this level; the same conditions in unit three above should also apply to examiners.

Security at Compilation of Results level and Beyond
Modern testing involves the use of the internet and computers. After examiners' scripts are vetted and accepted by chief examiners, another set of personnel are saddled with the responsibility of sorting out the results of candidates subject by subject and entering the data thereof into the computer and internet for eventual release. The candidates' scores should also be kept safe. There should be no form of error in entering the scores for grading and releasing. This is because the quality objectives and acceptance of a test and perhaps the examination body that conducts it is consummated in candidates' performance in the test. Errors can affect performance of candidates and candidates' performance can affect the image of the examination body. Care must be taken and caution must be applied at this stage of the testing process. Finally, when results are released, candidates' scripts must be preserved for a reasonable number of years in case candidates or other stakeholders who are displeased with candidates' performance in the test decide to contest the results. Security measures here involve keeping the scripts: (1) away from being burnt by fire; (2) from being destroyed by water or even stained unnecessarily.

Purposes of Test Security
- To ensure equity: That is, to ensure that no examinee is either given undue advantage or disadvantage;
- To ensure test integrity of the education system and its certification by-product;
- To ensure quality of achievement evaluation;
- To promote accountability of the education system;
- To ensure quality feedback;
- To ensure that the certificates issued by Nigerian examining bodies are rated among the best in the world.

Challenges of Test Security
Some of the challenges of test security could be:
- Stepping on the toes of powers behind examination fraud syndicates, funds for putting the appropriate test security

mechanism and the apparatus for its execution in place (a lot of resistance).

- Finding honest men and women to carry out the test security outfit and to sincerely discharge their duties without fear and favour in this era of utter dishonesty in the African polity (honesty is no longer common place).
- Funding might constitute another challenge that an examining body may have to surmount in the process of ensuring test security as there are many competing needs in the education sector in Sub-Saharan Africa.
- Another obvious challenge is the likely threat to life that may scare the personnel from discharging as they should for fear of untimely death, as fraudsters have grown so wild as to shoot or harm examination officials (ad hoc or permanent) in any possible way.
- The process of getting the right people to carry out this fool proof of type security and intelligence surveillance can be fraught with danger as the government sponsored examining bodies may be influenced by the powers in the recruitment exercise and thus have it hijacked by them, thereby rendering the whole exercise useless. The resultant effect would be the defeat of the very purpose for which it was initiated in the first instance.

Possible Solutions

- Test security should be conducted without fear and favour, and without any interference from outside powers.
- A well-fortified internal test security mechanism should be put in place.
- The design of test security and its implementation should be done very discretely without fanfare and playing to the gallery.
- There should be some rules and regulations that guide entry into security sensitive offices of an examining organisation during and after official working hours and on weekends.
- Entry beyond the reception of the examining organisation should be thoroughly regulated and non-staff (visitors) should be adequately examined to ascertain the purpose of their visit before being allowed into areas beyond the reception.

- Examination candidates coming in connection with examination matters should not under any circumstances be allowed beyond the reception, except if s/he had taken the examination and had passed but had one problem or the other with certificate or something pertaining thereto.
- Officers and other employees of the examining body should be scrutinised when entering and going out of the organisation's premises.

Conclusion

It is apparent that the test is an important factor in the education process and indeed in the development process of human capital for any economy. It is also a tool for assessing the extent to which students have achieved the stated learning objectives. It is pertinent to stress that the test development, administration, scoring and result dissemination stages are plagued with test insecurity through examination malpractices. Hence, the need for mounting test security mechanism by all stakeholders most especially the examining bodies who are custodians of these tests.

Recommendations

- All stakeholders should contribute more to the funding of public examining in the country.
- All stakeholders should have concern and passion for the security of the testing system.
- Intelligence surveillance should be inbuilt in every unit of the examining body so that every test stage is secured, and thus avoid or minimize the embarrassing situation of being exposed to scandal, fraud or malpractices that have become the bane of both public and private or school examining in Africa.
- Also, test security intelligence groups should be formed to nip the menace and tri-dimensional security approach (proactive, concurrent and retrospective) be integrated into Nigeria's public examining system.

References

Ojerinde, D. (2005). *Public Examining in Nigeria: Challenges and Prospects.* Ibadan: Guest Lecture Delivered at the Institute of Education, University of Ibadan, Nigeria (September)

Onuka, A. O. U. and Obialo, F. O. (2004). *Causes of and Solutions to Examination Malpractices in Nigeria: The perception of some stakeholders in* Afemike, O. A. and Adewale, J. G. (eds) Issues in Educational Measurement and Evaluation in Nigeria in honour of Wole Falayajo. Ibadan: Educational Research and Study Groups, Institute of Education University of Ibadan.

Onuka, A. O. U. and Amoo, S. A. (2004). Examination Malpractices and Act 33 of 1999. In Nigerian Journal of Educational Research and Evaluation 5 (1). Onuka, A. O. U. and Raji, M. A. A. (2005). Academic Integrity of a Nigerian University Teachers. *In Nigeria Journal of Educational Research and Evaluation 6 (1).*

Onuka, A. O. U. (2008). Test Security in Public Examining. A paper presented at Joint IAEA and Institute of Education, University of Ibadan, Nigeria Advanced Training Workshop for Officials of Examining Bodies in Africa at the University of Ibadan, Nigeria (November, 2008).

Onuka, A. O. U. (2009). Stakeholders Perception of Test Security as Management Tool for Curbing Malpractices in the Nigerian Public Examining System. *African Journal of Educational Management Vol 12, No. 1 (April)pp 31 – 51)*

Uwadiae, (2003). Curbing Examination Malpractices. A paper presented at a Youth Programme at Foursquare Church, Headquarters, Yaba, Nigeria (December)