PERCEPTIONS OF CANDIDATES AND SUPERVISORS ON THE USE OF BIOMETRIC FINGERPRINT TO CURB IMPERSONATION IN UNIFIED TERTIARY MATRICULATION EXAMINATIONS

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**Abstract**

*Examination fraud has significantly impaired the Nigerian educational system. The absence of a reliable identity verification mechanism has been recognized as the key fundamental problem. This poses a challenge in ascertaining the appropriate individuals to be present at specific locations and times. Hence, this research used the Federal College of Education (Special), Oyo as a case study to examine the application of biometrics in mitigating the occurrence of examination fraud in Unified Tertiary Matriculation Examination (UTME). This study employed a descriptive survey design. A total of 250 respondents were selected at random from the pool of UTME candidates, CBT center employees, and supervisors. The data collected through self-designed questionnaires were analyzed using the chi-square test. The findings revealed a significant use of biometrics in detecting and preventing instances of examination impersonation in Nigerian institutions. The research findings showed that biometrics, as a technology of the new millennium, have a major impact on reducing impersonation in examination. Thus, the study recommended the continued use of biometric technology for authenticating UTME candidates upon their arrival at the examination venue.*

**Keywords:** Biometric, Examination Malpractices, CBT and UTME.

**Introduction**

The current surge in reports of examination malpractice in Nigeria is deeply discouraging. The impersonations assume several forms and get increasingly sophisticated daily. In order to counteract this threat, it is important to possess a level of intelligence that is at least equivalent to it. Examinations include evaluating certain abilities, therefore, to ensure that the correct individual is being assessed, the examiner must possess the ability to recognize the examinee in some manner. An evaluation of one's knowledge or expertise in a certain field, typically conducted via the use of questions or practical exercises, is known as an examination. Students are assessed through exams to ascertain the level of knowledge they have acquired within a specific timeframe. Examinations can thus be categorized as internal, external, oral, written, or assume diverse formats. The Common Entrance Examinations, School Certificate Examinations, and Promotion Examinations are all external (public) exams administered by the West African Examination Council (WAEC). Internal tests encompass several types of assessments, such as continuous assessment scores, terminal exams, semester exams, annual exams, and promotion exams (Bernard, 1998). The Joint Admission and Matriculation Board (JAMB) currently administers the Unified Tertiary Matriculation Examination (UTME). The National Teachers' Institute (NTI) administers exams for teachers, while the National Business and Technical Examination Board (NABTEB) administers exams for technicians.

Instances of examination fraud in Nigeria are not a recent phenomenon. Maduemezia (1998) states that the initial instance of examination fraud in Nigeria occurred in 1914, when question papers for the Senior Cambridge local examination leaked prior to the scheduled date of the exam. The occurrence of examinee fraud, which had previously been decreasing, increased in prominence in 1970 due to certain students achieving success while engaging in such fraudulent activities. The occurrence of examination fraud has evolved and become increasingly intricate. Nevertheless, the year 1977 saw a significant shift in the occurrence of examination fraud, since Nigeria had a strong negative reaction towards the West African Examination Council (WAEC), the exclusive organization responsible for conducting public examinations in the country. Consequently, a Judicial Commission of Enquiry, headed by Justice Sogbetun, was instituted to scrutinize the activities of the WAEC over concerns related to the efficient conduct of examinations and the prompt release of results. The report acknowledged that WAEC faced a substantial workload and proposed the establishment of additional testing organizations to assume responsibility for a portion of its examinations, thereby reducing its burden. In response to the recurring incidents of examination malpractices, an investigation led by Justice Sogbetun recommended the establishment of an additional examination body called NECO. The purpose of this was to alleviate the workload of the West African Examination Council (WAEC), which had limited staff.

According to Awanbor (2004), examination malpractice is an illicit activity perpetrated by individual students or groups of students, teachers, supervisors, invigilators, computer operators, secretarial staff, and even some parents. This includes activities such as the buying and selling of exam questions, bringing prepared answers to the examination hall, and using mobile phones during the exam, all of which constitute exam malpractice. Previously, the examination had the capacity to oversee and regulate small, primitive communities characterized by mutual familiarity among neighbors. Conducting a meticulous inspection of students' bodies and belongings and providing them with a clear warning prior to entering the examination hall in order to prevent any attempts of impersonation during the examination was easy.

Precise identification is becoming progressively vital in the present intricate, geographically mobile, and technologically networked information society, and the difficulty of identifying an individual is intensifying. Identifying individuals in contemporary society is often imperative to ascertain their eligibility for participation in the testing process. In certain situations, it may be suitable to ascertain the identity of the individual at the receiving end of the communication channel (Jain et al, 2003). It is quite difficult to solve the authentication and identification process. The phrase "rose is a rose is a rose is a rose" coined by Gertrude Stein encapsulates the inherent difficulty of an identification problem. A person's identity is so deeply intertwined with their beliefs and representations that resolving questions about their identity surpasses the capabilities of an engineering system. Instead, the solutions must be sought in the realm of philosophy. In Nigeria, testing institutions now use various manual approaches for identification verification. These methods, which relied simply on individuals' ability to do verification or authentication tasks, have not been successful in addressing the problem's expansion. Therefore, a reliable and precise authentication approach is necessary. Due to the failure of manual verification/authentication, technology devices were implemented to ensure precise verification of a candidate's writing examination.

According to Blackburn (2004), biometrics refers to automated techniques used to identify individuals based on their physical and behavioral traits. Although it has been present in networks, computing, and communications for many years, it was initially in a primitive state. Zang (2000) observed that biometric technologies have been utilized in many ways to enhance the security of systems, processes, and procedures, usually serving as a supplementary function. There exist a multitude of biometric methods, each possessing distinct advantages and disadvantages, as well as varying levels of intricacy and refinement. This work aims to offer an additional practical answer to the numerous uses of biometrics employed in diverse capacities to improve the security of processes, procedures, and systems, thereby addressing the widespread issue of examination fraud in Nigeria. This study examines the influence of biometric technology on students’ impersonation during examination.

**Statement of the problem**

The incidence of exam impersonation is on the rise among applicants, resulting in diminished self-development capabilities, increased study indifference, and reduced self-confidence in exam performance. The utilization of diverse strategies by the parties involved to ensure applicants adhere to examination regulations has a detrimental impact on the growth of Nigeria's educational system. In Nigeria, the significance placed on obtaining a certificate is far greater than the importance given to acquiring specific skills. Consequently, students have resorted to employing many methods of examination fraud in order to acquire certifications. Implementing biometric fingerprint pattern recognition technology will effectively combat the problem of examination malpractices among students in Nigeria's educational systems.

**Objective of the Study**

The objectives of the study are to:

i. examine the influence of biometric technology on students’ impersonation during examination.

ii. Examine the effect of the use of biometric on students’ valid result outcomes.

**Research Questions**

The research questions to answer are:

i. What is the influence of biometric technology on students’ impersonation during examination?

ii. What is the effect of the use of biometric on students’ valid result outcomes?

**Research Hypotheses**

H01: There is no significant influence of biometric technology on the students’ impersonations during examinations.

H02: There is no significant link in the use of biometrics with students’ valid result outcomes.

**Methodology**

The study utilized a descriptive survey design. The population comprises UTME candidates, employees, and supervisors of the Federal College of Education (Special), Oyo CBT Centre. A random sampling technique was employed to choose a sample of 200 respondents, which included UTME candidates, employees, and supervisors for the study. A self-designed questionnaire titled "Perceptions of UTME Candidates and UTME Supervisors on the Use of Biometric Fingerprint to Reduce Impersonation in the Unified Tertiary Matriculation Examination (PUCUBFI)" was used to collect data for the study. The questionnaire comprises two (2) sections, namely A and B. Section A comprises the respondents' personal information, encompassing age, gender, and educational status. Section B has twenty (20) targeted questions designed to elicit responses from the participants that are directly relevant to the research issue. The questionnaire used a binary Likert scale consisting of two options: Agree (A) and Disagree (D). The instrument underwent a validation process to ensure that the items on the questionnaire aligned with the aims of the study, therefore confirming the content validity of the instrument. It received additional validation from experienced colleagues in the same field, who confirmed that it accurately measures the specific aspect it is designed to evaluate. A reliability index of 0.82 was achieved. The data obtained from the participants in this study were analyzed using the Chi-square statistical method.

**Results**

**Table1: Demographic Characteristics of the Respondents**

|  |  |  |
| --- | --- | --- |
| **Response** | **Frequency** | **Percent** |
| **Gender** |  |  |
| Male  Female | 80  120 | 40.0  60.0 |
| **Age** |  |  |
| 15-30  35-50 | 195  05 | 97.5  2.5 |
| **Educational Qualification** |  |  |
| WAEC/NECO/NABTEB/NTI  B.Sc/B.Tech  M.Sc/M.Ed | 195  02  03 | 97.5  1.0  1.5 |

According to Table 1, there were a total of 200 respondents. Out of these, 80 (40%) were male and 120 (60%) were female. The age range of the respondents was 15-30 years for UTME students, which accounted for 97.5% of the total. The remaining 2.5% were UTME supervisors aged 35-50. The educational qualification of the UTME students was WAEC/NECO, while the UTME supervisors held M.Sc/M.Ed degrees. The results were based on the two hypotheses raised and are therefore presented in tables and references were made to them.

**Hypotheses Testing**

**H01:**

**Table 2:** There is no significant influence of biometric technology on the students’ impersonation during examinations.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Items** | **Agree** | **%** | | **Disagree** | | **%** | **Total** | |
| Q1 | 126 | 63 | | 74 | | 37 | 200 | |
| Q2 | 160 | 80 | | 40 | | 20 | 200 | |
| Q3 | 140 | 70 | | 60 | | 30 | 200 | |
| Q4 | 120 | 60 | | 80 | | 40 | 200 | |
| Q5 | 136 | 68 | | 64 | | 32 | 200 | |
| Q6 | 160 | 80 | | 40 | | 20 | 200 | |
| Q7 | 150 | 75 | | 50 | | 25 | 200 | |
| Q8 | 120 | 60 | | 80 | | 40 | 200 | |
| Q9 | 140 | 70 | | 60 | | 30 | 200 | |
| Q10 | 110 | 55 | | 90 | | 45 | 200 | |
| **Total** | 1362 | 68.1 | | 638 | | 31.9 | 2000 | |
| Table 3: Decision Table | | | |  | |  |  | |
| **Category** | | **Frequency** | **Df** | **Significance level** | | **X2 Calculated** | | | **X2 Table** | | **Decision** |
| **Agree** | |  | 9 | 0.05 | | 61.48 | | | 16.919 | | Rejected H01 |
| **Disagree** | |  |

The calculated Chi-square was 61.48, which was more than the critical value of 16.919 at a degree of freedom of 9. The null hypothesis was rejected while the alternative hypothesis was accepted by the data in Table 3 above. This indicates that the respondents believed that there were influences of the deployment of biometrics with the widespread examination fraud. This conclusion is in support of Nnam & Inah, (2015); Anzene, (2014); Ojonemi et al., (2013) opined that examination malpractice is common everywhere (globally) and witnesses the emergence of new and ingenious ways of cheating in every examination season. It also indicates that the rate of examination impersonation becomes widespread that no examination anywhere (globally) at all levels involves one form of illegal examination practice (Nnam & Inah, 2015; Ojonemi et al., 2013). This simply means that as long as biometrics is in use and the Nigerian government believes in the acquisition of a certificate as the only yardstick to measure one’s qualification or ability, the elimination of students’ impersonations during examinations may not be feasible.

**H02:**

**Table 4:** Among students, there is no significant link between the use of biometrics with students’ valid result outcomes.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Items** | **Agree** | **%** | **Disagree** | **%** | **Total** |
| Q11 | 160 | 80 | 40 | 20 | 200 |
| Q12 | 140 | 70 | 60 | 30 | 200 |
| Q13 | 140 | 70 | 60 | 30 | 200 |
| Q14 | 136 | 68 | 64 | 32 | 200 |
| Q15 | 120 | 60 | 80 | 40 | 200 |
| Q16 | 115 | 57.5 | 85 | 42.5 | 200 |
| Q17 | 140 | 70 | 60 | 30 | 200 |
| Q18 | 80 | 40 | 120 | 60 | 200 |
| Q19 | 120 | 60 | 80 | 40 | 200 |
| Q20 | 130 | 65 | 70 | 35 | 200 |
| **Total** | **1281** | **64.05** | **719** | **35.95** | **2000** |

**Table 5: Decision Table**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Category** | **Frequency** | **df** | **Significance level** | **X2 Calculated** | **X2 Table** | **Decision** |
| **Agree** |  | 9 | 0.05 | 89.56 | 16.919 | Rejected H02 |
| **Disagree** |  |

The calculated chi-square was 89.56, which is more than the critical value of 16.919 at a degree of freedom of 9. The null hypothesis was rejected while the alternative hypothesis was accepted, as shown in Table 5 above. This indicates that the respondents believe that there was a strong link between the biometrics and the students’ valid result outcomes. It was confirmed that examination impersonation is not a new phenomenon in Nigeria and is as old as the country itself, which was reported by Maduemezia (1998) which occurred in 1994 during Cambridge Local Examination papers leaked before the scheduled date of examination. It started from a low trend, became more pronounced in 1970 and became more advanced and sophisticated as technology advanced meaning that if more advanced technology that powerful than biometrics was put in place, the examination malpractice would also get more advanced as long as the Nigerian government based the qualification of its citizens on certificates.

**Conclusion**

One of the key features of biometrics is its ability to authenticate the identity of an individual, providing distinct advantages in identifying specific human beings. Biometrics offers the potential for efficient, user-friendly, precise, reliable, and cost-effective verification across various applications. To mitigate the increasing prevalence of cheating during examinations in Nigerian schools, it is imperative to employ biometric technology for student identification upon entering the examination room, thereby preventing impersonation. Biometrics will undoubtedly be employed in all crucial scenarios where sufficient authentication is necessary. The analysis outcomes for this study indicate a significant correlation between the use of biometrics and the prevalence of examination misconduct. UTME, as an agency, has made numerous attempts to address the pervasive issue of cheating in its examination, using biometric technology. Therefore, the implementation of biometrics is anticipated to prevent unauthorized individuals from accessing the examination premises.

**Recommendations**

Furthermore, it is imperative to ensure that an ample supply of examination materials is provided prior to the exams. Additionally, it is crucial to initiate a robust campaign to educate all stakeholders about the potential hazards connected with engaging in the activity. The Federal Government should strive to ensure that instructors' salaries are sufficiently competitive to prevent them from being enticed by meager allowances granted by students participating in exams, and that everyone has access to affordable, high-quality education.

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