Maximizing the Potentials of the Internet in Enhancing the Conduct of Computer-Based Tests for University Admission in a South-West Nigerian University

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Abstract

The internet presents numerous opportunities for universities to reach a wide audience with timely and relevant information. This study examines the potential impact of the internet on reaching university admission candidates, identifying application challenges, and assessing the conduct of Post Unified Tertiary Matriculation Examination (Post-UTME) tests in a South-West Nigeria University. The population for the study comprised applicants who took the Post-UTME test at the Computer-Based Test (CBT) Centre, University of Medical Sciences, Ondo. The study utilized internet adverts and surveys to disseminate information and gather feedback from participants. Results showed that the majority of applicants were reached through internet digital adverts with no difficulties encountered during the application process. The university's Facebook page had the highest views and engagements from admission seekers. The conduct of the Post-UTME test was commended by most applicants. The study concluded that the Internet can facilitate increased participation and easy assessment of Post-UTME tests in the university. It recommends that universities should explore the potential benefits of internet adverts and surveys in disseminating admission-related information, extracting feedback from stakeholders, and sensitizing the public about university programs.

Keywords— Internet, Post-UTME, university admission, digital adverts, survey, Nigeria

I. INTRODUCTION

The internet, which started as ARPANET in the late 1960s [14] Leiner, Cerf, Clark, Kahn, Kleinrock, Lynch, Postel, Roberts, & Wolff, 1997, has since grown considerably to a powerful tool for worldwide application in providing solutions to diverse sectorial problems including education, information, and socio-economic development. The advent of the internet has greatly influenced worldwide communication and collaboration among others. Internet communication has been described as the sharing of information in various forms such as text, audio, video, graphics, and multimedia, over the internet [11] Jankowski, Jones, Foot, Howard, Mansell, Schneider & Silverstone, 2004. Hence, advancement in internet communication is a key promoter of advertisement in the twenty-first century.

[28] Upadhyay and Joshi, (2014) described the advertisement as a paid communication, a presentation of

the message by proxy, and as goods, services, and image promoter. [3] Baiju (2018) observed that internet advert has become a phenomenon and a very cheap means of reaching a global audience within a short period in this information age. It involves the design and presentation of products to catch people's (prospective/target buyers') attention and obtain favorable decisions [29] Wardhana, Susilo & Ramadhani, 2020). Advertisement dated back to the pre-printing period before the 15th century to the present, and it has been greatly influenced by the advancement in technology.

Online advertisement could be executed on websites, social media, internet blogs, and search engines such as Yahoo and Google. It has the merits of being highly attractive, interactive, multimedia, and pulling greater audience and followers when compared to traditional media such as newspapers, radio, and television. [13] Kurniasanti,

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Assandi, Ismail, Nasrun, & Wiguna (2019) found that most young people are prone to internet addiction, thus, supporting the assertion of [3] Baiju (2018) that youths are more dependent on internet adverts, especially on social media than adults who prefer the traditional media. Some of the most subscribed social media platforms in the world, as listed by [12] Kemp (2018) which also has a large number of young followers are YouTube, Facebook, Instagram, Twitter, and LinkedIn among others. Social media can be widely used as collaborative tools and for information gathering/conveyance [26] Tolorunleke et al., 2023; [8] Erkan & Evans, 2016; [7] Chu & Kim, 2011 and expression of views about the content [4] Balaji, Khong, & Chong, 2016.

Media are information carriers or mediums through which information is communicated from the source to the target audience. They have been classified as traditional and new media in advertisement parlance. The traditional media include the hitherto broadcasting media such as newspaper, radio, and television while the new media on the other hand are the current state-of-the-art media. In the views of [16] Odun & Utulu, (2016), the new media is internet based and has the merits of combining different media, saving cost and time/space, providing freedom of engagement, instant delivery, and wide coverage. New media are digital and can be accessed anytime anywhere through digital/mobile devices owned by all classes of people. It challenges the limitations of the old media by offering a great deal of competitive advantages to all and sundry. However, there are challenges opposing the use of Internet adverts in developing countries among which are; low Internet connectivity, epileptic electricity supply, poor maintenance culture, poor infrastructural development, poverty, and literacy level. [2] Athey, Calvano & Gans, (2013) opined that the new media encourages innovative advertisement of products and can reach a greater audience population. [16] Odun & Utulu (2016) advocates for a combination of both internet/new media and traditional media in reaching both rural and urban population since their efficacy for advertisement in developing countries is not different though internet media is believed to be more prominent among the literate than illiterate thereby becoming more suitable for academic purposes.

The Nigeria's Joint Admission and Matriculation Board (JAMB) which was established in 1978 is saddled with the primary responsibility of "ensuring uniform standard in the conduct of matriculation examinations and the placement of suitably-qualified candidates into the nation's tertiary institutions" [17] Ojerinde, 2012. The matriculation examination conducted by JAMB is currently refers to as the Unified Tertiary Matriculation Examination (UTME). Every admission seeker into tertiary institutions in Nigeria is expected to seat for UTME, the result of which would be directly used with or without further test (depending on the selected tertiary institution) to process a candidate's admission. Due to a usually very high number of applicants for admission into Nigerian universities, some universities further conduct a test to prune candidates applying for courses in their institutions. This further test carried out by individual university for applicants who had sat for and passed UTME is commonly referred to as Post-UTME test.

Literature has identified several special features of internet adverts which have an expression in speed, quality, variety, involvement, coverage, cost, and feedback. The transmission and delivery of messages being communicated are very fast on the internet, thus allowing adverts to move quickly from the source to the receiver. Internet adverts can reach millions of people spread all over the world in seconds [21] Raghubansie & EL-Gohary, 2021. Also, up-to-date data relating to the spread of the avert are easily made available in the form of insights that foster timely assessment, planning, and decision-making.

The variety and quality of internet adverts have been greatly improved with improvements in computer technology, especially the introduction of multi-processor systems, high-speed memory, and the 4G and 5G technologies [5] Bartosik-Purgat, 2019. The internet supports content in various forms such as text, audio, video, animation, and graphics all of which are used in

producing dynamic, interesting, and captivating adverts online [29] Wardhana, Susilo & Ramadhani, 2020. The quality of data available through internet advert is also a feature that made it desirable in this information age. The mobile and online platforms being used could provide data on users' and the target population's profiles.

The involvement of various stakeholders such as active users and influencers on different social platforms, and the target population in spreading internet adverts is a feature that enables its virality. According to [21] Raghubansie & EL-Gohary, (2021) and [3] Baiju, (2018), internet adverts are digital and possess the attributes of being interactive, shareable, and viral. Viral ads are promoted by a social network of the target population which is influenced by opinion leaders/influencers that have palpable followers [30] Zhu, Walker & Muchnik, 2020.

In terms of coverage, internet adverts could reach any part of the globe using mobile and online platforms such as various social media including WhatsApp, Facebook, Instagram, Google, LinkedIn, and TikTok [21] Raghubansie & EL-Gohary, 2021; [3] Baiju, 2018. Internet adverts are also inexpensive when weighed against the benefits accruing from their use [21] Raghubansie & EL-Gohary, 2021; [3] Baiju, 2018. Feedback provided on

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internet adverts is in the form of analytics which are data supplied on the people reached, the likes received from the viewers of the adverts, the number of viewers that shared the adverts, and those who engaged or made comments on the adverts [2] Athey, Calvano & Gans, 2013; [16] Odun & Utulu, 2016; [3] Baiju, 2018). All these assess the impact of internet adverts as possible, quick, and credible.

An online survey is a novel method of data collection in the twenty-first century [23] Saleh & Bista, 2017. Three essential attributes must characterize an online survey tool to meet the educational recommendation. These are ease of development and deployment with unlimited capacity for different large numbers and types of questions/responses; unhindered access to collect survey responses/data; and appropriate data protection policy [9] Farmer, Oakman & Rice, 2016.

Online surveys have become increasingly popular in academic research, with only a few recommended by scholars, including Google Forms, eSurvey, and Quick Surveys. The advantages of Internet surveys include the convenience they offer to respondents, who can complete the survey questions at their own pace, and the ability to access the survey through mobile devices and computers. The design of online surveys is straightforward, and the assessment and analysis of responses are quick, easy, and accurate. These qualities have made Internet surveys a valuable tool in educational research, meeting the demands of the digital age.

One of the perceived limitations of Internet surveys is that they are restricted to online applications, which means that responses cannot be collected from offline respondents. However, given the widespread adoption of internet use, this is becoming less of a concern. Moreover, traditional media, such as newspapers, radio, and television, are becoming obsolete in their ability to disseminate information and assess its impact on the target population. As such, internet surveys and adverts are increasingly seen as an effective means of communication and assessment, particularly in areas such as Post-UTME applications in Nigerian universities. This study aims to investigate the effectiveness of using internet surveys to assess Post-UTME applications in Nigerian universities. The findings of this study can contribute to improving the reliability and validity of online surveys, highlight the pros and cons of using this method compared to traditional methods of data collection, and inform best practices for designing and conducting internet surveys in educational research. The study can also help to develop policies and guidelines for the use of online surveys in higher education institutions, ultimately enhancing the quality of research and decision-making processes in the field of education.

The following are the specific research questions that guided this study:

1. How effective are internet advertisements in reaching potential candidates for the university's 2022/2023 Post-UTME application?

2. What are the specific challenges faced by Post-UTME applicants in the university, and how can these challenges be addressed?

3. To what extent was the conduct of the Post-UTME test in the university in line with best practices and standards, and what improvements can be made for future tests?

In the following section, we review the literature on the use of the Internet in enhancing the conduct of CBTs, identifying challenges in the application process, and assessing the impact of CBTs on admission processes.

II. LITERATURE REVIEW

The internet has revolutionized the way information is shared and accessed, and this has significant implications for universities seeking to reach out to a wider audience. In recent years, there has been a growing interest in the use of the Internet to enhance the conduct of Computer-Based Tests (CBTs) for university admission. This literature review explored the existing literature on the use of the Internet in enhancing the conduct of CBTs, identifying challenges in the application process, and assessing the impact of CBTs on admission processes.

The use of CBTs for university admission has gained popularity due to its potential to enhance the efficiency, accuracy, and reliability of the admission process. Several studies have highlighted the benefits of CBTs, including the elimination of the risk of paper-based test malpractice, the ability to reduce test administration costs, and the provision of immediate test results [1] Anang et al., 2022; [25] Shobayo et al., 2022. In addition, CBTs provide a level playing field for candidates regardless of their geographic location, as they can take the test from anywhere in the world.

However, the use of CBTs is not without its challenges. One of the significant challenges is ensuring that the testing environment is secure and free from technical glitches [20] Prabowo et al., 2022. Technical difficulties during the test administration can result in the loss of valuable time and may negatively affect the test-takers performance. Another challenge is the issue of test authenticity, as there is a risk of candidates accessing unauthorized materials during the test. To address these challenges, several universities have turned to the Internet to enhance the conduct of CBTs. Studies have shown that

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the use of Internet digital adverts can be an effective way to reach potential candidates and disseminate relevant information about the admission process [22] Rodrigues et al., 2022; [10] Fernandes et al., 2022. Furthermore, the use of online surveys can help to gather feedback from candidates, providing valuable insights into their experiences and identifying areas that require improvement [24] Sharma et al., 2021; [6] Boulianne et al., 2023.

In conclusion, the internet presents significant opportunities for universities to enhance the conduct of CBTs for admission processes. While there are challenges associated with the use of CBTs, the potential benefits far outweigh these challenges. The literature suggests that the use of Internet digital adverts and online surveys can be effective in reaching potential candidates, gathering feedback, and improving the overall admission process. It is recommended that universities should explore the potential benefits of these technologies to enhance the efficiency and effectiveness of their admission processes.

III.   METHOD

A.   Design

This study utilized a mixed-methods approach (survey and harvested reports) to investigate the potential impact of internet adverts on reaching university admission candidates, identifying application challenges, and assessing the conduct of Post-UTME tests in a South-West Nigeria University.

B. Sample and Participants

The population for this study comprised all prospective candidates who were reached through various media, including internet adverts, newspapers, person-to-person, UNIME's staff and students, friends, and family. A total of 1,676,753 individuals were reached through internet adverts, while the number of individuals reached through other means could not be accounted for. However, the target population for this study comprised eight hundred and ten (810) applicants who sat for the UNIMED's 2022 Post-UTME test. All 810 candidates were invited to participate in the online survey using a Google form questionnaire. A total of 526 candidates responded, representing a response rate of 65%, which is above the acceptable standard rate as noted by [23] Saleh and Bista (2017). The participants were selected based on their availability and willingness to participate in the study.

C. Instrument

Two research instruments were used for data collection, namely advert fliers designed by graphic artists for online posts and a Google form for online surveys. The advert fliers contained information about the Post-UTME application and courses available for study at the university. These fliers were used for internet ads that were made viral on social media, making it possible to reach prospective candidates and respond to their inquiries in real time. The Google form questionnaire, titled UNIMED Post-UTME Survey, was sent to all candidates who participated in the Post-UTME test.

D.   Data Collection

Data were collected through internet adverts for the university's Post-UTME application, posted and boosted on the university's webpage, social media handles (Facebook, Instagram, and LinkedIn), and Google platforms from 29th July to 1st September 2022. The link obtained from Google Forms was sent via email to all candidates who participated in the Post-UTME test. Responses from data analytics on Facebook, YouTube, and Twitter were collected within the specified period of adverts and summed up for analysis. A total of five hundred and twenty-six (526) candidates responded to the questionnaire, providing a response rate of 65%, which is above the acceptable standard rate as noted by [23] Saleh and Bista (2017).

E. Data Analysis

Data analysis was carried out using charts and simple percentages to determine the impact of internet adverts on reaching prospective candidates, identify application challenges, and assess the conduct of Post-UTME tests in the university.

IV.   RESULT

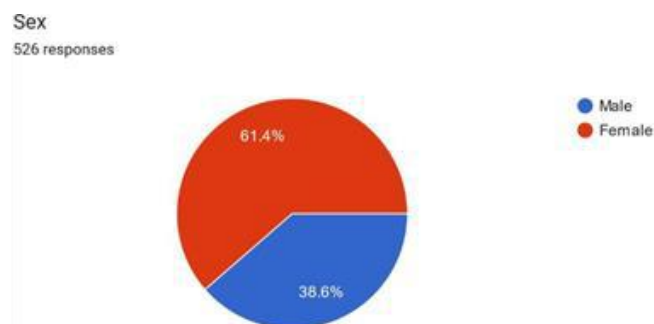Respondents' demographic data are shown in Figures 1 and 2 revealing their sex and age group.

Fig.1: Respondents' Sex

Figure 1 above reveals that most of the respondents (323) were females, accounting for 61.4% of the respondents while the male respondents were just 203 (38.6%).

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Age Group

526 responses

Fig.2: Respondents' Age grouping

As revealed in Figure 2 above, the majority of the respondents (88%) were teenagers while only 1% were between ages 30 and 40 years. This implies that most of the intended candidates in the university are adolescents.

Research question 1: How effective are internet advertisements in reaching potential candidates for the university's 2022/2023 Post-UTME application?

Fig.3: Internet post impact

The impact of the internet advert in reaching prospective candidates and the interaction obtained in terms of likes/reactions, link clicks, comments, and shares are shown in Figure 3 above. It can be seen that the impacts of the adverts were very high at the beginning, that is 29th July 2022 (reaching 829,685 people with 1,667 likes and reactions, 10,196 link clicks, 399 comments, and 51 shares) but declined with time, reaching only 4,848 people with 143 likes and reactions, 3 link clicks, 40 comments and 2 shares by the last day which is 1st September 2022.

Table 1: Summary of Internet post impact

People Reached	Likes and reactions	Link clicks	Comments	Shares
1,676,753	4,874	25,895	1,449	141

Table 1 above is the summary of the impact of the internet post in Figure 3 revealing that more than one and half million people were reached through the post-UTME internet adverts with 4,874 likes and reactions, 25,895 link clicks, 1,449 comments and 141 shares obtained as interactions.

Fig.4: Respondents' source of awareness for Post-UTME

Analysis of the data collected from respondents as shown in Figure 4 above reveals that most of the students (57.4%) became aware of the UNIMED Post-UTME application through the internet advert source (Google search, Facebook, YouTube, LinkedIn, and UNIMED website)

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while only a very few (6.3%) became aware through the traditional media, namely, radio, television, and newspaper. Figure 3 further revealed that respondents further indicated other sources of awareness including UNIMED community members (staff and students) 40.5%, family, friends, and acquaintances (21.3%).

Research question 2: What are the specific challenges faced by Post-UTME applicants in the university, and how can these challenges be addressed?

What are the challenges you encountered while applying for the Post-UTME?
526 responses

Challenge	Value
Difficulty in locating the appli...	42 (8%)
Poor bandwidth	6 (1.1%)
Slow webpage	13 (2.5%)
Delay in submission of appli...	20 (3.8%)
Difficulty in payment of appli...	39 (7.4%)
Network problem	41 (7.8%)
None	379 (72.1%)
Difficulty in filling form, beca...	1 (0.2%)
Passport uploading	1 (0.2%)
We were told at the home p...	1 (0.2%)
It was very expensive	1 (0.2%)
I couldn't change some detai...	1 (0.2%)
Different fee for the payment...	1 (0.2%)
I had to print my examinatio...	1 (0.2%)
The notification at first was t...	1 (0.2%)
Passport size	1 (0.2%)
Passport size	1 (0.2%)
The registration fee is very e...	1 (0.2%)
Incorrect password	1 (0.2%)
Difficulty in uploading of profi...	1 (0.2%)
The examination was well co...	1 (0.2%)
The way the details had to b...	1 (0.2%)
Didn't get my exam date	1 (0.2%)
Too much noise	1 (0.2%)

Fig.5: Challenges encountered during the application

The various challenges encountered by the respondents in the course of applying for the university's post-UTME online are shown in Figure 5 above. The figure revealed that most (72%) of the respondents encountered no challenges at all, a few (15%) respondents had connectivity problems (such as network problems, slow webpage, delayed submission of applications, and poor bandwidth) while others (13%) expressed having varying degrees of technical challenges.

Research question 3: To what extent was the conduct of the Post-UTME test in the university in line with best practices and standards, and what improvements can be made for future tests?

Table 2: Respondents' comments on the Post-UTME test conducted in UNIMED

Comment	N	n%
Excellent	10	1.9
Very Good	20	3.8
Good	438	83.3
Fair	47	8.9
Bad	5	1.0
No comment	6	1.1
Total	**526**	**100**

Table 2 above shows the analysis of comments made by respondents about the general conduct of the Post-UTME test in UNIMED. The result indicated that most participants (87.9%) were favorably disposed to the conduct of the Post-UTME test while only a few participants (1%) were not. This means that the conduct of the test was well-rated (good) by participants.

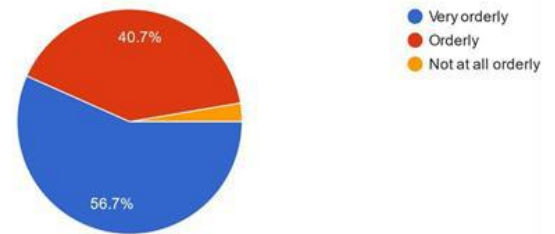What is your view of the examination in terms of orderliness?
526 responses

Fig.6: Respondents' view on orderliness

As shown in Figure 6 above, almost all respondents were of the view that the Post-UTME conducted at UNIMED was either very orderly (56.7%) or orderly (40.7%) but few (2.6%) said it was not at all orderly. This implied that the conduct of the test was, overall, commendable and satisfactory to the candidates.

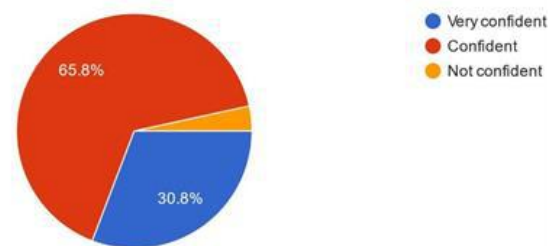How confident are you about the Post-UTME exam?
526 responses

Fig.7: Respondents' confidence about the test

Respondents' confidence in their performance in the test is revealed in Figure 7 above. The majority (65.8%) expressed confidence; some (30.8%) were very confident while very few (3.4%) expressed fear. This implied that the conduct of the test was such that confidence was inspired in most participants thereby raising their expectation of success and hope of admission.

V.   DISCUSSION

The impact of a digital advert in reaching prospective candidates for the post-UTME was felt in the greater number of respondents (57.4%) who were informed through the internet source. This confirmed the potential

capability of the Internet in reaching a large number of people within a short period as observed by [16] Odun and Utulu, (2016). The internet made it possible to distinctively measure the impact of the ads posted to the target population for post-UTME applications. Unlike traditional media such as the newspaper, the impact of internet ads was revealed in analytics which gives the number of reaches, likes and reactions, link clicks, comments, and shares.

The challenges encountered by applicants on the university's online Post-UTME application porter, as revealed by the study, were technical and internet connection related. This is not strange in Nigeria because internet services are mostly provided by telecommunication companies such as GLO, MTN, and Airtel whose network coverages are adequately distributed to every nook and cranny of the country. This finding is in line with the observations of [16] Odun and Utulu, (2016) about the major challenges to online processes in Nigeria being poor electricity supply and low internet network. However, it was good to note that the majority of the respondents encountered no challenges of any sort whatsoever, thus supporting the views of [27] Umezuruike, Oludele, and Izang (2015) that access to the internet in Nigeria was improving over the years, especially with the advent of the mobile devices and broadband network. This finding implies that the prospect and effectiveness of internet services, most especially, Internet of Things (IoT) [31] Olugbade et al., 2023 are more certain and dependable in today's world and, therefore could be embarked upon for achieving educational goals.

Finally, the conduct of the Post-UTME test for admission applicants in the university was confirmed well by more than eighty percent of the respondents. The Post-UTME test was conducted at the university's CBT center which provided online access to test items, enhanced security of examination materials, candidates' information, test items and examination results, and quick release of results to candidates [17] Ojerinde, 2012; [19] Ojerinde, Popoola, Ojo & Ifewulu, 2015; [18] Ojerinde, Okonkwo-Uwandulu, Ariyo & Anyaegbu, 2015.

VI. CONCLUSION

In conclusion, this study has demonstrated the effectiveness of internet adverts and surveys in reaching a wider audience of prospective admission candidates with minimal application challenges. Furthermore, the study has provided insight into the performance of a South-West Nigeria university in conducting Post-UTME tests. Based on these findings, the following recommendations are made:

Firstly, tertiary institutions should explore the potential benefits of internet adverts in quickly and efficiently disseminating admission-related information to prospective candidates. This would enable institutions to reach a wider audience and provide timely updates on available courses, admission requirements, and examination dates and times.

Secondly, administrators should also consider utilizing internet surveys to extract feedback from prospective candidates for timely assessment of management function in conducting Post-UTME tests. This will help institutions to gain valuable insights into the challenges faced by candidates and improve their processes accordingly.

Lastly, it is recommended that both internet adverts and surveys be employed in sensitizing the public about the prospects of universities' programs, informing prospective candidates about admission requirements and processes, and soliciting the views of stakeholders in management operations and decisions. This would create a more inclusive and transparent admission process, and enhance the reputation of tertiary institutions.

COMPETING INTERESTS

The authors declare that they have no competing interests.

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