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# WEB PRESENCE ANALYSIS OF INTELLECTUAL OUTPUTS ON THE INSTITUTIONAL REPOSITORY OF UNIVERSITY OF IBADAN, NIGERIA

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## Abstract

*This paper examines the web presence of intellectual outputs (IOs) of lecturers at the University of Ibadan. Some of the lecturers' outputs between the years 2000 and 2014 that were submitted for input into the Institutional Repository (IR) were examined. IOs are scattered around without a central platform to showcase them as institutional collections. Sample survey research design was used for the study. The study found that some of the IOs were not visible on any digital platform prior to the establishment of the University of Ibadan Institutional Repository (UIIR). This could be due to print published journals and conference proceedings that do not have World Wide Web (WWW) presence. The paper recommends that IR should be established in all universities in Nigeria to increase the web presence of lecturers' IOs. There should be sensitisation to promote the IOs addition into the IR.*

**Keywords:** Web Presence; Institutional Repository; Intellectual Outputs; and Universities

## Introduction

Universities are established to educate individuals at the tertiary level, and to carry out research to improve the livelihood of the citizenry and the society at large. Non-teaching staff, students and lecturers constitute the primary stakeholders of a university. Lecturers are responsible for teaching and conducting researches that could lead to discoveries which solve society's problems. In addition, they propose new researches and add to the body of knowledge among others. Lecturers' research findings are expected to be visible to the immediate community and the society at large through publishing. This is why lecturers publish their research findings in form of journal articles, conference papers, books, chapter in-books, reports, posters, abstracts

and festschrift among others. Published works in these forms could be referred to as intellectual outputs (IOs). According to Erasmus Glossary (nd.), intellectual outputs are accomplishments which involve mental tasks with outcomes such as journal articles, conference papers, book chapters and other types of publications.

IOs are contents of published works that should be made visible for reading, consultation, and study. Couper (2018) argued that IOs published especially in form of books should be made visible through different channels. Intellectual outputs are expected to be within reach of students, scholars and researchers. Hence one of the five rules of Ranganathan (1931) stated that every book needs a user, therefore timely access to the IOs is essential for study, research and development. University of Ibadan was established in 1948. The library was established same year to support teaching, research and learning. The lecturers and students carry out research and make their findings known to the university community and the public through publications among others. Lecturers do submit copies of their publications to the university library as part of the library's collections. This is done to ensure availability and access to the IOs for students and staff, and for leisure and research purposes. It was observed that over the years, many of these IOs are not visible beyond the domain of the lecturers and the physical library. Hence they do not have World Wide Web (WWW) presence. This could have denied users knowledge, access and use of such works, regardless of their location. The presence of Information and Communication Technology (ICT) has propelled the need for wider visibility, access and use of universities IOs. It is against this backdrop that this study tends to assess the web presence of University of Ibadan IOs.

### **Literature review**

Universities are established to train people for self-development as well as producing the nation's human capital market. Lecturers are engaged to train, teach students and carry out research for development. Aside teaching and research, lectures are expected to make their intellectual works known through publishing. To achieve this aim, findings of lecturers' research are published in form of journal articles, conference papers, books, book chapters to mention but a few. Some lecturers publish their research works in outlets that provide print format which

has limited the visibility of such intellectual outputs. These intellectual outputs lack centralised platforms in which they could be made visible and accessed. Lecturers publish their articles in different journals, present papers in diverse conferences and contribute to books, hence their intellectual outputs are scattered around. The advent of Information and Communication Technology (ICT) has changed the mode of publishing, visibility, and management of lecturers' intellectual outputs.

The adoption of ICT has brought changes to the ways by which libraries manage lecturers' intellectual outputs. One of such innovation is the adoption of Institutional Repository (IR). Institutional Repository can be referred to as a central platform established by an institution to showcase and manage the intellectual outputs of that institution. New World Encyclopaedia (2018) defined IR as an online platform for collecting, preserving and disseminating digital intellectual outputs of an institution. Martin-Yeboah, Alemna and Adjei (2018) assessed two public and two private universities institutional repositories in Ghana. Their findings revealed that application of IR enhanced visibility of intellectual outputs as well as sharing of intellectual outputs among scholars. In the same vein, Correia and Teixeira (2005) submitted that adoption of IR would increase the level of online intellectual outputs appearance and frequency of citation.

University libraries are known for institutional intellectual outputs management in which lecturers' outputs are inclusive. Many libraries around the globe manage the IR on their university library's website. The library must have web presence in order to showcase the IR content. Asubiario (2017) conducted a study on the visibility of library website on the internet. The study revealed that less than half of the whole universities studied had library webpage. The study underpinned the need for library web presence and necessity of regular review with updates and information useful to teaching, learning and research. Visibility of lecturers' intellectual outputs is paramount to awareness, access and use.

Jones and Evans (2013) submitted that web visibility of lecturers' intellectual outputs especially on IR would increase the level of awareness and access to such would enhance better use and citation of the works. They also reported that visibility of intellectual outputs increase the impact factor of the works, the author, affiliation, the

publication type and the publisher. The more a work is used and cited, the more such work gains high relevance and interest for further study. Ebrahim, Salehi, Embi, Tanha, Gholizadeh, Motahar and Ordi (2013); Lawrence (2001) submitted that self-archive would also boast the citation of published intellectual outputs. Lecturers are encouraged to always showcase their intellectual outputs as soon as they are published. When such works are added into the institutional IR, the visibility is instant and interested audience in such discipline could get instant Rich Site Summary (RSS) feed or alert of the update for their information and next line of action.

Many lecturers' intellectual outputs are in print formats, as such, such works will need to be transformed to digital formats before they could be added into the institutional repository. ICT have made this transformation possible through digitisation. Print publications that have no electronic version can be bridged to have equal opportunity of visibility, access and use regardless of time and location. Buehler and Trauernicht (2007) reported that they digitised IOs of their academic members that were not in electronic format in order to enhance their visibility. In same vein, Carlson, Ramsey and Kotterman (2010) opined that digital preservation is significant to IOs visibility on the web especially on the IR. Digital and born-electronic publications can be visible through IR if lecturers' intellectual outputs are submitted to the library or self-achieved. It is important that full text papers and abstracts should be visible and accessible for optimal use.

### **Statement of the problem**

The intellectual outputs of an institution showcase her value, strength and contributions to knowledge. These intellectual outputs are scattered around and without a centralised platform that showcases them as institutional collection. This has been the bone of contention for researchers who need the information. Hence, there is need for the awareness of these intellectual outputs, access and use for research regardless of both the intellectual outputs and the users' location. It was observed that some of these intellectual outputs lack web presence which could be responsible for low or non-reference of such outputs. Non-visible intellectual outputs could negatively affect webometric ranking level of an institution.



It is against this background that this study tends to assess University of Ibadan institutional repository in bridging the digital divide of intellectual outputs.

### Research questions

1. What are the major types of intellectual outputs produced by the lecturers of University of Ibadan?
2. How visible are the intellectual outputs submitted to UIIR on World Wide Web (WWW)?

### Methodology

The study adopted survey design. Sampling frame which contained the list of the IOs for inclusion in the University of Ibadan Institutional Repository (UIIR) was collected from the lecturers. Total enumeration was used for the study. All the IOs received from five Faculties and Institute of Education were used. Faculties and Institutes have lecturers that create intellectual outputs that serve as embodiment of knowledge. Therefore, intellectual outputs from five Faculties (Agriculture, Arts, Science, The Social Sciences and Technology) and Institute of Education were examined to elicit data for the study. Twenty-one departments were involved in the study. One thousand, three hundred and eighty-six intellectual outputs of 48 lecturers which covered the years 2000 to 2014 were examined. Google scholar and Google search engines were searched by titles and authors of the IOs to ascertain their visibility. The search was conducted on the two search engines for three weeks. Findings of the study were presented in counts and percentages.

### Results and Discussion

**Research Question 1:** What are the major types of intellectual outputs produced by the lecturers of University of Ibadan?

Table 1 below shows that intellectual outputs such as journal articles, conference papers, books and book chapters were the major types of IOs that featured in the lecturers' published works (See Table 1).

Table 1: Background Information

Faculty of Agriculture	No of Lecturer	No. of Publication 2000-2014	No. of Journal Article	No. of In Proceedings	No. of Book	No. of Book Chapter
Department:						
Agricultural Economics	1	46	38	5	0	3
Agricultural Extension	1	37	35	2	0	0
Forestry Resources Management	1	35	32	2	0	1
Sociology and Environmental Forestry	1	42	28	12	0	2
Wildlife and Fishery	2	59	50	6	3	0
<b>5</b>	<b>6</b>	<b>219</b>	<b>183</b>	<b>27</b>	<b>3</b>	<b>6</b>
Faculty of Arts						
Department:						
Communication and Language Art	3	29	25	0	1	3
Religious Studies	1	25	21	2	0	2
<b>2</b>	<b>4</b>	<b>54</b>	<b>46</b>	<b>2</b>	<b>1</b>	<b>5</b>
Faculty of Science						
Department:						
Mathematics	1	36	34	1	0	1
Zoology	3	79	76	2	0	1
<b>2</b>	<b>4</b>	<b>115</b>	<b>110</b>	<b>3</b>	<b>0</b>	<b>2</b>
Faculty of Social Sciences						
Department:						
Geography	1	20	15	0	0	5
Political	1	42	25	1	2	14

Science						
Psychology	5	169	146	4	2	17
Sociology	3	101	77	1	4	19
Urban and Regional Planning	2	46	32	1	0	13
<b>5</b>	<b>12</b>	<b>378</b>	<b>295</b>	<b>7</b>	<b>8</b>	<b>68</b>
<b>Faculty of Technology</b>						
Department:						
Agriculture and Environmental Engineering	4	87	59	28	0	0
Electrical Engineering	2	33	23	6	3	1
Food Technology	2	29	26	1	0	2
Industrial and Production Engineering	3	92	91	1	0	0
Mechanical Engineering	7	207	179	26	0	2
Petroleum Engineering	1	30	19	11	0	0
<b>6</b>	<b>19</b>	<b>478</b>	<b>397</b>	<b>73</b>	<b>3</b>	<b>5</b>
<b>Institute of Education</b>						
	<b>3</b>	<b>142</b>	<b>102</b>	<b>1</b>	<b>6</b>	<b>33</b>
<b>Grand Total</b>						
<b>21</b>	<b>48</b>	<b>1,386</b>	<b>1,133</b>	<b>113</b>	<b>21</b>	<b>119</b>

Table 1 also revealed that most of the intellectual outputs examined emanated from the Faculty of Technology with 478 publications. This was followed by Faculty of Social Sciences who submitted 378 publications. The least number of publications that were examined came from the Faculty of Arts.

Table 2: Type of intellectual outputs

Faculty	Type of Publication							
	Journal Article		In Proceedings		Book		In-book	
	No.	%	No.	%	No.	%	No.	%
Agriculture	183	16	27	24	3	14	6	5
Arts	46	4	2	2	1	5	5	4
Science	110	10	3	3	0	0	2	2
The Social Sciences	295	26	7	6	8	38	68	57
Technology	397	35	73	64	3	14	5	4
Institute of Education	102	9	1	1	6	29	33	28
<b>Total</b>	<b>1,133</b>	<b>100</b>	<b>113</b>	<b>100</b>	<b>21</b>	<b>100</b>	<b>119</b>	<b>100</b>

Table 2 shows the percentage of publications type (journal article, in-proceedings, book and in-book) examined based on the faculty. From the findings, Faculty of Science had the highest journal articles (397) submitted for IR inclusion while Faculty of Arts had the lowest (46). On the proportion of conference papers, Faculty of Technology emerged with the highest in-proceedings (73) while Institute of Education recorded the least. Table 2 also revealed that Faculty of the Social Sciences had the highest number of book and book chapter publications while Faculties of Arts and Sciences recorded the lowest publications in the categories of book and in-book respectively (See Table 2).

**Research Question 2:** How visible are the intellectual outputs submitted to UIIR on World Wide Web (WWW)?

Table 3 reported the visibility level of some lecturers' journal articles submitted for University of Ibadan Institutional Repository.

**Table 3: Journal article visibility on the web based on faculty**

Faculty	Visible						Not visible	
	Citation		Full text		Abstract		Invisible	
	No.	%	No.	%	No.	%	No.	%
Agriculture	19	9	61	13	35	17	68	27
Arts	15	7	23	5	5	2	3	1
Science	8	4	55	12	21	10	26	10
The Social Sciences	37	18	106	23	90	42	62	24
Technology	59	29	199	44	50	24	89	34
Institute of Education	69	33	12	3	11	5	10	4
<b>Total</b>	<b>207</b>	<b>100</b>	<b>456</b>	<b>100</b>	<b>212</b>	<b>100</b>	<b>258</b>	<b>100</b>

Table 3 revealed that majority of the journal articles with citation were associated with the Institute of Education (33) while Faculty of Science recorded the lowest percent (4). Visibility of full text paper according to Table 3 also shows that Faculty of Technology had the highest percent (44%) while Institute of Education had the least (3%). Based on the visibility of abstract, the Faculty of The Social Sciences had the highest percent of visibility (42%) while the lowest percentage of abstract visibility was found in Faculty of Arts. Out of 1,133 journal articles examined, 258 were not visible through any online platform. With the presence of the University of Ibadan Institutional Repository, all the accessed journal articles were being represented on the platform. Carlson, Ramsey and Kotterman (2010) submitted that dissemination of an institution's intellectual outputs could be achieved through repository to enhance their visibility and access. This submission corroborates the submission of the author on the high visibility of the university's IOs in terms of journal articles. Findings of this study on web presence of journal articles is also in agreement with Jones and Evans (2013) who found that wider visibility of IOs increased awareness and citation frequency.

Table 4: In-proceedings visibility on the web based on faculty

Faculty	Visible						Not visible	
	Citation		Full text		Abstract		Invisible	
	No.	%	No.	%	No.	%	No.	%
Agriculture	6	14	3	17	0	0	18	42
Arts	2	5	0	0	0	0	0	0
Science	0	0	0	0	0	0	3	7
The Social Sciences	1	2	2	11	0	0	4	9
Technology	33	77	13	72	9	100	18	42
Institute of Education	1	2	0	0	0	0	0	0
<b>Total</b>	<b>43</b>	<b>100</b>	<b>18</b>	<b>100</b>	<b>9</b>	<b>100</b>	<b>43</b>	<b>100</b>

In order to ascertain the visibility level of the papers presented at conferences, the submitted publications under this category was examined by faculties and institute studied. Table 4 revealed that all the in-proceedings submitted to this category from the Faculty of Arts and Institute of Education recorded only citation visibility. On full text publication visibility, majority of the in-proceedings from the Faculty of Technology were found visible. Table 4 also shows that 43 in-proceedings were not visible at all. Visibility of in-proceedings based on abstract was only found in Faculty of Technology. In fact all the publications submitted under this category from the Faculty of Science were not visible. This finding corroborates the submission of Couper (2018) who opined that low visibility of IOs was among the factors that affected awareness, access and their use. Also some conference proceedings were not published online, hence, could be attributed to their lack of visibility. Buehler and Trauernicht (2007) submitted that the conversion of non-digital IOs to digitised format would tremendously populate web presence with IOs for wider visibility.

**Table 5: Book visibility on the web based on faculty**

Faculty	Visibility						Not visible	
	Citation		Full text		Abstract		Invisible	
	No.	%	No.	%	No.	%	No.	%
Agriculture	1	10	0	0	0	0	2	20
Arts	0	0	0	0	0	0	1	10
Science	0	0	0	0	0	0	0	0
The Social Sciences	1	10	0	0	1	100	6	60
Technology	3	30	0	0	0	0	0	0
Institute of Education	5	50	0	0	0	0	1	10
<b>Total</b>	<b>10</b>	<b>100</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>100</b>	<b>21</b>	<b>100</b>

Table 5 revealed that Faculty of Science had no publication for book examination. The Table further shows that there was no book found visible under full text category. This could be due to lack of awareness on the part of the author or copyright of the publication. It may also be restricted due to multiple authors' involvement. This finding is in line with Couper (2018) who submitted that visibility of textbooks and their authors was low. Out of 21 book publications examined, half of them were visible through citation while half were not visible at all. Highest book visibility through citation was recorded against Institute of Education. On this note, a single author book could be displayed on institutional platform like Institutional Repository which would enhance the visibility and awareness of such publication. Correia and Teixeira (2005) submitted that lack of web presence would negatively affect the visibility, access and citation of IOs.

**Table 6: In-book visibility on the web based on faculty**

Faculty	In-book Visibility						Not visible	
	Citation		Full text		Abstract		Invisible	
	No.	%	No.	%	No.	%	No.	%
Agriculture	3	5	0	0	0	0	3	5
Arts	4	8	1	17	0	0	0	0
Science	0	0	0	0	0	0	2	4
The Social	18	34	3	50	2	67	45	79

Sciences								
Technology	4	8	0	0	1	33	0	0
Institute of Education	24	45	2	33	0	0	7	12
<b>Total</b>	<b>53</b>	<b>100</b>	<b>6</b>	<b>100</b>	<b>3</b>	<b>100</b>	<b>57</b>	<b>100</b>

Table 6 showed that Institute of Education had the most in-book (45%) visibility through citation, followed by Faculty of The Social Sciences with (34%). The least visible by citation category was the Faculty of Agriculture with five percent. In terms of full text and abstract categories visibility, Faculty of The Social Sciences had 50% and above while the least emerged from the Faculties of Arts and Technology respectively. Table 6 also revealed that Faculty of The Social Sciences had the highest rate of invisible in-book while Faculty of Science had the least. None of the submitted in-books from the Faculty of Science was found visible. From the findings of this study, it could be observed that web presence of in-books was low. This finding is in agreement with Asubiaro (2017) who posited that library websites that were to be hubs for showcasing IOs were visible at low ebb. High level of invisible in-book could be due to format in which they are made available. It would be difficult to make paper format IOs accessible through the IR and other platforms for wider dissemination. Hence, the need for digitisation of paper format IOs in order to fit into various dissemination platforms such as IR. Carlson, Ramsey and Kotterman (2010) asserted that digitisation initiative would enhance visibility and access regardless of location of the IOs or the potential users.

All type of publication should be visible for easy access and use. Invisible publications should not exist where IR is up and running. Sensitisation programmes should be carried out to create awareness and benefits of having publications visible on the university repository. This submission is in line with Martin-Yeboah, Alemna and Adjei (2018) who opined that essence of IR is to boost the web presence of IOs of institutions. Visible publications especially through the university IR would enhance more use and in turn experience higher citation. International and national collaborations and partnerships could emerge as a result of institutional visibility of lecturers' intellectual outputs. The findings on IOs wider visibility is in agreement with



Lawrence (2001) submission who stated that better citation of intellectual outputs would lead to better awareness and use of IOs.

### **Conclusion**

This study examined the visibility status of the IOs of some of the University of Ibadan lecturers. Lecturers at the University of Ibadan have contributed immensely to the body of knowledge through research and scholarly publications been referred to as intellectual outputs. Most prominent among their intellectual outputs are journal article publications. Faculty of Technology had majority of the journal articles among the Faculties and Institute studied. Majority of the book chapters that were not visible were found in the Faculty of The Social Sciences. Lack of web presence of some of these intellectual outputs would deny IOs of wider visibility and citation. There is need for institutional representation of universities' intellectual outputs to enhance central and holistic visibility, access, and use by users regardless of location. It is paramount to take drastic steps to bridge the digital divide for better representation and visibility through university institutional repository. More university lecturers' intellectual outputs injection into the UIR should be given topmost attention.

### **Recommendations**

The following recommendations are proffered:

- Universities should encourage lecturers to deposit their intellectual outputs in the institutional repository.
- Lecturers should be enlightened on the benefits of IOs deposit in the university institutional repository.
- Digitisation section should be established/improved upon to enhance transformation of print IOs to digital format for better visibility of intellectual outputs.
- Lecturers should publish more in online Open Access Journals and publishing outfits as they encourage populating of free full text intellectual outputs on different platforms.

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