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Does winning an Ig-Nobel Prize have an impact on the visibility of the winners' research work?

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Introduction

The Ig-Nobel Prize is an annual award that celebrates unusual or insignificant achievements in the field of scientific research. Created in 1991 by Marc Abrahams, editor-in-chief of the science humour magazine 'Annals of Improbable Research', the Ig-Nobel Prize aims to reward research that 'first makes people laugh, then makes them think'. The prizes are awarded at a humorous ceremony at Harvard University, parodying the more serious Nobel Prizes. Despite their humorous nature, the Ig Nobel prizes often highlight genuine scientific research that is innovative, thought-provoking or simply entertaining. They are a reminder that science can be both serious and fun, and encourage curiosity and creativity in research. The prize committee is examining two sociologically different cases: the first concerns research that could not be reproduced, which is relatively rare among the nominees. This type of research is often already criticised and ostracised in scientific circles as being unscientific, and the Ig Nobel uses humour as a euphemism to denounce and call to order deviant scientists. The second case concerns research that 'should not be reproduced', which brings to public attention peer-reviewed scientific results that would not normally be covered by the media. This situation is more delicate, as it could be perceived by scientists as criticism of legitimate work.

The interpretation of the Ig-Nobel event varies according to one's position in the scientific field. Despite their comical nature, the prizes often highlight genuine scientific research that is innovative, thought-provoking or simply entertaining. They are a reminder that science can be both serious and fun (Gingras & Vecrin, 2002).

To date, the prize has not been the subject of an in-depth bibliometric study, with the exception of Andy Yeung (2022). He analysed 89 articles by prize-winners between 2011 and 2020, and found an average of 42.5 citations per article, with an impact factor of 3.476. It also measured their impact on social networks: 947.3 mentions on Facebook and 263.2 mentions on Twitter. Half of the articles were published in leading journals, and the winners were recognised within 2 years.

We decided to revisit this work and examine whether winning the Ig Nobel Prize had an impact on the visibility of the scientists' work concerned, by analysing changes over time in the citations of the articles concerned.

If the Ig-Nobel Prize is perceived as a criticism, the research articles concerned should record a decrease in citations If the prize is perceived with humour, it may attract the attention of the scientific community and lead to an increase in the citations of the references cited. Alternatively, the scientific community is insensitive to the Ig-Nobel prize, and citations of cited work, as well as the reputation of scientists, are unaffected.

We have taken into account all the Ig-Nobel prizes since 1991, for which a scientific article is referenced on the 'Improbable Research' site, whatever the prize-winning field. However, we only included those for which the scientific reference was registered in the Scopus database. We then carried out a bibliometric analysis of this sample. In a second step, we extracted the scientometric characteristics of the authors, and in a third step, we propose an analysis of both the citation trends of these articles, with a comparison with a matched sample in order to carry out an analysis using the difference-in-difference method.

Methods

The 'Improbable research' website lists 231 Ig-Nobel prizes between 1991 and 2024, covering 54 different disciplines. The top 3 disciplines (with their associated sub-fields) are, in order, medicine (25.6%), biology (19.48%) and physics (19.04%). Other areas of the social sciences (art, literature, management, psychology, etc.) are also represented, as is the Ig-Nobel Peace Prize. In all, 166 annual prizes in each discipline have at least one associated bibliographic reference (71.86%). But out of a total of 231 references, only 180 have been identified in the Scopus database with a citation history.

This initial sample was then subjected to a bibliometric analysis (source, year, citations) with the extraction of temporal citation data. From this initial sample, a second panel was created with all authors for a second bibliometric analysis (affiliation, country, number of publications, citations and co-authors, and h-index). Thirdly, the sample of publications was matched with two control populations, one composed of articles published in the same year in the same journal, the other composed of articles matched by keywords and published in the same year in the same journal.

Statistical correlation tests were performed to compare the number of citations before and after the Ig Nobel Prize, and to compare these differences between the Ig Nobel Prize publication sample and the control samples using the difference-in-differences method using the STATA software package (Villa, 2016). Only articles published at least 3 years before the authors received the Ig-Nobel Prize were included in the statistical analyses, a total of 86 articles.

Preliminary Results

Bibliometric analysis of Ig-Nobel Prize publications

A sample of 180 articles published between 1967 and 2020 was collected from Ig-Nobel prizes awarded during the period 1991-2020 (data not shown). Most of the articles are of the article type (89.44%), but all other types are represented. They were published in 133 different scientific journals, with 57.89% belonging to the first quartile, 23.31% to the second quartile, 9.77% to the third and only 2.26% to the fourth quartile. 90.6% of the articles had fewer than 241 citations at the end of 2024, around an average of 148.4 and a median of 32 citations, with a maximum of 4,704 citations.

Bibliometric analysis of the Ig-Nobel prize winners

The first sample enabled us to characterise a population of 234 different authors. It is made up of 31 different nationalities: the top 5 nationalities are, in order: US American (21.37%), English (13.31%), Japanese (12.10%), French (7.66%) and Dutch (6.05%). The authors are affiliated with 162 different institutions, including 35 universities ranked in the top 100 of the Academic Ranking of World Universities, including Harvard University and Stanford University. In median terms, the authors awarded the Ig-Nobel Prize published 54 articles, with 103 co-authors, accumulated 1,596 citations and had an H-index of 22 (table 1).

Table 1. Bibliometric characteristics of authors.

Statistics	Citations	Documents	h-index	Co-authors
Nb.	234	234	234	234
Min.	1	1	1	0
Max.	302612	2201	195	8039
1st Quartile	264.75	11.25	7.25	16.25
Median	1596,00	54,00	22,00	103.5
3rd Quartile	5547,00	150,00	39,00	293.5
Mean	9224.39	131.89	30.09	351.78
SDT	27350.08	226.53	31.98	835.78

However, there are wide variations across all indicators, with extremely high maximum values (2201 publications, 302612 citations and an H-index of 195). All variables have a highly skewed distribution to the right (data not shown). A similarity matrix highlights the correlations between all the variables, with the maximum value observed between the H-index and the number of documents published (data not shown).

Statistical test of correlation of citations before/after the Ig-Nobel prize

If we compare the number of annual citations for each article in the three years preceding the award of the Ig Nobel Prize with the citations in the three years following, we find a

persistent and significant increase in the number of annual citations. A comparison of the variance in citations of publications before and after the award of the Ig Nobel Prize reveals a p-value of less than 0.006. As the calculated p-value is below the significance level alpha=0.05, we must reject the null hypothesis H0 and retain the alternative hypothesis according to which there is indeed a significant difference between the number of citations in the years before and after the award of the Ig Nobel Prize.

Discussion & Perspectives

With a sample size twice as large and spread over a period twice as long as that of Yeung (2022), our bibliometric analysis of the bibliographic references of the Ig Nobel Prize winners is fairly similar. Most of the articles were published in top-quartile journals and received a large number of citations.

The bibliometric characteristics of the prize-winners have been analysed for the first time, revealing productive researchers who collaborate widely and whose work is recognised. Almost a third of them belong to internationally ranked universities, some of them very prestigious (Harvard, Stanford, Oxford). Finally, the preliminary results show that the number of citations received per article is not negatively affected. There is even a significant increase in the number of annual citations after the Ig-Nobel prize is awarded.

However, these initial results remain to be confirmed using the difference-in-difference method, and using matched publications as the control population.

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