EXAMINERS' PERCEPTION OF THE E-MARKING OF CANDIDATES' SCRIPTS AT THE WEST AFRICAN SENIOR SCHOOL CERTIFICATE EXAMINATION IN NIGEIRA

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ABSTRACT

The West African Examinations Council (WAEC) conducts the West African Senior School Certificate Examination (WASSCE) in Anglophone West Africa. The steady increase in candidature in WASSCE has led to challenges in assessment for WAEC. Therefore, WAEC employs ICT in the conduct of WASSCE to meet up with these challenges for better service delivery. The ICT activities include on-line registration of candidates, on-line verification of results, scanning of objective answer scripts, production of mark and attendance sheets etc. pursuant to conducting a credible and reliable examination, WAEC Nigeria embarked on the e-marking of candidates' scripts in some papers at WASSCE. This study therefore, sought the opinions of examiners who were involved in the e-marking of candidates' scripts at WASSCE in Nigeria. Data generated was analysed qualitatively and quantitatively. The findings were discussed and solutions were proffered to the challenges encountered in the e-marking of candidates' scripts by WAEC Nigeria.

Keywords : e-marking, examiners, The West African Examinations Council, perception

1. INTRODUCTION

The West African Examinations Council (WAEC) conducts the West African Senior School Certificate Examination (WASSCE) in 37 subjects in Nigeria. Majority of the subjects have three components: multiple choice, essay and practical papers. The essay and practical papers have over the years been manually scored. As a result of the large candidature for the examination, WAEC engages large number of examiners for the scoring of candidates' scripts. For instance 71,722 examiners were involved in the scoring of scripts of 1,689,188 candidates for the May/June 2013WASSCE in Nigeria in 78 marking venues. The involvement of such a large number of examiners at marking venues spread over the country has financial and consistency of scoring implications.

A major challenge of manual scoring of essay and practical tests is reliability in scoring. WAEC (1993) ascertained the inter-rater reliability of Oral English assessment in the Senior School Certificate Examination (SSCE). The findings showed a wide discrepancy in the scores awarded by the examiners to the same set of students. Similarly another study conducted by WAEC (1999) determined the inter-rater reliability of the essay papers for the purpose of ensuring comparable scores from examiners. Findings revealed that there were significant differences in the mean scores awarded by the same examiners upon repeated marking. Therefore in order to address the challenge of reliability (intra and inter rater), WAEC organizes coordination meetings where all the examiners get familiarised with the marking schemes and their application, and the scoring are standardized. The scripts are vetted by Team Leaders, Team Leaders-in-charge and Chief Examiners to enhance the reliability of the scores. In addition, the recorded scores are checked with the scripts by checkers. However there could be lapses in spite of these measures. This is as a result of the tendency for examiners to deviate from the marking scheme. Hence further measures that would ensure reliability of scoring are needed.

Manual scoring of essay and practical tests also takes considerable time due to logistics involved in scripts control and movement, number of days required by the examiners to mark the scripts and record the scores manually. Time is also required for the independent checking of the marked scripts and marks transferred by checkers. Although WAEC has been able to release results within the expected 90 days after the completion of its examination, there has continued to be pressure on WAEC for earlier release of its results by its stakeholders.

Adeyegbe (2005) reported that WAEC initiated action in year 2000 to maintain a presence on the internet and therefore deployed online services. The internet connectivity project of WAEC enabled its offices to be online real time. Therefore in 2004, the online registration of candidates took effect. The innovation has helped WAEC to cope with the ever increasing candidature. Candidates' data are captured and uploaded into the Council's computer base. WAEC also introduced the online verification of results by various stakeholders. Adeyegbe (2005) further reported that e-marking would entail considerable modifications to the existing manual processing of candidates' scores.

WAEC over the years has continued to deploy information and communication technology (ICT) in its activities for improve efficiency and effectiveness. One of such applications of ICT is the e-marking of candidates' essay and practical tests papers at WASSCE which could enhance the reliability of the scoring and shorten the period of marking of scripts and processing of scores. According to Adelakun (2013), it was in the realisation of the potentials of ICT in solving the challenges inherent in the manual mode of scoring essay scripts that prompted WAEC in August 2012 to launch the e-marking portfolio on a trial scale.

E-marking has the potential of reducing the number of examiners and days for marking, and enhancing reliability in scoring. According to Baltamens A, Hillier M. and Rayn T. (2011), e-marking can speed the mechanical aspects of marking by reducing some of the processing that has traditionally been done by hand, allows examiners to quickly complete marking, and enables quick computation of marks and grades. The e-marking of WASSCE scripts commenced with the November/December 2013 diet, with Biology 3 (practical paper) in Lagos. Although some of the examiners involved had participated in the manual marking of WASSCE, the marking environment, facilities used, processes involved, and preparation and training for the exercise were quite different from those of manual marking. In the manual marking, examiners are expected to mark script dummies, be familiar with the marking schemes and thereafter mark all the questions using biros. Examiners take the scripts and mark at the marking venues or other convenient places. Scores are recorded on the Attendance and Mark sheets, and checked with the marked scripts by script checkers. The scores are thereafter recorded and shaded on Examiners Mark Sheets.

On the other hand, e-marking is a virtual exercise which requires only clicking and dragging of computer mouse in scoring scanned scripts. Marking commenced each time after the e-marker examiner has been prompted to mark the e-dummy (Oforha, 2013). Furthermore an examiner marks only one question all through while candidate's scores are collated and stored in the data bank. During the 2013 e-marking exercise, marking was restricted only to the marking venue where computers and internet network were provided for the purpose. These differences will probably affect the perceptions of the examiners involved.

In a bid to improve the service delivery of WAEC, the Research Department of WAEC conducts study on the various activities of WAEC. A recent study, (WAEC, 2013) on stakeholders' perceptions of WAEC in Nigeria showed that examiners, supervisors/ invigilators and script checkers considered their remuneration inadequate and the supervision of WASSCE satisfactory. They were also satisfied with their relationship with WAEC staff among others. This study therefore investigated the perceptions of the examiners involved in the e-marking of Biology 3 (practical paper) of 2013 November/December WASSCE.

2. STATEMENT OF PROBLEM

Successful organizations are innovation driven. Application of ICT to every human endeavour has become a common innovation all over the world. Innovations, however are perceived differently by various stakeholders. It could be argued that individuals will show commitment and dedication towards the success of any innovation that they perceived positively. The perception of the examiners involved in the e-marking of WASSCE scripts in November/December 2013 diet of the examination will affect the success of the e-marking innovation. This study therefore sought the perceptions of the examiners on the e-marking of WASCE's scripts in Nigeria, in order to identify and address possible lapses, and ensure its success.

3. RESEARCH QUESTIONS

The study sought answers to the following questions:

(1) How do WAEC e-marker examiners perceive the preparation for the e-marking exercise in terms of training and sensitization of the examiners?

(2) What are the perceptions of WAEC e-marker examiners about the facilities provided and personnel involved in the e-marking in terms of:

- (a) suitability and accessibility of the marking venue;
- (b) adequacy of the facilities provided; and
- (c) number of WAEC officials at the e-marking venue?

(3) How do WAEC e-marker examiners perceive the effectiveness and efficiency of the e-marking exercise in terms of:

- (a) Marking Scheme;
- (b) Vetting ;
- (c) e-marking software application; and
- (d) Internet Network service?

(4) What is the perception of the e-marker examiners to the remuneration for the e-marking exercise vis-à-vis the manual marking?

4. METHODOLOGY

(1) Research Design

The study employed a survey design.

(2) Population

The population consisted of the 373 WAEC e-marker examiners who participated in the e-marking of Biology paper 3 of the November/December 2013 WASSCE scripts in Lagos, Nigeria.

(3) **Sample and Sampling of Procedure**

A total of 249 examiners that participated in the e-marking were sampled using simple random sampling procedure.

(4) **Instrument and Instrumentation**

Questionnaire for e-marker Examiners (QEME) was used to obtain relevant information from the participants. The questionnaire consisted of two parts. Part A consisted of three items on the respondent's demographic data. Part B consisted of 26 items that sought respondent's perceptions on the various aspects of the e-marking. Five of the items had a two-response format of "Adequate" and "Inadequate", 18 items had a four-response format of "Strongly Agree", "Agree", 'Disagree" and "Strongly Disagree". Three other items were open-ended. The questionnaire was validated through peer critique by the Research Officers. The questionnaire was thereafter administered on 40 examiners who were not involved in the study but participated in the e-marking exercise from which Cronbach Alpha reliability coefficient of 0.74 was obtained.

(5) **Data Collection**

The sampled respondents were invited to WAEC Office where the questionnaire was administered on them. Only 219 of the 249 examiners invited responded. They were required to complete and submit the questionnaire on the spot. This ensured a high return rate.

(6) **Analysis of Data**

The quantitative data generated were analyzed using descriptive statistics. The qualitative data were collated and interpreted.

5. RESULTS AND DISCUSSIONS

The result of the study are presented and discussed in order of the research questions as follows:

(a) **Research Question 1**

How do WAEC e-marker examiners perceive the preparation for the e-marking exercise in terms of training and sensitization of the examiners?

Table 1 shows the perception of examiners to the training and sensitization for the e-marking.

Table 1: WAEC e-marker examiners' perceptions of training and sensitization for e-marking

	Adequate	Inadequate
Sensitization of the invited examiners by WAEC.	200(91.3)	19(8.7)
The training provided by WAEC for examiners for the e-marking.	148(67.9)	70(32.1)

Table 1 shows that majority of the examiners, 91.3% and 67.9 were of the opinion that their training and sensitization respectively for the e-marking were adequate. This implies that they were adequately prepared by WAEC for the e-marking. The examiners therefore were pre-exposed to the demands of the e-making process. It is expected that well prepared examiners would be effective. The finding is in line with WAEC's age long tradition of training staff and its functionaries before the commencement of any assignment. For example, examiners are properly coordinated and familiarised with the marking scheme before marking.

(b) **Research Question 2**

What are the perceptions of WAEC e-marker examiners about the facilities provided and personnel involved in the e-marking in terms of:

(a) suitability and accessibility of the marking venue;
(b) adequacy of the facilities provided; and
(c) number of WAEC officials at the e-marking venue?

Table 2 shows the respondents' opinions.

Table 2: WAEC e-marker examiners' perceptions on the venue and facilities

	Agree	Disagree
The venue for the e-marking was conducive.	183(83.94)	35(16.06)
The venues for manual marking were more accessible than the venue for the e-marking.	103(47.47)	114(52.53)
There were enough facilities for the e-marking.	200(91.32)	19(8.68)
Computers provided for the e-marking were adequate.	199(91.28)	19(8.72)
There were enough WAEC personnel to assist during the exercise.	187(85.78)	31(14.22)

Table 2 shows that 83.94% and 52.53% of the examiners agreed that the e-marking venue was conducive and more accessible than the venues for the manual marking respectively. The table also shows that the facilities for the e–marking exercise were considered enough by 91.32% of the examiners. In particular, 91.28% of the examiners were of the opinion that the computers provided were adequate. The table further shows that 85.78% of the examiners agreed that there were enough WAEC personnel to assist them during the e-marking exercise. The results implied that WAEC had made adequate preparation to ensure the success of the e-marking exercise.

The results were expected since the venue was within a university campus. There is no doubt that a university will provide adequate facilities and a more conducive environment than secondary schools where manual marking were conducted.

Analysis of the qualitative data shows that 59.8% of the examiners were of the opinion that the distance of the marking venue was a challenge. The venue was located far away from where majority of the examiners reside, coupled with the traffic jam in Lagos which made examiners to spend as much as two to three hours before arriving at the marking venue.

(c) **Research Question 3**

How do WAEC e-marker examiners perceive the effectiveness and efficiency of the e-marking exercise in terms of:

(a) Marking Scheme;
(b) Vetting;
(c) e-marking software application; and
(d) Internet Network service?

The opinion of the examiners about the effectiveness and efficiency of the e-marking exercise are shown in Table 3.

Table 3: WAEC e-marker examiners' perception of the effectiveness and efficiency of the e-marking

	Agree	Disagree
Adherence to marking scheme was guaranteed with the e-marking	213(97.71)	5(2.29)
Non-adherence to marking scheme was promptly detected with the e- marking	184(86.70)	29(13.30)
E-vetting of marked scripts was more effective than manual vetting.	206(94.06)	13(5.94)
E-vetting of marked scripts was more efficient than manual vetting.	206(95.37)	10(4.63)
The e-marking interface was user-friendly.	209(97.21)	6(2.79)
Examiners could operate the e-marking software with minimum supervision.	208(94.98)	11(5.02)
The internet network was stable during the period of the marking	169(78.60)	46(21.40)

Table 3 shows that majority of the examiners were of the opinion that the e-marking was effective and efficient. Most of the examiners, 97.71% and 86.70% agreed that adherence to the marking scheme was guaranteed and that non-adherence was promptly detected respectively. Furthermore e-vetting was considered more effective and efficient than the manual marking by 94.06% and 95.37% of the examiners respectively. The results imply that the inter rater and intra rater reliability of the scores of the examiners will be high. This is because consistently of scoring depends on the adherence to the marking scheme.

Table 3 also shows that 97.21%, 94.98% and 78.60% of the examiners agreed that the e-marking interface was user-friendly, that the examiners could operate the e-marking software with minimum supervision and that the internet network was stable during the exercise respectively. The results revealed that e-marking is considered more efficient

than manual marking by majority of the examiners. The result is in line with the opinion of Baltomens et al (2011) who opined that e-marking can speed the mechanical aspects of marking.

Analysis of the qualitative data shows that 34.2% of the examiners considered the time for the e-marking inappropriate. They were of the opinion that the exercise should be inappropriate during holidays when teachers would be free to participate actively.

(d) **Research Question 4**

What is the perception of the e-marker examiners to the remuneration for the e-marking exercise vis-à-vis the manual marking?

E-marker examiners' response on whether their remuneration for e-marking was better than that for manual marking is shown in fig. 1.

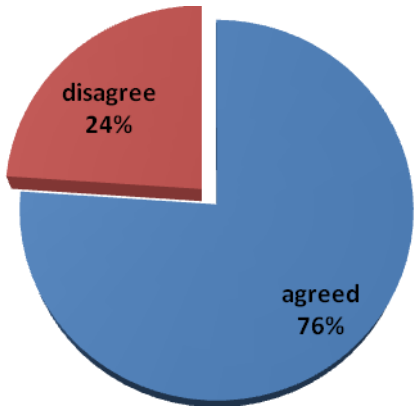

Figure 1 shows that 76% of the examiners agreed that remuneration for e-marking was better than that for manual marking. This implies that the examiners were more satisfied with their remuneration for the e-marking exercise than the manual marking. The result corroborates the findings of an earlier study WAEC (2013) where examiners for manual marking were not satisfied with their remuneration. This is an improvement in WAEC's effort to achieve reliable assessment process since examiners who are satisfied with their remuneration will readily participate in marking exercises.

6. RECOMMENDATIONS

The following recommendations were made based on the findings:

(1) e-marking venues should be decentralized such that the venues are not too far from examiners.
(2) More WASSCE papers should be subjected to e-marking.
(3) The e-marking venue used in 2013 should be a prototype for other centres.

7. CONCLUSION

The perceptions of stakeholders of any innovation affect the success of its implementation. Therefore the perception of e-maker examiners on the e-marking of WASSCE scripts was investigated. The study adopted a survey approach involving 219 examiners who participated in the e-marking of Biology Paper 1 (practical paper) scripts of 2013 November/December WASSCE. The results showed among others that e-marking was more effective and efficient than the manual marking as perceived by the examiners. The paper therefore suggested the full implementation of the e-marking exercise by WAEC and the decentralization of the marking venues.

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