PREPAREDNESS OF RURAL COMMUTERS (DUELERS) IN NIGERIA (SOUTH-SOUTH ZONE) TOWARDS ICT BASED EXAMINATIONS

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ABSTRACT

The adoption of ICT tools for examination is seen as the use of Computer Based Testing (CBT) system, electronic examination platforms, biometric verification or remote proctoring system for the purpose of examining effectively and efficiently, aimed toward cubing examination malpractice and enhancing data management. But in Nigeria, just like some other developing countries, the adoption of new technologies comes with different challenges despite its numerous proposed benefits. This research aims to look at the absolute preparedness of the rural communities in the south-south south area of Nigeria towards the adoption of this technology for examining student living in those areas. Quantitative data analyses research methodology was explored to analyze data gotten from questionnaire and interviews. And visualization was done employing the very rich and vivid features of Microsoft Power BI. The results show from the students perspective that 75% respondent do not think they are ready for the process because 20% out of this group have not seen while 51% have only seen these ICT tools from a distance but have never touched or used them, 22% have seen and touched but not very acquainted to be able to use it for theory examination and the remaining percentage that prove to be familiar with it can only boast on their familiarity based on the usage of android phones and not computers itself. From the staff perspective, the facilities are available in schools but lack of power supply and teachers to teach those subjects and do practical are scarcely available therefore, the computers are kept without being used and over the time their efficiency is reduced.
Key Words: Computer Based Test (CBT), Information and Communication Technology (ICT) Literacy, External Examination, Public Secondary Schools, Readiness.

Introduction

Computer-Based Assessment, e Examination/Assessment, Computerized Testing and Computer-Administered Testing, this is a method of administering examinations in which the responses are electronically recorded, assessed, or both. CBT enables exam authorities to design, schedule, deliver, and report on surveys, quizzes, tests, examinations and other forms of testing. "It may be a stand-alone system or a part of a virtual learning environment, possibly accessed via the World Wide Web" (Adepoju, 2016, p.2).

The introduction of the Computer-Based Test (CBT) as a method of administering external examinations in Nigeria's educational system has brought a new era where ICT literacy becomes a relevant skill for effectively participating in examinations (Adepoju, 2016). As far as secondary school students are concerned, these examinations principally are the Unified Tertiary Matriculation Examination (UTME) and Post-UTME conducted by the Joint Admissions and Matriculation Board (JAMB) and tertiary institutions respectively (JAMB, 2015).

Ukwueze & Uzoagba, (2021) stated that the rate of actual readiness for computer-based tests was low among the students. Factors influencing readiness for CBT among the students were gender, age, school type (boys, girls or coeducational), school location (urban versus rural), school-based computer training, availability of computer at students' homes and attending of outside-school computer coaching. It was concluded that many students in Anambra State public schools who participate in computer-based tests (CBTs) appear to acquire the required ICT skills only after they have left school, a situation that may not be very healthy given that early preparation is more likely to enhance better performance. The study recommended, among others, that school based computer training should be enhanced by way of procurement of equipment and employment of computer literate teachers in order to enable schools provide such training on a regular basis to students which will enhance their readiness for computer-based tests (CBT).

Nevertheless, the concern has been whether secondary schools in Nigeria have the capacity – in terms of facilities and human resources – to effectively offer ICT training. Literature shows that the state of facilities in these schools, especially public schools which the bulk of the population attend, is far from being satisfactory (Osunwusi & Abifarin, 2013; Apagu & Wakili, 2015; Bakare, 2017). In addition, there is also dearth of ICT teachers in most of such schools. All these raise the question as to how possibly students who attend these schools could acquire the needed ICT training in readiness for the Computer-Based Test (CBT) examinations awaiting them in the near future.

It is against these backdrops that this study aims to achieve three major objectives, to look into to the level of preparedness in the part of students and schools, factors that may contribute to accepting the use of CBT for external examination in Nigeria and the factors contributing to the non-acceptance of adopting CBT for External examination purpose for students in Nigeria.

Literature Review

Computer-based tests offer several benefits over traditional paper-and-pencil or paper-based tests. Technology based assessment provide opportunities to measure complex form of knowledge and reasoning that is not possible to engage and assess through traditional methods (Bodmann and Robinson, 2004). Computer and related technologies provide powerful tools to meet the new challenges of designing and implementing assessments methods that go beyond the conventional practices and facilitate to record a broader repertoire of cognitive skills and knowledge.

A study by Adebayo (2014) shows that the adoption of CBT in Nigeria faces ten critical challenges amongst this are economic factor, security, Software; Poor ICT culture, policy and implementation; and power failure. His study therefore identifies educational presentation on CBT, public relation campaign, web campaign, post test feed-back, regular power supply, implementation of ICT policy etc. as approaches to defuse the challenges.

Adekola & Adeyink, (2019) did a research that revealed that students" access to a computer (.014), students" attitude (.051), students" perception (.021), and CBT acceptability (.076) were significant at $p < 0.05$ hence these variables have an impact on secondary school students" preparedness for UTME-CBT. While students" computer literacy skills (.657), on the other hand, does not have an impact on their preparedness for UTME-CBT. They recommended that government make computers available and accessible to students at the primary and secondary school levels to enable them to learn and practice computer skills and that JAMB should provide tutorial packages on UTME to schools for students to practice before the actual examination.

Madaki *et al.* focused their study on using CBT based examination to curb examination malpractice through CBT base exam administration using Federal College of Education Asaba as a case study. It discussed the new assessments as a way that can help avoid the meltdown of current paper-based systems; it can assess valuable life skills; and it can be better for users. Technology is not motionless, which is the reason why we need to adopt new ideas, skills, inventions, innovations, etc.

Research Methodology

A 30-item questionnaire, called Variables that May Determine Secondary School Students" Preparedness for UTME-CBT (VMDSSSPP) was the instrument used for data collection. The questionnaire consisted of 8 sections. Section A elicited respondents" demographic characteristics such as age, and gender. Section B comprised items that sought to determine respondents" access to a computer. Section C was on question-related to respondents' basic skills in computer operations. Section D comprised of items to explore students' attitude towards CB examinations based on their personal experiences. Section E contained statements to depict student's perceptions of UTME-CBT on the bases of their personal experiences. And Section F comprised items that sought to determine the respondents" acceptability of the CBT form of UTME. Finally in section G, the respondents were asked to rank in order of preference the factors

considered most important in determines their preparedness for CBT form of UTME amongst the five major variables (access to computer (ATC), students" attitude (STA), students" perception (SPE), computer literacy skills (CLS) and CBT acceptability (CBTA)) using a scale of one (1) to five (5). One (1) being the most preferred factor while five (5) the least.

Before the questionnaire was conducted, and to ascertain the validity of the VMDSSSPP scale, items were generated from prior exploratory interviews across groups of some UTME candidates during various interactions in formal and informal settings. Only concerns shared by over 50% of such candidates were included as questionnaire items. To further ascertain the validity of the instrument, the questionnaire was referred to experts in the field of Measurement in Education for vetting to ensure its appropriateness, relevance, and clarity. To ascertain the reliability of the VMDSSSPP instrument, the Cronbach's alpha was used to determine the consistency. The ($α = 0.719$), CBTA ($α = 0.841$).

Research Questions

Perceptions of CBT based Exam (IVF)
i.   How do you feel about using CBT for examination purpose?
ii. What are your thoughts on using CBT for WAEC/NECO examination purpose?
iii. Are students prepared for the concept?
iv. Are the secondary schools in your community prepared for the concept?

Factors Influencing Acceptance of CBT
i.   Does secondary school in your community have ICT facilities?
ii. How do you feel about students using ICT Tools for examination purpose?
iii. Do you think student are familiar enough to using CBT for theory examination?
iv. Will this CBT examination cub examination malpractice?
v.   Do you think the ICT facilities in Schools are sufficient enough for CBT?

Factors Contributing to Non-Acceptance of IVF
i.   What are some reasons you or others might refuse CBT for WAEC/NECO examination?
ii. Are there any fears or concerns with is innovation?
iii. How ready are students for CBT examination?
iv. In what ways does accessibility of ICT tools affect student performance in the CBT Examination?

Findings
Analysis of Computer-Based Test (CBT) Questionnaire Results

The analysis is based on a total sample size of 600 questionnaire that was given out, a total of 595 was retrieved, out of which 13 were not properly filled leaving a total of 582 good responses.

1. Socio-Demographic Information

Table 1: Demographic Makeup of the Respondents.

Demographic Variable	Category	Count	Percentage (%)
Gender	Male	212	36.4%
	Female	370	**63.6%**
Age Group	13-18	**272**	**46.7%**
	19-25	112	19.2%
	26-30	86	14.8%
	31-40	78	13.4%
	41 and above	34	5.8%
Occupation	Student	193	33.2%
	Teaching Staff	195	33.5%
	Non-Teaching Staff	194	33.3%
Marital Status	Married	146	25.1%
	Single	436	**74.9%**
Educational Qualification	Secondary	295	**50.7%**
	Tertiary	287	49.3%

From the Demographic information, we can deduce that; Figure 1 show that the respondents were evenly selected to cover all age brackets so our conclusion will not be biased, the largest age group is 13-18 years (46.7%), suggesting a strong representation of students who is the target group for WAEC/NECO examination as reflected in table 1 and figure 1 respectively. This is followed by 19-25 years (19.2%) which contain a missed population of the target group and others. Putting all together will give an unbiased analysis. The educational qualification of respondent was also drawn from the two major categories that are involved with the basic concept as shown in figure 2 and all sectors involved in the usage and administration of the various examinations were captured as shown in figure 3.
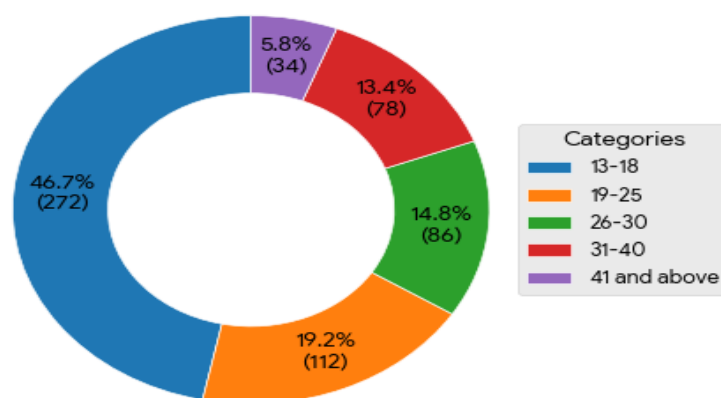

Figure 1: Age Distribution of Among Respondent (N=582)

The three main occupational groups (Student, Teaching Staff, Non-Teaching Staff) are almost equally represented (around 33% each). Respondents with Secondary (50.7%) and Tertiary (49.3%) educational qualifications are also almost equally split.
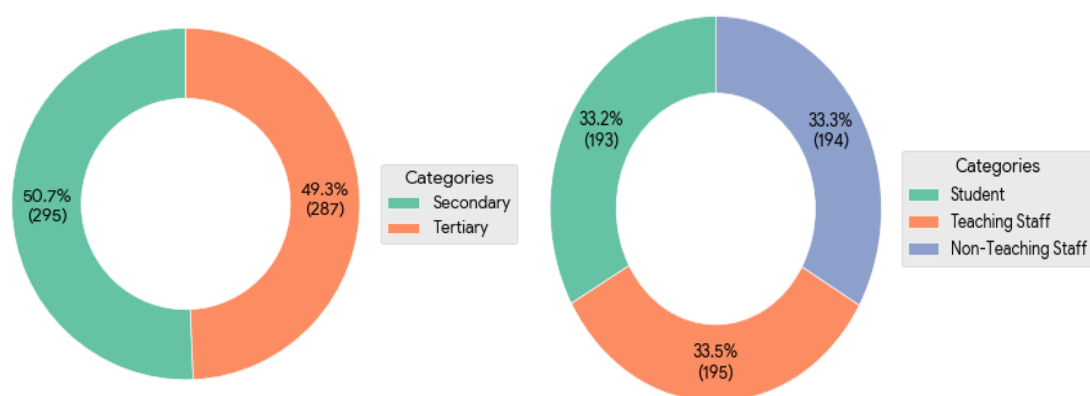
Figure 2: Distribution on Occupation and Educational Qualification (N=582)

2. Perceptions of CBT Based Exam

This section highlights the respondents' general knowledge and attitude toward CBT examination.

Table 2: Respondent on their Perception Level

Questions	Category	Count	Percentage (%)
Knowledge about CBT exam	Yes	**557**	**95.7%**
	No	25	4.3%
Feeling about CBT exam	Ok	225	38.7%
	Partially Ok	196	33.7%
	Not Ok	104	17.9%
	Totally Not Ok	57	9.8%
Thoughts of CBT for WAEC/NECO Exams	Ok	57	9.8%
	Partially Ok	63	10.8%
	Not Ok	107	18.4%
	Totally Not Ok	**355**	**61.0%**
Students' Preparedness for CBT Exams	Yes	145	24.9%
	No	**437**	**75.1%**
Rural Schools Preparedness for CBT Exams	Yes	**402**	**69.1%**
	No	180	30.9%

Key Perception Analytic Insights:

An overwhelming majority (95.7%) of respondents claim to have knowledge about the CBT examination system. But when asked about their take with respect to using the system for major examination like WAEC/NECO, about 72.4% sees it as a welcome development but do not think that the student are prepared for it. Some of the major findings are summarized below;

i.   **High Awareness**: An overwhelming majority (95.7%) of respondents claim to have knowledge about the CBT system.

ii. **General Acceptance (Initial Feeling)**: When asked about their *general* feeling about CBT, a combined 72.4**%** (Ok + Partially Ok) express some level of acceptance.

iii. **Strong Opposition (WAEC/NECO Context)**: However, when specifically asked about using CBT for WAEC/NECO exams, there is a massive shift in opinion: 79.4% are opposed (Not Ok + Totally Not Ok), with 61.0% being Totally Not Ok. This suggests acceptance drops significantly when the high-stakes national exam is involved.

iv. **Lack of Preparedness**: Three-quarters of respondents (75.1%) believe students are NOT prepared for the concept of CBT examination especially using CBT for theory purpose. Their reason was that most students are not conversant with using the equipment.

v. **School Preparedness Paradox**: Despite the belief that students aren't prepared, a large majority (69.1**%**) believe rural schools in Bayelsa State *are* prepared equipment wise but electrical power supply, ICT teaching man power, and student familiarity for the concept is still a limitation.

3. Factors Influencing Acceptance

This section explores factors related to the implementation environment and this is shown in table 3.

Table 3: Factors Influencing Acceptance Level

Question	Category	Count	Percentage (%)
Availability of ICT Facilities	Yes	**471**	**81.0%**
	No	111	19.0%
Opinion about usage of ICT for exams	Ok	71	12.2%
	Partially Ok	185	31.8%
	Not Ok	180	30.9%
	Totally Not Ok	**146**	**25.1%**
Students familiar with CBT for theory?	Yes	162	27.8%
	No	**420**	**72.2%**
Will CBT cub examination malpractice?	Yes	**386**	**66.3%**
	No	196	33.7%
ICT facilities in Schools sufficient?	Yes	102	17.5%
	No	183	31.4%
	Not Really	**297**	**51.0%**

Some of the Key Acceptance Factor Analytic Insights:

1. **Belief in ICT Availability**: A high percentage (81.0%) of respondents say their schools *do* have ICT facilities. But however, when asked if these ICT facilities are *sufficient*, an overwhelming 82.4% express doubt or outright disagreement (51.0% "Not Really" and 31.4% "No"). This is a critical finding, suggesting that while the facilities might *exist*, they are not adequate for mass-scale CBT implementation.

2. **Familiarity**: 72.2% of respondents believe students are NOT familiar enough with using CBT for *theory* examinations.

3. **Malpractice Reduction**: A majority (66.3%) believe that CBT will help curb examination malpractice, suggesting a key potential benefit of the system.

Generally, the overall opinion of ICT usage for examination purpose is divided, with the largest group being partially Ok (31.8%), but a combined 56% expressing negative sentiment (Not Ok + Totally Not Ok).

Summary of Major Conclusions

1. **High-Stakes Resistance**: While there is general awareness of CBT, there is massive opposition to its implementation for high-stakes exams like WAEC/NECO (61.0% Totally Not Ok).
2. **Infrastructure is the Weak Link**: The primary issue is not the *existence* of ICT facilities, but their sufficiency. 82.4% of respondents doubt the adequacy of current school facilities for CBT.
3. **Preparedness Gap**: There is a clear consensus that students are not prepared for CBT (75.1% No) and lack familiarity with its use for theory exams (72.2% No).
4. **Perceived Benefit**: The main perceived advantage of CBT is its ability to curb examination malpractice (66.3% Yes).

Comparative Analysis (Cross-tabulation)

Figure 3 gives a Comparative Analysis (Cross-tabulation) to see if opposition to CBT is stronger among specific groups (e.g., older respondents, non-teaching staff, or those who believe facilities are insufficient). This analysis focuses on two major contradictions:

1. General acceptance vs. high-stakes acceptance.
2. Availability of ICT facilities vs. their perceived sufficiency.

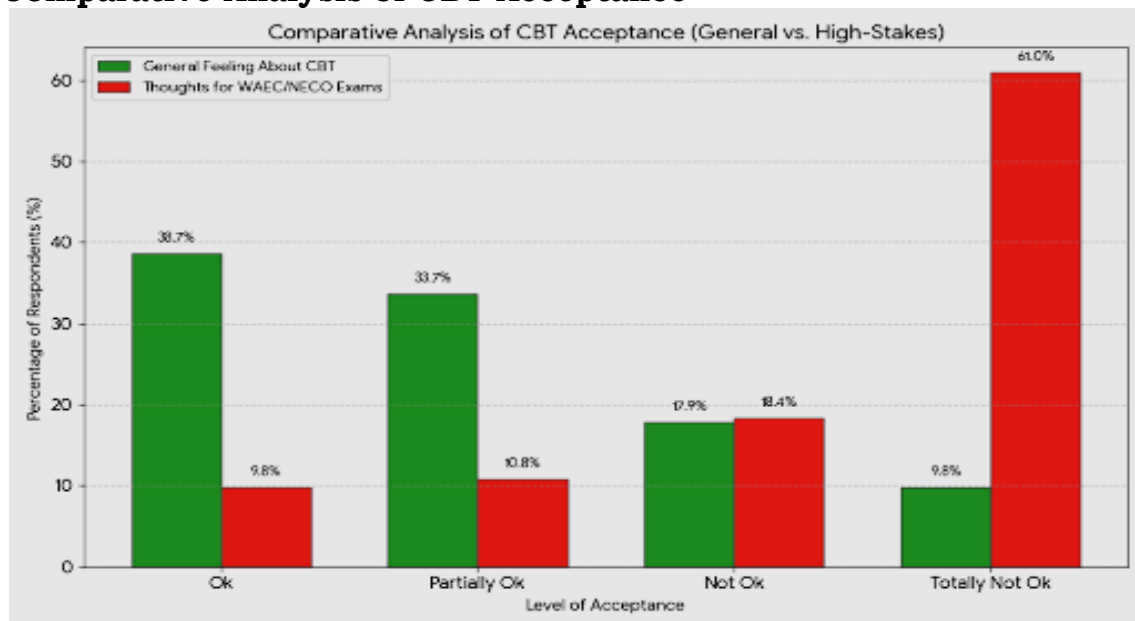## 1. Comparative Analysis of CBT Acceptance

Figure 3: Comparative Analysis of CBT Acceptance

The figure 3 compares respondents' General Feeling about CBT with their Thoughts on CBT for WAEC/NECO Exams (a high-stakes context).

4. Factors Influencing Non-Acceptance

Table 4: Factors Influencing the Non-Acceptance Level

Level of Acceptance	General Feeling About CBT (%)	Thoughts for WAEC/NECO Exams (%)
Ok	38.7%	9.8%
Partially Ok	33.7%	10.85
Not Ok	17.9%	18.4%
Totally Not Ok	9.8%	61.0%

Key Finding
Massive Drop in Acceptance
The visualization clearly shows a dramatic shift in opinion when the high-stakes national exam (WAEC/NECO) is introduced:

1. **Positive Sentiment Plummets:** The combined 'Ok' and 'Partially Ok' responses drop from for the general feeling to only when considering WAEC/NECO.
2. **Total Opposition Dominates:** The 'Totally Not Ok' response skyrockets from only in the general case to a dominant for WAEC/NECO, indicating strong resistance to the adoption of CBT for critical examinations.
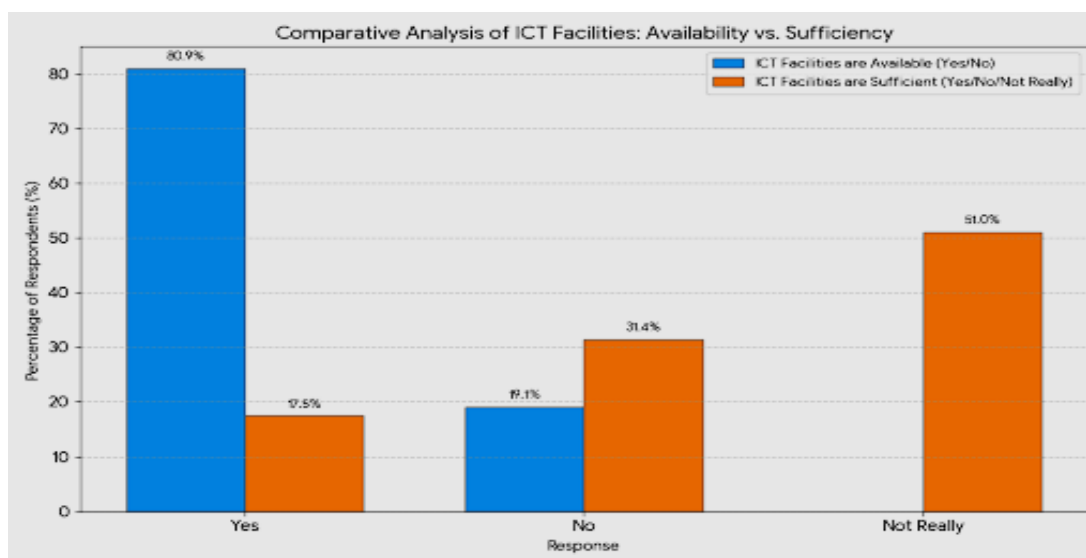

Figure 4: Comparative Analysis of ICT Facilities: Availability vs. Sufficiency

This chart compares whether schools Have ICT Facilities (Availability) with the perception of if those facilities are Sufficient for CBT implementation.

Table 5: Availability of ICT Facilities VS Sufficiency of Facilities

Response	ICT Facilities are Available (%)	ICT Facilities are Sufficient (%)
Yes	81.0%	17.5%
No	19.0%	31.4%
Not Really	N/A	51.0%

Key Finding: The Sufficiency Gap

There is a significant contradiction between the availability and adequacy of resources:

a. **High Reported Availability:** A large majority (81.0%) of respondents state that their schools have ICT facilities.

b. **Overwhelming Insufficiency:** In stark contrast, only (17.5%) believe the facilities are sufficient. A combined (No: and Not Really) expressed doubt or outright disagreement that the existing facilities are adequate for a mass CBT system.
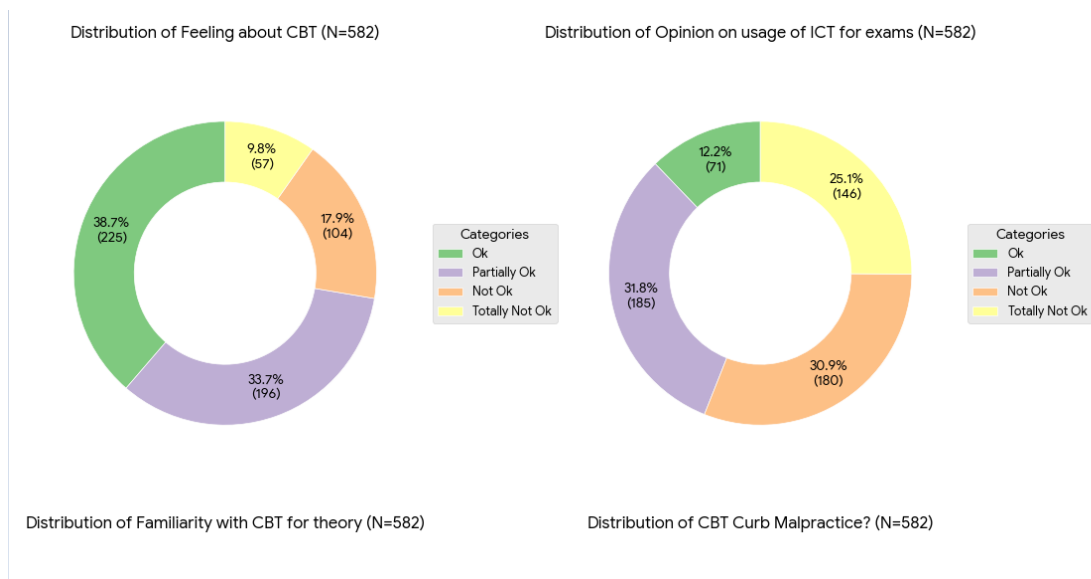
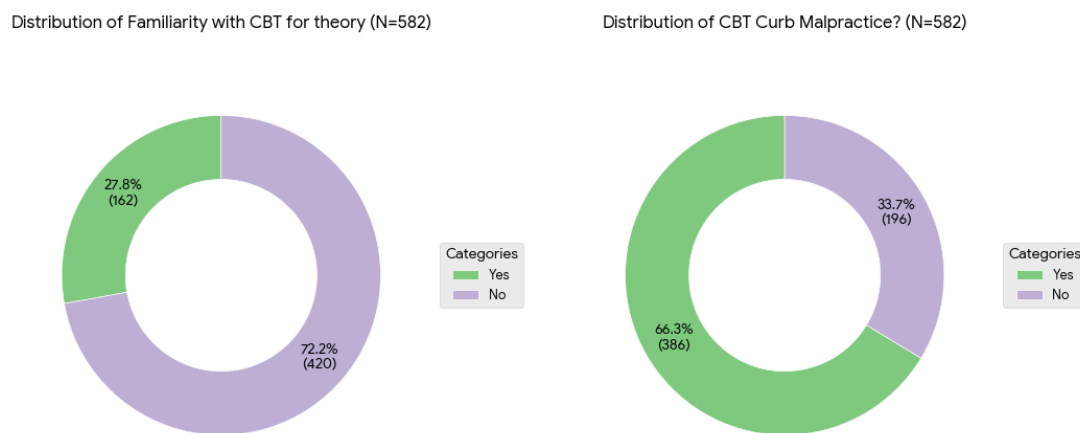**Figure 5a:** Chat Showing the Different Distribution

Figure 5b: Chat Showing the Different Distribution

Conclusion

From our Analytic insight, we can conclude that the primary issue hindering the acceptance of CBT for high-stakes examination is not only a lack of general knowledge, but a deep-seated lack of trust in the *adequacy of the*

infrastructure required for successful and fair implementation. The data suggests that while schools possess some ICT tools, students are not allowed to formalize and master the usage, also most respondents overwhelmingly do not believe these resources are sufficient to support a reliable, large-scale examination like WAEC/NECO and this infrastructure doubt fuels the massive opposition seen in the high-stakes perception question. Some respondent also stated that while some communities no not have electricity at all others have epileptic electricity supply, this can also be a limiting factor.

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