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Assessing the Perception of Media and Communication Researchers in UNILAG on Web Analytics as an Audience Research Method

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ABSTRACT

Web analytics, which reference the collection and analysis of information via internet sites, are being increasingly adopted by media organizations in carrying out research on audiences. It is unclear if this same trend is visible in academia despite the adoption of online tools to carry out research. Web analytics provide a view of audience behavior online and may prove relevant in excavating data about audiences and their preferences in media and communication research. It is, however, important to understand the perception of media and communication researchers to this audience research method. The study utilized the survey method to investigate four research hypotheses on the adoption of web analytics, perceptions on the relevance of data derived from web analytics and perception of reliability and trustworthiness of web analytics as an audience research method. The results indicate that media and communication researchers in UNILAG were significantly familiar with web analytics, and perceived it as a trustworthy source for data gathering.

1. Introduction

As the world moves increasingly online, audiences carry out a number of activities, interactions and explorations across websites and web applications. Data on these audiences are gathered as they engage online, providing insights for businesses whose intent is to understand audiences to market initiatives or goods to them. Web analytics are defined by Tandoc (2014) as dealing with the collection and analysis of internet data with the intention of understanding audience behavior and optimizing websites.

This online turn in our lived experiences is also reflected in academia. A lot of steps in conducting research can now be achieved on the web through the variety of tools and platforms that have been made available. One of the projected benefits of web-based activities has been their ability to be tracked and to generate a multiplicity of data points. Felt (2016) describes the accessibility to public content on social networking and social media sites as a big draw for social science researchers. The researcher indicates that the technology tools of the day equip scholars with tools and methods that generate big data through its platforms and the activities that individuals carry out daily on them, which are being transformed into behavior patterns. Data can come from websites owned by private individuals or corporates as well as huge

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communicative and social media platforms such as Facebook, Twitter and LinkedIn, which have practically become digital villages. Anderson et al., (2011) describe this as a computational turn that has research in a number of disciplines effectively combining computational approaches that utilize technology to shift the critical ground of findings, whether in concepts or in theories.

The possible adoption of web analytics for research fits into this computational turn. Hutchinson (2016) indicates that the new forms of data that can be derived in this computational turn are providing media and communication researchers with new means to understand the human condition, constructing new research methodologies and exploring previously inaccessible research sites. The author, however, cautions for the need to evolve digital tools, ontologies and methodologies that are able to connect the emerging research practices with the bent of media and communication research.

1.1. Statement of the Problem

There is a growing normality in media businesses of practitioners deriving web analytics data in a bid to understand audience preferences and wants or needs. Tandoc (2014) studied the use of web analytics by journalists to gain audience information, which can then be used to decide where stories should be placed or to evaluate the performance of the journalists. A number of studies also focus on the adoption of web analytics for a variety of uses across business units (Lamot & Paulussen, 2019). Web analytics includes both qualitative and quantitative elements, which could also prove to be a method of excavating data about audiences and their preferences in media and communication research. However, the primary goal of web analytics as seen in literature is directed at optimizing the websites to incentivize preferred audience behavior by website owners. Sari, Alamsyah and Wibowo (2018) state that the opportunity provided by web analytics to collect user perception data is considered a faster methodology than conducting direct sampling methodology. However, while web analytics may provide a new means for conducting audience research in academia, the data collected via this means may introduce elements of bias and other considerations, including ethical ones, that call their reliability and verifiability into question.

Data collected by researchers in the context of academic studies are subjected to questions of reliability and verifiability. Where they fail on these fronts, it is harder to trust the outcome of research by other members of the academic community and to expand knowledge, which remains the key point of research. It is therefore important to understand the perception of media and communication researchers on the adoption of web analytics as an audience research method, which can affect the adoption of web analytics in academic research methodologies, limiting the data we can derive to further the pursuit of media and communication knowledge.

1.2. Hypothesis

Ho1: Media and communication researchers in UNILAG will not significantly be familiar with web analytics.

Ho2: Media and communication researchers in UNILAG will not significantly perceive web analytics as trustworthy.

Ho3: Media and communication researchers in UNILAG will not significantly perceive web analytics as a source of relevant data on audience behavior.

Ho4: Media and communication researchers in UNILAG will not significantly perceive web analytics as reliable.

2. Literature Review

2.1. Conceptual Review

2.1.1. Audience Research

Audience research is an important aspect of research. Hales (2019) defines it as any research that is conducted on a specific sample that aims to find out the attitudes, behaviors and habits of the population from which the audience is drawn. Ojebuyi (2020) explains that audience research undertakes a deliberate attempt to search out the demographic and psychographic characteristics of an identified group and the implications of these characteristics. The author suggests that it works to achieve two things: an estimation of audience sizes as well as the measurement of the changing patterns of media consumption by the audiences, and the context specific dynamics of the audience's utilization of this media. There are a number of factors that are essential to check to ensure the validity and reliability of data that is generated during audience research. Ojebuyi (2020) defines a few factors which include the definition of goals, target group and segment, appropriate research design and the development of appropriate data collection instruments. The researcher has to understand what specifically the research intends to achieve. For audience research, this can range from a determination of audience sizes to a study of their uses and gratifications in consuming media. These get outlined as research objectives and questions and form the basis of our research. Secondly, the researcher also has to answer the question of who information that answers their goals can be gotten from. The audience of the research needs to be chosen carefully. In defining an appropriate research design, the researcher determines how to test the hypothesis and answer the research question. Finally, the researcher should be guided by the nature of the information being sought for to select instruments for data collection that can include questionnaires and interview guides. Ojebuyi (2020) also highlights the importance of finding an appropriate method to draw out the sample from the identified target audience.

2.1.2. Web Analytics

Tandoc (2014) defines web analytics as measuring, collecting, analyzing and reporting internet data with the intention of understanding and optimizing web usage. The initial goal of these sources of data is indicated as allowing website owners to monitor audience behavior, which in turn allows for the optimization of the website to drive the goals for which it was created. Duncan (2010) describes the humble beginnings of web analytics from server error logs employed by IT professionals to evaluate the user interface of websites to the introduction of enterprise web analytics by the year 2000, which were able to be deployed by non-technical professionals, especially marketing departments who utilized them to understand the audiences that they were speaking to. Zheng and Peltsverger (2015) show the growth from those humble beginnings to today's usage of web analytics in a variety of industries for different purposes that range from e-commerce optimization and website performance improvement to traffic monitoring.

Abdesslem, Parris and Henderson (2012) offer up three sources of data for audience research on online social networks. The first source of data indicated is the data shared by users everyday via these networks. The data is characterized by the author as providing information on the users themselves, but also on the social interactions that include how, when and to whom they share information.

2.2. Theoretical Review

2.2.1. Diffusion Of Innovation

The diffusion of innovation theory studies the process of the communication and adoption of new technologies and ideas. The theory propounded by Everett Rogers seeks to explain the rate of spread of new ideas and technology as well as why and how they are adopted. Rogers (2003) defines diffusion as the process undergone in communicating an innovation over time among participants in a social system. Five factors were identified by Rogers as exerting a strong influence on the adoption of innovation. They include:

- Relative Advantage: The degree to which the user of an innovation perceives an **improvement in efficiency or effectiveness being delivered by the innovation in** comparison to existing methods or processes.
- Complexity: Relating to the degree of difficulty in understanding and applying innovation.
- Compatibility: This refers to the perception of innovation as being consistent with existing values, past experiences and the needs of potential adopters.
- Trialability: This refers to the room given to adopters to experiment with the innovation before committing.
- Observability: Also known as visibility references the ease in seeing, imagining or describing the new idea or technology to a potential adopter.

Rogers (2003) identified four elements that affect the adoption of innovation: the innovation; communication channels; time; and the social system, and also highlights a five-step decision-making process of diffusion:

- Knowledge: At the first stage, an individual is exposed to innovation but does not have the requisite information about it, and is not yet persuaded to seek out that information.
- Persuasion: In the second stage the individual then becomes interested in the innovation enough to actively seek out information and details about it.
- Decision: By the third stage the individual conceptualizes the change and begins to weigh the pros and cons of using the innovation, deciding whether to adopt it or reject it. Rogers noted that this is the most difficult stage to get empirical evidence due to the individualistic nature of the stage.
- Implementation: Following the decision stage the individual can then apply the innovation to varying degrees which are dependent on the situation. It is possible also at this stage for the individual to further test the usefulness of the innovation and search out further information about it.
- Confirmation: Here the individual finalizes the decision to continue using the innovation.

The diffusion of innovation theory provides a helpful framework for understanding how innovations are adopted. In studying the perception of media and communication researchers in UNILAG on web analytics as an audience research tool for media and communication studies, the theoretical propositions, which include the five factors identified by Rogers as exerting an influence on the adoption of innovation, holds explanatory power to the growing adoption of web analytics in research. The focus in this research will, however, be in attempting to situate the level of the decision-making process for the diffusion of innovation that the results of the study indicate

2.3. Empirical Review

Research has been carried out on the emergence of web analytics as an audience research method in various industries. Xiang, Du, Ma and Fan (2018) studied the usage of web analytics or big data analytics in the hospitality and tourism industries. Looking at the reliability of online hotel reviews, the researchers developed a text classifier to predict travel purposes based upon a review of textual content. The paper found that the text classifier used to gather the data was consistent across different locations, but variations existed due to differences in data sizes and sampling methods. It also found that there was a lot of noise in the data derived from web analytics, which can lead to misclassification.

Lamot, Paulussen and Van Aelst (2021) studied the utilization of web analytics in newsrooms. The research focused on the identified trend of newsrooms becoming more metrics-driven with web editors utilizing the data generated from web analytics to decide on new distribution strategies for their stories. Data was gathered on the adoption of audience metrics from web analytics by political journalists in Belgium. Looking at the level of access to audience metrics, and the extent that their level of exposure to audience metrics affects the attitudes towards analytics in news work, the researchers found that while three-quarters of the political news journalists are nowadays exposed to audience metrics regularly, more than half of them report to never make direct use of web metrics in their daily work. A demographic pattern was also seen with younger journalists being shown to use web analytics more than senior journalists.

Jussila, Vuori, Okkonen and Helander (2017) studied web analytics on social media, investigating the reliability and perceived value of two identified sentiment analysis tools. The paper takes a comparative approach considering the sentiment analysis tools against human sentiment evaluators. The study found that human evaluators classification of sentiments was perceived as more valuable by company representatives than automatic web analysis. The researchers identified that human evaluators were able to identify emotions from tweets better than the web tools.

Jansen, Jung and Salminen (2020) considered the accuracy of popular traffic estimation services, which provide a type of web analytics data on website visits. The paper compared average monthly analytics metrics data from Google Analytics with those from SimilarWeb for 86 websites of various sizes. The results of the study showed statistically significant differences between the two tools for data points such as total visits, unique visitors and bounce rates.

The papers reviewed show an increasing interest in web analytics data across a variety of industries and purposes. Questions on reliability, adoption and trust have been investigated through different methods with most studies showing some significant challenges to accepting web analytics as a reliable data source,

3. Methodology

In assessing the perception of media and communication researchers in UNILAG on web analytics as an audience research tool for media and communication studies, the research adopts a quantitative methodology to answer the four stated hypotheses.

The study population included mass communication, final year and postgraduate students of the University of Lagos (UNILAG), with a total number of 113 students in the population. A sample size of 68 students was derived using a sample size calculator with a Confidence Level of 99% and a Margin of Error of 10%. The total number of respondents recorded in the survey, which was distributed online, was 62 respondents with the existence of non-response error.

4. Results

This study examined the perception of media and communication researchers in UNILAG on web analytics as an audience research method in media and communication studies. The results of the data analysis are presented below.

4.1. Demographic Data Presentation

Table 1 presents the distribution of respondents by age. (n=19; 30.65%) were between 18-25 years, (n=35; 56.45%) were between 26-35 years, (n=7; 11.29%) were between 36-50 years while (n=1; 1.61%) were above 50 years.

Table 1.
Distribution of Respondents by Age Range

Age Range	Frequency	Percentage
18 – 25 years	19	30.65
26 – 35 years	35	56.45
36 – 50 years	7	11.29
Above 50 years	1	1.61
TOTAL	**62**	**100.00**

Table 2.
Distribution of Respondents by Level of Education

Level of Education	Frequency	Percentage
Bachelors	25	40.32
Masters	37	59.68
TOTAL	**62**	**100.00**

Table 2 presents the distribution of respondents by level of education. (n=25; 40.32%) had bachelors degree while (n=37; 59.68%) had masters degree.

Table 3.
Response to Question "When was your first research work undertaken?"

When was your first research work undertaken?	Frequency	Percentage
2001-2010	18	29.03
2011-2021	44	70.97
TOTAL	**62**	**100.00**

Table 3 presents the response of participants on the question "When was your first research work undertaken?". Majority of the respondents (n=44; 70.97%) took their first research work between 2011 and 2021 while a few (n=18; 29.03%) took their first research work between 2001 and 2010.

Table 4.
Response to Question "Have you ever used web analytics in your research?"

Have you ever used web analytics in your research?	Frequency	Percentage
Yes	58	93.55
No	4	6.45
TOTAL	**62**	**100.00**

Table 4 presents the response of participants on the question "Have you used any online survey tools in your research?" Majority of the respondents (n=58; 93.55%) answered yes while (n=4; 6.45%) answered no.

Table 5.
Response to Question "Did you utilize web analytics with other methodology in your research?"

Did you utilize web analytics with other methodology in your research?	**Frequency**	**Percentage**
Yes	47	75.81
No	15	24.19
TOTAL	**62**	**100.00**

Table 5 presents the response of participants on the question "Did you utilize web analytics with other methodology in your research?" Majority of the respondents (n=47; 75.81%) answered yes while (n=15; 24.19%) answered no.

Table 6.
Response to Question "What is your experience in using web analytics platforms or applications?"

What is your experience in using web analytics platforms or applications?	**Frequency**	**Percentage**
Poor	2	3.23
Fair	5	8.06
Good	14	22.58
Very Good	33	53.23
Excellent	8	12.90
TOTAL	**62**	**100.00**

Table 6 presents the response of participants on the question "What is your experience in using web analytics platforms or applications?" Majority of the respondents (n=33; 53.23%) answered Very Good forms while a few (n=2; 3.23%) answered poor.

Table 7.
Response to Question "What web analytics tools are you familiar with?"

What web analytics tools are you familiar with?	**Frequency**	**Percentage**
Google Analytics	28	45.16
Social Media Analytics	19	30.65
Alexa.com	4	6.45
Stat Counter	1	1.61
Others	10	16.13
TOTAL	**62**	**100.00**

Table 7 presents the response of participants on the question "What web analytics tools are you familiar with?" Majority of the respondents (n=28; 45.16%) identified Google Analytics while (n=1; 1.61%) identified Stat Counter.

Table 8.
Response to Question "What type of research data should be collected via web analytics?"

What type of research data should be collected via web analytics?	**Frequency**	**Percentage**
Quantitative	13	20.97
Qualitative	6	9.68
Both Quantitative and Qualitative	43	69.35
TOTAL	**62**	**100.00**

Table 8 presents the response of participants on the question "What type of research data should be collected via web analytics?" Majority of the respondents (n=43; 69.35%) choose both Quantitative and Qualitative data.

Table 9.
Response to Question "What factor most impedes the adoption of web analytics for research?"

What factor most impedes the adoption of web analytics for research?	Frequency	Percentage
Ethical Considerations	12	19.35
Technical Handicaps	4	6.45
Inability to verify quality of data	7	11.29
Inaccessibility of data	39	62.90
TOTAL	**62**	**100.00**

Table 9 presents the response of participants on the question "What factor most impedes the adoption of web analytics for research?" Majority of the respondents (n=39; 62.9%) noted Inaccessibility of data as a factor most impedes the adoption of web analytics for research while few (n=4; 6.45%) noted Technical Handicaps as a factor most impedes the adoption of web analytics for research.

Table 10.
Response to Question "Should researchers use data/information that is public or openly accessible on the web without seeking consent?"

Should researchers use data/information that is public or openly accessible on the web without seeking consent?	Frequency	Percentage
Yes	49	79.03
No	13	20.97
TOTAL	**62**	**100.00**

Table 10 presents the response of participants on the question "Should researchers use data/information that is public or openly accessible on the web without seeking consent?" Majority of the respondents (n=49; 79.03%) answered yes while few (n=13; 20.97%) answered no.

Table 11.
Response to Question "Is informed consent feasible in a web analytics environment?"

Is informed consent feasible in a web analytics environment?	Frequency	Percentage
Yes	57	91.94
No	5	8.06
TOTAL	**62**	**100.00**

Table 11 presents the response of participants on the question "Is informed consent feasible in a web analytics environment?" Majority of the respondents (n=57; 91.94%) answered yes while a few (n=5; 8.06%) answered no.

4.2. Testing of Hypothesis

The inferential statistics of Chi-square (X^2) was used to test all stated hypothesis at a 0.05 alpha level.

Research Hypothesis 1: Media and communication researchers in UNILAG will not significantly be familiar with web analytics.

Table 12 shows that the calculated X^2value (322.69) was greater than the critical X^2 value (9.49) at 0.05 significant level; hence the stated null hypothesis is rejected. This implies that media and communication researchers in UNILAG were significantly familiar with web analytics.

Table 12.
Chi-Square (X^2) Analysis on the Media and Communication Researchers Familiarity with Web Analytics

Variable	Mean	SD	N	Df	Calc X^2	Crit X^2	Remark
Media and Communication Researchers Familiarity with Web Analytics	3.93	0.72	62	4	322.69	9.49	Significant

P<0.05

Research Hypothesis 2: Media and communication researchers in UNILAG will not significantly perceive web analytics as trustworthy.

Table 13.
Chi-Square (X^2) Analysis on the Media and Communication Researchers Perception of Web Analytics as Trustworthy

Variable	Mean	SD	N	Df	Calc X^2	Crit X^2	Remark
Media and Communication Researchers Perception of Web Analytics As Trustworthy	3.93	0.38	62	4	68.45	9.49	Significant

P<0.05

Table 13 shows that the calculated X^2value (68.45) was greater than the critical X^2 value (9.49) at 0.05 significant level; hence the stated null hypothesis is rejected. This implies that media and communication researchers in UNILAG significantly perceived web analytics as trustworthy.

Research Hypothesis 3: Media and communication researchers in UNILAG will not significantly perceive web analytics as a source of relevant data on audience behavior.

Table 14.
Chi-Square (X^2) Analysis on the Media and Communication Researchers Perception of Web Analytics as a Source of Relevant Data on Audience Behavior

Variable	Mean	SD	N	Df	Calc X^2	Crit X^2	Remark
Media and Communication Researchers Perception of Web Analytics As A Source of Relevant Data on Audience Behavior.	3.72	0.63	62	4	206.51	9.49	Significant

P<0.05

Table 14 shows that the calculated X^2value (206.51) was greater than the critical X^2 value (9.49) at 0.05 significant level; hence the stated null hypothesis is rejected. This implies that media and communication researchers in UNILAG significantly perceived web analytics as a source of relevant data on audience behavior.

Research Hypothesis 4: Media and communication researchers in UNILAG will not significantly perceive web analytics as reliable.

Table 15.
Chi-Square (X^2) Analysis on the Media and Communication Researchers Perception of Web Analytics as Reliable

Variable	Mean	SD	N	Df	Calc X^2	Crit X^2	Remark
Media and Communication Researchers Perception of Web Analytics As Reliable	3.31	0.48	62	4	179.33	9.49	Significant

P<0.05

Table 15 shows that the calculated X^2value (179.33) was greater than the critical X^2 value (9.49) at 0.05 significant level; hence the stated null hypothesis is rejected. This implies that media and communication researchers in UNILAG significantly perceived web analytics as reliable.

5. Discussion Of Findings

The aim of this study is to examine the perception that media and communication researchers in UNILAG hold of web analytics as an audience research method in Nigeria. Four research hypotheses were drafted for the study measuring the adoption of web analytics in research studies and the trustworthiness and reliability that UNILAG media and communication researchers attach to using web analytics for audience research. The result from the first hypothesis indicated that media and communication researchers in UNILAG were significantly familiar with web analytics. This is consistent with the arguments offered by Savage (2007) that web and data analytics should not be left to in-house scientists and marketers as the researcher highlights the usefulness of this internet-based data for social science research. Considering the five-step decision making process of the diffusion of innovation theory, the respondents of this study, indicate a movement towards the confirmation stage of the innovation that is web analytics. This is shown in the overwhelming majority of respondents (93.55%) who have adopted web analytics in conducting research.

The second hypothesis findings revealed that media and communication researchers in UNILAG significantly perceived web analytics as trustworthy. This seems to indicate changing or different perceptions about web analytics. The study by Xiang et al., (2018), for instance, shows less trust attached to data from web analytics in their study on the hospitality and tourism industry. Responses to the survey used for this paper also showed that inaccessibility of data was the greatest impediment to the adoption of web analytics for media and communication research and not the inability to verify the quality of data. This indicates that inaccessibility and not trust is the reason for the non-adoption of web analytics where the reality exists among the respondents.

Results from the third hypothesis revealed that media and communication researchers in UNILAG significantly perceived web analytics as a source of relevant data on audience behavior, which agrees with the study by Felt (2016). According to the researcher, web analytics are a significant draw for social science research due to the generation of big data that can give insights into behavior patterns. The fourth hypothesis findings revealed that media and communication researchers in UNILAG significantly perceived web analytics as reliable. This finding contradicts that of Jussila et al., (2017), which found that data gathered by human evaluators was perceived as more reliable than data from web analytics tools.

6. Conclusion

Web analytics provide another bucket of data for research on audiences. Audiences increasingly leave an online footprint as they carry out activities online. These activities can be studied and analyzed to derive valuable insights for media and communication research by using web analytics. The respondents of this study show a positive perception of the use of web analytics as an audience research method for media and communication studies. Most respondents of the study, however, continue to mix web analytics with other research methods, which shows that web analytics are still considered a secondary methodology in carrying out research among media and communication researchers in UNILAG.

As the adoption of web analytics for academic work increases, media and communication researchers need to remain conscious of some challenges of the method, which exist and have been captured in literature, such as ethical considerations, bias and inability to verify the data quality. With these in mind researchers can gain an extra source of insight for audience research while ensuring that the data derived is reliable and verifiable.

7. Recommendations

The following recommendations are made from the results derived in this study:

- Media and communication schools and departments need to expose media and communication researchers to more tools and innovations necessary to collect and analyze data from internet sites.
- Media and communication researchers should employ extra steps to verify web analytics data such as the utilization of different tools to measure and analyze the same data sets to ensure reliability.
- Web analytics platforms should inform and collect consent from their audiences on the possible usage of their data including for academic and research purposes.

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Appendices

Perception on the Reliability of Web Analytics as an Audience Research Method

This survey is part of a research endeavor to identify the perception of media and communication researchers in the University of Lagos, Nigeria on the reliability of web analytics as an audience research method in Nigeria.

Please select the answers that best represent your views on the subject.

Thank you for your cooperation.

1. When was your first research work undertaken?
   1991 - 2000
   2001 - 2010
   2011 - 2021
   I haven't published (yet)
2. What is your age range? (Years)
   18 - 25
   26 - 35
   36 – 50
   Above 50
3. If yes, did you utilize web analytics with other methodology in your research?
   Yes
   No
4. What is your experience in using web analytics platforms or applications?
   Poor
   Fair
   Good
   Very Good
   Excellent
5. What web analytics tools are you familiar with?
   Google Analytics
   Social Media Analytics
   Alexa.com
   Stat Counter
   Other:
6. What type of research data should be collected via web analytics?
   Quantitative

Qualitative

Both Quantitative and Qualitative

7. What factor most impedes the adoption of web analytics for research?

   Ethical Considerations

   Technical Handicaps

   Inability to verify quality of data

   Inaccessibility of data

   Other:

8. Should researchers use data/information that is public or openly accessible on the web without seeking consent?

   Yes

   No

9. Is informed consent feasible in a web analytics environment?

   Yes

   No

	Strongly Agree	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
Web analytics tools are easy to use					
Web analytics tools/ platforms are trustworthy					
Web analytics provide relevant data on audience behavior					
Web analytics data are very reliable					