# Raising Public Awareness of Statistics Through Increased Exposure in the Mass Media : An Illustration with the Case of Sports Statistics

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## 1. Introduction

Although mathematics and statistics are playing an increasingly important role in many areas of study, there has been a steady decline in enrolments in mathematics based courses in both secondary and tertiary education. In Australia during the nineties there has been a decline from about 50000 to 30000 in the number of year 12 secondary students studying advanced mathematics subjects. At my university Swinburne, our statistics major has been discontinued due to failure to attract sufficient high quality students, in favour of the currently more glamorous areas such as business studies, information technology, psychology and multi-media studies. With this declining interest from students, it is important that researchers and teachers take every opportunity to promote the applications of statistics to the wider community.

For some reason I have been very successful in achieving publicity for the results of my research. A rough count reveals I have been involved in about eight television appearances, over 30 radio interviews and countless articles in the print media. I believe such publicity is good for the university, the subject and the profession, and is possible in many other application areas. This paper explores some of the ways in which I have brought the results of statistical modelling to the attention of the general public.

## 2. Weekly predictions in the daily press and television.

In 1980, as a result of a student project, I wrote a computer program to automatically predict the results of Australian rules football matches (Clarke, 1993). I contacted The Sun, a major daily newspaper in Melbourne, and suggested they set up the program in competition with their major tipster. They took up the suggestion, and in its initial week even had the paper's flyer announce its introduction in headlines of World War III status. The tips appeared on the back page of the paper during the football season for six years, and often had cartoons and extra articles written about its predictions. As the paper's tipster was more noted for the publicity he generated rather than the accuracy of his tips, the computer managed to win the duel each year. It is quite a change from normal academic publishing to have research results published in a paper with over two million readers. However this must subtly educate the public that statistics does have application to everyday lives. It creates in the public and potential students an interest in the methods used. In interviews or in class, I can point out that the methods used for football tipping can also be applied to the stock market, or forecasting sales and predicting inventory levels.

In 1987, The Sun decided the computer tip had run its course, and decided to concentrate on human tipsters. Following some collaboration, Ray Stefani and I sent several newspapers short articles based on our refereed paper Stefani & Clarke (1992). While we were not successful in achieving publication, the articles resulted in the second Melbourne daily newspaper, The Age, asking me to take over their computer tip. This resurrected the program in 1990, and it later progressed to other papers, and currently also appears on television. As a by product, it has generated many related research topics such as home advantage and draw difficulty, which in their turn have generated publicity for statistical techniques. I often wonder at the far reaching

consequences of a couple of letters sent to newspapers.

**3. Relationship with a journalist.**

Pick up any newspaper and you will usually find several regular columns. The authors of these columns have to come up with ideas and generate text each day or week, and the columnist is usually grateful for any ideas you might send them. In my case, I built up an excellent relationship with Ted Hopkins, a freelance journalist from The Australian Financial Review. The computer tips appeared on a Friday, but Ted also had a longer article each week on Saturday. As well as a journalist, Ted had begun collecting and analysing football player statistics, which he supplied to competing clubs. During the football season, the Saturday articles focussed on aspects of these statistics and how they reflected on the games. These articles were so successful, they continued into the summer season, and extended into scientific findings in a range of sports. Because of our previous association, Ted often used me as a sounding board for ideas. In many cases this resulted in an article based on previous research by myself or others (Hopkins 1997b,1997c). For example Hopkins (1998a) describes the results of a masters by coursework in Social Statistics, which investigates why girls do not take up golf at the same rate as boys. In other cases, such as Hopkins (1998c), we did some extra analysis that allowed comment on a current event.

This sort of relationship can be quite voracious. The quicker publishing times and shorter attention span of the popular media as compared with academic journals means that studies that might have taken years to complete and publish were dispensed with in a single weekly article. In fact 20 years of my research was consumed in one summer of weekly articles. We probably had input to well over 20 articles, and like the columnists this can stretch your capacity for ideas. A good idea is to have some reasonably standard technique that you can apply to a regularly occurring event. For example, Clarke & Dyte (2000) describes a simulation of a tennis draw based on probabilities derived from official rankings, which can be used to predict outcomes each time a tennis major is played.

It was quite possible to discuss some reasonable statistical concepts in some of these articles. At the time of the US Masters golf championship, Hopkins (1997a) discussed the importance of variability, and showed how the standard deviation of scores on a golf hole is a better indication of the difficulty of the hole than the mean score.

Naturally most newspaper articles need to be topical, and it is necessary to pitch the article at some current event. But a little ingenuity can usually find the right occasion. When an AFL football team languishing at the bottom of the ladder changed its coach exactly half way through the season, Hopkins (1998b) was an opportunity to educate the populace on regression to the mean. We pointed out this statistical principle meant the new coach was likely to achieve more wins in the second half of the season even if there was no improvement (along with the other bottom teams). When Karrie Webb won the Australian golf masters with a record score, Hopkins (1999) explained bootstrap sampling, and used it to estimate her chance of breaking 60 in a given round as only 0.4%.

These articles required a varying degree of input. In some I just discussed a possible topic, in some I wrote a draft for the article, which Ted then rewrote in journalise. In fact the partnership was so successful, we even had our sports statistician write several of the articles and get his byline on the article while Ted was on holidays. In some cases we could stray slightly from the main topic of sports statistics and venture in to education. Hopkins (1998d) discussed the job opportunities for sports Statisticians, the need for education and the Swinburne Computing and Applied Statistics course. In most of these articles we always tried to work in www.swin.edu.au/sport, our Web address . The WWW now offers statisticians a means to put their results direct to the public.

**4. Press release.**

A common way of gaining exposure for some project or analysis you may have worked on is a press release. In my case the corporate marketing section at Swinburne usually uses this strategy.

Conferences may also send out press releases, and would usually mention those papers they think would be of interest to the media. A one page summary of the main results or point of the article/research is made, and faxed to a variety of media outlets. For example, one year prior to the football season we issued a press release on the Computer prediction of the final ladder. This resulted in an invitation for a group from Swinburne to appear on the then top rating TV Australian rules football show. A press release on a conference paper, on home advantage in the Olympic games, ultimately resulted in two television, six print, a WWW article and over ten radio interviews.

It is probably better to get a third party to write the release. It is very difficult to put yourself up as a world expert in something, whereas journalists seem to have no compunction in sensationalising research. The press is often interested in an attention grabbing headline, and someone trained in the media can often pick this out. It is then up to you, once you have the interview, to discuss those aspects you think are important.

In terms of generating further publicity, an article in the daily press is usually the best outcome from a press release. This often results in contact by radio or possibly television stations who require live or taped interviews. While press articles have a way of transforming themselves into other articles for other papers independently of any input from the original interviewee, each radio station has its own show which requires a separate interview.

**5. Potential Problems.**

You have to be prepared for the media to get it wrong occasionally. Particularly in a scientific discipline, when we can be very careful with phrasing etc, and even a minor rearrangement of order can change a meaning, you must be prepared for misreporting. Trying to put something like a confidence interval or *p* value in everyday language, and expecting reporters to get it exactly right is very optimistic. Sometimes errors may be not accidental, in order to create headlines. In a paper on Home advantage in the Olympic games, Clarke (2000), I showed the host nation enjoyed a huge home advantage, and could expect to win many more medals than usual because of influences such as the home crowd. Of course most of the Australian media just wanted a prediction of the number of gold medals Australia would win. While this was not the aim of the article, I had to be prepared to use the analysis to this end, and most headlines such as Macey (2000) highlighted the prediction. However in one newspaper interview, I happened to mention that some research by others had shown that in the deciding finals of some team sports, the high expectations of the home crowd produced a negative effect on the home side. The headline of Brown (2000) suggested "fans high hopes could be costly in close finishes to events" which gave the exact opposite slant to the findings of my paper.

One mistake I often make is to supply too much information. My very first live radio interview was with a cult radio show "The Coodabeen Champions", a panel of four or five interviewers. I sent them about six or seven papers on various sports, but then had no idea what they were going to focus on. The papers had been written over several years, and there was no way I could remember the detail in each of them. Now with any interview, I try to have a couple of key points to get across. Whatever questions are asked, they can usually be worked in to the answers.

**6. Conclusion.**

There are many reasons for seeking publicity. In my case the University has certainly been pleased with putting Swinburne's name in the public eye. In the same way, the public has been exposed to results of statistical studies. Of course results are variable and you should be prepared for failure. Sometimes what you think should catch the attention of the media does not. However it is certainly not as difficult as having refereed papers accepted, and offers a sometimes exciting alternative means of recognition. It is certainly pleasing to know that results are read widely, and in most cases it takes little extra effort.

While my application area is one that has some advantages in gaining publicity, most other areas are also suitable. Studies in health, social statistics, politics, finance, transport etc would all be of interest to the general public. A little extra effort could bring some exciting rewards for both the individual and the statistics profession.

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## RESUME


Alors que les écoliérs lycéens se montrent moins intéressés aux mathématiques, il faut que les enseignants et les rechercheurs prennent chaque occasion pour promouvoir au communauté les applications de la statistique et des mathématiques. L'auteur a eu de succés engagnant du publicité dans les journaux, à la radio et la télévision. Ce papier discute des exemples et des stratégies employées.