Regression Analysis on Publication Views and Downloads of a Philippine Journal and Its Implications to Quality Journal Management and Monitoring

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Abstract

Journal Management and Monitoring is not only about publishing articles both online and in print, but includes understanding by using available empirical data how published articles are making impact in the research community. This study, an excerpt, aimed to find a correlation between the abstract view and file view of fifty-three (53) published articles in a Philippine Journal from March 2019 to April 2020. Findings showed that abstracts are viewed more often than files, and that files are viewed more than they are downloaded. Results revealed that the two variables are statistically significantly correlated with a strong positive linear correlation, and a regression equation (y = 0.27x + 5.03) was developed to estimate future increase in the dependent variable, or File View. Recommendations on the revision of the Author Guidelines of the Philippines Journal as well as a Training on Abstract Writing were recommended.

Keywords: Correlation, Journal Management, Journal Monitoring, Open Journal System, Regression Analysis

INTRODUCTION

Among State Universities and Colleges in the Philippines and abroad, research publication is a serious activity for every faculty member. A faculty to be considered a researcher needs to have a research published in a peer-reviewed journal, and just recently, in fact, he or she needs to have his or her published paper get cited by other published paper/s in still peer-reviewed journals. This is not only for promotion purposes but to live by the term 'higher' education itself. If there is any component of the trifocal system of education in the country that takes researching seriously, it is the Commission on Higher Education where all SUCs belong.

Camara and Ventayen [1] found conclusive evidence using document transcripts of published articles that senior multidisciplinary researchers are utilizing published articles from journals less than articles directly available in the internet. Dela Peňa *et al.* [2] had the same finding among undergraduate authors in one Philippine journal that empirical studies are utilized less than internet-based articles. Retuya and Castro [3] had the same finding when they concluded that empirical studies are read less by special science researchers as evidenced by the small number of references found among unpublished full scientific papers. What do these findings tell us is that when published papers are consulted or are read less, then findings in those published papers are consequently communicated less. Finally, when findings are communicated less to the general public, there would always be a gap in a scientific issue that could have already been addressed should findings are consulted more or are read more. We can infer that the real battle in research is not to do research but to enable people to know the research 'exists' once published.

Abramo *et al.* [4] noted that faculty members who are occupying higher academic ranks have less time for research activity due to their designations and other administrative functions. Coccal and De Vera advised [5] that the research to be conducted should address gaps in the existing body of knowledge if not to generate new or noble results and duplicating research conducted worldwide limits the chance of a researcher to get his paper published.

Writing for publication is not an easy task. It is the belief of the researcher that there are still faculty members in the SUCs who are not writing research because they are not fully equipped with the concepts on how to do it and the skills to write it. Camara [6] has developed an approach which came to be known as START Approach. This approach is a simplified and practical tool for beginning researchers which could be of help not only for those 'beginning' but to those who would like to 'start to begin' learning. In a different study, Camara [7] analysed research abstracts in the field of scientific research and classified them using web-based sentiment analysis and text mining and his approach was called 'Sentheme Mining'. He found that neutrally-worded abstracts were prone to rejection.

What all these literature suggest, aside from all other good reads that are not cited, is that attracting readers to read our papers is as important as writing the papers themselves. While good writing does always equate to fast publication, it is still a good rule of thumb to know how a paper's publication is impacting a journal's readership.

OBJECTIVES OF THE STUDY

The main purpose of this study, an excerpt, is to perform a regression analysis on the publication data generated through the Open Journal System Article Generator from March 2019 up to April 2020 with the hope to determine areas of the Philippine Journal of Natural and Social Sciences that could be improved for quality journal management and monitoring.

Specifically, this study would answer the following statistical questions:

1. What is the mean performance of the journal in terms of Abstract View (AV) and File View (FV) from March 2019 to April 2020 when classified in terms of Natural Science papers (NSP) and Social Science Papers (SSP)?

2. Is there a significant difference between the AV and the FV of the NSP and SSP during the publication period from March 2019 to April 2020?

3. Are the AV and the FV statistically related at the 0.05 level of alpha?

4. Is the FV statistically dependent to AV?

5. What regression equation could be used to predict performance of the articles after April 2020?
6. What journal management guidelines could be used to enhance the quality of the published articles of the journal?

MATERIALS AND METHODS

The study employed a correlational method of research. According to Fraenkel & Wallen [13], in their simplest forms, correlational studies investigate the possibility of relationships between only two variables, although investigations of more than two variables are common [11]. Further, when a correlation is found to exist between two variables, it means that scores within a certain range on one variable are associated with scores within the second variable. Finally, a correlational research is carried out for one of two basic purposes – either to help explain important human behaviors or to predict likely outcomes. Thus, the use of a correlational method in this study is justified.

In this study, data were collected from March 2019 to April 2020 for every article that was published in the Philippine Journal of Natural and Social Sciences. These empirical data were generated through the Open Journal System of the PARESSU, Inc. The scores in the reports that were not of interest to the study were excluded, while the two variables of interests, i.e. the Abstract View and the File View, were tabulated. The Abstract View (AV) was herein referred to as Publication View, and the File View (FV) was herein referred to as Download.

The data were analyzed through Data Toolkit as it is found user-friendly and provides report quickly. Regression Analysis was performed to determine the coefficient of correlation and coefficient of determination, and of course the regression equation. A scatterplot was also performed to validate or cross-check the regression equation to be able to estimate the future increases in the dependent variable.

RESULTS AND DISCUSSION

Individual Profile for Social Science Cluster

Table 1. Frequencies of AVs and FVs of Published Articles under Social Science Cluster *(N=24)*

Code	AV	FV
S1	224	53
S2	138	44
S3	132	41
S4	55	13
S5	40	26
S6	35	19
S7	38	15
S8	35	15
S9	5	45
S10	25	14
S11	22	16
S12	18	9
S13	21	4
S14	21	3
S15	17	6
S16	7	7
S17	7	5
S18	9	3
S19	7	4
S20	5	4
S21	5	2
S22	1	3
S23	0	4
S24	0	3
Mean	***36.13***	***14.92***

Generally, Table 1 reveals that the mean view of abstracts of the Philippine journal under the Social Science Cluster is 36.13, and the mean view of the PDF File is 14.92. Clearly, the Abstract View is 21+ points higher than the mean File View. This could be explained by the fact that in an Open Journal System, the Abstract View is shown first, while the File View is only seen when the reader clicks on the galley of the article denoted with 'PDF' just below the article's names of authors.

Individual Profile for Natural Science Cluster

Table 2. Frequencies of AVs and FVs of Published Articles under Natural Science Cluster *(N=29)*

Code	AV	FV
N1	119	54
N2	111	54
N3	82	32

N4	86	16
N5	49	34
N6	52	24
N7	48	16
N8	45	17
N9	36	20
N10	21	31
N11	31	19
N12	37	5
N13	33	5
N14	25	12
N15	25	5
N16	19	9
N17	19	8
N18	20	6
N19	18	8
N20	18	6
N21	12	11
N22	15	8
N23	13	4
N24	13	4
N25	13	2
N26	10	3
N27	5	6
N28	5	3
N29	2	2
Mean	***33.86***	***14.62***

Generally, Table 1 reveals that the mean view of abstracts of the Philippine journal under the Natural Science Cluster is 33.86, and the mean view of the PDF File is 14.62. Clearly, the Abstract View is 19+ points higher than the mean File View. As findings. The Abstract is readily shown compared with the PDF File.

Comparative Descriptive Statistics of AVs and FVs of the Philippine Journal (n=53)

Table 3: Summary of Descriptive Statistics for both Social and Natural Science Clusters *(n=79)*

Abstract View	*Data*	*File View*	*Data*
Mean	34.89	Mean	14.75
Standard Error	5.80	Standard Error	2.02
Median	21.00	Median	8.00
Mode	5.00	Mode	4.00
Standard Deviation	42.25	Standard Deviation	14.68
Sample Variance	1784.76	Sample Variance	215.50
Kurtosis	7.60	Kurtosis	1.28
Skewness	2.54	Skewness	1.48
Range	224	Range	52
Minimum	0	Minimum	2
Maximum	224	Maximum	54
Sum	1849	Sum	782
Count	53	Count	53

Table 3 shows that the Abstract View of the Philippine Journal is 34.89 with a standard error of 5.80, while the File View is 14.75 with a standard error of 2.02. Clearly, the Abstract is 20+ points views higher than the File View. This is a huge difference. This implies that the articles abstracts' in the Philippine journal are viewed more than the articles PDFs', and by extension, this could mean that the articles are viewed more than they are in the Open Journal System coul help explain therse

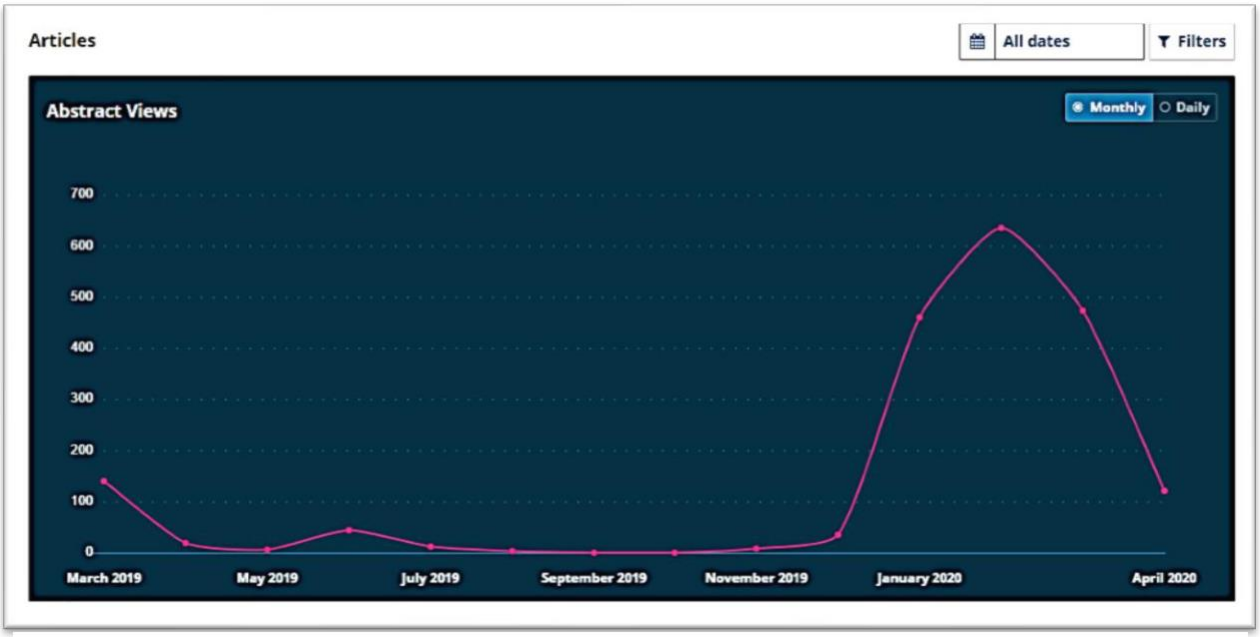

Figure 1. The Abstract View of the Philippine Journal from march 2019 to April 2020.

downloaded. This behavior of the readers implies that there are reasons of their inability to get attracted by the Abstract to enable them to read the entire full paper. Interestingly, there are articles whose abstract received no views (Min: 0) but there was view of the File (Min: 2). This could be an outlier that the reader opt to view the entire File rather than the Abstract because the File View contains the Abstract as well, and anyway.

Figure 1 is a result showing the Abstract View of the Philippine Journal generated through the Open Journal System with period 'All dates' from March 2019 to April 1, 2020. Figure shows that the articles are not view as high as the number of views during the first quarter of 2020. This could be explained by the fact that during the first quarter, the articles that were accepted for publication for Volume 4, Issue No. 1 are uploaded.

During the first quarter of 2020, the abstract views reached as high as almost 600+ views compared with the July to November 2019 when there were zero views in the Philippine journal. This means that the Philippine Journal OJS is visited more

frequently when articles are uploaded, and they are viewed less or not at all when no articles are uploaded. When the December 2019 Issue articles (Vol 3. No 1) were uploaded, the graph started with its 'going up'.

Significant Difference between AV and FC of both Natural and Social Science Clusters at 0.05 alpha

Table 4: t-Test of Independent Samples

	Abstract View	*File View*
Mean	34.8867925	14.75471698
Variance	1784.75617	215.4963716
Observations	53	53
Hypothesized Mean Difference	0	
df	64	
t Stat	3.27705756	
P(T<=t) one-tail	0.00084849	
t Critical one-tail	1.66901303	
P(T<=t) two-tail	0.00169698	
t Critical two-tail	1.99772965	

Table 4 provides a statistical confidence that there is a significant difference *(p<0.05,0.01)* between the AV and the FV. The mean views tell us that the AVs are statistically higher than the FVs.

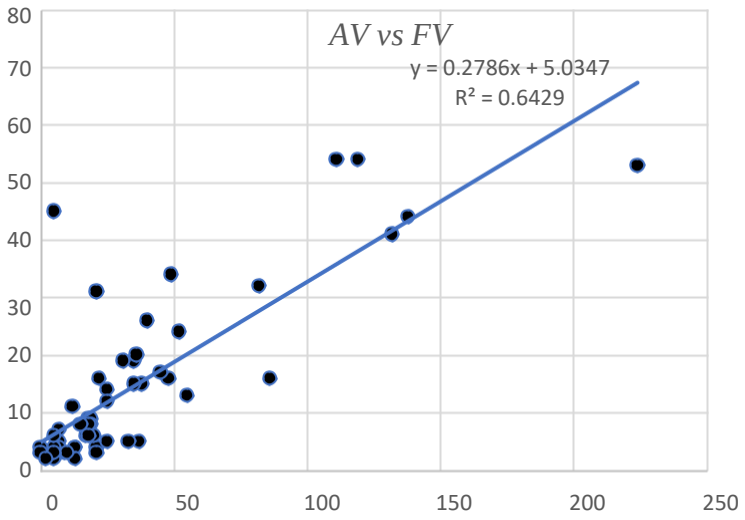

Figure 2. Scatter Plot of Av and FV showing linear relationship

Regression Analysis for AV and FV

Table 5: Regression Statistics

Regression Statistics	
Multiple R	0.801815
R Square	0.642907
Adjusted R Square	0.635906
Standard Error	8.857822
Observations	53

ANOVA

	df	SS	MS	F	Significance F
Regression	1	7204.3	7204.3	91.82013	5.41E-13
Residual	51	4001.511	78.46101		
Total	52	11205.81			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	5.034727	1.584091	3.178306	0.002518	1.854531	8.214923	1.854531	8.214923
AV	0.278615	0.029076	9.582282	5.41E-13	0.220243	0.336988	0.220243	0.336988

Table 5 presents the statistics necessary to answer research questions 3, 4, and 5. To answer research question number 3 whether the AV and the FV are statistically related, we look at the value of the Multiple R which is 0.80 [10]. Figure 2 shows the scatter plot between the AV and FV and we can say that they are have a linear relationship, and they increase together. Thus, the relationship is positive linear relationship. The relationship is strong [8].

To answer the research question number 4, whether or not the FV is statistically dependent to the AV, we look at the r^2 of Table 5, [9] the Coefficient of Determination. It tells you how many points fall on the regression line. for example, 64% means that 64% of the variation of y-values, i.e. the FV around the mean are explained by the x-values, i.e. the AV. In other words, 64% of the values fit the model. Therefore, the answer to research question number 4 is Yes, the FV is statistically dependent with the AV.

To answer the research question number 5 on what regression equation could be used to predict the future performance, they could be answered by Table 5 and Figure No. 1. The **regression equation** [3-5] **is y = 0.27x + 5.03.** This means that using this regression equation, the File View could be estimated. If the trend continues, it might be that, the equation means that for every one (1) file view, the file view will be 5x more. Supposed that 'S1' which

has already been view (Abstract) with 224, is viewed by 20x more making it 244, and using the regression equation of y = 0.27 (244) + 5.03, gives it a File View of 70.91, or 71 File Views. Thus, its File View of 53 when the Abstract View is 224 has increased by 19 views more.

The researchers found the following principles implied by the results:

1. Quality of written abstracts are vital in a selective readership.
2. Research titles [6] have to be competitive and have to provide a ready glimpse on what the study 'and result' are saying
3. Visibility of the authors in online research community is important as well.

CONCLUSIONS AND RECOMMENDATIONS

The researchers found that:

1. the mean performance of the Philippine journal is higher in the Social Sciences cluster for both Abstract View and File View;
2. a significant difference is found between the abstract view and the file view of both the natural science and social science cluster, with the abstracts conclusively viewed more than the files;
3. the abstract view and the file view are statistically correlated at 0.80 correlation;
4. the File View is statistically dependent to the Abstract View by 64.29%; and
5. a regression equation of $y = 0.27x + 5.03$ was developed to estimate future FV increased based on available data on AV.

The researcher recommends the following:

1. revisions on existing author guidelines to fit Open Journal System standards; and
2. a Training in Abstract Writing is encouraged to be conducted on the last quarter of 2020 for Filipino writers.

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