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CAIS 

Journal Self-Citation V: Coercive Journal Self-Citation – Manipulations to Increase Impact Factors May Do More Harm than Good in the Long Run

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Abstract:

Journal self-citation and its effect on impact factors is a much more controversial and hotly debated topic than most academics realize. In this paper I present empirical and editorial support that practices and policies of editors, publishers authors and reviewers intended to raise a journal's impact factors by any means other than publishing the highest quality original work of authors may in fact do more harm than good to the journal and to the academy as a whole. Finally, I echo the call of those that have studied and written on the issue to abandon the practice for the sake of scientific integrity.

Keywords: editorial coercion, journal self-citation, impact factor, scientific integrity, manipulation, bias, abuse and misuse

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I. INTRODUCTION

Paul Gray's AISWorld post about a journal editor's memo requiring all future articles accepted for publication to cite at least five articles from that same journal struck a particularly personal nerve with me. Last year a 2005 CAIS paper that I coauthored with IS colleagues was blatantly plagiarized in another journal in another discipline. The incident led me to study plagiarism policies for CAIS and AIS, where I found that this policy was incomplete relative to those of other professional associations (e.g., ACM, IEEE, AOM). I presented this information to AIS council, and fortunately, a subcommittee was formed to review and strengthen our plagiarism and other academic misconduct policies. I will leave the details of that story for another time and place and only mention it to inform the readers of my heightened sensitivity regarding anything that remotely resembles academic misconduct.

I offer some quotations I believe summarize the history, debate, and current situation regarding scientific citation, journal self-citation and impact factors (IFs) quite well. Emphasis was added.

"The right to receive credit for intellectual work and new ideas is a major principle in the academic community. However, there is no debate regarding the fact that even the best and **breakthrough original research is inevitably founded**, to some extent, **upon earlier scientific work**. Thus, the practice of citing of previous work in the reference list of a scientific article **is essential in attributing the appropriate credit** to authors of relevant articles. Most publishers, editors, authors and readers consider **any departure** from this practice **as scientifically unethical**. It was a historic phrase by Newton, 'if I have seen further, it is by **standing on the shoulders of giants**', that set the ethics and moral context for the use of citations in all scientific works (emphasis added)" [Falagas and Alexiou 2007].

"A hundred years or so ago, a patent officer who was bored with his routine work wrote up his speculations on light quanta (A. Einstein Ann. Phys. 17, 132–148; 1905), **citing other people's work to avoid long explanations**. Today, there is a whole **citation industry** that — among other things — affects the impact factors of scientific journals, which in turn provide a gauge for the quality of an institution's research output (emphasis added)" [Opatrný 2008].

"I trust I am not mistaken in concluding that the associate editor made the request simply to improve the journal's impact factor. Because **authors must often curry the favor of their editor** to assure publication, one might reasonably **detect in this editor's request a whiff of extortion**. Nonetheless, I can imagine that consistent use of such requests by an enterprising editorial board might well succeed in **adding an extra point or two to a journal's impact factor**. While I admit to a certain admiration of this innovation and generally support the idea of subverting the inappropriate use of citation indices, I am confident that **we must draw the line at intellectual dishonesty in our citations**. Happily, an editor's request can always be denied, and there are other journals (emphasis added)" [Miller 2002].

"It's embarrassing, and it's a scar on our discipline,....Authors are being asked to compromise their principles. That chips away at the fabric of the scientific enterprise" [Agrawal 2005].

"It is remarkable that scientists may rely upon such a **non-scientific** method for the evaluation of the scientific quality of a paper **as the impact factor of the journal** in which is it published (emphasis added)" (Steven Lock, Emeritus editor of the *British Medical Journal*).

"Our institutions are evaluating our scientific work with a single indicator of obscure construction, subject to manipulation, and meaning something different than we thought. We have a problem. To an extent that no one could have anticipated, the academic world has come to place enormous weight on a single measure that is calculated privately by a corporation with no accountability, a measure that was never meant to carry such a load. evaluating research by a single number is embarrassing reductionism, as if we were talking about figure skating rather than science" [Wilcox 2008].

When I began to write this article I knew of a few papers on self-citation. However, I quickly learned the literature is far more extensive, multi-disciplinary, much older, and contains more empirical studies than I expected. Archambault and Lariviere [Archambault and Lariviere 2009] in a detailed history of the IF trace the method in literature back to Gross and Gross [Gross and Gross 1927] and point out that it was first developed by U.S.

librarians to help U.S. libraries maintain appropriate scientific literature for both students and faculty. (More on this in Section III)

I was also surprised to find out that IFs and self-citation have been controversial and debated for more than three decades and that the issue of journal self-citation dates back to the late 1920s and 1930s [Archambault and Lariviere 2009]. Garfield, who co-developed the ISI IF with Irving H. Sher [Garfield 2006], did not anticipate IFs would be so influential or controversial:

"I first mentioned the idea of an impact factor in *Science* magazine in 1955. That paper is considered the primordial reference for the concept of the *Science Citation Index*. Five years later, we began the experimental *Genetics Citation Index* project which led to the publication of the 1961 *Science Citation Index*. In 1955, it did not occur to me that 'impact' would one day become so controversial. Like nuclear energy, the impact factor is a mixed blessing. I expected it to be used constructively while recognizing that in the wrong hands it might be abused. Since *Current Contents*, no less *SCI*, did not exist, it would have been precocious indeed to contemplate the influence of the nascent impact factor" [Garfield 2005].

I cannot summarize all the literature within this short article. Therefore, I include tables that summarize important points. I detail some particularly illustrative and unique incidents. I believe this approach provides CAIS readers a thorough, yet easily accessible overview. I believe that, along with plagiarism [Bartlett and Smallwood 2004; Couzin and Unger 2006] and misleading reporting of statistical results based on p values other than "0.05" [Bhandari et al., 2005; Dixon 2003; Hoekstra et al., 2006; Ludwig 2005; Pervan and Klass 1992; Plucker 1997; Thompson 1999], this issue of "**editorial coercion**" is among the most critical to academics in all disciplines.

In this paper I present empirical and editorial support that practices and policies of editors, publishers, authors, and reviewers intended to raise a journal's IF by any means other than publishing the highest quality original work of authors may in fact do more harm than good to the journal and to the academy as a whole. The goal is to illustrate that coercive editorial journal self-citation requests are unacceptable and that when authors acquiesce, the results violate several principles underlying how and why citations function to further human knowledge. The remainder of this paper is structured as follows:

Section II: discusses the *list of works cited*, defines citations and explains their intended uses in scholarship

Section III: discusses opinions and examples of coerced journal self-citation policies, incidents from the literature and the relationship of IFs to self-citation

Section IV: discusses the author's role in determining the citations in their paper

Section V: discusses alternative explanations for high self-citation rates

Section VI: describes and echoes many other's calls to abandon coercive journal self-citation

Finally, I summarize the paper and end on a satirical note.

I sincerely hope that this paper is enlightening and useful to IS academics and academics in general. I also hope that it reminds them of the obligations and ethical responsibilities the academy entrusts to editors and all community members to help ensure the integrity of science.

II. LIST OF WORKS CITED AND CITATIONS

CAIS readers know what lists of works cited and citations are. However, I found it useful to search literature, reference resources and dictionaries for explicit explanations that establish appropriate citation uses before discussing possible inappropriate uses. Gibaldi [Gibaldi 2003a MLA Handbook] explains that nearly all research builds on predecessors' work. When authors cite works, the intention is to acknowledge their debt to those predecessors from which relevant ideas and information were derived. "In presenting their work, researchers **generously acknowledge their debts to predecessors by carefully documenting each source**, so that **earlier contributions receive appropriate credit** (emphasis added)" [Gibaldi 2003a p.142]. Gibaldi [Gibaldi 2003b p. 238] also states that while, "the list of works cited....plays an important role inacknowledgement of sources...., ... the list does not in itself provide sufficiently detailed and precise documentation." Authors must also clearly indicate what specifically they derived from a source and where in that source it can be found [Gibaldi 2003a p. 238]. Acknowledgement is through a parenthetical citation in the paper wherever another's ideas, facts or words are incorporated into our own [Gibaldi 2003a p. 238].

Dictionaries provide definitions that support the notion that a citation should have some underlying purpose and relevance to the paper in which we find it.

Cite: “to mention in support, proof, or confirmation; refer to as an example” [Dictionary.com 2009]

Citation: “A quoting of an authoritative source for substantiation” [Dictionary.com 2004]

The *Publication Manual of the American Psychological Association* specifically states, “Although you should acknowledge the contributions of others to the study of the problem, **cite only that research pertinent to the specific issue** and **avoid references with only tangential or general significance** (emphasis added)” [American Psychological Association 2001].

These definitions and guidelines highlight the central requirement that citations be relevant to the paper.

Next, I discuss specific purposes and motivations for citation.

Citation Purpose and Motivation

Why do scholars cite papers in the first place? Small [Small 1998] sums it up very well:

“Consider first a scientific paper. The author cites earlier documents **in an attempt to embed the ideas of other authors in his or her work**. These references, let us presume, **stand for ideas that are part of the author's argument**. Since the cited works each contain arguments, we have in effect an argument punctuated by digressions into other arguments. If the author's work is itself cited, yet another layer of argument embedding and indirection occurs. As more authors cite either the original paper or the subsequent citing papers, an interdependent web of arguments evolves, which takes on more weight with each generation of citing authors. This is what makes the name of ISI's new citation search product *The Web of Science* so apt: authors are **embedded in a web of reasoning and argumentation, represented by the citation links between the papers**. To some degree **the validity of these texts that are woven together are mutually dependent** (emphasis added)” [Small 1998].

Tuefel [Tuefel et al., 2006] points out what we all know: “Citations play a central role in the process of writing a paper.” Swales [Swales 1990] argued that scientific papers follow a general rhetorical argumentation structure and researchers must justify the contribution their work makes to the body of knowledge. Authors also must relate their current work to previous research and acknowledge previous researcher's claims with a formal citation and further with language that connects the citation to their argument [Swales 1990]. Small [Small 1998] takes it one step further: “the author **uses the cited work to symbolize a particular idea inherent in that work**, thereby **incorporating and building upon it**.” Garfield [Garfield 1974] himself pointed out that, “Citation represents a connection between two published articles. It is an **article-level interaction** (emphasis added).”

Multiple studies of author's motivations for citation reveal meaningful reasons for citing reference works and that citations serve to further the aims of the author in writing the paper [Bornmann 2008; Small 1998; Spiegel-Rüsing 1977; Ziman 1968].

I turn next to the topic at hand, namely, coercive journal self-citation.

III. COERCIVE JOURNAL SELF-CITATION

Citation Analysis increased in importance in scholarly publishing in recent years [Falagas and Alexiou 2007]. Scientists and academic institutions increasingly consider the IF of journals to: assess relative journal quality, academic departments' accomplishments, importance of particular disciplines to equate the IF of the journal in which an article is published with the quality of a specific article [Smith 2008]; and most controversially as criteria for hiring and promotions, to determine the quality (or lack thereof) of a department, to award large cash bonuses in some countries, and for allocation of research funds [Agrawal 2005; Hemmingsson et al., 2000; Holden et al., 2006; Krauss 2007; Opatrný 2008; Smith 2008; Wilcox 2008]. Sadly, while we exhort our students not to violate academic integrity policies (e.g., cheating or plagiarism) and punish severely some who do, data shows that some scholars in several fields may have intentionally tried to influence IFs through less than honorable means [Agrawal 2005; Hemmingsson et al., 2000; Krauss 2007; McVeigh 2004].

Journal and individual researcher self-citation are neither good nor bad, and high self-citation rates are neither unusual nor unwarranted in some discipline's leading journals because they consistently publish high quality papers and/or have distinctive content [Garfield 1974; Hemmingsson et al., 2000; McVeigh 2004]. Self-citation and IFs, like any statistical instrument, may be misused or abused for purposes other than advancement of knowledge.

Archambault and Lariviere [2009] point out that, from the start there was debate over the inclusion of self-citations. The original developers of the method and other early adopters discussed this issue and all decided to exclude self-citations [Allen 1929; Gregory 1937; Gross and Gross 1927; Hooker 1935; McNeely and Crosno 1930; Westbrook 1960]. Garfield and Sher [Garfield and Sher 1963] cited both Gross and Gross [1927] and Westbrook [1960] and decided to include self-citations [Archambault and Lariviere 2009]. “Unfortunately, Garfield and Sher did not foresee that their choice provided **a potent way for editors to manipulate the JIF by inducing authors to cite the journal in which they publish**; because journal self-citations are counted, it is also possible to influence the JIF by “encouraging” authors to cite papers from the journal in which they seek to be published (emphasis added)” [Archambault and Lariviere 2009].

Table 1 summarizes terms used in the literature to describe coerced journal self-citation. It is clear from the language in the table that the practice is held in low esteem.

Table 1. Terms Used to Describe Coerced Journal Self-Citation

Terms	Cite
Intellectual Dishonesty	[Miller 2002; Sevinc, 2004]
self-citation has the potential to distort the true role of the [Journal] title as a participant in the literature of its subject	[McVeigh 2004]
the potential for editors, <i>perhaps unintentionally</i> , to artificially inflate the impact factor of their journals by frequently referring to their editorials	[Ha et al., 2006]
some journals have used extensive reference to their prior content to influence their citation metrics problem of excessive self-citation exceptionally high self-citation counts	[Testa 2008]
scientifically unethical at least questionable should be abandoned artificially boost their impact factor and order in the relevant scientific field journal ranking	[Falagas and Alexiou 2008]
obvious manipulation of the impact factoris not honorable	[Hemmingsson et al., 2000]
an insidious abuse in how some publishers correspond with authors Publishers should be embarrassed and authors should not comply	[Agrawal 2005]
(emphasis added)	

Table 2 lists the few incidents of coercive self-citation and high editorial self-citation reported in the literature. Falagas points out that “few researchers are willing to go public with such allegations” [Falagas and Alexiou 2007]. Together, Table 1 and Table 2 summarize what I found in the literature regarding this topic. I think they speak for themselves.

Table 2. Reported and Suspected Incidents of Coercive Citation Requests and High Self-Citation

Reported incident	Cite
<p>“The journal <i>Leukemia</i>, which is owned by Macmillan magazines, has been accused of trying to manipulate its impact factor, the measure used to rank the importance of scientific journals.”</p> <p>“a letter received by authors who had submitted a paper to <i>Leukemia</i> in October 1996 asking them to increase the number of references to papers published in <i>Leukemia</i>.”</p> <p>“we kindly ask you to add references of articles published in <i>Leukemia</i> to your present article.”</p>	[Smith 1997]
<p>In an e-mail sent out from the editor to those who submitted papers: “I should like you to look at some recent issues of the <i>Journal of Applied Ecology</i> and add citations to any relevant papers you might find. This helps our authors by drawing attention to their work, and also adds internal integrity to the <i>Journal's</i> themes.”</p> <p>“In 1997 the <i>Journal of Applied Ecology</i> cited its own one-year-old articles 30 times. By 2004, that number had grown to 91 citations, a 200 percent increase. Similar types of citations of the journal in other publications had increased by only 41 percent.”</p> <p>“...the self-citationshad a measurable effect. The ecology journal's impact factor jumped from 1.3 in 1997 to 3.3 in 2004, and its ranking within the discipline rose from 29th out of 86 journals to 16th out of 107.”</p>	[Monastersky 2005]
<p>“meeting abstracts published in <i>FASEB Journal</i> were reclassified as non-source articles from 1988, and the IF for the journal registered a leap from 0.24 in 1988 to 18.3 in 1989.”</p>	[Gowrishankar et al., 1999]
<p>“Editors of some journals are sending copies of articles previously published in their journals together with the review copy of another article to the referees and are asking them if it is possible to include those published articles in the reference list.”</p>	[Hemmingsson et al., 2000]
<p>“...I should not have been surprised (though I was) when an associate editor asked me to modify one of my manuscripts by adding citations to papers in his journal ~ apparently only because they were in his journal. I was puzzled by this request, because no papers from his journal had provided intellectual or technical foundations for our work.”</p>	[Miller 2002]
<p>“at least four major journals in the area of ecology and evolutionary biology routinely encourage such self citation”</p>	[Agrawal 2005]
<p>“ISI detected a clear example of that practice at the <i>World Journal of Gastroenterology</i>. The company stopped listing that journal this year because 85 percent of the citations to the publication were coming from its own pages. (Despite that censure, the journal's Web site has a moving banner that still trumpets its 2003 impact factor.)”</p>	[Monastersky 2005]
<p>Six ecology journals suspected to request additional self-citation had relatively high self-citation rates across the 107 journals studied and the self-citation rates of these six journals had increased between 2000 and 2006.</p>	[Krauss 2007]
<p>A 2007 article in <i>Folia Phoniatica et Logopaedica</i> purposely cited all 67 papers published in the journal in 2005 and 2006. “the primary goal of this article” ...was... “to increase the impact factor of the journal.”</p>	[Opatrný 2008; Schutte and Švec 2007]
(The source of some of these incidents were citations in [Sevinc, 2004])	

Garfield [Garfield 1997] pointed out that “Recognizing the reality of the Matthew effect, I believe that an editor is justified in reminding authors to cite equivalent references from the same journal, if only because readers of that journal presumably have ready access to it. To call this “manipulation” seems excessive **unless the references chosen are irrelevant or mere window dressing** (emphasis added).” The Matthew effect, originally coined by Merton [Merton 1968] “to describe the frequent misallocation of credit to the more eminent author of coauthored papers... can be applied as well to the citation of prestigious journals” [Garfield 1997]. However, I would argue that most of the cases referred to in the literature are not examples of the Matthew effect, but rather the very irrelevant and window dressing types of references that Garfield excludes from his justification.

Opatrný [Opatrný 2008], in a letter to the editor of Nature described the last incident listed in Table 2. Two researchers published a paper called “Reaction of *Folia Phoniatica et Logopaedica* (FPL) on the “Current Trend of Impact Factor Measures” [Schutte and Švec 2007] which cited all 67 papers published in the journal in 2005 and 2006. The authors acknowledged the aim and the absurdity of their paper:

“As a reaction to this disturbing trend, the authors have decided to put together this review, which cites all the articles published in FPL within the last 2 years. This article is thus expected to considerably increase the impact factor of this journal and its ranking. While we realize that this initiative is absurd, we feel it adequately reflects the current absurd scientific situation in some countries.the primary goal of this article is to increase the impact factor of the journal...” [Schutte and Švec 2007].

Clicking on the “Notices” button on JCR’s homepage opens a list [http://admin-apps.isiknowledge.com/JCR/static_html/notices/notices.htm#product_news] of the nine journals that were delisted in 2007 and an explanation that these titles were not published in the 2007 JCR due to “the significant effect of Self Citations on their Impact Factors... exceptionally high self citation rate, some over 90 percent.” [http://admin-apps.isiknowledge.com/JCR/static_html/notices/notices.htm#product_news]. I contacted James Testa of Thomson Scientific and asked whether there is a threshold percentage for self-citation over which titles will not be listed in JCR and when the policy to remove such titles was implemented. As of this writing I have not heard back from him. He did answer an earlier e-mail regarding the location of the list of nine journals and was quite helpful in that regard.

I collected the following metrics from JCR for the years between 2003 and 2006: IF, IF without self-references (IFWSR), Self-cited Rate (SSR), and Self Cites to Years Used in Impact Factor Calculation (SSYIF), and analyzed the data to see what might be inferred. For 2006, seven of the nine journals were not listed in JCR, presumably also because of high self-citation rates. The two journals that were included in JCR 2006 both had SSR above 60 percent and SSYIF above 80 percent. All nine journals were listed in 2005. This small data set reveals some patterns. First, all nine journals had SSR above 50 percent and two had SSR above 80 percent in the year before they were delisted (2005 or 2006). Second, all nine journals had SSYIF above 75 percent and two had SSYIF above 90 percent in the year before they were delisted (2005 or 2006).

Metrics from the earlier years show that in 2004 only eight of the nine journals were listed in JCR, six had SSR greater than 47 percent, and three had SSR greater than 75 percent. However, these seven journals were all still listed in JCR in 2005. In 2003 only six of the journals were listed in JCR, four of them had SSR above 50 percent, and two above 75 percent. Yet, these four journals were also listed in the following year 2004.

These self-citation rates are clearly high; but did they affect the IF of these journals? To find out I compared the IF and IFWSR in terms of change in value and percentage change. All nine journals had IF that were higher than IFWSR in the year before they were delisted (2005 or 2006). Second, for all nine journals the IF was more than 400 percent higher than the IFWSR, and for two journals the IF was more than 1200 percent higher than the IFWSR. Third, for all nine journals the IFs were increased at least 0.5 over the IFWSR, six journals saw increases greater than one point, and one had an increase greater than two. Table 3 shows the increase in IF above the IFWSR as points and percentage for the nine journals in the year before they were delisted. Clearly the self-cited rates led to large IF increases.

Table 3. IF Increases above IFWSR for 9 Delisted

Increase in IF in Points	Increase in IF as a percentage
±0.545	+578%
+0.594	+760%
+0.846	+433%
+1.213	+585%
+1.434	+474%
+1.571	+998%
+1.614	+1381%
±1.708	+830%
±2.045	+1275%
(Sorted low to high by increase in IF points)	

From this small dataset and analysis we can infer that Thomson started delisting titles from the JCR for *exceptionally high self-citation rate in 2006 and that 50 percent SCR and 75 percent SSYIF* were de facto thresholds. We can also infer that increases in SSR led directly to large increases in IF for all the journals. We cannot infer why these journals had such high self-citation rates from the JCR metrics. Whether editorial coercive self-citation or some other unintentional factor led to these increases, the consequence is the same and the journals role in their field is distorted upward.

Finally, even if Thomson removes FLP from JCR in 2008, the authors can still use the 2007 IF as a metric to show the quality of their work on resumes, grant proposals, job and promotion applications, and for allocation of research funds. This possibility is also true for the authors of papers in the nine journals delisted in 2006 and 2007.

To their credit, Thomson has also taken other steps to address issues related to IFs. In 2009 Thomson increased the number and type of indices reported and made some more visible including: the Eigenfactor, the 5 year IF, self-citing rates, and the IF without self cites.

“The Eigenfactor™ score of a journal is an estimate of the percentage of time that library users spend with that journal” (<http://www.eigenfactor.org/methods.htm>)

Finally Thomson placed advice on how to use their citation data wisely in their online help.

“You should not depend solely on citation data in your journal evaluations. Citation data are not meant to replace informed peer review. Careful attention should be paid to the many conditions that can influence citation rates such as language, journal history and format, publication schedule, and subject specialty” (http://admin-apps.isiknowledge.com/JCR/help/h_using.htm).

Four additional conditions are mentioned that may affect a journal’s ranking and IF, yet self-citation is not explicitly one of them. Thomson alludes to effects self-citations may have on IFs but fails to explain the potential for inflation and abuse. Users can easily overlook self-citations if they are not aware they are reported in ISI or ignore them if the user does not know the potential effects they can have on IFs. I have never seen an author, editor, or publisher mention a journal’s “IF without self citations” and for good reason. It will almost always be lower than the standard IF.

I applaud Thomson’s efforts to clarify issues regarding the IF and self-citation rates. However, these well intentioned changes have not yet reduced the possibility for a journal’s IF to be manipulated to misrepresent its impact and rank. Hopefully Thomson will take more specific actions in the future to reduce and/or eliminate this possibility. However,

Gallagher and Barnaby [Gallagher and Barnaby 1998] mentioned two changes that ISI editors stated they intended to make: "When we questioned the editors of SCI about the absence of emergency medicine journals from their pool of source journals, they indicated an intention to include citations from emergency medicine journals in future calculations of impact factors as early as 1996. Furthermore, they declared an intention to eliminate the 'cited only' journal category." In 2009, over a decade later, JCR still includes the "cited-only" category of journals (http://admin-apps.isiknowledge.com/JCR/help/h_using.htm).

Relationship between Impact Factors and Journal Self-Citation

I found another trend in the literature about the relationship between IFs and self-citation rates. Thomson acknowledges a weak negative correlation between IFs and journal self-citation rates ($R^2 = 0.0368$) and further, that high IF Journals (over 5.0) have low self-citation rates while high self-citation rates are most common among low IF journals (below 0.5) [McVeigh 2004]. Further Thomson acknowledges that "...there are journals where the **observed rate of self-citation is a dominant influence in the total level of citation**. For these journals, **self-citation has the potential to distort the true role of the title** as a participant in the literature of its subject (emphasis added)" [McVeigh 2004].

Two studies empirically explored the relationship between self-cited rates and IFs. Yu and Liang [Yu and Liang 2007] demonstrated, through both theoretical and actual analyses, that for journals with low IFs editors could effectively manipulate the IF of the journal by requesting authors to increase references to papers published in the journal in the previous two years. Biglu [Biglu 2007] analyzed the top and bottom 100 journals by IF from among all 6,088 journals indexed in the JCR in 2005. Biglu found that the 100 journals with the highest IF ($IF > 9.847$) had an average self-citation rate of two percent, while the 100 journals with the lowest IF ($IF < 0.052$) had an eight times higher average self-citation rate of 17 percent.

These studies demonstrate that the highest IF journals typically have low self-citation rates and manipulation of the IF through self-citation is not going to catapult a low IF journal from the bottom to the top in its category. That said, it is possible for IF manipulations, whether intentional or not, to raise a journals' IF by a full point or more [Miller 2002; Opatrný 2008; Testa 2008; Yu and Liang 2007] and to change a journals' rank by five or more positions [Biglu 2007; McVeigh 2004; Yu and Liang 2007].

VI. AUTHORS ARE BEST SUITED TO SELECT CITATIONS

I found two themes that are common to all the articles and letters on journal self-citation: the notion that authors are best suited to select citations from their work. Authors are solely responsible for selecting the most relevant articles to cite [Falagas and Alexiou 2007; Garfield 1974; Hemmingsson et al., 2000] and only an independent peer reviewer should suggest specific citations to address shortcomings [Falagas and Alexiou 2007; Hemmingsson et al., 2000]. McVeigh, in his report for Thomson, stated:

Ideally, authors will choose the most relevant works to cite, independently of the journal in which they were published [McVeigh 2004].

VII. ALTERNATIVE EXPLANATIONS FOR HIGH JOURNAL SELF-CITATION

Journal self-citation is a complex phenomenon and may be influenced by several factors [Frandsen 2007; Garfield 1974; Hemmingsson et al., 2000; Rousseau 1999; Tsay 2006; Yu and Liang 2007]. I would be remiss if I did not mention the various other possible factors that can affect journal self-citation rates. I reiterate that journal and individual self-citation are neither good nor bad and high self-citation rates are neither unusual nor unwarranted in some discipline's leading journals [Garfield 1974; Hemmingsson et al., 2000; McVeigh 2004].

I found a number of other possible reasons for journal self-citation in the literature. Several authors mentioned factors that could limit the potential number of citing and cited journals and thus isolate the journal. Examples include: self centeredness, egoism, specialization, distinctive content, and monopsony, a kind of reverse monopoly and center-periphery issues in scholarly communication [Frandsen 2007; Garfield 1974; Hemmingsson et al., 2000; McVeigh 2004]. Journal age and publication frequency can affect journal self citation rate [Garfield 2005; Rousseau 1999; Tsay 2006]. Some authors may publish a series of works in the same journal or prefer to submit papers to a journal that previously published works related to his/her study [Hemmingsson et al., 2000]¹. This list of legitimate reasons why a journal's self-citation is high does not, however, excuse editors that seek to coerce authors to cite articles from their journal.

¹ The idea of selecting journals for submission based on the concept of "fit" is discussed in Turkman [2009], one of the papers in this series on self-reference.

VIII. A CALL TO ABANDON COERCIVE JOURNAL SELF-CITATION

Some papers suggest that the value of the IF as an objective way to compare journals has come into question due to miscalculations in its computation and dubious editorial practices that may influence a journal's impact factor [Agrawal 2005; Gowrishankar et al., 1999; Reedijk and Moed 2008]. Falagas et al. [Falagas and Alexiou 2007] state that:

Regardless of the efficiency of the IF in judging scientific journals objectively, we believe that bias originates mainly from misuse as well as abuse.

Many of the authors writing on the topic of journal self-citation make direct calls to editors to stop the practice. Coercively requesting or requiring authors of accepted papers to cite articles from that journal is described in the literature as interfering with an the author's selection of the most relevant citations, insulting to authors, possibly negating the original value and meaning of references in scientific manuscripts, and/or eroding the integrity of objective scientific research [Agrawal 2005; Falagas and Alexiou 2007].

Following are two of the many quotes that speak for themselves:

To maintain the integrity of objective scientific research, this questionable policy that essentially results in the 'businessification' of science must be stopped. Publishers should be embarrassed and authors should not comply [Agrawal 2005].

Falagas et al., [Falagas and Alexiou 2008] called on "editors' sense of responsibility and science ethics to abandon it fully.

I echo their calls to abandon this practice and suggest that authors not comply. I also call on Thomson to:

State more clearly and visibly the potential for high self-cited rates to inflate the IF of journals

State specifically a self-citation threshold percentage at which a journal will no longer be listed in the JCR

Continue to consider additional metrics, such as the Eigenfactor, to ensure multiple perspectives of quality

In addition, publishers, editors, authors and reviewers should use the IF values without self-citations rather than the standard impact and seek other metrics of quality to corroborate and complement the IF. Many of the articles in the literature call for or suggest alternative measures to the IF to either replace or complement it [Abassi 2004; Banks M. A. and Dellavalle 2008; Barendse 2007; Bormann 2008; Hirsh 2005; Monastersky 2005; PLoS Medicine Editors 2006; Selgen 1997; Smith 2008; Takahashi et al., 1999].

IX. SUMMARY AND A SATIRICAL NOTE

This paper illustrates that the practice of editorial coercive journal self-citation violates the very spirit of scientific integrity and ethics on which the purpose of citations was founded. Many editors and authors from multiple disciplines, including Garfield the co-inventor of the IF, clearly state that coerced journal self-citation is unethical and if unchecked it will continue to erode away the very value of the IF to serve as a quality metric. Finally, there are many additional issues with IFs and self-citations beyond the scope of those presented in this paper including but not limited to: language and geographical bias, evaluation of individual researchers based on a journal and field level metric, arbitrariness of the two-year window, and inclusion of multiple citations and methodological bias [Archambault and Lariviere 2009; Barbosa 2007; Bornmann 2008; Gallagher and Barnaby 1998; Garfield and Sher 1963; Haynes 2007; Hecht et al, 1998; Moravcsik and Murugesan 1975; Pasterkamp et al., 2007; PLoS Medicine Editors 2006; Porta et al., 2003; Rey-Rocha 2001; Scully and Lodge 2005; Seglen 1997; Smith 2008; Weingart 2005; Zwahlen et al., 2004].

I close this paper on a lighter note to help us all maintain a perspective and sense of humor on the thorny topic of citations.

I paraphrase and recast White's [White 2004] tongue in cheek satirical advice on how to cite to get published:

Cite Jarvenpaa, Orlikowski, Ives, DeSanctis, Ackoff, Alter, Allen Lee, Gray, Robey, Watson (Rick and/or Hugh), Gallupe, Zigungs, King, Sprague, Alavi, Culnan, Baroudi, Poole, Huber, Cougar, McLean, Mason, Markus, Benbasat, Davis (Gordon and/or Fred), Galliers, Hirschheim, Lyytinen, Bjørn-Andersen, Sol, Wetherbe, Nunamaker, and Zmud, whether relevant or not

Cite very obscure articles, such as a paper written in Slovenian or Bulgarian and a dissertation from Azerbaijan or Uzbekistan

Cite as many Adaptive Structuration Theory papers as you can find

Cite your thesis advisor's thesis advisor's thesis advisor

Cite your doctoral seminar instructors

Cite those most likely to serve as editors and reviewers for your manuscript

Cite authors who will cite you back in return

Cite track and minitrack chairs at ICIS, HICSS, BLED, PACIS, etc.....

Then consider two pieces of serious advice to get your work published:

Give credit to those from whom you borrow intellectual property

Cite for content relevance and not citee's reputation

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