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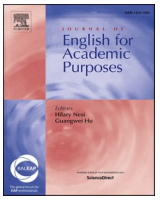

Academic publishing and the attention economy

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ABSTRACT

With the explosion of information and constant bombardment of news, advertising and social media, the 'Knowledge Economy' has given way to the 'Attention Economy', which treats human attention as a scarce commodity. In the digital age, moreover, research articles are products competing for readers' limited attention in a context of massively greater competition. This is particularly relevant for academics as attention can function as currency as well as capital when its qualitative value is turned into measurable units. This is, in essence, the role played today by publication and citation. Propelled by metrics-driven career incentives, scholars are constantly pushed to gain the attention, and approval, of reviewers, editors, readers, funders and promotion boards and this means rhetorically promoting our work to be as noticeable as possible. In this argument paper, I elaborate this point and propose, through the examination of recent research into academic discourse, how the attention economy has come to dominate how research is presented.

1. Introduction

The concept 'attention economy' is perhaps unfamiliar to many of us working in applied linguistics, as it comes from the world of marketing and business. In this paper, however, I seek to show its centrality to published academic writing and how it might help account for many of the changes that have occurred in the rhetorical presentation of research. While coming to prominence only recently, the term was coined 50 years ago the by the Nobel psychologist, Herbert Simon (1971) who suggested that attention was the "bottleneck of human thought" that limits both what we can perceive and what we can do. Wikipedia defines it thus:

Attention economics is an approach to the management of information that treats human attention as a scarce commodity and applies economic theory to solve various information management problems.

Essentially, the idea is that attention is a limited resource, which means that there is considerable competition for it. Social media, advertisers, TV, news outlets, entertainment sources and so on constantly bombard us with information, attempting to cut through the noise to grab our attention and influence our spending. Facebook users post over half a million comments a minute, YouTube receives 500 h of video uploaded every minute, and there are 6000 tweets sent every second on Twitter (Hendricks, 2022). Forbes magazine believes we are exposed to between 6,000 and 10,000 advertisements a day (Kirk, 2022) with the vast majority ignored or forgotten within seconds. So, we have information in abundance but a scarcity of attention and, for corporate brands, advertising that can hold a viewer's attention may lead to greater engagement, enhanced brand recall and higher profits (Sagar, 2021). Simply put, more attention means more sales: it is a capital asset.

Gaining attention is not only valuable to those who demand it from us, but *receiving* attention from others is vital when we seek to communicate. This becomes particularly relevant for academics when we consider Franck's (2016) claim that attention can function as

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currency as well as capital when its qualitative value is turned into quantifiable, measurable and comparable units. This is, in essence the role played today by publication and citation. Propelled by metrics-driven career incentives, scholars are constantly pushed to gain the attention, and approval, of reviewers, editors, readers, funders and promotion boards. We do this in various ways, such as judicious topic choice or careful journal selection, but mainly through writing of various kinds and, principally, through our rhetorical choices. In this argument paper, I elaborate this point and claim, through the examination of recent research into academic discourse, how the attention economy has come to dominate how we present our work for publication. In this way I hope to offer a coherent, overarching account which draws together empirical work, both my own and by others, of current rhetorical practice.

2. The contemporary publishing context

Academics have always represented their research in a favourable light, carving a recognisable niche for themselves so their work has more chance of being published, cited and used. 30 years ago, for example, Fairclough (1993) referred to the 'marketisation' of research and Hyland (1999) spoke of authors 'boosting' statements to strengthen their claims. With increased career pressures on academics to publish and an explosion of available research, there is now even greater encouragement to rhetorically emphasise their professional visibility and research results.

The demands on academics have never been greater. One of the defining features of the modern academic scene is that publishing now drives research, rather than vice versa, as academics across the globe must now publish, usually in English, to present their ideas, increase their visibility and navigate their professional futures. The migration of publishing to online platforms and the retrospective digitisation of archived articles has enabled a managerial culture which intensively audits the number of papers academics publish and the citations they receive. While prestigious databases like the *Web of Science* Science Citation Index (SCI) rank journals into a hierarchy of prestige, sites such as *Scopus, Orchid,* and *Google Scholar* have grown up to count citations and rank an academic's work against all others.

Publication, then, is now the system which both creates knowledge and distributes rewards to those who are most successful at it. Career opportunities, promotion and, in some countries, financial rewards, are now tied to acceptance for work in high profile journals as the system of institutional incentive has transformed academic endeavour into a machine for the manufacture of papers. The modern research lab therefore devotes more energy to producing articles than discoveries. Researchers find that their work has little value for them or their university without publication in the right places and a paper is judged as a contribution to the disciplinary literature if colleagues can find it and make use of it. If editors, referees, proposal assessors, conference participants, or journal readers regard a submission as original and significant, if it is published in prestigious places, and if it is cited and taken up by others in future papers, then the writer receives the reward of recognition. This is our very own attention economy.

Some years ago Hagstrom (1965) likened this process to a form of barter, where the recognition that motivates individual academics is exchanged for a contribution of information. Latour and Woolgar (1979), in a variant of this market metaphor, described academics as engaged in converting different kinds of 'credit' to gain attention and enhance their credibility. Thus, a series of successful publications bestows credit on researchers which they can convert into more promotions and gain research grants to finance equipment and attract colleagues to conduct further research. This free market metaphor, however, is skewed by the fact that success brings appointments to key positions, access to economic resources, and the occupation of major gatekeeping roles, leading to the formation of an elite as greater resources flow to them. This personal credibility is what Bourdieu (1991) refers to as symbolic capital, the honour, prestige or recognition which bestows power on the holder. However, because both symbolic and material capital are scarce resources, there is considerable competition for them and this underlies the professional desire for attention through publication. James Watson, one of the Nobel laureates for the discovery of DNA, expresses it in this way:

> It starts at the beginning. If you publish first, you become a professor first; your future depends on some indication that you can do something by yourself. It's that simple. Competitiveness is very dominant. The chief emotion in the field. (Cited in Judson, 1995, p. 194).

This then, is the attention economy in the field of academic publishing. A market variation for the digital age where papers are products competing for readers' limited attention in a context of massively greater competition. Here, 'productivity' is a crude measure of worth, haste to publish is a condition of survival and gaining favourable attention the key to success. All of this, moreover, occurs in a context in which there are more journals, more researchers and more scholarly papers than ever before (Hyland, 2015). It is estimated that there nearly nine million scholars working in 17,000 universities seeking to publish in English-language journals each year (Schneegans, Lewis, & Straza, 2021). UNESCO believes the number of researchers grew three times faster than the world population between 2014 and 2018 with research spending outpacing the global economy and publishing output up 21% over the same period. In 2018 there were about 33,100 active scholarly peer-reviewed English-language journals in the world with more than 3 million new peer reviewed articles each year (Johnson et al., 2018). Astonishingly, one of the largest publishers, Elsevier, received over 2.7 million submissions in 2022, publishing over 600,000 articles after peer review with some 1.8 billion articles accessed.[1]

Amidst this deluge of publishing and fuelled by assessment regimes which count an academic's papers and citations, gaining attention for one's work is a prerequisite for professional achievement. It has become a necessity in a relentless numbers game where scholars struggle to be seen. In what follows, I discuss some of the ways they do this.

[1] https://www.elsevier.com/__data/assets/pdf_file/0005/1095953/Fast-Facts2023.pdf.

3. Seizing attention through titles

Attention starts with titles. Online searches are today overwhelmingly based on articles rather than journals due to publishers preferences for 'article-based publishing' which relegates the volume/issue shell of journals to archiving and allows the quicker delivery and easier internet searching of individual papers. Writers must therefore, more than ever, make their titles both informative and appealing to gain attention. They must not only name the work they accompany but attract readers who may go on to read, cite and make use of their research. As Belcher observes (2021: 282), "Your title is the highway billboard of your article" which can invite attention and gain readers (Jamali & Nikzad, 2011; Milojević, 2017).

To better accommodate these internet searches, several science journals have proposed detailed guidelines. One major shift has been longer titles and the growing mention of methods in clinical article titles, although this differs by journal (Kerans et al., 2020). There has also been a substantial and consistent trend towards more concrete and definitive titles in psychology (Whissell, 2012) and an increasing use of question marks in the social sciences (Ball, 2009). Hyland and Zou's (2022) study of over 5000 titles shows that titles in the more discursive soft fields are generally longer, contain more interrogative and compound forms and, aside from history, are more likely to mention the method or findings, as here .[2]:

(1) Thriving? Or Surviving? An Approach-Avoidance Perspective on Adult Language Learners' Motivation (App Ling)
(2) Exclusion or exemption from risk regulation? A comparative analysis of proposals to amend the EU GMO legislation (Bio)

The authors hypothesise that this is because, unlike writers in the heavily crowded and highly competitive environment of STEM disciplines, social science research follows less linear tracks and seeks to appeal to wider, more heterogeneous audiences, so their titles tend to be catchier and more explicit to *create* rather than *assume* an audience for the work.

Computer-assisted text analysis has been used to correlate title features with citation counts, so that Lewison and Hartley (2005) and Morales et al. (2020) show that titles with a colon generate more citations while question marks tend to have a negative impact (Hudson, 2016). There are, however, considerable disciplinary differences. In fact, titles present writers with a rhetorical challenge: they have to be sufficiently appealing to grab attention while being appropriately descriptive of the article's content to be detected by information retrieval systems. Jiang and Hyland's (2022) study of how titles have changed across time shows a remarkable increase in the length of titles in all disciplines so that they are now generally between 11 and 15 words. Jacques and Sebire (2010) and van Wesel et al. (2014), moreover, found a positive correlation between length and impact, suggesting that this increase is not only due to the growth of online search algorithms, but also to the scramble to be noticed.

Economics, psychology, engineering and mathematics have all increased their title lengths dramatically since 1960, while medicine and biology have consistently favoured long titles (Jiang & Hyland, 2022). Rapidly evolving discoveries and increasing technicality in the sciences can help explain this, but it may also be a result of large numbers of researchers competing for attention in more densely explored and contested areas. These writers, for example, are seeking to spell out what is distinctive about their study compared with others.

(3) Salesperson social media use in business-to-business relationships: ***An empirical test of an integrative framework linking antecedents and consequences*** (Econ)
(4) Tripartite combination of candidate pandemic mitigation agents: ***Vitamin D, Quercetin, and Estradiol Manifest properties of medicinal agents for targeted mitigation of the COVID-19 pandemic defined by genomics-guided tracing of SARS-CoV-2 targets in human cells*** (Bio)

Jiang and Hyland (2022) also found that interrogative titles are increasingly used in all fields, especially in the softer sciences. In the attention economy, with intense competition to be noticed, questions can invest titles with an added attraction to enliven a topic or intrigue potential readers "with suggestive and tantalisingly enigmatic hints of the delights that follow" (Haggan, 2004, p. 313). Questions, then, exploit conversational intimacy and can grab the reader at the outset with an arresting directness.

(5) Needs and Facebook addiction: How important are psychological well-being and performance-approach goals? (Psychology)
(6) Is Vestibular Meniere's Disease Associated with Endolymphatic Hydrops? (Medicine)

The increased mention of methods in science titles may also be a response to growing competitiveness. This may be useful in attracting the attention of readers who are using the same method or looking for innovative approaches to a shared problem. The promotional value of the method is also often accompanied by the addition of a positive evaluative adjective such as *new*, *enhanced* or *efficient*, or with a comment on its benefits.

(7) A *novel* gene expression test method of ***minimizing breast cancer risk*** **in** ***reduced cost and time*** **by** ***improving*** SVM-RFE gene selection method combined with LASSO (Medicine)
(8) Multistage distributionally ***robust*** mixed-integer programming with ***decision-dependent moment-based*** ambiguity sets (Maths)

[2] All examples taken from Web of Science research articles, 2021–2.

4. Promotion in abstracts

Faced with the massive proliferation of scientific literature, academics are increasingly reliant on abstracts to filter what they read, helping them to process and synthesise what is relevant and worth attention. Together with titles, abstracts are often a reader's first encounter with an article and are likely to influence their decisions to continue to the full paper or go elsewhere. Thus, unlike earlier accounts of the genre, which saw them as a neutral "summary" of an article (e.g. Kaplan et al., 1994), abstracts are highly promotional and designed to "hook the reader" (Hyland & Tse, 2005). The literature suggests that this is done in a variety of ways.

While readers are likely to follow up on an abstract because of its interest or relevance to their own work, writers are able to strengthen its attentional impact by foregrounding their main claims or findings. Sometimes this significance is signalled explicitly by pointing directly to the implications of the study using 'evaluative-that' clauses, a powerful construction for expressing evaluative meanings by allowing the writer to thematize an evaluation (Hyland & Tse, 2005).

(9) ***We believe that*** the findings are likely to apply to other types of organisation, private and voluntary, and to other country contexts. (Pub Admin)

So the attitudinal meaning is the starting point of the message and the perspective from which the content of the *that*-clause is interpreted. Unsurprisingly, 88% of the constructions in Hyland and Tse's study were used to foreground the authors' own claims or findings, often by distancing the writer from the evaluation by attributing the source of the judgments to the results or the study itself, adding the authority of objectivity to the claim.

(10) ***The article advances our knowledge on conveners by suggesting that*** their behaviour is consistent with that common among champions of innovation. (Pub Admin)
(11) ***The results show that*** initial instruction in Tok Pisin is actually more of a help than a hindrance to learning English and other subjects. (App Linguistics)

More than a summary, then, the abstract situates new work in the old and advertises it to potential readers. These rhetorical objectives help explain recent changes in the ways they are written, assisting writers to package a paper to succinctly promote its interest and grab attention. This seems to be behind the increase of positive words (especially *effective*) and the decrease of negative words in abstracts during the covid epidemic (Bordignon et al., 2021).

The pressures on authors to gain the attention of a wider audience of sponsors, institutional evaluators and an interested lay public, has also resulted in rhetorical changes in abstracts. Jiang and Hyland (2023), for example, found a marked increase in the use of present tense and active voice in the hard sciences, making work more immediate and accessible to non-specialists.

(12) The proposed method ***reduces*** the size of the training data set compared with the traditional TI method. Simulation results ***show*** that the recovery performance of the proposed algorithm **.....** (Engineering)
(13) In this study, ***we aim to*** improve the methods currently used to find Borrelia in human blood, and ***identify*** two opportunities for optimization. (Biology)

They also found the use of third person has risen by 9.3% with dummy *it* subjects comprising the main form. This assists writers to promote their work by improving readability and information flow while highlighting the writer's evaluation of the proposition.

(14) ***It suggests that*** the latter details are not part of the communicative repertoires of most participants. (App Linguistics)
(15) ***It is proposed that*** the significant differences in the composition of the two fungal communities mirror the existence of a seral fungal succession paralleling the aging of the alder communities. (Biology).

Once again, these rhetorical choices indicate writers' concern with establishing an interpretive frame for their research, pointing to its significance, novelty or value.

Bids for attention are also apparent in changes in the move structure of abstracts. Thus, Rashidi and Meihami (2018), for example, discovered a significant increase in the inclusion of introduction and purpose moves in abstracts in the journal *Scientometrics* over the last decade. Both are highly rhetorical moves, the former establishing the context and motivation for the paper, and the latter indicating the goals of the study. In this example from a recent issue of the journal *Biology*,[3] for instance, a brief introduction sets the scene for the reader, providing essential background to the paper and indicating the significance of the topic and the writers' grasp of the issues involved. A purpose statement follows, introduced by 'we aimed to forecast' and, again, referencing the advantages of the work.

(16) Bangladesh hosts more than 800,000 Rohingya refugees from Myanmar. The low health immunity, lifestyle, access to good healthcare services, and social-security cause this population to be at risk of far more direct effects of COVID-19 than the host population. Therefore, evidence-based forecasting of the COVID-19 burden is vital in this regard. In this study, we aimed to

[3] https://www.mdpi.com/2079-7737/10/2/124.

forecast the COVID-19 obligation among the Rohingya refugees of Bangladesh to keep up with the disease outbreak's pace, health needs, and disaster preparedness.

Thus, writers recognise the importance of gaining attention for their research by deploying textual resources to build interest and strengthen the persuasiveness. Thus abstracts contribute to participation in the attention economy by increasing the possibility that readers will attend to the accompanying paper.

5. Hyping the message

Titles and abstracts can contribute to an academic's more effective participation in the attention economy, the former by creating awareness of a paper and the latter by establishing reasons to read it. It is within the paper itself, however, that most work is done to gain attention for the significance of the work.

One example is how authors structure their papers to promote their results and interpretations to information-saturated scientists who are often simply skim reading for relevance to their own work. Writers across a range of disciplines have been shown to adopt a 'news-oriented text schema' as a way to ensure that the novelty and importance of their work is not missed (e.g. Berkenkotter & Huckin, 1995). They also emphasise the significance of their research (Martin & León Pérez, 2014) and explicitly highlight its novelty (Wang & Yang, 2015). These practices, moreover, appear to be increasing, so that Fraser and Martin (2009) found a significant increase in what they call 'biased' adjectives' such as *important, critical* and *original* in clinical research journals between 1985 and 2005. A similar pattern seems to have occurred in medical journals with the frequency of 25 'positive-sounding words' such as *novel, amazing, innovative and unprecedented* increasing almost nine-fold in the titles and abstracts of papers published in PubMed between 1974 and 2014 (Vinkers et al., 2015).

Examples of writers promoting their approach and results are commonplace in articles today.

(17) Something more ***subtle and interesting*** was happening in our laboratory as we noticed a ***quite extraordinary*** result. (Philosophy)
(18) One of the ***striking results*** of our experiments is the ***demonstration that*** nuclear components, and transcriptional loci in particular, behave in a very dynamic manner in the living embryo. (Biology)

This over-exuberant engagement with the Attention Economy in academic publishing, however, has become too much for some commentators, who feel that objectivity has been replaced by 'sensationalism' and 'manufactured excitement' (e.g. Rinaldi, 2012; Scott & Jones, 2017). For them, the focus on seeking to gain attention by exaggerating the importance of findings risks undermining the impartiality of science and alienating readers (e.g. Horgan, 2015; Master & Resnik, 2013). Indeed, the editor of *Cell Biology International* has complained that an increase in 'drama words' has turned science into a 'theatrical business' (Wheatley, 2014, p. 14).

The disquiet felt by editors and scientists is largely impressionistic but has been borne out by corpus studies of published academic writing. The considerable work on stance in academic writing (e.g. Biber, 2006; Hyland, 2005; Hyland & Jiang, 2016) shows how authors boost their work to express firm conviction. Using a range of devices, such as evaluative lexis, grammatical choices, and paralinguistic features, writers seek to assert claims categorically and shut down alternative voices. These choices largely express either epistemic (19) or attitudinal (20) commitment.

(19) In this paper, ***we clearly demonstrate*** that Tax can activate transcription of the CQB promoter through the NF–Y element. (Biology)
(20) Table V contains some ***fascinating*** data on sacrificial cooperation. (Philosophy)

These terms therefore invest statements with the confidence of factual reliability and restrict the negotiating space available to the reader (Hyland, 2005). This is attention-seeking written loudly.

A wider frame relevant to the Attention Economy is recent work examining authors' use of hyperbolic and promotional language to glamorise, publicize, embellish and/or exaggerate aspects of their research. This is a phenomenon Millar et al. (2019) refer to as 'hype'. Their study of Randomised Control Trials, used to measure the effectiveness of new treatments in medical research, found 6.7 occurrences of hype words per-paper, or 2.0 per 1000 words. A follow-up study of interviews with seven authors, Millar et al. (2020) found that the main driving force for this was the pressures felt by authors to publish.

We can also see the desire to gain attention and recognition for work in scientists attempts to "sell" their Covid research conducted in the fevered atmosphere of intense social anxiety in the first year of the pandemic. Comparing the 200 most highly cited SCI articles on the virus published in the first seven months of 2020 with a related corpus of non-covid papers in medicine and biology, Hyland and Jiang (2021a) found a significant increase in hype in each successive month and between the two corpora, with 35.9 items per 10,000 words. Devices marking positive affect were particularly prevalent in the covid corpus. These express personal and professional attitudes towards what is said, stressing the prospective benefits of their work while dealing with a new and little understood virus.

(21) This work can ***greatly contribute*** to an improved understanding of how 2019-nCoV invades human body systems.
(22) Medical imaging and neuropathology will **certainly** play an **important** role to detect abnormalities in … COVID-19 patients.

The Attention Economy also intrudes into the academic world via the competition for government research funding. In the UK

Research Excellence Framework this now contains a requirement to show the real-world social, economic or cultural 'impact' of research.[4] The difficulty of defining and capturing something as imprecise as 'impact' in a rigorous and consistent way has been widely discussed (e.g. Watermeyer, 2019), but the use of narrative case studies in this cut-throat competitive environment encourages rhetorical embellishment. Hyland and Jiang's (2023) study of 800 impact case studies[5] from disciplines across the academic spectrum shows substantial hyping with a strong preference for boosting the novelty and certainty of the claims made.

(23) The group ***showed for the first time*** that …. This marked a ***critically important*** step towards continuous strand sequencing. (Chem)
(24) A counting ***breakthrough*** conceived by the Medipix collaboration and is ***unique*** in its adaptability, high spatial resolution, high dynamic range and low noise. (Physics)

This strategy, moreover, seems to work. Watermeyer and Hedgecoe (2016), for example, report a simulated impact evaluation exercise conducted by a research intensive UK university preparing for the REF2014 submission. They observed how 90 senior academic peer reviewers went about scoring impact case studies and found that cases which best sold impact were those rewarded with the highest evaluations.

Perhaps more interesting is the fact that hype seems to be increasing as metrics-driven assessments, and the attention economy, comes to dominate academic careers. A recent study by Hyland and Jiang (2021b) looking at research articles from the same five journals in four disciplines, found that promotional features have increased by 19% over the last 50 years, with a doubling of features in each paper. While hypes increased across all disciplines, this was most marked in the hard sciences, with the greater willingness of authors to employ impactful expressions to underline their contributions. These changes indicate an authorial repositioning and I suspect this is a consequence of the growing influence of the attention economy in academic careers.

6. Gaining visibility: self-mention and self-citation

In addition to foregrounding newsworthy claims, authors also promote themselves and their work in other ways. Prominent among these are the extent to which the writer chooses to intrude into his or her text through the use of self-mention and self-citation. While often considered as distinct rhetorical discourse functions, self-citation is more usefully seen in the wider context of authorial self-mention (Hyland, 2003). Both are elements of a comprehensive rhetorical strategy for emphasizing a writer's personal impact and claim to wider standing in the discipline. They are contributions to a stake in the Attention Economy.

Self-mention concerns writers' announcements of their presence in the discourse through the use of first person pronouns and possessive determiners. It is an expression of the participants' personal ownership of what they report and plays a crucial role in mediating the relationship between writers' arguments and their disciplines, demonstrating the value of claims to an interested community of fellow researchers.

(25) ***We demonstrate that*** what consumers know about a company can influence their evaluations of products introduced by the company. (Business)
(26) ***Our results show significant*** distortions of the initial pulse shape (Physics)
(27) ***I believe*** that each of these premises is very plausible, and so ***my*** remarks here will be brief. (Philosophy)

Authors, however, do not simply scatter authorial pronouns at random through a text but are guided by their estimation of the most effective placement for overt presence. They need to decide where it is likely to make the most impact in terms of displaying a personal standing demarcating their own work from that of others (Hyland, 2002; Walková, 2019).

Authors are also constrained, of course, by the rhetorical conventions of their fields, which conduct research and persuade readers in different ways. The need to establish empirical uniformities through precise measurement and systematic scrutiny of controlled variables means that researchers in the hard sciences can downplay their personal role to highlight the phenomena under study and generality of the findings. In the social sciences, on the other hand, maintaining personal engagement with one's audience is a valuable strategy when exploring connections between entities that are often more heterogeneous and causal connections which are more tenuous. Arguments are typically more explicitly interpretive here and the success of authors depends to a larger extent on invoking an intelligent and credible persona (Hyland, 2002; McGrath, 2016). Self-mention in these fields strongly identifies the writer with a particular view to gain credit for an individual perspective.

(28) ***My*** point in elaborating this perhaps obvious point is that it is one which is seldom if ever addressed. ***I suggest*** then that beyond reporting what research has taught us about the researched situation, we might also address what research has taught us about research. (App Ling)
(29) ***I am unconvinced*** that he has demonstrated that a pragmatic approach cannot work in general. ***I show now that*** a more sophisticated pragmatic approach can rebut every objection Jackson and others raise … (Phil)

[4] https://www.ukri.org/about-us/research-england/research-excellence/ref-impact/#.
[5] https://impact.ref.ac.uk/casestudies/.

Interestingly, Hyland and Jiang (2016) show that writers have significantly increased their use of self-mention over the past 50 years and particularly since the emergence of metrics-determined assessments in the late 1980s. Their corpus of four disciplines indicate a 38% increase in sociology (per 10,000 words), 63% in electrical engineering and163% in biology. They attribute a 27% decline in self-mention in applied linguistics to an increase in empirically-oriented studies. Despite this, the use of singular self-mention has actually increased in this field and remains the highest use of *I* in all four fields. Overall, then, there appears to a movement towards rhetorical convergence as the hard and soft fields adjust their stance profiles to the need to participate in the struggle for greater visibility and professional credit that today's academic world demands.

The increasingly competitive publishing marketplace means that scholars are now also giving more prominence to their own prior research through self-citation (Hyland, 2003; Hyland & Jiang, 2018; Simoes & Crespo, 2020).

(30) In an earlier study (**McGlenn et al, 2019**), ***we*** questioned the validity of assuming there is a coherent norm behind such behaviour. (Sociology)

(31) In a series of recent publications (**Belcher, 2021**; **2014; Block**, Gray, & Holborow, 2012), ***I*** have devoted a fair amount of space to defining social class. (App ling)

Citation is how new claims are integrated into existing knowledge, either by building on or challenging accepted facts to carve out a novel position. As a result, there are clear epistemological reasons for self-referencing. The sheer volume of knowledge and its rapid expansion compel scientists to carve out their own niche of expertise, especially with the relentless increase in specialisation. Authors may therefore have good reasons to cite their own work as it can demonstrate programmatic research over an extended period of growth. The fact that older researchers do more self-citing supports this 'serial development of knowledge' perspective (Public Policy Group, 2011), although individual practices suggest that self-citations do not necessarily reflect the importance of the research it reports or its impact beyond the interests of its own producers (Schubert et al., 2006). Self-reference, then, also has value as a rhetorical and tactical tool in the struggle for visibility and scientific authority (Seeber et al., 2019). In this context, citations are the currency of the Attention Economy.

Several bibliometric studies have addressed the issue of possible misrepresentation by individuals and citation cartels to game citation scores (e.g. Biagioli and Lippman 2020; Fister, Fister, & Perc, 2016). This potentially distorts citation counts and reduces their reliability as a measure of quality. Citations, moreover, are exaggerated by the fact that the more one cites oneself, the more one is cited by others. In a study of more than half a million citations to articles by Norwegian scientists that appeared in the Science Citation Index, for example, Fowler and Aksnes (2007) found that each additional self-citation increases the number of citations from others by about three after five years while the most highly cited papers have more self-citations (Mammola et al., 2021).

Self-citation appears to be a widespread phenomenon. A Study published in PLOS Biology (Ioannidis et al., 2019) shows that at least 250 scientists have amassed more than 50% of their citations from themselves or their co-authors. While the median self-citation rate of 100,000 authors was 12.7%, one received 94% of his citations from himself or his co-authors. The Committee on Publication Ethics (COPE) has highlighted extreme self-citation as one of the main forms of citation manipulation related to a wider concern about the over-reliance on citation metrics for career and funding decisions.[6] Chawla (2018), for example, found that scientists in Italy began citing themselves more heavily after the introduction of career productivity thresholds based on citations.

There are variations in this data, however, and the context is important. An unpublished study of all authors listed in Scopus who have published more than 5 papers, about seven million authors, shows the median self-citation rate is 15.5%, but 7% of authors have self-citation rates above 40%. This proportion is actually much higher than among the top-cited scientists, because many of the 7 million researchers have only a few citations or are at the start of their careers. Russia and Ukraine stand out as having high median self-citation rates while fields such as nuclear physics, particle physics, astronomy and astrophysics, which typically have multi-, and even mega-, authored papers, have extremely high rates. Self-citation, then, appears to be an important factor in academic writing today and is likely to be driven by its significance in gaining attention for one's work and the benefits which stem from this. The strength of my own commitment to this argument, as might be apparent to the careful reader, can be seen in the frequency with which I have used the strategy in this paper myself.

Self-citation also seems to be increasing. Hyland and Jiang (2018) traced patterns of self-citation in papers from the same five top ranked journals in four disciplines since 1965 and identified a large increase in self-citations. Self-citations have grown from an average of five to twelve per article, an increase of over 46% when allowing for the increase in increased length of papers. Once again, this is subject to disciplinary variation with sociology showing a growth of over 400%, applied linguistics, up 276% and electrical engineering up 234%. As the literature continues to expand at an unprecedented rate, however, self-citations are also less visible today as they comprise a smaller proportion of citations overall. The ease with which citations can now be automatically gathered by bibliometric software as a result of online publishing, together with the exponential rise in the literature itself, has led to the growing length of reference lists (e.g. Ahlgren et al., 2018; Mammola et al. (2021).

Again, we can see what seems to be a coherent and coordinated rhetorical response by authors to the exigencies of modern publishing and the need for impact and visibility. Citations are now the currency of the scholarly economy and having one's work recognized and referenced by others is an increasingly valued commodity in today's fiercely competitive academic world.

[6] https://publicationethics.org/files/COPE_DD_A4_Citation_Manipulation_Jul19_SCREEN_AW2.pdf.

7. Conclusions

In this paper I have argued that academic publishing is now firmly aligned with current economic models of mass noticing. The modern market increasingly revolves around the human attention span and how products capture that attention, with social media and other channels designing algorithms to show us information most likely to grab our attention and interest. Something approximating this has now come to dominate the academic world as the global explosion of journals and researchers, the development of online publication, and the emergence of citation indexes as measures of worth, have all massively increased the volume of research and the access scholars have to it. Workers in the 'knowledge economy' now find themselves overwhelmed by it; we have an abundance of almost limitless information right here on our laptops. Research papers have become digital products competing for readers' limited attention and the challenge for readers is to find and filter the most relevant and interesting material. For academic writers, the challenge of the attention economy is to emphasise the value of their research. Success accrues to those who excel at gaining attention for their work.

Clearly, disciplinary communities are not simply bundles of discourse conventions and being a successfully published researcher involves more than getting work noticed. That work, it should be said, must be conducted in a way that meets disciplinary criteria of rigor and interest. Subject matter has to be topical and interesting, questions appropriately framed and conceptualized, data carefully interpreted, collaborators shrewdly chosen, and suitable, and suitably prestigious, journals judiciously selected. We should not forget that being a publishing academic encompasses professional craft skills and involves arcane specialist knowledge. However, while these criteria may be necessary, they might not always be sufficient to ensure a piece of research is not lost among the 3 million peer reviewed papers appearing each year.

Success involves a display of disciplinary competence and the presentation of a narrative that peers, and others, see as persuasive, both in terms of the propositions that the writer sets out and the credibility of the *persona* he or she seeks to convey. But the tsunami of material in every discipline means that writers are, more than ever, also competing to be noticed. It therefore becomes crucial to create a title which is both catchy and informative, standing out from the crowd while discoverable by search engines so that it is seen by the right audience. It means crafting an abstract to foreground the significance of claims and the novel interpretation of results, advertising the study and gaining the attention of an increasingly broad range of readers. Having attracted readers to the full paper, writers then use a variety of features to promote their findings and underline the plausibility of their interpretations. At the same time, the use of self-mention and self-citation to announce the presence of the current authors and foreground their contribution, both in this and previous work, helps to claim ownership of the research and ensure their role does not go unnoticed.

While we cannot be certain of the impact of these features on readers or the extent to which they achieve their intended rhetorical effects, their repeated occurrence on the pages of successfully published articles suggests that *writers* have faith in their efficacy. There is also the question of the extent to which consciousness is involved in writers' decisions. Authors develop habits of writing which they acquire from repeated experiences of participation with academic texts, so that some of these language choices may be an instinctive replication of convention. But decisions are not fully automatic and writers are generally aware of the meanings their choices convey. The research reported here also indicates that at least some of these features, in isolation or perhaps collectively, play a role in the successful negotiation of research to publication and recognition. As Hyland and Jiang (2023) observe:

> It is no longer sufficient for a writer to simply fill a research gap; that gap has to be shown to matter to the community (and often to those beyond it) so that the writer has to more clearly 'own' the space that he or she carves out.

Among other things, this means making clear the significance of the research, how it builds on what has preceded it to move things forward, and the particular part played by the researchers themselves. These aspects of discourse appear to have taken on added importance as a consequence of the rigid accounting regimes which now dominate academic life.

I recognise that there are limitations in this argument. I have, as a researcher with a background in academic discourse, focused on what appear to be the most explicit rhetorical manifestations of the Attention Economy. There are almost certainly other lexico-grammatical features which I have omitted and more which remain to be explored. Nor have I attempted to provide an objective discussion from a position of ostensible neutrality. The literature I have included has been deliberately selected to support my argument rather than offer balance and others are, of course, welcome to challenge this with counter examples if they can be found. I believe, however, that the argument is robust and follows the drift of contemporary work in academic discourse analysis. I have also focused almost exclusively on the research article as the pre-eminent genre of the academy and most trusted source for creating, verifying and archiving new knowledge. This has meant sidelining the fact that institutions are increasingly encouraging their staff to promote themselves and their work through blogs and social media posts, often by a generic repurposing of original published research.

It is also the case, of course, that much of this is not new. I noted earlier that scholars have been aware for some years of the ways writers boost, hype and otherwise beguile readers to accept their claims. I have, however, sought to provide a plausible lens through which we can understand this phenomenon which, I hope, moves beyond the obvious and oft repeated, incentive of 'publish or perish'. Publishing is all very well, but not if it sinks without trace. Getting noticed in the hubbub which is the international knowledge market is the new imperative and the rhetorical devices discussed here are some of the main ways writers seek to achieve this. As a relatively successful academic author myself, I obviously recognise this imperative and see its seductive imprint in my own work. I hope readers have found substance and value in what I have written in the past, but I am not naïve enough to believe my success has been achieved without recourse to some of the promotional elements I have discussed here. I am as deeply implicated in the attention economy as anyone else today who writes for publication. But recognising *what* we do is the first step to understanding *why* we do it and *whether* we want to continue in this way.

Overall, however, I hope to have shown here clear connections between competition for attention and the ways academics have come to rhetorically present their work. The explosion of journals, articles and academic claims means we are presented with a wealth of information, but we have the same amount of time and mental processing power as we have always had. Because attention, not information, is the limiting factor, writers have come to exploit the generic and rhetorical resources available to them to maximise attention for their work. The ways writers choose to present their research provide important insights into academic persuasion and the contexts in which it occurs. Finally, I also hope that the argument I have presented might provide a useful resource for teaching writing for publication classes, stimulating classroom discussion and encouraging critiques of current practice. My main intention, however, is that this analysis of the Attention Economy has encouraged at least some readers to consider the importance of attention in academic publishing and the consequences of metrics-driven assessment regimes.

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