Prospects and Challenges of Conducting West African Senior School Certificate Examination as a Computer-Based Examination in Ghana

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Introduction

❑ Many educational institutions that serve students of all academic levels are transitioning to remote learning and online assessment, despite the challenges that come with it (Kelum et al., 2020).

❑ Many countries now regard mastering basic ICT skills and concepts as very crucial in education since it adds value to the organisation and administration of learning institutions (Alo et al., 2021).

❑ In Ghana, information and communications technology (ICT) has been extensively deployed by many education providers.

Introduction Cont'd

❑ ICT in education focuses on applying technology-enhanced modalities in an educational context. It supports resource management, admission, teaching and learning, and examination processes.

❑ Tellingly, the rapid advancement of ICT in teaching and learning is shifting the paradigm from paper and pencil tests to computer-based test systems of examination (Kamal et al, 2020).

❑ Computer-based Examination (CBE) is a specific form of ICT for assessment (Alo et al., 2021).

❑ CBE is a method of administering tests in which computers are used in testing (Rezaie & Golshan, 2015).

Statement of the problem

❑ The vision and mission of WAEC to be a world-class examining body and adding value to the educational goals of its stakeholders cause it to constantly examine its procedures and service delivery to ensure best practices in its operations.

❑ The Council is determined to remain a technologically driven organisation as part of its strategy plan. However, WAEC has largely conducted tests using Paper and Pencil Tests

❑ The challenges associated with paper and pencil test include examination malpractice, massive labour, time, and financial commitment cases over the years.

❑ These challenges associated with PPT have precipitated the consideration of an alternative means conducting WASSCE as a Computer-based Examination in Ghana.

Research Questions

1. What are the anticipated benefits of conducting WASSCE as a Computer-based examination in Ghana?

2. How prepared are the schools in Ghana to write WASSCE as a Computer-based examination?

3. How prepared is the Council to conduct WASSCE as a Computer-based examination in Ghana?

4. What are the anticipated challenges of conducting WASSCE as a Computer-based examination in Ghana?

5. How can the anticipated challenges be addressed?

Methodology

❑ The study employed a survey design to make generalisations.

❑ A multi-stage sampling technique was used to select 1800, 180, and 120 participants comprising students, ICT teachers and headmasters from selected school from 12 regions of Ghana.

❑ The study employed a questionnaire and an interview guide for data collection.

❑ The instruments were subjected to expert critique to ensure their content validity and internal consistency.

❑ Data obtained for research questions two and three were analysed using descriptive statistics: frequency distribution, percentages and charts.

❑ Thematic approach was used to analyse the open-ended items and interview responses for research questions one, four and five.

Results and Discussion

What are the anticipated benefits of conducting WASSCE as CBE?

All categories of respondents:

❑ It will cut down the cost of conducting examination in areas of printing and transportation (Dhawan, 2020).

❑ CBE will reduce all forms of examination malpractice (Nwoke et al., 2017; Abduh (2021).

❑ CBE will reduce human involvement in examination activities, thereby strengthening the test's security, reliability, validity, and credibility (Poggio et al. (2005).

❑ The sophisticated nature of CBE makes it efficient in the processing and releasing of candidates' examination results.

Results and Discussion Cont'd

WAEC/GES Officers

❑ CBE will be able to deliver large-scale tests

❑ Will force stakeholders to provide the needed ICT facilities in schools

❑ Parallel tests with equal levels of difficulty can be administered with CBE

## ICT Teachers/Students

❑ CBE would precipitate studiousness among students

❑ Students would present their examinations in a more legible and organised manner.
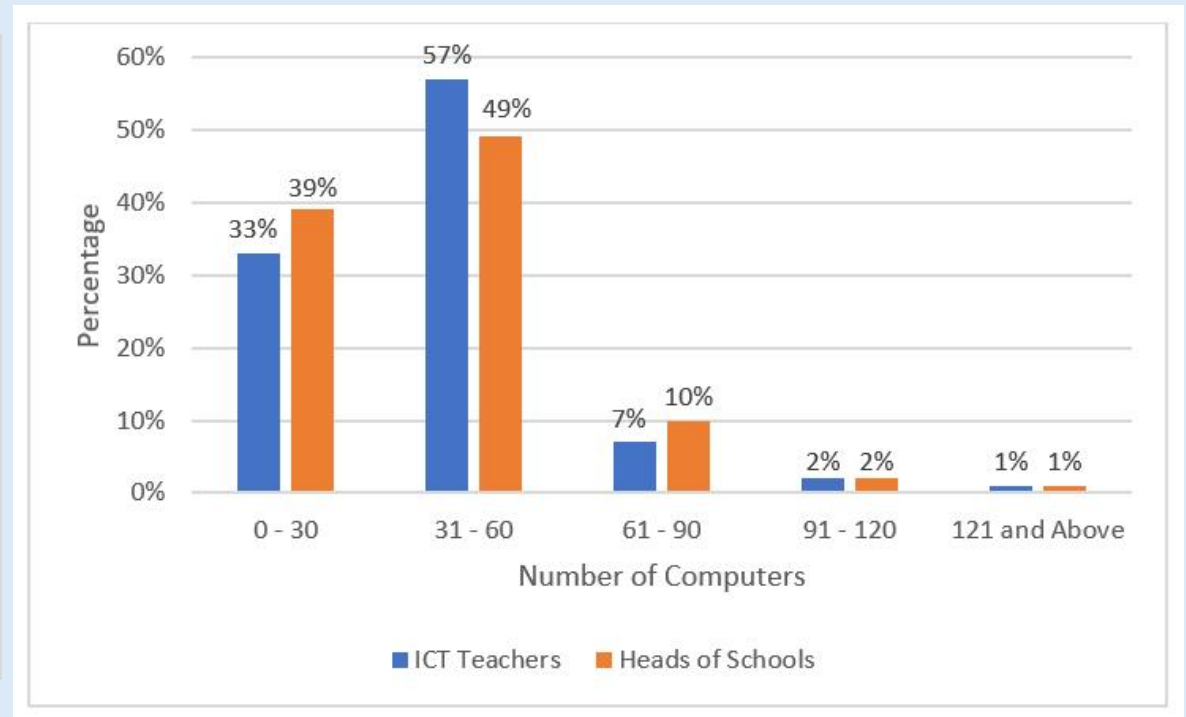
❑ CBE will create employment for IT professionals

Results and Discussion Cont'd

How prepared are the schools in Ghana to write WASSCE as a Computer-based examination?

Availability of a Computer Laboratory in the Schools
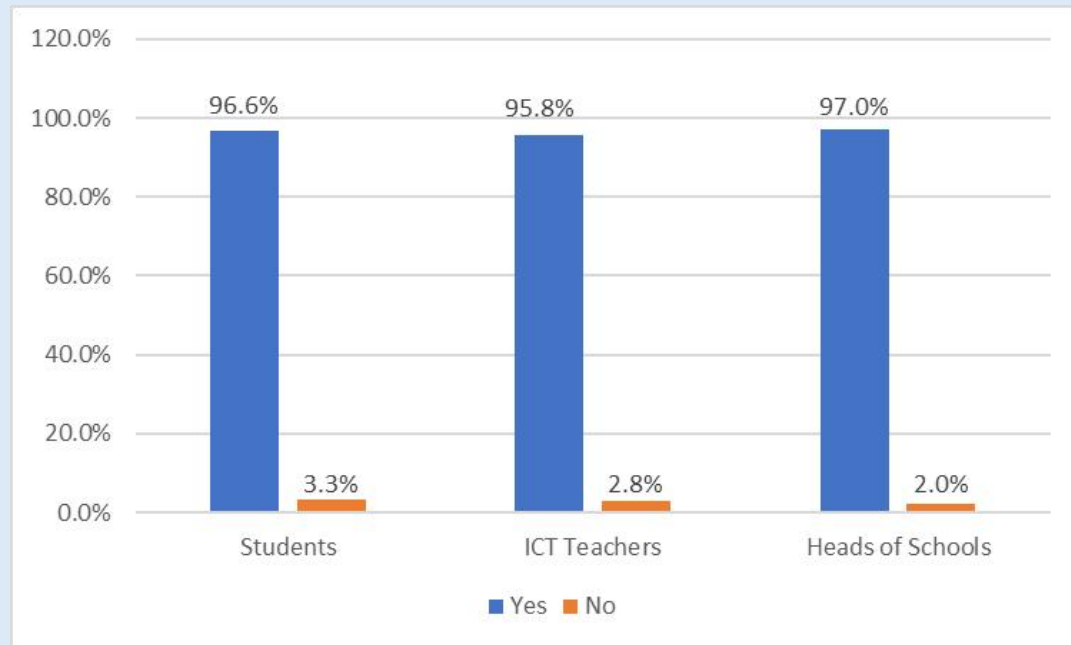
Number of Computers in the Schools' Computer Laboratories

Responses on the Level of Preparation of SHSs to Write WASSCE As a CBE

Majority of each category of respondents agreed to their schools' readiness regarding availability of ICT facilities, internet access and power supply among others:

- ❑ ICT laboratories being spacious and well-ventilated

- ❑ having functional computers

- ❑ computers in laboratories connected to the internet

- ❑ constant power supply

❑ Students - 55%, ICT teachers - 60%, and heads of school - 58%

❑ Students - 65%, ICT teachers - 79%, and heads of school - 73%

❑ Students - 61%, ICT teachers - 56%, and heads of school - 59%

❑ Students - 53%, ICT teachers - 69%, and heads of school - 67%

Responses on the Level of Preparation of SHSs to Write WASSCE As a CBE

In terms of students' proficiency in the use of computers, majority of each category of the respondents agreed to indicators like

❑ *Students in my school can boot and shut down a computer* (students - 94%, ICT teachers - 92%, and heads of school - 97%), and

❑ *Students in my school can use the computer to type using the keyboard* (students - 91%, ICT teachers - 89%, and heads of school - 90%), among others.

Moreover, majority of the students (60%) disagreed to their schools' readiness to participate in CBE during WASSCE while majority of ICT teachers (54%) and heads of school (52%) agreed.

❏ These notwithstanding, majority of each category of respondents disagreed with:

❏ the availability of functional CCTV cameras in their schools' ICT laboratories (students - 91%, ICT teachers - 88%, and heads of school - 90%),

❏ stable internet (students - 59%, ICT teachers - 63%, and heads of school - 70%),

❏ functional Uninterrupted Power Supply (UPS) appliances in their schools (students - 67%, ICT teachers - 68%, and heads of school - 66%)

❏ Rahim (2020), in his study, identified the lack of such items as a bottleneck to implementing CBE successfully.

❏ Overall, respondents agreed to 8 out of the 12 indicators.

The findings show a considerable level of preparedness of the schools in terms of available ICT facilities, power supply, and students' proficiency in the use of computers.

How prepared is the Council to conduct WASSCE as a Computer-based examination in Ghana?

Preparedness of WAEC to Adopt CBE in the Conduct of WASSCE in Ghana
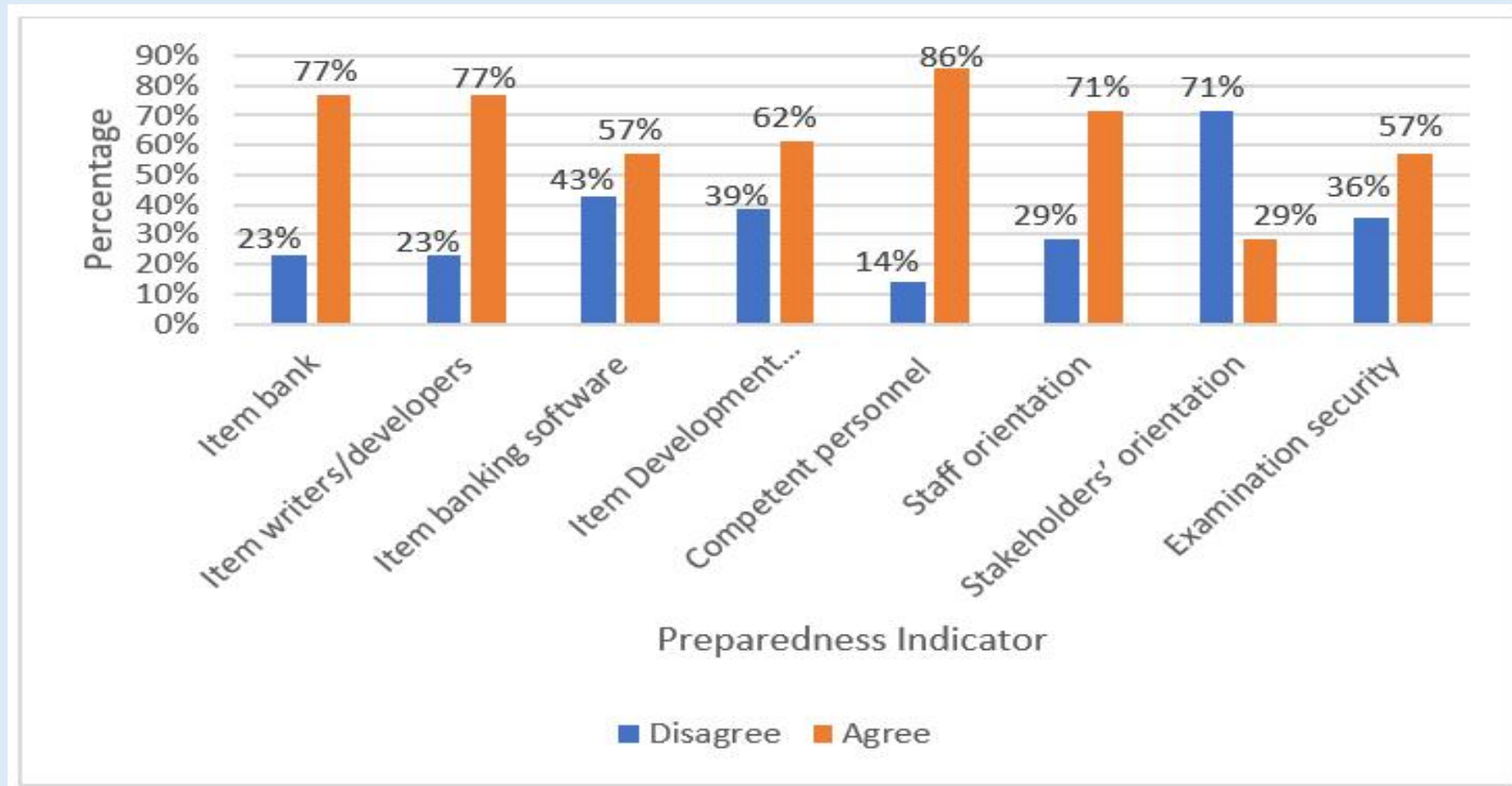
Preparedness of WAEC to Adopt CBE in the Conduct of WASSCE in Ghana

Most of the respondents agreed to the Council's readiness to administer WASSCE as CBE regarding all the indicators except stakeholders' orientation.

❑ For instance, 77% of the respondents agreed that the Council has an item bank to support the introduction of CBE.

❑ Overall, the results indicate that WAEC has a considerable level of preparedness for a Computer-based WASSCE in terms of item bank, availability of software, hardware, ICT facilities and staff orientation.

❑ That notwithstanding, the Council may need to be more abreast with stakeholders' orientation, item banking software, examination security and item development software.

❑ A slight hiccups in test design, development and administration can inhibit the success of conducting CBE (Rahim, 2020).

Key Findings

1. The study reveals that conducting WASSCE as a CBE can reduce human involvement in examination activities, thereby reducing examination malpractices and strengthening the security, validity, and credibility of the examination.

2. The SHSs have attained a considerable level of preparedness in terms of availability of ICT facilities, power supply and students' proficiency in the use of computers.

3. WAEC has attained a considerable level of preparedness for a Computer-based WASSCE in terms of item bank, availability of ICT facilities and staff orientation.

4. The study reveals poor ICT and internet infrastructure, erratic power supply and the risk of the server being hacked are some anticipated challenges of conducting WASSCE as CBE.

Recommendation

1. WAEC should improve on all indicators of preparedness to be able to successfully conduct WASSCE as CBE. The Council should secure reliable cyber and biometric security measures to safeguard the CBE.

2. WAEC should conduct a feasibility study on the schools' state of readiness for a Computer-based WASSCE and pilot CBE in some selected schools before officially rolling it out.

3. At the initial phase of the conduct of WASSCE as CBE, WAEC should administer it concurrently with PPT.

4. GES should have a clear-cut ICT policy for pre-tertiary institutions that ensures that students are ICT proficient before they sit WASSCE as CBE.

Conclusion

This study investigated the prospects and challenges of WAEC conducting WASSCE as a Computer-based Examination in Ghana. WASSCE, as a CBE comes with enormous benefits. Senior High Schools in Ghana and WAEC have attained a considerable level of preparedness for CBE. However, its introduction may be hindered if necessary attention is not paid to the highlighted challenges raised by the critical stakeholders within the education spectrum.

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Thank you