

EXAMINATION CRISIS AND MANAGEMENT: COMBATING THE ICT THREAT IN SECURITY PRINTING

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ABSTRACT

Though it is advantageous and has many benefits, the use of test has many social implications which could be devastating to the testee. An example of the implications is the labelling of the candidate with low test scores as a non-achiever. To avert some of the social implications, candidates resort to many vices during examinations. One of such vices which has serious consequences for the reputation of examining boards is examination leakage. The term examination leakage refers to the phenomenon where knowledge of the test items come out to the public domain before the set time for the paper concerned. For about a decade, the West African Examinations Council, Ghana was rocked by a series of examination leakage. After thorough investigations the source of most of these leakages was traced to the printing presses. Thus to arrest the malpractice, the Council put into operation an in-house printing exercise which has as an integral part, in-house typesetting of question papers for all examinations to be conducted by the Ghana National Office of the West African Examinations Council. This paper discusses the measures the Council put in place to operate the in-house typesetting and printing and ultimately to circumvent the recurrence of examination leakage in its operations.

INTRODUCTION

Crisis is a worrying time: “a situation or period in which things are very uncertain, difficult or painful, especially a time when action must be taken to avoid complete disaster or breakdown”, says the Encarta dictionary.

In the Canada’s October Crisis of 1970, the French Canadian nationalist movement which has been overwhelmingly peaceful throughout its history, stunned the whole of Canada when a small terrorist group out of their lot called the Front de Liberation du Quebec (FLQ), kidnapped the British trade commissioner, Mr. James Cross and Quebec minister of Labour, Mr. Pierre Laporte. The FLQ murdered Pierre Laporte and made demands which had huge political and financial implications for the Canadian government for the head of James Cross. It was a real worrying situation for both the Canadian and British governments as well as the family members of Mr. Cross. (Encarta Encyclopaedia, 2008)

As worrying as the above incident might be, nothing can be more disturbing to an examining body at the news that its papers have been compromised and therefore faces the risk of losing credibility with its stakeholders. In that case, its very existence is threatened. If this does not create a crisis situation for the examining board then it is not worth its salt.

There are three levels of handling crisis. These are

- 1) Prevention of crisis;
- 2) Damage control;
- 3) Post-crisis administration.

In the first stage measures are put in place to stop anything which may create crisis from occurring. This involves strategic planning and careful implementation of the plans. Loop holes are identified and plugged. This calls for foresight and good judgement.

In the second case, the crisis has occurred and processes are set in motion to solve or cope with the problem to control the damage made and to salvage what is left of good image and reputation. In such times, intelligence and smart thinking will be required to handle the media practitioners.

In the third case, i.e. post-crisis administration, considers definite steps to be taken to forestall the recurrence of the crisis. Monitoring and periodic evaluation are necessary tools in this venture.

BACKGROUND

Test plays an important role in determining achievement and certifying attainment. It is also regarded as a yardstick to measure the effectiveness of educational policies. There is no gainsaying the fact that use of test is highly advantageous but there are varied social implications and limitations. Consequently, the use of test has received her fair share of criticisms. The first of the social implications put forward by Anne Anastasi is the issue of invasion of privacy of the examinee. She claims that through a test an examinee may be compelled to reveal certain facts and details about himself which may embarrass him. Certainly, any intelligence, aptitude or achievement test may reveal limitations in skills and knowledge that an individual would rather not disclose.

Another limitation put forward by critics is the fact that testing produces rigid grouping practices so far as the test result leads to inflexible classification, also referred to as categorization, labeling or grading. In their article "Putting the Standardized Test Debate in Perspective", Worthen and Spandel argue that classification could be demeaning and insulting and harmful to students who are relentlessly trailed by low test scores. This obviously carries connotation which may cause more harm than any gain that could possibly come from such classifications. In

the same article, it is claimed that one of the most serious indictment on the use of test is the fact that most tests favour economically and socially advantaged students over their counterparts from lower socio-economic backgrounds. They argued that even well-intentioned uses of test can disadvantage those unfamiliar with the concepts and language of the majority culture producing the test items. Fear of the demeaning social implications of tests, generate the anxiety that accompany test taking and receiving of test scores. In extreme cases, anxious testees suffer from phobias that lead to biological disorders often referred to as examination fever, examination diarrhoea and temporary weakening of the bladder. For these reasons, Gronlund (1976) is reported to regard all tests to be having damaging effect on pupils because they can create anxiety and destroy their self-concept.

In an attempt to circumvent the negative effects imposed by the social implications of testing, which include impedance to academic progress, forfeiture of professional advancement and promotion, and the stigma of being labelled a non-achiever, many examinees resort to various kinds of malpractices during test taking. The temptation to indulge in this vice is sometimes so strong that candidates who could be classified as well-behaved and would ordinarily not approve of wrong-doings fall prey to it.

Robert T. Tauber reported that in university introductory courses which are usually heavily enrolled, one of the difficult challenges which the university authorities have to grapple with is that associated with cheating during examination administration; the incidence of this has been documented to be on the increase. Terry Pettijohn and Matthew F. Sacco also confirm cheating during university examinations and professors had to adopt all forms of methods to control the phenomenon. S. O. Adeyegbe and M. G. Oke in their presentation at the 12th Annual Conference of the Association of Educational Assessment for Africa (AEAA) in Accra in 1994, defined examination malpractice as

‘an impropriety, an improper conduct to one’s advantage during an examination’.

Examination malpractice could take different forms. One of such forms is examination leakage.

THE CRISIS

The West African Examinations Council’s vision is “to be a world class examining body, adding value to the educational goals of its numerous stakeholders”. However, efforts at attaining this vision have been threatened by examination leakage. This is mainly because whenever examination leakage occurs, it casts doubt on the Council’s ability to discharge its mandate of conducting credible examinations in the public interest and issuing internationally acceptable certificates.

In 1990 and 2002 – 2004, the Ghana National Office of the Council was rocked by a series of examination leakage which were traced to the press houses.

EXAMINATION	SOURCE	CULPRIT
May/June 1990 GCE Ordinary & Advanced Levels	Print house	One of its workers
April 2002 BECE July/August 2002 SSSCE	Print house Print house	A typesetter One of the workers
November/ December 2003 SSCE	Print house	One of the workers
July/August 2004 SSSCE	Examination Depot	Through a break-in by a teacher and his accomplice

In December 2003 before the typeset paper could be printed it was found to be already out in hand-written form. When the culprit was eventually arrested he refused to disclose how he got

the paper out from the press. He was sentenced to a jail term but denied the Council of the vital information regarding the source. However, the Ghana Office was of the strong suspicion that the computers being used in the press might be bugged or hacked into.

IN-HOUSE TYPESETTING

These leakages led to the review of the Council's operations. In one of such reviews in 2004, the Council put into operation an in-house printing exercise for those subjects she considered sensitive. An integral part of this in-house printing exercise was the **in-house typesetting of all papers for all examinations** conducted by the Ghana National Office. The subjects include complex ones like Exotic Ghanaian Languages, Science, Mathematics and Music.

There can be no typesetting without trained personnel, a computer and relevant software.

Whenever computers and software are introduced, one of the threats encountered come from the activities of viruses, Trojans and computer worm. To counteract this threat, one may have to install anti-virus software. These anti-virus software require regular update most often by connecting to the internet. However, it is a known fact that when a computer is connected to the internet, it is usually scanned by Hackers within the first few minutes to discover whether it can be broken into. This has serious implications for security and corruption and loss of data.

Since IT is needed for enhanced performance and speedy delivery, its use has become inevitable in spite of the associate risks. Thus while using ICT to achieve her in-house typesetting and security printing targets, the Ghana National Office of WAEC has put in the following measures to combat the threat of the use of ICT and other designs employed in leakage of examination.

The measures are threefold:

- In the Security Printing Department (SPD)

- During In-House printing
- At the Press Houses.

IN THE DEPARTMENT

1. Staff members of Security Printing Department (SPD) are briefed at the beginning of each cycle of examination activities to appeal to their consciences and obtain their commitment to guard the confidentiality of the papers. This is because without integrity and commitment, measures put in place to safeguard the integrity of the examination papers could be invaded. By way of staff declaration of confidentiality, members are invited to swear an oath of secrecy at the beginning of each examination cycle. The oath of secrecy is administered by the Council's legal officer.
2. Typesetting of confidential materials is done at a designated place only i.e. the READING ROOM. This place is referred to as such in order to conceal the real functions of the place.
3. To minimize the IT threat, subject officers are required submit their draft papers handwritten or to type them personally on stand-alone PC's or laptops. These drafts are received and worked on only in the READING ROOM.
4. Records are take of officers who
 - Received draft;
 - Did copy-editing;
 - Typesetting;
 - Proofreading.

Though we do not anticipate anything untoward to happen, this is done to facilitate investigation should any thing go wrong.

5. Drafts and proofs which are not being worked on are always kept under lock and key.
6. Typesetting is done, not by secretaries, but by officers of the registrar cadre using a software which is flexible and allows for automatic pagination for saddle stitching or perfect binding as the need might be.
7. To avoid the risk of hackers on the internet, internet connectivity is not permitted in the Reading Room. The antivirus on the computers used for typesetting is updated by downloading the updates some where outside the Reading Room into a folder on a pen drive and with the downloaded information the software is updated.
8. To further reduce the risk of ICT, only stand-alone PCs are used; there is no networking whatsoever in the Reading Room
9. Proofreading by subject officers in WAEC, Ghana is done in the SPD Reading Room only. Furthermore, no subject officer is permitted to keep copies of the proofs; all proofs in the Accra Office are kept in SPD. This is to reduce the spread of authentic copies of the live items.
10. Immediately after papers are passed for printing they are moved from the computer onto a CD and a mass storage device and kept under lock and key.
11. Mobile phones are not permitted in the READING ROOM.

12. Police personnel search officers going in and coming out of the Reading Room to ensure that no unauthorized material is sent in or taken out intentionally or unintentionally.
13. Admittance for unauthorized persons in the READING ROOM is absolutely *prohibited*.
10. All activities in and around the READING ROOM are monitored on a CCTV and recorded. The recordings are reviewed by the Head of Department as often as possible. Immediate action is taken when necessary, to correct any carelessness which may cause a leakage.
11. Passwords have been placed on the computers for typesetting. The password is controlled by the Head of SPD and the supervisor of the READING ROOM. At least, there should be two officers present before the READING ROOM is opened and no one person should stay in the READING ROOM alone.
12. Braille versions of question papers are produced in-house in the READING ROOM using the same soft copies of the typeset materials produced for the sighted candidates, applying the relevant modifications. To reduce human interventions, Computer-to-Braille system is employed in the Braille production.
13. The Council also produces Large-Print versions of the question papers for the visually impaired candidates.

13. A security officer is always at post at the entrance of the Department to control entry of visitors.

IN-HOUSE PRINTING

14. Information leaving the Department to the in-house printery is encrypted with a password. This is to ensure that should the pen drive loaded with the information get missing nobody else would have access to the information.

16. The following items are not allowed in the printery:

- mobile phones,
- pens,
- jewellery,
- watches,
- pen drives
- and other metallic objects.

This is to eliminate the possibility of someone coming in with any of these items fitted with hidden cameras, data recording and retrieval devices.

17. The following are also not allowed: writing pads, cribs, hat or caps, newspapers, magazines, story books, etc.

18. No unauthorized person is permitted to enter the printery.

19. Officers entering and going out of the printery are searched by police personnel and WAEC security officers. To facilitate this, a simple dress code has been prescribed for members of the Printing Corps.
20. Only staff members of proven integrity and commissioned by the HNO are enlisted in the Printing Corps. These are briefed and reminded of the need to safeguard the confidentiality of the exercise before the start of each one. By way of motivation, members of the Printing Corps are given some honorarium at the end of each exercise.
21. Members of SPD and the Printing Corps are required to declare their interest in any of the examinations. Those who indicate interest are either not used for that exercise or are restricted in their participation.
22. The printing machines are protected with a password which is controlled by SPD. In addition, the keys to the printery are always kept by SPD.
23. No confidential material including pen drives and printed matter are left overnight at the printery. Waste printed matter are shredded on site and burnt on the same day.
25. Before packing to invoice, the finished products are enveloped in tamper-evident plastic envelopes in denominations of 10, 15 and 50
24. To control movement of staff members during the exercise, they are served with meals.

AT THE PRESS

25. Press houses are inspected and security arrangements discussed with the management of the press before every exercise. Staff members of the press houses are also sensitized at a durbar.
26. Staff of the press houses is required to declare their interest in the examinations they will be working on. Those with interest are precluded from the exercise.
27. Camera-ready films are produced in the SPD Reading Room in the Council and transported by SPD staff to the press house for plate-making and printing. This is to ensure that no retrieval information in a soft form passes through the system of the press house. During the plate-making and printing process, SPD staff personally handles the materials and monitors every step closely.
28. Only SPD staff are permitted to check the accuracy and quality of the print-outs.
29. Other staff members of the Council are sent to the press to keep watch over the staff of the press while printing and packaging of the codes are in progress.
30. Any anomaly noticed is immediately communicated to the Head of National Office for directives.
31. No confidential material including films, used plates and printed matter are left at the press overnight.
32. At the end of each day, all rejected printed materials are shredded by SPD staff only; used plates are removed from the machines and the machine blankets and impression cylinders are cleaned; security sweeping is done to retrieve papers from hidden places of the printing machines for shredding.
33. All printed matter, used plates, films and shredded wastes are brought to the Strong Room in the Council for safe-keeping. The shredded waste paper are milled while the used plates and films are disposed off after the examination date.

SENSITIZATION EXERCISE

The Council undertakes school and public sensitization against examination leakage. She gives presentations on *How to Pass Your Examination* as well. As result of this, in 2008 candidates of a particular school refused to even look at papers brought out from one of our depots which was broken into through the roof during an examination. Consequently, the culprit realizing the null marketability of his booty burnt the papers and reported himself to the school authorities.

THIRD PARTY ISSUE

The measures the Council has put in place have been successful so far in curbing examination leakage the following stages:

- development of papers
- pre-press activities
- printing

The difficulty the Council faces is with the administration of the examination at the various centres. There, the conduct of the examination is left in the hands of supervisors and invigilators. Since the Council does not have enough staff to go round all the centres, supervisors and invigilators are appointed from among teachers who are also employees of the Ghana Education Service (GES). These are appointed with the belief that since it is for the GES that the examinations are conducted, and they being employees of that organization, would be honest and sympathetic towards the course of their mother organization. To the disappointment of the Council, some of the supervisors collaborate with the candidates or their agents to open the questions well ahead of time giving foreknowledge of the questions. Although the law may catch up with them, since they are not full time employees of the Council, the Council has virtually no control over the them and often get away with the offence.

At a sensitization forum, prospective candidates were asked whether or not they would take advantage of leaked examination paper. In a thunderous response, participants said they will take advantage. This and many others indicate that there is general public perspective that cheating during an examination, as wrong as it might be, is normal. Thus some members of the public would not cooperate when investigations are being conducted into examination malpractice.

Though the sensitization programme of the Council has brought some awareness, there remain a lot to be achieved with respect to attitudinal change and public perspective about the wrongfulness of examination malpractice. Thus the crisis is far from being over.

The Council is still researching and is yet to finalize strategies to manage this aspect of the crisis.

LOOKING AHEAD

- The Ghana National Office has initiated the process for the establishment of an in-house security printing press with highly automated machines to reduce human interventions.
- She also intends to undertake centring of papers to school/examination centre level at the in-house security press so that question paper will be transported directly from the press to the examination centres. This is to reduce the transit points for the question papers.
- The Council also has in mind media preparation of her past papers for CD-ROM and uploading on her website.
- She has plans to organize training on item-writing for classroom teachers to enhance their item-writing skills and help improve performance in the examinations.

CONCLUSION

The Ghana National Office of WAEC believes that leakage of examination papers has a devastating impact on her hard work and sacrifice, and for that matter her well-being. It would

therefore go to any length to support efforts being made world over to completely eliminate it and bring the crisis completely under control.

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