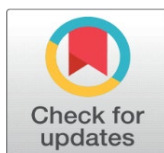# EDUCATION IN CIVIL ENGINEERING THROUGH JOURNALS PUBLICATIONS: THE RELATION BETWEEN THE PUBLICATION TIME AND ITS REGIONAL RANKINGS

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ABSTRACT

The fast and quality dissemination of research breakthroughs via journals is essential to the researchers. Hence, this study analyzed the average duration for Civil Engineering journals based on the points allocations in Poland's Ministry of Science and Higher Education (MEiN) list. A total of 30 journals were randomly selected and grouped based on the regional points allocation. The date of submission to the date of acceptance (SA) and the date of acceptance to the date of publication (SP) were extracted from 3557 articles. Version 26 IBM Statistical Packages for Social Sciences (SPSS) was used to analyze the average duration for the dataset. Multivariate Analysis of Variance (MANOVA) was used for the analysis of the relationship between the points allocation and the Scopus impact factors (IF), Web of Science impact factors (WoS IF), source normalized impact per paper (SNIP), SA, and SP. The results show that the average duration SA and SP for journals with 200, 140, and 100 points within the 5 years are 305.28, 285.25, 317.93 days, respectively, while for journals with 70, 40, and 20 points, the average duration is 180.50, 324.60, 206.41 days. Further analysis shows a statistically significant difference between the Scopus IF, WoS IF, SNIP, and allocated points. They indicate that these journal metrics affect journal categorization.

Keywords: Article, Average Duration, Education, Impact Factor, Ministry of Science and Higher Education, Research, Points, Source Normalized Impact Per Paper

1. INTRODUCTION

Pre-college is an academic experience that aids high school students to prepare in transition for the college life. Research publication is not a common phenomenal at this phase of the students' career. Though, these students are more likely to pursue a career in engineering after completing their pre-college studies according to Miller et al. (2020). The task at this level is tailored towards commitment to research, collaboration, and engineering literacy with the objective of greater command of the engineering design, awareness, and capacity for teaching Marshall

& Berland (2012). University education in civil engineering on the other hand focuses on the exploration, implementation, and exploitation of innovation using a systematic approach, such as information technology, energy, and transportation systems. After obtaining both theoretical and practical research knowledge, graduates in this discipline are awarded a scientific degree.

Research is often a slow process, requiring careful design, optimization, and replication of experiments. When enough data has been obtained to write a manuscript, researchers will likely want to publish it as soon as possible. The rapid publication can accelerate the dissemination of results, reduce the chances of being scooped, and allow a faster return to the laboratory to work on the subsequent study. Most National Science Centre competitions operate based on April 30, 2010, Act, where scientific publications are part of the evaluated criteria for researchers applying for grants, internships, and projects.

More than 1.5 million scholastic articles in various academic fields are published annually, according to a survey by Elsevier; therefore, peer review becomes a prominent instrument for determining which research should be brought to the attention of other researchers. In 2021, Elsevier published over 600,000 peer-reviewed papers, which was an increase of 89% greater than total ten years ago. Some journals are published on the internet and while others have a combination of internet publication and the hardcopy. Several articles have been published on delays in the publication of scientific materials Björk & Solomon (2013), Dong et al. (2006). Publication delays for scholarly articles may be lengthy or brief. In his research, Haustein (2012) considered brief delays as a quality indicator demonstrating the relevance of scientific journals.

In a world, full of information emanating from several publications, it is imperative that standard for measuring the impact of these publications be established. The journal metrics are important for the evaluation and selection of the quality of journal to publish in. These metrics are published on a yearly basis in the websites of major journal databases e.g., Scopus, google scholars and WoS. According to Elsevier. (2023a), some of the journal metrics outlined are citescores, SCImago Journal Ranking (SJR), SNIP, Journal Impact Factor (JIF) etc. In this study, the authors will test the hypothesis that there is a relationship between the MEiN points allocation and journal metrics (WoS IF, Scopus IF, SNIP, citescore, SJR) etc.

This study examine the average duration of article publication and their point allocation in the Polish Ministry of Science and Higher Education. The following objectives will be achieved:

- Determine the average duration of article publication from manuscript submission to publication by examining the points listed.
- Examination of the relationship between journal metrics (WoS IF from the journal citation report (JCR), Scopus, SNIP etc. and the points allocated in the MEiN list.

The novelty of this study was that it analyzes the duration of publication and the points apportioned in civil and transport-engineering journals listed. In contrast, the relationship between some journal metrics and the points allocated is examined. This study will help pre-college students and researchers select an efficient and quality journal for their manuscripts. At the same time, the Ministry of Science and Higher Education can review the points allocated. This study was limited exclusively to Civil engineering and transport areas of specialization. Hence, professionals in different branches of this field were the respondents.

2. LITERATURE REVIEW
2.1. CIVIL ENGINEERING EDUCATION AND RESEARCH

According to Zhao et al. (2018), engineering innovation and training platform is described as an open ecosystem with university, students and organization as a unified entity that collaborate. The need for interaction between the industry and the civil engineering training has become important Chakrabarti (2016). Gamayunova (2015) in a proceeding, reiterate that academic reputation of institutions is characterized based on the number of applicants and scientific activities carried out in different areas of the department. In making the results of academic researchers visible, institutions have encouraged their teachers to register their works in various scientific databases.

The sustainability of engineering education is dependent on the commitment of key management through the integration of several levels of the university structure Sigahi & Sznelwar (2023). De Bronstein et al. (2023), described the role of higher education in the development of future engineers as transformational agent. In their study, they affirm that sustainability and entrepreneurial skill should be the basic element for students to obtain the methodical approach to the challenges of humanity. The introduction and use of teaching tools and application e.g., CAD, virtual reality, augmented reality etc. in the field of civil engineering will aid research work and provide support for the engineers Sampaio et al. (2010).

2.2. CONCEPT OF PEER-REVIEW

According to the Cambridge dictionary, peer review is the process of a scientist or expert in the same field perusing, evaluating, and commenting on the work of another scientist or expert in the same field, or the product of this process. Prior to publication, peer review is a proved method for evaluating the quality of research and its presentation. Editors and evaluators with extensive expertise in the relevant field who are anonymous and highly competent evaluate the submitted manuscripts. The validity and originality of the manuscripts are evaluated on multiple levels. The primary objective is to publish a ground-breaking article in its field of study. In addition, it provides authors with feedback to enhance the content of their research papers prior to publication. The peer review process evaluates the validity, significance, and originality of the work, as opposed to the author. Elsevier in their write up, grouped peer-review into single, double, triple anonymized and open reviews with the general aim of achieving transparency Elsevier. (2023b). In the Guardian news report of 7th May 2015, peer review is described as a complex exercise carried out by busy people. This sometimes contribute to the imperfect process.

In the opinion of Spier (2002), peer review is described as a turf battle with the grand prize of knowledge, science, and doctrine being published. Journal peer review has a variety of primary goals. One is to determine whether a work fulfils the requisite quality and originality standards for publication in a particular journal Mayden (2012) following its mission and editorial policies. In other words, the peer review process aims to provide a quality mark that can serve as an indicator of trustworthiness for non-expert readers Jubb (2016). Kelly et al. (2014) Peer review also aims to determine whether the paper will appeal to the journal's audience. Peer review has an essential curatorial function in which authors implement feedback from editors and peer reviewers to refine and improve their manuscript, sometimes as part of a lengthy and frequently iterative process.

2.3. ARTICLE PUBLICATION REVIEW PROCESSES AND PROCEDURES

Publication timeliness is one of the most important factors authors consider when selecting a journal for manuscript submission. Publication schedules for submitted manuscripts vary by journal and field of study. Chen et al. (2013) in their study, divided the duration of publication into two segments; acceptance time which was described as the duration from first manuscript submission to acceptance. Here is where the peer review process actually takes place. The second segment is referred to as the publication time; from acceptance of manuscript to publication. Huth (1999) in his opinion stated that "quality of the article, novelty, features of the authors could have influence on the speed of publication" while he did not rule out completely that the reviewers may be responsible for the delays in the publication time. Taşkın et al. (2022) further corroborated this in their work on the factors affecting publication duration. They listed features of the authors, number of authors and countries of the researchers as the contributing factors of publication time.

Mohanty et al. (2021), in a study on the speed of publication in anaesthesiology journal noted that the average of 186 days is required for manuscript submission to publication. They also observed that there was no correlation between publication pace, impact factor (IF), and article publication fee (APC). Using a stratified random sample of 135 journals indexed in Scopus, Björk & Solomon (2013) examined the average waiting period in journals. They discovered that science, technology, and medicine have the minimum delays, while social sciences, humanities, business, and economics have the longest. Weak association was discovered between delays in publication times and the IF. Journal with high IF was observed to have a lower delay times Sebo et al. (2019).

2.4. OVERVIEW OF THE POLISH MINISTRY OF SCIENCE AND HIGHER EDUCATION JOURNAL LIST

The ministry was established in May 2006 to connect with students, universities, and researchers. The ministry's management is under the Minister of Education and Science, secretary of State, 4 Secretaries of State for monitoring and implementing scientific reforms and higher education, education functions, research institutes, development education and science, and a general director. The ministry is currently divided into ten (10) departments and several agencies, amongst which are National Centre for Research and Development (NCBR), Polish National Agency for Academic Exchange (NAWA), and National Science Centre (NCN).

In the bid to improve and encourage scientific activities, the ministry has the list of scientific journals, list of publishing houses with peer review monographs, finances for sciences, programs for scientific institutions, translations of new scientific achievements into English language. The first edition of the list of scientific journals was released on 13th July 2012 while the second edition was released on 25th January 2017 based on the comprehensive evaluation of the years 2013-2016. This was divided into 3 parts as shown in Table 1.

Table 1

Table 1 Inaugural Edition of the List of Scientific Journals (Mein, 2022)			
Number of parts	Basis for journal listed	Number of journal listed (2012)	Number of journal listed (2017)
Part A	Number of points for publication in scientific journals with an impact factor in the database of Journal Citation Reports	10,230	11,737
Part B	Number of points for publication in scientific journals without impact factor	1,854	3,080
Part C	Number of points for publication in scientific journals in the European Reference Index for Humanities Database	4,337	4,197

The Act of July 20, 2018- Article 267, section 3 of the Law on higher education and science (Journal of Law, item 1668 as amended), the third edition of the list of scientific journals with allocated points, was released in 2019. A total of 29,037 journals and 1639 conferences and seminars were listed. These journals were divided into Forty-four (44) specializations and grouped based on a point basis, as shown in Figure 1. In 2021, 3639 journals were added.
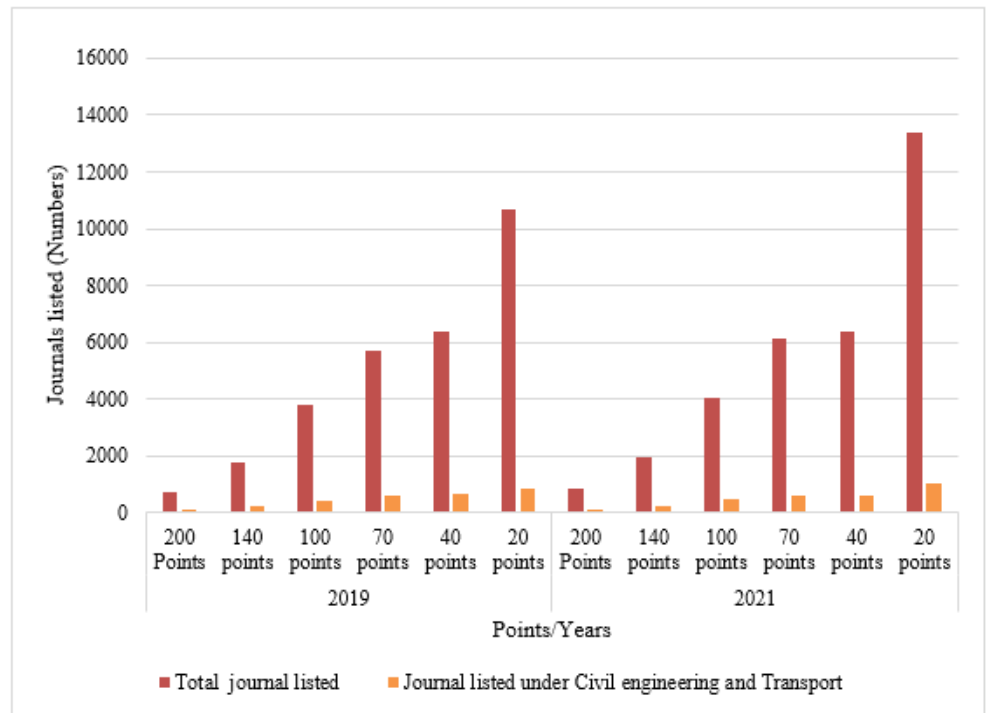
Figure 1

Figure 1 Comparison of the Total Number of Listed Journals and the Journals Under the Civil and Transport Engineering.

3. MATERIALS AND METHODS
3.1. PILOT SURVEY

The field of Civil engineering and transport was segmented into different branches. A survey was carried out using questionnaire to determine the frequency

of publication in different branches. A total of 100 Academicians and researchers in the field of civil engineering and transport within the country participated in the survey. From the results in Figure 2 the top five area of specializations chosen are; Material engineering, Construction engineering and management, Geotechnics and hydrotechnics, Roads and Bridges and Environment protection. The journals in these areas of specialization were randomly selected.

Figure 2
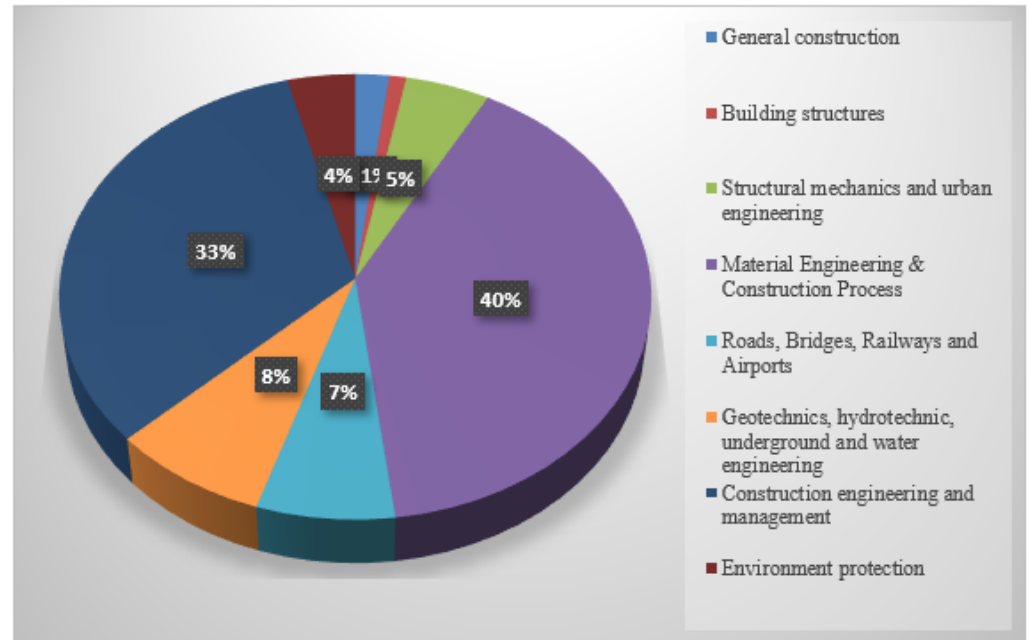
Figure 2 Area of Specialization

3.2. DATA COLLECTION

The publication history of 30 leading journals under the specialization of Civil and transport engineering in the Polish MEiN list were searched. Each journals were categorized based on the point allocated in the MEiN. Five journals were randomly selected per each point category. The selected journals are indexed in the Scopus and WoS databases. All articles approved for publication between January 1, 2017, and December 31, 2021, were listed. For each article, the authors extracted the total number of days between the date of manuscript submission to the journal and the date of acceptance. In addition, the number of days between the date of acceptance and the date of paper publication (print) or publication online was also extracted.

Articles lacking these dates and non-research articles (e.g., letters to the editor, comments, errata, notes, forum, etc.) were excluded. 24 articles were chosen at random based on the number of issues per year. In this case, two articles were selected at random from journals with 12 issues per year, while 6 articles were selected at random from journals with 4 issues per year. In journals with less than 24 articles per year, all articles within the year are selected. At the end of the collation, 3557 articles containing the required information were searched. Additionally, five years IF, SNIP, citescores, the number of citations per year for each journals were obtained from the Scopus database while the IF for the JCR were obtained from the WoS database.

3.3. DATA ANALYSIS

The average duration was calculated using Equation 3-1. The data was obtained from the submission date to the date of acceptance (SA) for each article, and the same was done from the date of acceptance to the publication date (SP). The average duration for each year was calculated as shown in Table 2 and IBM SPSS version 26 was used to evaluate the data.

$$A = \frac{1}{n}\sum_{i=1}^{n} a_i \tag{3-1}$$

Where:
A -Mean of the duration
n – Number of values
a_i- Dataset values

Table 2

Table 2 5-Year Average Duration of Articles in Different Journals and Point Allocation											
Points	**Journals**	**2017 (SA)**	**2017 (SP)**	**2018 (SA)**	**2018 (SP)**	**2019 (SA)**	**2019 (SP)**	**2020 (SA)**	**2020 (SP)**	**2021 (SA)**	**2021 (SP)**
	A	71.25	12.96	41.96	24.21	95.21	25.58	171.13	10.33	203.33	28.33
	B	131.17	45.67	136.33	55.29	147.50	75.50	131.38	34.92	94.83	22.04
200 Points	C	143.92	36.50	142.17	42.63	146.33	34.13	207.75	48.38	198.04	40.38
	D	595.08	300.21	395.13	219.75	385.13	317.54	484.00	207.38	470.58	187.25
	E	140.92	33.67	214.00	36.67	167.46	41.83	325.67	38.42	421.54	50.83
	F	186.33	14.83	237.83	12.92	152.71	12.92	198.79	20.29	296.21	23.38
140 Points	G	266.83	41.42	270.13	18.21	394.38	18.50	281.38	19.88	235.50	21.71
	H	303.33	23.42	232.63	9.42	211.38	16.33	195.79	21.33	252.63	16.08
	I	310.17	22.58	246.42	17.88	282.71	26.54	320.38	29.04	244.54	34.96
	J	276.75	7.67	308.13	7.83	384.83	9.96	315.21	7.50	258.08	13.79
	K	293.00	14.33	281.54	13.17	253.46	19.58	281.88	11.83	296.46	12.63
100 Points	L	565.67	114.38	679.04	48.54	432.88	107.88	390.08	39.00	514.29	43.58
	M	180.79	78.46	155.42	120.88	183.04	151.13	194.50	131.75	196.38	105.75
	N	124.08	80.79	151.58	111.79	158.25	144.54	165.58	114.58	167.63	84.29
	O	145.79	3.46	131.92	5.08	144.46	8.54	107.00	18.71	152.67	16.42
	P	108.79	108.42	149.00	133.04	191.08	181.79	110.54	149.33	52.25	109.17
70 Points	Q	146.42	87.00	123.79	22.75	124.67	35.29	143.63	2.54	134.08	7.29
	R	50.50	23.38	75.54	56.54	65.63	46.92	104.54	69.08	130.21	63.50
	S	72.25	98.54	82.25	95.96	87.25	62.58	105.88	81.42	76.67	51.29
	T	171.67	21.88	186.00	17.71	145.04	20.83	147.63	21.04	129.67	30.46
	U	275.67	428.38	208.71	249.42	138.92	219.38	193.83	298.92	149.04	360.46
40 Points	V	107.75	61.92	84.83	119.42	91.33	99.25	148.42	95.58	165.75	75.63
	W	310.00	79.83	345.79	123.25	236.58	78.58	245.29	64.50	208.71	85.33

	X	244.83	49.96	135.13	32.67	191.67	19.13	379.83	20.96	172.96	30.13
	Y	166.88	127.92	160.08	189.33	127.42	133.58	159.88	108.29	222.92	91.04
	Z	114.83	108.46	78.38	111.71	119.83	118.42	89.13	76.04	72.00	55.13
20 Points	AB	60.67	9.88	63.21	11.50	105.88	36.33	97.67	59.79	108.33	15.63
	AC	151.83	105.04	200.25	72.71	171.00	165.96	218.42	125.67	156.04	189.04
	AD	198.38	12.50	221.67	56.38	240.75	60.54	280.33	108.67	272.38	94.13
	AE	50.08	26.21	79.29	12.96	118.17	16.63	81.25	20.96	120.38	19.79
SA	Date of submission to date of acceptance										
SP	Date of acceptance to the date of publication										

In achieving the second objective, the Multivariate Analysis of Variance (MANOVA) was used to show the relationship between the points, SA, SP, SNIP, Scopus IF, and WoS IF. The assumptions that precede the use of MANOVA were tested. There are 5 dependent variables and 1 independent variable with 6 categories. The presence of outliers was tested using linear regression; the Mahalanobis distance shows the presence of 1 outlier in the dataset. The scatterplot matrix was used to test the linearity of the dependent variables. An elliptical pattern was observed, as shown in Figure 3, depicting that the linearity test was passed.
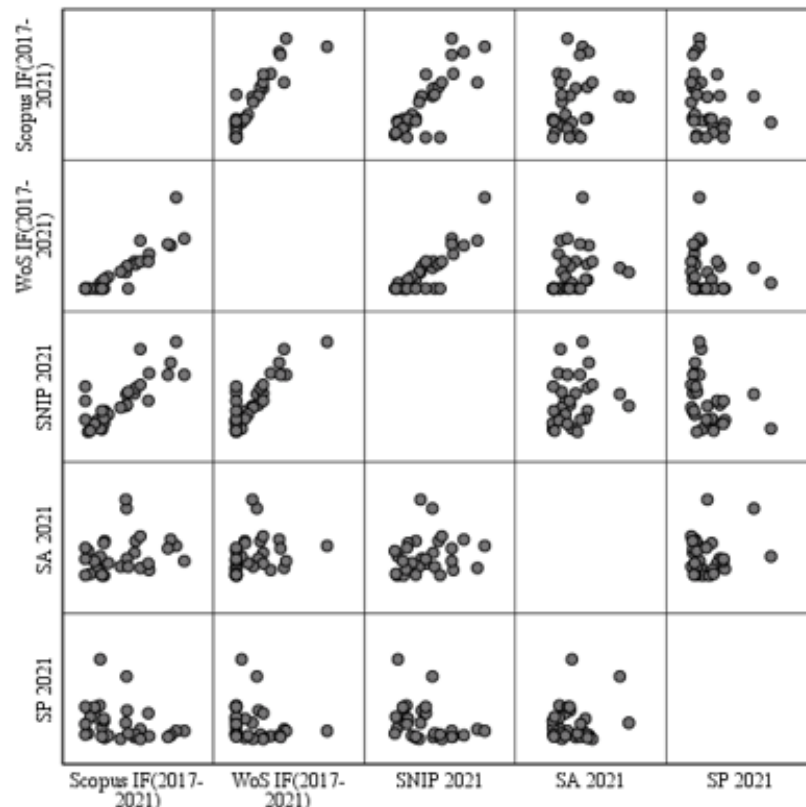
Figure 3

Figure 3 Scatter Matrix Dot Plot for the Dependent Variables

In Table 3, the multivariance normality test was done, the Shapiro-Wilk test has $p<0.05$ for Scopus IF, WoS IF, SA, SP showing that these dependent variables were not normally distributed while SNIP has $p=0.066$ which shows that the SNIP was

normally distributed. The multi-collinearity test was carried out by examining the correlation between the dependent variables. The Pearson's (r) is less than 0.99, which shows that there is no multi-collinearity between the variables though there seems to be some kind of relationship between the variables. Citescores and SJR were excluded from the analysis due to multi-collinearity.

Table 3

Table 3 Test of Normality						
Variables	**Kolmogorov-Smirnova**			**Shapiro-Wilk**		
	Statistic	df	Sig.	Statistic	df	Sig.
Scopus IF (2017-2021)	0.179	30	0.015	0.919	30	0.025
Web of Sci IF (2017-2021)	0.207	30	0.002	0.803	30	0.000
SNIP 2021	0.105	30	.200*	0.935	30	0.066
SA 2021	0.137	30	0.159	0.867	30	0.001
SP 2021	0.190	30	0.007	0.774	30	0.000

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

The assumptions for using MANOVA were not wholly met because of the Shapiro-Wilk result. Therefore, the authors selected Pillia's Trace in the row for the MEiN for the analysis. The $F_{(25, 120)} =2.39$, $p=0.001$; partial eta ($\eta 2 =0.333$); for Pillia's Trace as shown in Table 4, demonstrating that the one-way MANOVA was statistically significant. This shows a statistically significant difference across the levels of the independent variables (points) on a linear combination of the dependent variables (Scopus IF, WoS IF, SNIP, SA, and SP). Based on this result, the authors can reject the null hypothesis and conclude that the point allocation was significantly dependent on these variables. The effect size of 33.3% was large and the observed power was 0.998, showing that there was a 99.8% chance that the results could have been significant. Further evaluation was carried out to determine the categories in which the significance occurred using the post-hoc test.

Table 4

Table 4 Result of Multivariate Test									
	Effect	**Value**	**F**	**Hypothesis df**	**Error df**	**Sig.**	**Partial Eta Squared**	**Noncent. Parameter**	**Observed Power[d]**
Intercept	Pillai's Trace	0.963	102.827[b]	5.000	20.000	0.000	0.963	514.136	1.000
	Wilks' Lambda	0.037	102.827[b]	5.000	20.000	0.000	0.963	514.136	1.000
	Hotelling's Trace	25.707	102.827[b]	5.000	20.000	0.000	0.963	514.136	1.000
	Roy's Largest Root	25.707	102.827[b]	5.000	20.000	0.000	0.963	514.136	1.000
MEiN	Pillai's Trace	1.665	2.397	25.000	120.000	0.001	0.333	59.926	0.998
	Wilks' Lambda	0.061	3.411	25.000	75.799	0.000	0.429	56.908	0.993
	Hotelling's Trace	6.228	4.584	25.000	92.000	0.000	0.555	114.588	1.000
	Roy's Largest Root	4.966	23.836[c]	5.000	24.000	0.000	0.832	119.181	1.000

a. Design: Intercept + MEiN

b. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

d. Computed using alpha = 0.05

The between-subject-effect test in Table 5 shows how the dependent variables (Scopus IF, WoS IF, and SNIP) differ from the MEiN allocated points. The authors

observed from this table that the points allocated have a statistically significant effect on the Scopus IF (F (5, 24) =16.332; $p<0.001$; partial eta ɳ2 =0.773), WoS IF (F (5, 24) =13.414; $p<0.001$; partial eta ɳ2 =0.736) and SNIP (F (5, 24) =13.025; $p<0.001$; partial eta ɳ2 =0.731). The authors noticed that the SA and SP are not statistically significant to the allocated points since *p>0.05.*

Table 5

Table 5 Test of Between-Subject-Effects								
	Source	**Type II Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**	**Partial Eta Squared**	**Observed Power[f]**
MEiN	Scopus IF (2017-2021)	242.369	5	48.474	16.332	0.000	0.773	1.000
	WoS IF (2017-2021)	552.729	5	110.546	13.414	0.000	0.736	1.000
	SNIP 2021	27.610	5	5.522	13.025	0.000	0.731	1.000
	SA 2021	93780.110	5	18756.022	2.008	0.114	0.295	0.567
	SP 2021	31742.424	5	6348.485	1.394	0.262	0.225	0.405
Error	Scopus IF (2017-2021)	71.231	24	2.968				
	WoS IF (2017-2021)	197.788	24	8.241				
	SNIP 2021	10.175	24	0.424				
	SA 2021	224212.071	24	9342.170				
	SP 2021	109261.483	24	4552.562				
Total	Scopus IF (2017-2021)	803.312	30					
	WoS IF (2017-2021)	1268.986	30					
	SNIP 2021	139.817	30					
	SA 2021	1512358.808	30					
	SP 2021	289983.359	30					
Corrected Total	Scopus IF (2017-2021)	313.600	29					
	WoS IF (2017-2021)	750.516	29					
	SNIP 2021	37.785	29					
	SA 2021	317992.181	29					
	SP 2021	141003.907	29					

f. Computed using alpha = .05

4. RESULTS AND DISCUSSIONS
4.1. SPEED OF JOURNAL PUBLICATION PROCESS AND THE MEIN POINTS

The advantages of publishing in top journals are huge; high citescore, IF and in the case of Poland Ministry of Science and Higher Education, allocation of points ranging from 200 to 20 points. The result of this research shows a 5-year pattern in the duration of article publications from SA. The average duration in the journals with 200, 140 and 100 points within the 5-year period are 226.47, 266.52, 253.89 days respectively. While in the journals with 70, 40 and 20 points, the average duration from SA within the 5-year period are 116.59, 194.89, 138.81 days respectively as shown in Figure 4. This shows that the journals with the higher points have a higher tendency of been accepted after over 200 days while the lower ranked journals could be accepted after 100 days.
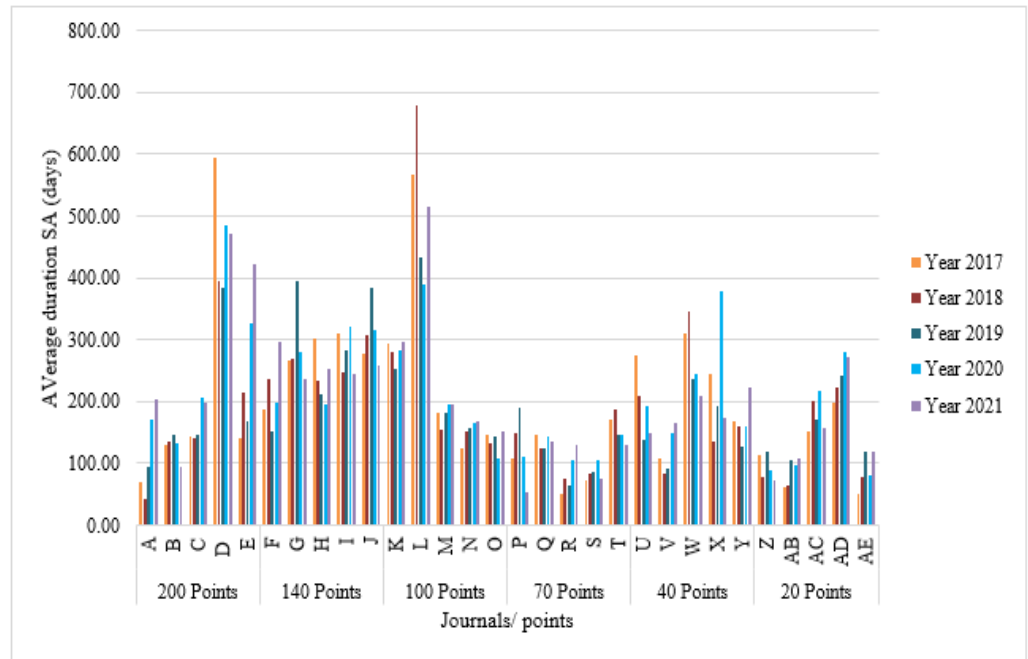
Figure 4

Figure 4 Average Duration from Submission to Acceptance (SA) for Journals and the Allocated Points

It was observed that journals in the branch of transportation have the highest average duration for SA with 465.98, 289.64, 516.39, 122.33, 167.43, and 179.50 days for 200, 140, 100, 70, 40 and 20 points respectively.

There is an irregular pattern in the average duration of SA for the 200 points on a yearly basis ranging from 185.91 days in 2018 and increases to 277.67 days in 2021. The journals considered within the 140 points category have a regular pattern in the average durations with the highest being 285.20 days in 2019 and 257.39 days in 2021. The journals in the 100 points categories exhibit the same pattern as the 140 points. The average duration ranges from 227.81 days and 279.90 days. The lower ranked journals show 104.57 days, 183.88 days, and 145.82 days for 70, 40 and 20 points in 2021 respectively.

Apart from this, the authors analyzed the average duration from SP, a yearly increase was observed in the duration for journals in the 20-point category within the 5-year period with an average of 74.74 days in the year 2021. A regular pattern was observed in the journals with 40 points with a range of 109.98 to 149.60 days for the years in study. An average duration of 63.91 days was observed for the journals with 70 points within the period in study. There was a drastic reduction in

the average duration of SP in 2021 for journals with 100 points (52.53 days) as shown in Figure 5 Journals categorized in the 140 points regions have the least SP with a range of 13.25 to 21.98 days within the 5- year period. The authors observed from these results that journals with higher points (200,140, 100 points) have lower SP while the SP for journals with lower points (70, 40, 20 points) are higher.
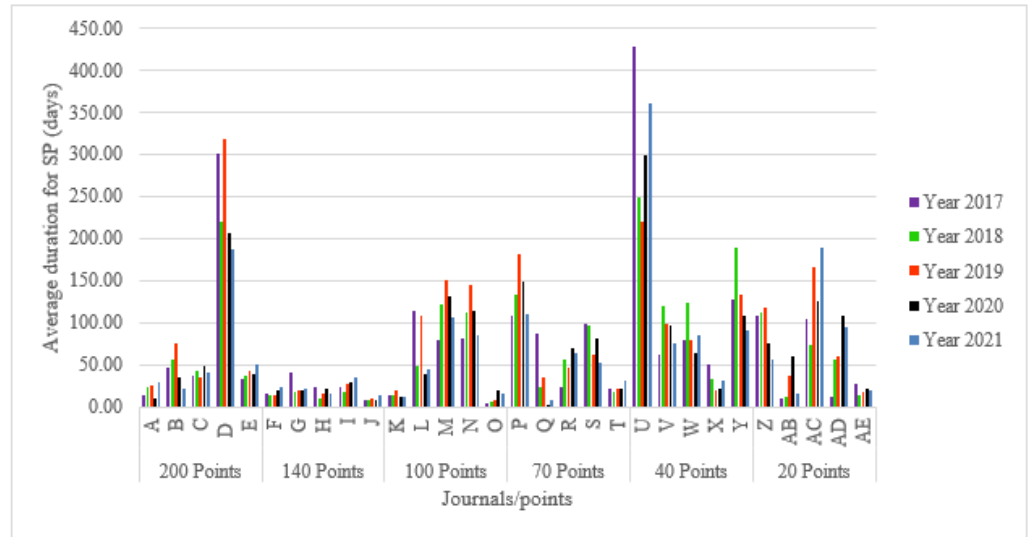
Figure 5

Figure 5 Average Duration from Acceptance to Publication (SP) for Journals and the Allocated Points

4.2. RELATIONSHIP BETWEEN MEIN POINTS AND JOURNAL METRICS

The significant ANOVA was followed with Tukey's post-hoc tests as shown in Table 6. The result shows that the mean scores for Scopus IF, WoS IF and SNIP were statistically significantly different between 200 points and 100, 70, 40 and 20 points since the $p<0.05$ but not between 140 points $p=0.992$ in Scopus IF, $p=0.593$ in SNIP and $p=0.346$ in WoS IF. There is a statistical significance difference between 140 points and 70, 40 and 20 points in Scopus IF, WoS IF and SNIP. Regarding SA and SP, the mean scores were not statistically significant between the allocated points because the p-value was greater than 0.05 ($p > 0.05$) in all cases.

Table 6

Table 6 Tukey's Post-hoc Result Showing Multiple Comparisons of the Dependent Variables							
Dependent Variable			**Mean Difference (I-J)**	**Std. Error**	**Sig.**	**95% Confidence Interval**	
Factors		**Points**				**Lower Bound**	**Upper Bound**
Scopus IF (2017-2021)	200	140	0.620	1.090	0.992	-2.749	3.988
		100	3.407*	1.090	0.046	0.039	6.777
		70	5.319*	1.090	0.001	1.950	8.688
		40	6.651*	1.090	0.000	3.282	10.020
		20	7.460*	1.090	0.000	4.092	10.829
	140	200	-0.620	1.090	0.992	-3.988	2.749
		100	2.788	1.090	0.147	-0.581	6.157
		70	4.699*	1.090	0.003	1.331	8.068
		40	6.031*	1.090	0.000	2.663	9.400
		20	6.841*	1.090	0.000	3.472	10.210
	100	200	-3.407*	1.090	0.046	-6.777	-0.039
		140	-2.788	1.090	0.147	-6.157	0.581
		70	1.911	1.090	0.512	-1.457	5.280
		40	3.243	1.090	0.064	-0.125	6.612

		20	4.052*	1.090	0.012	0.684	7.422
	70	200	-5.319*	1.090	0.001	-8.688	-1.950
		140	-4.699*	1.090	0.003	-8.068	-1.331
		100	-1.911	1.090	0.512	-5.280	1.457
		40	1.332	1.090	0.822	-2.037	4.701
		20	2.141	1.090	0.390	-1.227	5.510
	40	200	-6.651*	1.090	0.000	-10.020	-3.282
		140	-6.031*	1.090	0.000	-9.400	-2.663
		100	-3.243	1.090	0.064	-6.612	0.125
		70	-1.332	1.090	0.822	-4.701	2.037
		20	0.809	1.090	0.974	-2.559	4.178
	20	200	-7.460*	1.090	0.000	-10.829	-4.092
		140	-6.841*	1.090	0.000	-10.210	-3.472
		100	-4.052*	1.090	0.012	-7.422	-0.684
		70	-2.141	1.090	0.390	-5.510	1.227
		40	-0.809	1.090	0.974	-4.178	2.559
WoS IF (2017-2021)	200	140	3.718	1.816	0.346	-1.896	9.332
		100	7.233*	1.816	0.006	1.620	12.848
		70	10.994*	1.816	0.000	5.381	16.609
		40	10.870*	1.816	0.000	5.256	16.484
		20	11.552*	1.816	0.000	5.938	17.166
	140	200	-3.718	1.816	0.346	-9.332	1.896
		100	3.516	1.816	0.406	-2.098	9.129
		70	7.276*	1.816	0.006	1.663	12.890
		40	7.151*	1.816	0.007	1.538	12.766
		20	7.833*	1.816	0.003	2.220	13.448
	100	200	-7.233*	1.816	0.006	-12.848	-1.620
		140	-3.516	1.816	0.406	-9.129	2.098
		70	3.761	1.816	0.335	-1.853	9.375
		40	3.636	1.816	0.370	-1.978	9.250
		20	4.318	1.816	0.203	-1.296	9.932
	70	200	-10.994*	1.816	0.000	-16.609	-5.381
		140	-7.276*	1.816	0.006	-12.890	-1.663
		100	-3.761	1.816	0.335	-9.375	1.853
		40	-0.125	1.816	1.000	-5.739	5.489
		20	0.557	1.816	1.000	-5.057	6.171
	40	200	-10.870*	1.816	0.000	-16.484	-5.256
		140	-7.151*	1.816	0.007	-12.766	-1.538
		100	-3.636	1.816	0.370	-9.250	1.978
		70	0.125	1.816	1.000	-5.489	5.739
		20	0.682	1.816	0.999	-4.932	6.296
	20	200	-11.552*	1.816	0.000	-17.166	-5.938
		140	-7.833*	1.816	0.003	-13.448	-2.220
		100	-4.318	1.816	0.203	-9.932	1.296
		70	-0.557	1.816	1.000	-6.171	5.057
		40	-0.682	1.816	0.999	-6.296	4.932
SNIP 2021	200	140	0.668	0.412	0.593	-0.605	1.941
		100	1.858*	0.412	0.002	0.585	3.131
		70	2.324*	0.412	0.000	1.052	3.598
		40	2.744*	0.412	0.000	1.471	4.018

	(I)	(J)	Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
		20	2.037*	0.412	0.001	0.764	3.310
	140	200	-0.668	0.412	0.593	-1.941	0.605
		100	1.190	0.412	0.076	-0.083	2.463
		70	1.657*	0.412	0.006	0.384	2.930
		40	2.076*	0.412	0.000	0.804	3.350
		20	1.369*	0.412	0.030	0.096	2.643
	100	200	-1.858*	0.412	0.002	-3.131	-0.585
		140	-1.190	0.412	0.076	-2.463	0.083
		70	0.467	0.412	0.863	-0.806	1.740
		40	0.887	0.412	0.295	-0.387	2.160
		20	0.179	0.412	0.998	-1.094	1.452
	70	200	-2.324*	0.412	0.000	-3.598	-1.052
		140	-1.657*	0.412	0.006	-2.930	-0.384
		100	-0.467	0.412	0.863	-1.740	0.806
		40	0.420	0.412	0.907	-0.853	1.693
		20	-0.288	0.412	0.980	-1.561	0.986
	40	200	-2.744*	0.412	0.000	-4.018	-1.471
		140	-2.076*	0.412	0.000	-3.350	-0.804
		100	-0.887	0.412	0.295	-2.160	0.387
		70	-0.420	0.412	0.907	-1.693	0.853
		20	-0.707	0.412	0.534	-1.981	0.566
	20	200	-2.037*	0.412	0.001	-3.310	-0.764
		140	-1.369*	0.412	0.030	-2.643	-0.096
		100	-0.179	0.412	0.998	-1.452	1.094
		70	0.288	0.412	0.980	-0.986	1.561
		40	0.707	0.412	0.534	-0.566	1.981
SA 2021	200	140	-40.050	61.130	0.985	-229.060	148.960
		100	-27.423	61.130	0.997	-216.433	161.586
		70	109.873	61.130	0.486	-79.136	298.883
		40	31.583	61.130	0.995	-157.426	220.593
		20	87.667	61.130	0.707	-101.343	276.676
	140	200	40.050	61.130	0.985	-148.960	229.060
		100	12.627	61.130	1.000	-176.383	201.636
		70	149.923	61.130	0.178	-39.086	338.933
		40	71.633	61.130	0.846	-117.376	260.643
		20	127.717	61.130	0.326	-61.293	316.726
	100	200	27.423	61.130	0.997	-161.586	216.433
		140	-12.627	61.130	1.000	-201.636	176.383
		70	137.297	61.130	0.254	-51.713	326.306
		40	59.007	61.130	0.924	-130.003	248.016
		20	115.090	61.130	0.436	-73.920	304.100
	70	200	-109.873	61.130	0.486	-298.883	79.136
		140	-149.923	61.130	0.178	-338.933	39.086
		100	-137.297	61.130	0.254	-326.306	51.713
		40	-78.290	61.130	0.792	-267.300	110.720
		20	-22.207	61.130	0.999	-211.216	166.803
	40	200	-31.583	61.130	0.995	-220.593	157.426
		140	-71.633	61.130	0.846	-260.643	117.376
		100	-59.007	61.130	0.924	-248.016	130.003
		70	78.290	61.130	0.792	-110.720	267.300

		20	56.083	61.130	0.938	-132.926	245.093
	20	200	-87.667	61.130	0.707	-276.676	101.343
		140	-127.717	61.130	0.326	-316.726	61.293
		100	-115.090	61.130	0.436	-304.100	73.920
		70	22.207	61.130	0.999	-166.803	211.216
		40	-56.083	61.130	0.938	-245.093	132.926
SP 2021	200	140	60.080	42.673	0.722	-71.863	192.023
		100	14.772	42.673	0.999	-117.172	146.715
		70	14.905	42.673	0.999	-117.038	146.848
		40	-50.898	42.673	0.836	-182.842	81.045
		20	11.213	42.673	1.000	-120.730	143.157
	140	200	-60.080	42.673	0.722	-192.023	71.863
		100	-45.308	42.673	0.892	-177.252	86.635
		70	-45.175	42.673	0.893	-177.118	86.768
		40	-110.978	42.673	0.136	-242.922	20.965
		20	-48.867	42.673	0.858	-180.810	83.077
	100	200	-14.772	42.673	0.999	-146.715	117.172
		140	45.308	42.673	0.892	-86.635	177.252
		70	0.133	42.673	1.000	-131.810	132.077
		40	-65.670	42.673	0.644	-197.613	66.273
		20	-3.558	42.673	1.000	-135.502	128.385
	70	200	-14.905	42.673	0.999	-146.848	117.038
		140	45.175	42.673	0.893	-86.768	177.118
		100	-0.133	42.673	1.000	-132.077	131.81
		40	-65.803	42.673	0.642	-197.747	66.140
		20	-3.692	42.673	1.000	-135.635	128.252
	40	200	50.898	42.673	0.836	-81.045	182.842
		140	110.978	42.673	0.136	-20.965	242.922
		100	65.670	42.673	0.644	-66.273	197.613
		70	65.803	42.673	0.642	-66.140	197.747
		20	62.112	42.673	0.694	-69.832	194.055
	20	200	-11.213	42.673	1.000	-143.157	120.730
		140	48.867	42.673	0.858	-83.077	180.810
		100	3.558	42.673	1.000	-128.385	135.502
		70	3.692	42.673	1.000	-128.252	135.635
		40	-62.112	42.673	0.694	-194.055	69.832

Based on observed means.

The error term is Mean Square (Error) = 4552.562.

* The mean difference is significant at the 0.05 level.

5. CONCLUSIONS AND RECOMMENDATIONS

Our study aimed to provide overall data on average publishing durations and points allocations in the MEiN across Civil engineering and transport fields. We did not intend to determine how delays have evolved. Some of the earlier studies have done this. However, we consciously chose to concentrate on the differences in the average duration of publication time between various journals in the different point categories from 2017 to 2021. We can conclude that the journals with high points (200, 140 and 100 points) have a high duration from the period of submission of the article to the period of acceptance (average of 249 days) while journals with lower

points (70, 40 and 20 points) shows a lower duration with an average of 150 days. Furthermore, the average duration from the date of acceptance to the date of publication within this 5-year period are 53.86 days for journals with higher points (200, 140 and 100 points) and 87.07 days for journals with lower points (70, 40 and 20 points). The journals in the transportation area of specialization shows the highest average duration in SA for the 5-year period with an average of 465.98 and 516.39 for 200 and 100 points while 140, 70, 40 and 20 points have an average SA of 289.64, 122.33, 167.43 and 179.50 days respectively. The average duration for SP in the Transportation branch of journals for 200 points is 246.42 days while 140 and 100points have 23.94 and 70.67 days and the range for average duration of SP for journals of lower points (70, 40 and 20 points) was 130.03 to 136.35 days. This result shows that in the area of transportation journals, the average publication time for 200 points is 1.2 times more than 100 points and 2.2 times more than 140 and 20 points.

Therefore, the authors conclude that the price of waiting for an article to be published in journals of higher point categorization is worth the pain. Moos (2011) argued that the editorial delay in top journals is the price of submitting manuscripts to the journals. This is in line with the results of this study. The higher points journals have the highest publication time with an average combined duration of SA and SP for 200, 140 and 100 points resulting to 305.28, 285.25 and 317.93 days respectively. However, journals within the 40 points category has average total duration of 324.60 days within the 5- year period, this is 70% more than the 70-point journals and 50% more than the 20-point journals. This sharp difference in the 40-points journals results majorly from the branch of transportation. It thus means that pre-college students or researchers, who are willing to get the top points, will have to pay the price of waiting. However, the effects of this waiting period on the research community need to be analyzed and studied.

Further analysis from this study shows that the MEiN journals categorization using the JCR obtained from the WoS IF is in order. Scopus IF and SNIP are also effective factors that can be used for the categorization of the journals since they show similar results as the WoS IF. This is therefore in agreement with previous studies Jubb (2016), Mayden (2012), which explain that several variable factors can be used in ranking of journals for effectiveness, quality, award of grants and scholarship. The MEiN, institutions and organizations providing grants and scholarship can incorporate SNIP and Scopus IF as part of the journal categorization factors. The speed of peer review process are dependent on some factors. Mulligan (2005) in his article, revealed that the quality and timeliness of review is dependent on the limits of papers reviewed by the reviewers as well as their knowledge relevance in the subject area. However, the importance of speedy publication of scientific works cannot be over-emphasized; the duration of publication (SA and SP) does not have any correlation with the categorization of journals based on this study.

Further studies can focus on the use of Eigen value and H-index as variable factors for determining the ranks or categories of journals. There could be several contributing factors which leads to the delays in the publication of articles, an in-depth analysis of these factors should be studied at the journal publishing house level.

CONFLICT OF INTERESTS

None.

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APPENDIX

The dataset, and analysis that support the findings of this study are available from the corresponding author upon request.

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