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Liu, Zao, "Evaluating Special Education Journals with H-type Indices and Journal Impact Factors" (2020). *Library Philosophy and Practice (e-journal)*. 3943. <https://digitalcommons.unl.edu/libphilprac/3943>

Evaluating Special Education Journals with H-type Indices and Journal Impact Factors

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Abstract

This paper evaluates special education journals using the h-type indices and journal impact factor. Fifty-seven special education journals were selected from the special education category of Clarivate Analytics' Journal Citation Reports (JCR) and two published lists of special education journals. The journal h-indices were compared among themselves and with their available impact factors. The correlation analysis of the metrics found very strong positive relationships between the journal h-type indices and between the Web of Science h-index and the journal impact factors. Strong positive relationships between the Google Scholar h-type indices and the impact factors were also found. The paper offers possible reasons for the discrepancy in rankings of the journals. The evaluation of the journals by the h-type indices provides an alternative source of information from JCR, and can help professional stakeholders in the field determine the quality of the journals.

Keywords: journal impact factor, journal h indices, citation analysis, correlation analysis, special education journals

Introduction

Since Garfield initiated the journal impact factor (JIF) (Garfield, 1955), it has been the major bibliometric metric for assessing the quality of journals. The journal impact factor measures the average number of citations received by articles published in the previous two or five years from a journal in a given citation year. In 2005 Hirsch proposed an alternative impact measure--the h-index (Hirsch, 2005), which measures the productivity and impact of an author by giving the value h to the author who has published h papers that have been cited at least h times. In the following year, Braun, Glänzel, & Schubert (2006) suggested that the h-index could be used to assess the impact of journals. To give more weight to highly cited papers which may be undervalued by the h-index, Egghe developed the g-index. In a set of articles ranked in decreasing order of the number of citations they received, the g-index is the (unique) largest number such that the top g articles receive (together) at g^2 citations (Egghe, 2006). Since its appearance, the h-index has been considered to be a robust metric for evaluating journals (Schubert & Glänzel, 2007; Vanclay, 2007; Harzing & van der Wal, 2009; Mingers, Macri, & Petrovici, 2012). So far, the h-index has been widely used to evaluate authors, journals, institutions, and other areas. It is important to note that Google Scholar has been used as a valuable source for citation analysis, including h-type indices studies, in addition to Web of Science and Scopus (Harzing & van der Wal, 2009; Meho & Yang, 2007).

Literature Review

The h-type indices have been used to evaluate journals in various fields. For examples, studies using h-indices have been reported in social sciences (Bar-Ilan, 2010; Hodge & Lacasse, 2011) including business-related fields (Saad, 2006; Harzing & van der Wal, 2009; Moussa & Touzani, 2010; Mingers, Macri, & Petrovici, 2012). The method has also been used to evaluate journals in agriculture and forestry (Vanclay, 2008; Liu, Rao, & Rousseau, 2009; Minasny et al., 2013), as well as in sciences and medicine (Olden, 2007; Bornmann, Marx, & Schier, 2009; Bador & Lafouge, 2010; Renjith & Shihab, 2018; Yuen, 2018). The majority of these studies find high positive correlations between the h-indices and the journal impact factors. Several studies indicate that the h-index based on Google Scholar data is a preferred metric to the journal impact factors (Vancly, 2008; Harzing & van der Wal, 2009; Hodge & Lacasse, 2011). The purpose of this paper is to evaluate journals in special education, an important branch of education. According to a recent report by the National Center for Education Statistics, seven million students ages 3-21 in the United States received special education services under the Individuals Education Act (IDEA) in 2017-2018, and 34% of them had specific learning disabilities (National Center for Education Statistics, 2019). Academic journals are good venues to publish research results and share ideas and best practices in various fields. The evaluation of the quality of academic journals in a field is of great importance to researchers, administrators, and academic libraries. Despite the importance of the discipline of special education, systematic evaluations of journals in this field seem to be rare and obsolete. This paper aims to fill this gap by examining special education journals using the metrics of h-index, g-index, and journal impact factor drawn from Web of Science, Google Scholar, and JCR.

Objectives of the Study

The objectives of the paper are:

1. To explore the relationships between the h-indices drawn from Web of Science and Google Scholar for the selected special education journals.
2. To find out how the journal impact factors are correlated with the h-type indices of these journals.
3. To examine rankings of the selected journals with the h-type indices and with the journal impact factors.

Methodology

Three sources were consulted to obtain the list of special education journals for this study: the special education category of the 2018 JCR, and two published research articles entitled “Publication guidelines for special education journals” (Joyce & Joyce, 1990) and “A systematic appraisal of peer review guidelines for special education journals (Maggin et al., 2013). Altogether fifty-seven special education journals were included in the study. Forty-one journals were selected from the 2018 JCR, and another sixteen journals were drawn from the two published articles which contained comprehensive lists of special education journals. Note that a number of included journals from Joyce & Joyce’s list have title changes: *Academic Therapy (Intervention in School and Clinic)*, *Education and Training in Mental Retardation (Education and Training in Autism and Developmental Disabilities)*, *Journal for the Association for Persons*

with Severe Handicaps (*Research and Practice for Persons with Severe Disabilities*), *Journal of Childhood Communication Disorders (Communication Disorders Quarterly)*, *Journal of Speech and Hearing Disorder (Journal of Speech, Language, and Hearing Research)*, *Learning Disabilities Focus (Learning Disabilities Research and Practice)*. Some journals on Joyce & Joyce’s list were excluded because they ceased publication (e.g. *Canadian Journal of Special Education*, *Journal for Vacation Special Needs Education*, and *Teaching English to Deaf & Second-Language Students*). A few journals from Joyce & Joyce’s and Maggin et al.’s lists were excluded because they either were not indexed in Web of Science for the targeted years (e.g. *Beyond Behavior*, *Volta Review*) or they were not indexed in Web of Science at all (e.g. *Focus on Learning Problems in Mathematics*, *Journal of Special Education Leadership*, *Multiple Voices for Ethnically Diverse Exceptional Learners*, *Young Exceptional Children*).

A five-year citation widow (2104-2018) was chosen for the h-indices for the fifty-seven journals. Out of the fifty-seven journals, forty-seven had the two-year and five-year citation impact factors in JCR, and were used for the journal impact analysis. *Journal of Behavioral Education* was excluded from the impact factor study because its five-year impact factor was not available. The values of the 2018 two-year impact factor (JIF_2) and five-year impact factor (JIF_5) for these forty-seven journals were retrieved for comparison. The WoS h-index (WoS_h) for the fifty-seven journals was automatically computed from Web of Science website whereas the Google Scholar h-index (GS_h) and g-index (GS_g) were computed using Harzing’s *Publish or Perish* (version 7). The data was collected from December 19, 2019 to December 24, 2019. In order to avoid inaccurate search results, a journal title was put in quotation marks in a search along with its ISSN. The search results of the h-type index values were visually inspected for their accuracy and relevancy. A Spearman correlation analysis of the measures was conducted using SPSS.

Results

The values of the h-type indices (2014-2018) and the rankings for the fifty-seven journals are listed in Table 1. The average value of the WoS_h is 13.65. In comparison, the average value of the GS_h is 25.51, almost twice as that of the WoS_h. As predicted, the GS g-index values are higher than those of the GS h-index with a mean of 37.16. In terms of the rank orders of the journals with the h-type indices, more journals rank higher with the WoS h-index than with the GS h-indices whereas some journals have identical ranking positions with the three metrics. Seven journals are ranked the same with the GS h-index and the WoS h-index whereas eight journals have the identical rank orders with the GS h-index and the GS g-index. A number of journals are also ranked the same with their WoS h-index, or GS h-index or GS g-index. However, it should be noted that among the journals with the identical rank orders with the GS h-index, different values of their GS g-index are found. For instance, *Journal of Learning Disabilities* and *Journal of Speech, Language and Hearing Research* both have the same GS h-index value (42), but different GS g-index value (62, 53 respectively), suggesting that the latter has more highly-cited articles.

Table 1. Special education journals ranked by H-type indices (2014-2018) n=57

Journal Title	Wos_h	Rank	GS_h	Rank	GS_g	Rank
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<i>Journal of Autism and Developmental Disorders</i>	53	1	85	1	121	1
<i>Autism</i>	36	2	62	2	93	2
<i>Research in Developmental Disabilities</i>	31	3	54	3	71	3
<i>Journal of Learning Disabilities</i>	22	6	42	4	62	4
<i>Journal of Speech, Language and Hearing Research</i>	25	4	42	4	53	8
<i>Exceptional Children</i>	20	8	41	6	58	5
<i>Research in Autism Spectrum Disorders</i>	24	5	39	7	55	6
<i>Journal of Intellectual Disability Research</i>	22	6	39	7	52	9
<i>Remedial and Special Education</i>	19	9	36	9	54	7
<i>Journal of Positive Behavior Interventions</i>	17	10	31	10	48	10
<i>Learning Disability Quarterly</i>	15	14	30	11	43	12
<i>Research and Practice for Persons with Severe Disabilities</i>	14	17	29	12	42	13
<i>Focus on Autism and Other Developmental Disabilities</i>	14	17	29	12	41	14
<i>Teaching Exceptional Children</i>	11	28	29	12	41	14
<i>Journal of Special Education</i>	15	14	28	15	44	11
<i>European Journal of Special Needs Education</i>	11	28	27	16	40	16
<i>Teacher Education and Special Education</i>	10	35	26	17	38	19
<i>Intervention in School and Clinic</i>	9	39	26	17	34	27
<i>Journal of Developmental and Physical Disabilities</i>	14	17	26	17	32	31
<i>Gifted Child Quarterly</i>	11	28	25	20	39	17
<i>Journal of Fluency Disorders</i>	17	10	25	20	38	19
<i>American Journal on Intellectual and Developmental Disabilities</i>	16	12	25	20	38	19
<i>Intellectual and Developmental Disabilities</i>	15	14	25	20	37	22
<i>Learning Disabilities Research & Practice</i>	13	21	25	20	37	22
<i>Journal of Deaf Studies and Deaf Education</i>	16	12	24	25	36	24
<i>Journal of Behavioral Education</i>	13	21	24	25	35	26
<i>Topics in Early Childhood Special Education</i>	13	21	24	25	34	27
<i>Education and Training in Autism and Developmental Disabilities</i>	13	21	24	25	30	34
<i>Journal of Emotional and Behavioral Disorders</i>	14	17	23	29	36	24
<i>Behavioral Disorders</i>	10	35	22	30	31	32
<i>Journal for the Education of the Gifted</i>	8	49	21	31	39	17
<i>Career Development and Transition for Exceptional Individuals</i>	12	26	21	31	34	27
<i>Child Language Teaching & Therapy</i>	11	28	21	31	31	32
<i>Journal of Intellectual & Developmental Disability</i>	13	21	21	31	30	34
<i>International Journal of Disability Development and Education</i>	11	28	21	31	29	37
<i>Education and Treatment of Children</i>	10	35	20	36	34	27
<i>Reading & Writing Quarterly</i>	9	39	19	37	30	34

<i>Dyslexia</i>	12	26	19	37	29	37
<i>Annals of Dyslexia</i>	11	28	19	37	25	45
<i>Roeper Review: a journal on gifted education</i>	7	52	18	40	28	41
<i>British Journal of Learning Disabilities</i>	9	39	18	40	27	43
<i>Journal of Early Intervention</i>	10	35	18	40	26	44
<i>Rural Special Education Quarterly</i>	6	56	18	40	25	45
<i>British Journal of Special Education</i>	8	49	17	44	29	37
<i>Topics in Language Disorders</i>	11	28	17	44	28	41
<i>Journal of Special Education Technology</i>	9	39	17	44	24	48
<i>Communication Disorders Quarterly</i>	9	39	17	44	22	51
<i>American Annals of the Deaf</i>	9	39	17	44	22	51
<i>Journal of Visual Impairment & Blindness</i>	9	39	16	49	29	37
<i>Assessment for Effective Intervention</i>	9	39	16	49	25	45
<i>International Journal of Special Education</i>	5	57	16	49	24	48
<i>Infants & Young Children</i>	9	39	16	49	21	53
<i>High Ability Studies</i>	7	52	15	53	24	48
<i>Exceptionality</i>	9	39	15	53	21	53
<i>International Journal of Developmental Disabilities</i>	7	52	12	55	16	56
<i>Journal of Mental Health Research in Intellectual Disabilities</i>	8	49	11	56	18	55
<i>International Review of Research in Developmental Disabilities</i>	7	52	11	56	15	57

Table 2 shows the 2018 two-year and five-year journal impact factors of the forty-seven journals. The mean for the JIF_2 for these journals is 1.47 and that for the JIF_5 is 1.98. Eight journals have the identical ranking positions with the JIF_2 and JIF_5 impact factors. Twenty journals have higher ranking with the JIF_5 whereas nineteen journals are ranked higher with the JIF_2. In terms of the rank orders of the h-type indices and the journal impact factors, more journals have higher ranking with the JIF_2 or JIF_5 than with the h-type indices. Some journals exhibit a noticeable difference in the rank orders of the impact factors and the h-type indices. A few move up significantly in rank with the h-type indices. For example, *Research in Developmental Disabilities* is ranked 11th with the JIF_2 and 14th with the JIF_5, but third with the h-type indices. *Journal of Speech, Language and Hearing Research* is ranked 15th with the JIF_2 and 17th with the JIF_5, but 4th with Wos_h and GS_h, and 8th with GS_g. Likewise, *Research in Autism Spectrum Disorders*, *Learning Disability Quarterly*, and *European Journal of Special Needs Education* have showed significant gain with the h-indices. On the other hand, in comparison with their impact factors, some journals lose their ranking positions significantly with the h-indices. For example, *Annals of Dyslexia* ranks 8th and 20th with the JIF_2 and JIF_5 respectively, but 28th, 37th, and 45th with the WoS_h, GS_h, and GS_g. The ranking positions with the JIF_2 and JIF_5 for *Learning Disabilities Research & Practice* are 9th and 13th respectively, but 21st, 20th and 22nd with the h-indices. Other examples showing the noticeable loss with the h-indices include *Journal of Fluency Disorders*, *Dyslexia*, *Journal of Early Intervention*, *International Review of Research in Developmental Disabilities*, and *Journal of Mental Health Research in Intellectual Disabilities*. It is interesting to note that, when ranked

with the h-indices, especially with the GS_h and GS_g, some journals that are not included in JCR (e.g. *Teaching Exceptional Children*, *Career Development and Transition for Exceptional Individuals*, are ranked higher than some JCR journals.

Table 2. Special education journals ranked by the 2018 JIF_2 and JIF_5 n=47

Journal Title	JIF_2	Rank	JIF_5	Rank
<i>Autism</i>	3.898	1	4.724	1
<i>Exceptional Children</i>	2.854	2	4.211	2
<i>Journal of Autism and Developmental Disorders</i>	2.786	3	4.167	3
<i>Journal of Positive Behavior Interventions</i>	2.641	4	2.728	7
<i>Remedial and Special Education</i>	2.617	5	3.463	5
<i>Journal of Learning Disabilities</i>	2.578	6	3.273	6
<i>Journal of Fluency Disorders</i>	2.349	7	3.596	4
<i>Annals of Dyslexia</i>	2.171	8	2.203	20
<i>Learning Disabilities Research & Practice</i>	2.077	9	2.38	13
<i>Journal of Intellectual Disability Research</i>	1.941	10	2.637	8
<i>Research in Developmental Disabilities</i>	1.872	11	2.376	14
<i>Research in Autism Spectrum Disorders</i>	1.799	12	2.252	19
<i>Research and Practice for Persons with Severe Disabilities</i>	1.795	13	2.449	11
<i>Journal of Emotional and Behavioral Disorders</i>	1.775	14	2.539	10
<i>Journal of Speech, Language and Hearing Research</i>	1.749	15	2.286	17
<i>American Journal on Intellectual and Developmental Disabilities</i>	1.742	16	2.335	15
<i>Topics in Early Childhood Special Education</i>	1.615	17	2.297	16
<i>Intellectual and Developmental Disabilities</i>	1.582	18	2.581	9
<i>Dyslexia</i>	1.568	19	2.16	22
<i>Journal of Deaf Studies and Deaf Education</i>	1.556	20	2.069	23
<i>Journal of Special Education</i>	1.537	21	2.394	12
<i>Learning Disability Quarterly</i>	1.525	22	1.853	24
<i>Journal of Intellectual & Developmental Disability</i>	1.467	23	1.701	25
<i>Exceptionality</i>	1.382	24	1.165	37
<i>Behavioral Disorders</i>	1.343	25	1.593	26
<i>Focus on Autism and Other Developmental Disabilities</i>	1.327	26	2.275	18
<i>Gifted Child Quarterly</i>	1.304	27	1.587	27
<i>Journal of Early Intervention</i>	1.294	28	2.165	21
<i>Journal of Mental Health Research in Intellectual Disabilities</i>	1.059	29	1.525	28
<i>Topics in Language Disorders</i>	1.049	30	1.495	29
<i>European Journal of Special Needs Education</i>	1.039	31	1.38	35
<i>Journal of Developmental and Physical Disabilities</i>	0.954	32	1.44	34
<i>Reading & Writing Quarterly</i>	0.934	33	1.173	36
<i>Education and Treatment of Children</i>	0.898	34	1.49	30
<i>Teacher Education and Special Education</i>	0.884	35	1.481	31
<i>International Review of Research in Developmental</i>	0.862	36	0.878	43

Disabilities

<i>Child Language Teaching & Therapy</i>	0.86	37	1.459	32
<i>Education and Training in Autism and Developmental Disabilities</i>	0.824	38	1.45	33
<i>International Journal of Disability Development and Education</i>	0.818	39	1.073	38
<i>Communication Disorders Quarterly</i>	0.72	40	0.968	40
<i>Intervention in School and Clinic</i>	0.682	41	0.645	46
<i>American Annals of the Deaf</i>	0.638	42	0.964	42
<i>Journal of Visual Impairment & Blindness</i>	0.627	43	0.845	44
<i>British Journal of Learning Disabilities</i>	0.5	44	0.985	39
<i>High Ability Studies</i>	0.48	45	0.966	41
<i>International Journal of Developmental Disabilities</i>	0.472	46	0.588	47
<i>Infants & Young Children</i>	0.447	47	0.828	45

Table 3 presents the results of the Spearman correlation analysis of the journal impact factors and the h-type indices. As demonstrated, the WoS_h is highly correlated with the GS_h, and GS_g (Spearman's $\rho = .869$ and $.842$, respectively) demonstrating strong positive relationships. The correlation between the GS_h and GS_g ($\rho = .959$) is very high. In addition, there are also strong positive relationships between the JIF_2 and JIF_5 ($\rho = .944$) and between the impact factors and the WoS_h ($\rho = .842$ for JIF_2 and $\rho = .865$ for JIF_5). Strong positive relationships were also found between the GS_h and the JIF_2 and JIF_5 ($\rho = .711$ and $.732$, respectively) and between the GS_g and the JIF_2 and JIF_5 ($\rho = .742$ and $.78$, respectively). Figures 1-7 further illustrate these relationships. By and large, the diagrams show the similar citation trends for the journals. The narrow shapes of the dots moving upward in Figure 1- 2 indicate the very high correlations between the WoS_h and GS_h, and the GS_h and GS_g. High positive correlations between the journal impact factors and the h-indices are also shown in Figures 3-6. As the JIF_2 and JIF_5 values of the journals increase, so do the WoS_h and GS_h values. However, several outliers (e.g. *Journal of Autism and Developmental Disorders*, *Autism*) are found showing the high h-indices or the impact factor values.

Table 3. Spearman's rho correlations between the h-indices (2014-2018) $n = 57$, JIF_2 and JIF_5 $n=47$

	JIF_2	JIF_5	WoS_h	GS_h	GS_g
JIF_2	1				
JIF_5	.944*	1			
WoS_h	.842*	.865*	1		
GS_h	.711*	.732*	.869*	1	
GS_g	.742*	.780*	.842*	.959*	1

* $p < 0.001$.

Figure 1. Scatter plot of WoS_h and the GS_h

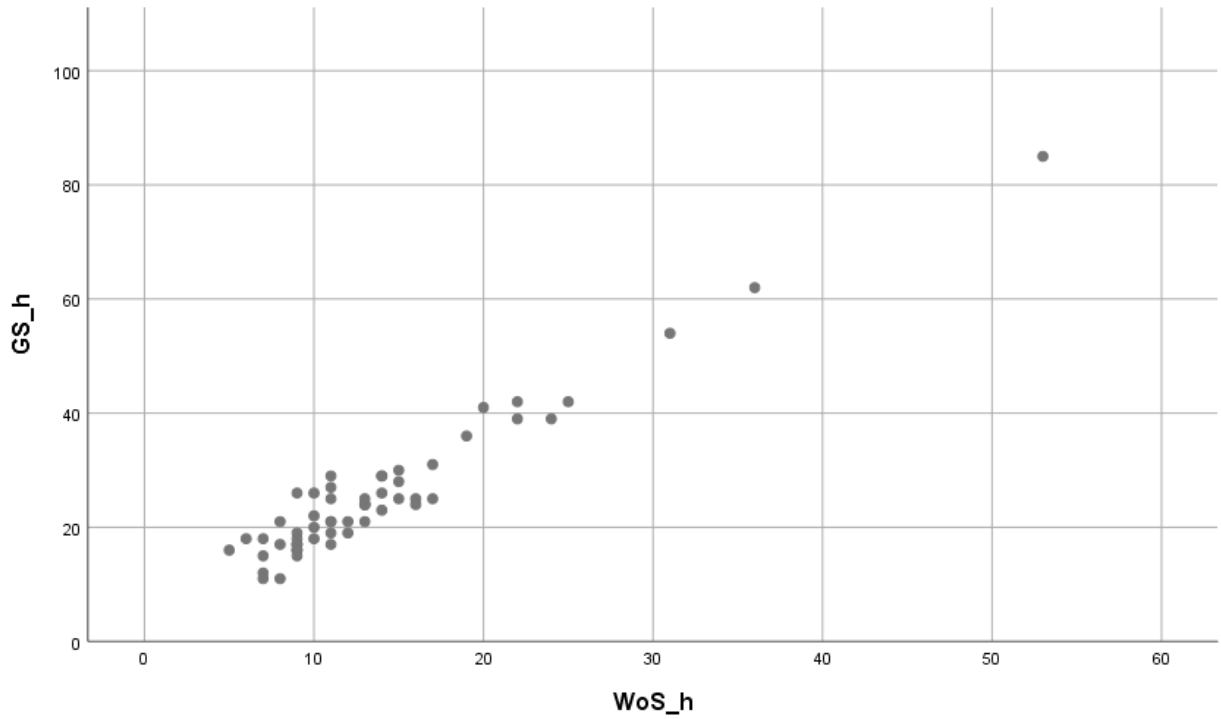


Figure 2. Scatter plot of GS_h and GS_g

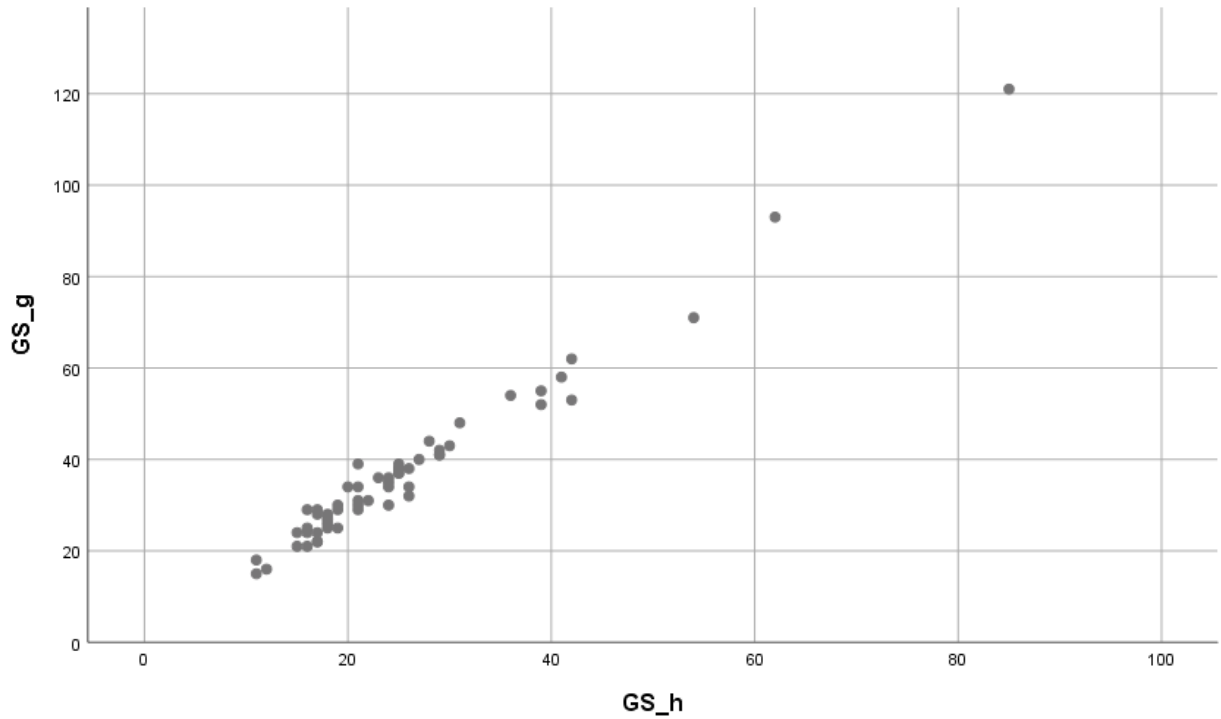


Figure 3. Scatter plot of JIF_2 and WoS_h

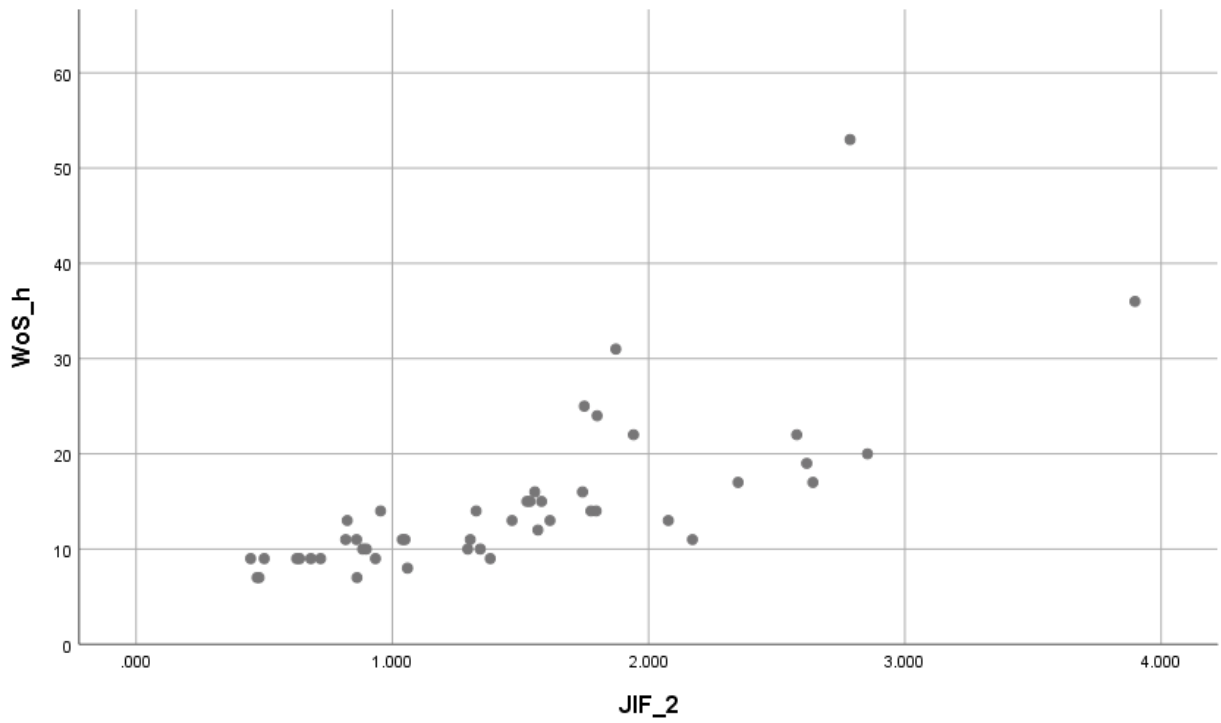


Figure 4. Scatter plot of JIF_2 and GS_h

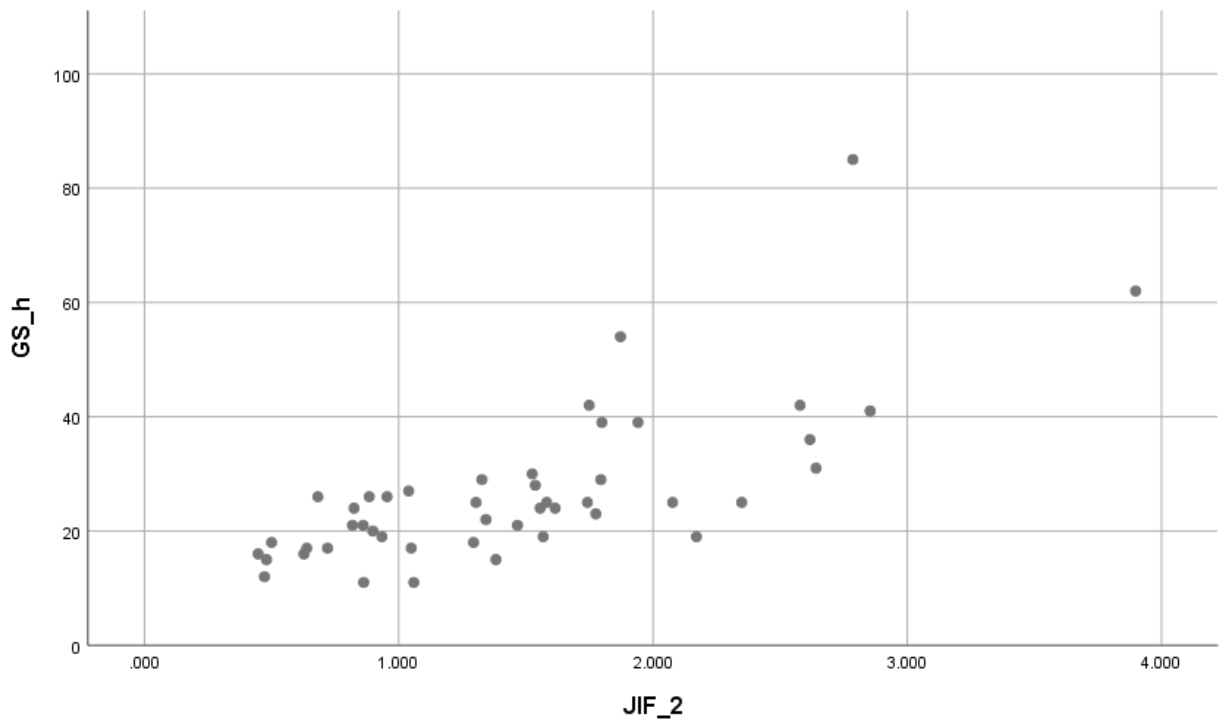


Figure 5. Scatter plot of JIF_5 and WoS_h

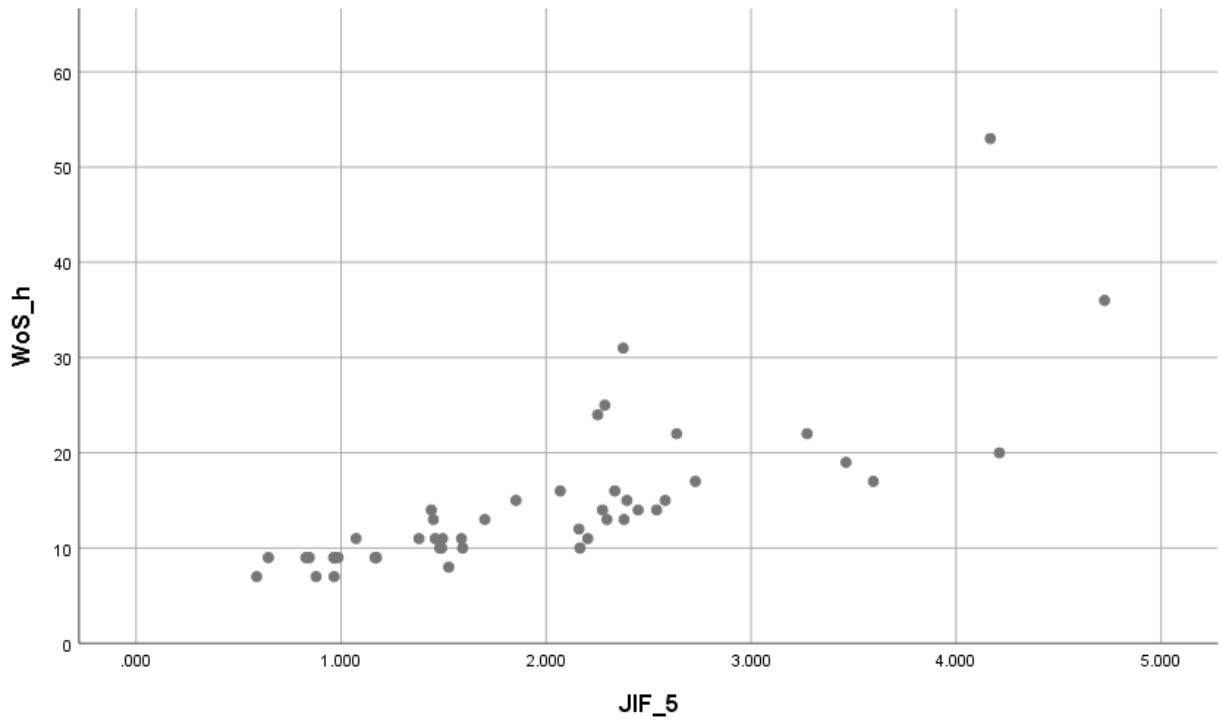
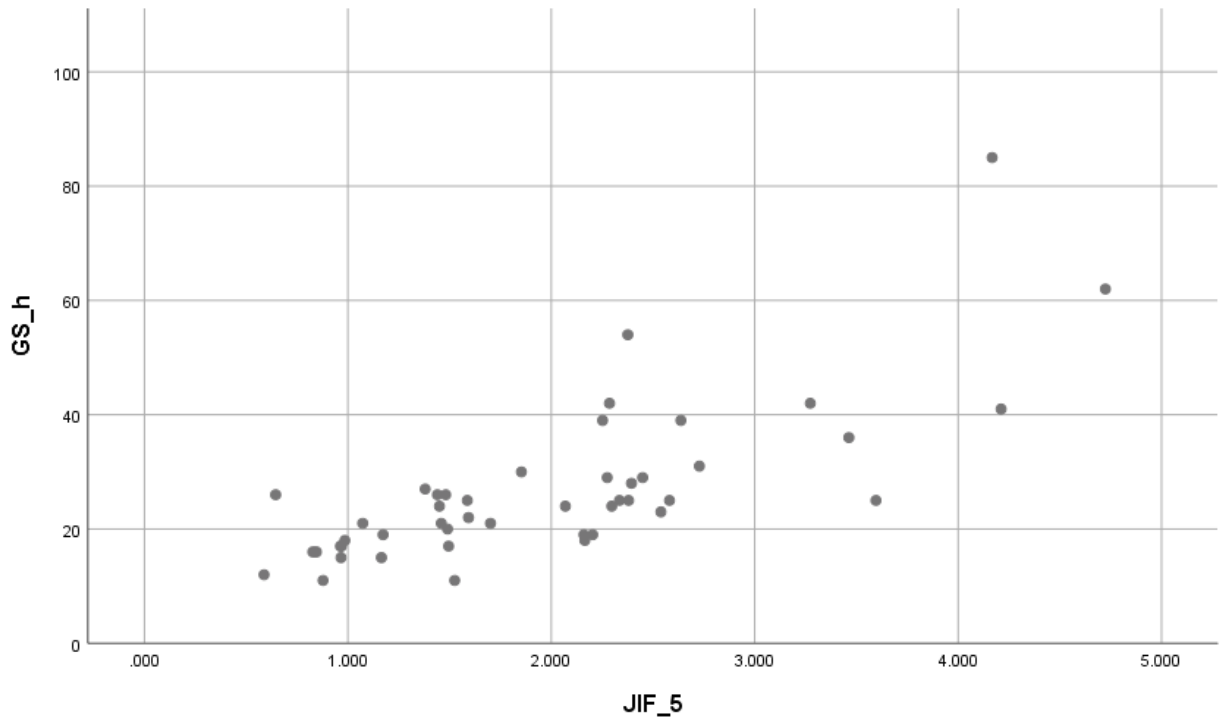


Figure 6. Scatter plot of JIF_5 and GS_h



Discussion and Conclusions

The objectives of this study were to explore the relationships between the h-index, g-index, and journal impact factors obtained from the Web of Science, Google Scholar, and Journal Citation Reports. The results indicate that they are all significantly correlated with one another. This is consistent with previous studies in other subject areas, such as forestry (Vanclay, 2008), business and management (Harzing & van der Wal, 2009; Mingers, Macri, & Petrovici, 2012), library and information science (Bar-Ilan, 2010), social work (Hodge & Lacasse, 2011), and psychiatry (Bador & Lafouge, 2011). The correlations are extremely high between the WoS h-index, GS h-index, and GS g-index, which could be attributed to the similar principles these indices operate on. It is interesting to note that the journal impact factors are highly correlated with the WoS h-index. The data for both the impact factors and WoS h-index was drawn from Web of Science, which could partly explain the high correlation. Similar findings were reported for the forestry journals and business and management journals (Vanclay, 2008; Mingers, Macri, & Petrovici, 2012).

Given the wider coverage in Google Scholar which includes more content types such as books, working papers, theses and dissertations, it is not surprising that the GS h-index values are greater than the WoS h-index values for the journals under examination. Moreover, the GS g-values are obviously greater than the GS h-index values for some journals with identical GS h-index ranking, indicating that some articles in the former are more frequently cited than those in the latter.

Though the journal are highly correlated, differences in ranking for the journals exist. The ranking differences may be due to several factors. Journals publishing a limited number of articles per year generally tend to have a low h-index compared with their journal impact factor (Harzing & van der Wal, 2009; Bar-Ilan, 2010). This can partly explain why *Annals of Dyslexia* and *Learning Disabilities Research & Practice*, which publish a relatively small number of articles, have lower h-index ranking than their impact factor rankings. On the other hand, some journals are ranked higher with the h-indices than with the impact factors partly because they publish a large number of articles, which increases their chance of generating higher h-indices. For example, *Research in Developmental Disabilities* and *Research in Autism Spectrum Disorders* have published a large number of articles per year, and therefore have greater chances of generating highly cited papers for the h-indices. Conversely, if their total citations are not high enough, the large number of articles in these journals may also lower their impact factors, which is based on the average number of citations to articles published in the journals during the past two or five years. In addition, the wider coverage of Google Scholar may also increase the h-indices in comparison with the impact factors (Harzing & van der Wal, 2009).

Nevertheless, the study has its limitations. First of all, due to the broad coverage of special education which encompasses emotional, behavioral, cognitive, or physical impairments or disabilities and intellectual giftedness, this study only examined the journals from the special education category in the 2018 JCR and the lists of two published articles. Second, the selected journals for this study are limited to the English language. Important special education journals in other languages are not included. Third, citation analysis is not the only method to assess journal quality. High quality articles are not always published in highly ranked journals. Other

methods, such as expert judgment, can be used to provide a more comprehensive evaluation of journals.

The findings of this study have practical implications to professional stakeholders. Publishers and journals editors may benefit from the findings of this study as it informs them of the status of special education journals from different perspectives. The study may also be of interest to academic librarians for collecting journals in special education and fund-allocation in this area. Furthermore, researchers in the field may find rankings of the journals helpful when they submit their papers to journals for publishing. As the study indicates, a number of journals not included in the 2018 JCR are ranked higher with the h-indices than some journals included in the JCR. Finally, the findings of this study may be helpful to academic administrators who need information about publications when considering tenure and promotion cases for their institutions.

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