AUSTRALIAN JOURNALISTS' REACTIONS TO NEW TECHNOLOGY

John Henningham

The new technology which has revolutionised newsrooms over the last decade has been generally accepted by Australian journalists, who believe the quality of their work has improved and time savings have occurred. Older journalists are somewhat less enthusiastic, but when controlling for age there are no sex differences in reactions to technology. Journalists who are stressed and those who admit to being cynics are less sanguine about the benefits of technology, while those who are job-satisfied and optimistic about the future are more pro-technology.

Keywords: journalists, technology, media, newspapers, television

Much of what the general public know about modern technology comes to them through the news media, which are variously chided, vilified or even occasionally praised for their treatment of technology and scientific research: journalists have been cast as wilfully ignorant, stubbornly superficial, or as unwitting tools of capitalist power structures.[1]

Yet in addition to representing technology to the public, journalists work in an industry which has been transformed by late 20th Century technological developments. Little is known about Australian journalists' responses to technology, and particularly their reaction to the revolutionary technological developments in their own newsrooms. Impressionistic evidence suggests a wide range of public responses by journalists to technology - at one extreme are the column kilometres of copy separating advertisements in newspapers' Tuesday computer supplements, where specialists talk authoritatively about gigabytes and graphic user interfaces. At the other extreme are whimsical columns in the features or lifestyle pages by world-weary writers who confess with scarcely hidden pride to being unable to program their VCRs or to understand how to operate a mouse.

Such columnists are perhaps more akin to the stereotypal journalist - a somewhat bohemian wordsmith, totally innumerate and essentially incapable of comprehending anything more complex than the mechanics of a manual typewriter. Yet journalists practise in a media world which has been starkly changed by technological change in the past two decades.

For print media the most profound change has been in the introduction of computerised typesetting, driving into obsolescence the crafts of linotype operating and compositing. The early, crude phototypesetting software which had sub-editors doubling as compositors has been succeeded by dazzling full-screen pagination software, giving subs total and immediate control over the creation of newspaper pages. Noon argues that technology has resulted in

sub-editors "consolidating their position as key employees".[2]

Computers in conjunction with communication software have also transformed the transmission and re-routing of copy. No longer must reporters in the field tediously dictate their hand-written stories from noisy public phone boxes to hard-of-hearing copy-takers: they now type their story into a notebook computer, and send it through the phone lines (or through their mobile phone), for immediate processing by sub-editors.

Photography has also been transformed, with the digital processing of images opening a can of ethical worms.[3] Meanwhile, the newest technological advance just starting to have an impact on newsrooms is the development of the information super-highway, with all that the Internet can offer in making available previously arcane sources of information from around the globe.

The major technological change in television journalism has flowed from the replacement of film by video: the electronic news gathering (ENG) revolution of the late 1970s/early 1980s gave crews the capacity to transmit pictures by microwave to home stations, while the subsequent development of satellite technology has made pictures instantly available anywhere.[4] In radio, computerisation in newsrooms has introduced digital technology to transform the previously tedious tasks of editing audio information.[5]

What have journalists made of all this?

The kinds of concerns expressed by journalists at the stage of new technology's introduction to newspaper production in Australia were focused on deteriorating rather than enhanced working conditions.[6] Journalists' fears included the impact on health resulting from prolonged use of VDTs, with particular concerns about harm to eyes and to backs. As a result of industrial lobbying by the journalists' union, free eye checks for journalists were introduced, as well as ergonomically designed furniture and agreed rest breaks. In addition, journalists required to use VDTs were paid an extra allowance, which became part of the arbitrated award.

Other types of concerns centred around the impact of computer technology which was not up to the task of replacing traditional typesetting methods. Frequent mainframe "crashes" with the loss of processed stories resulted in much anguish and frustration to journalists, particularly as such emergencies meant heightened pressure to complete the job once the computer was working again.

Less attention was given industrially to the possible effects of the new print technology on the quality of journalism, although newspaper consumers were quick to detect increased typographical errors in newspapers. One set of problems resulted from the crude hyphenation and justification software driving the early phototypesetters: gone were the sophisticated effects implemented by linotypists, such as subtle variations of spacing between letters in order to achieve aesthetically acceptable lines; huge gaps would appear between words, making a mockery of the ideal of justification on the right side as well as left side of columns. Moreover, hyphenations became ludicrous, as the algorithms designed to make decisions on word-breaks showed their inadequacies, with

such examples as: new-spaper, m-y, journali-st.

One problem for sub-editors was the complete elimination of the craft of readers — a room full of literate tradesmen who would check the accuracy of text in galleys and page proofs. Theoretically, their task was to correct the errors made by linotypists when converting reporters' stories as amended by sub-editors into lead. In practice they did much more than this, ensuring that the subs' own errors were picked up.

These problems centred on the technical accuracy of the final typeset product, but other concerns were to do with the impact of the technology in changing work roles. By technicalising their jobs, computer phototypesetting meant that sub-editors were required to spend their time on inserting codes, effecting capitalisations, amending placement of commas in relation to inverted commas and so on, rather than giving their attention to the quality of the words they were processing, or in making appropriate checks of accuracy.

A new type of journalist became successful in sub-editing — people with technical skills or with an interest in computing — rather than the more artistic, worldly and well-read characters of what were once called the "literary departments" of newspapers. Significant organisational changes have also occurred in newsrooms, linked to the capacity of senior editors to have a more "omniscient" view of copy flow.[7]

Much research has been undertaken in the United States on journalists' reactions to newsroom technology. Burgoon *et al.* concluded from an extensive survey of United States newspaper journalists that "good computer systems make the news business more fun for all except copy editors".[8] While the majority were supportive of new technology, a third were dissatisfied with its application in newsrooms. Garrison found that editors believed electronic editing systems were not affecting news judgments.[9] However, Sneed warned of health risks associated with VDT use.[10]

Weaver and Wilhoit found that journalists were far more likely to agree that new technology improved rather than harmed the quality of their work, while about half agreed that time savings also resulted.[11] Younger journalists were more likely to report increased quality, while older journalists were more likely to find that more time was taken. Russial concluded that the extra time involved in pagination (total page design on a computer screen) could diminish quality if staff levels remained constant, while Randall found that cold type production systems enhanced the level of grammatical and spelling accuracy in newspapers.[12]

In a review of research in the field, Stone found general satisfaction with electronic editing (although copy editors felt the systems used more time), and also a positive reception to the emerging technology of databases.[13] However McKercher, as well as Underwood, Giffard & Stamm, have reported ambivalence on the part of editors concerning the capacity for editorial staff to undertake pagination.[14]

RESEARCH QUESTION

In response to the uncertainty about Australian journalists' current attitudes to and experiences with newsroom technology, this study seeks to present survey-based data on two questions suggested by Weaver and Wilhoit's United States research:

what is the impact of technology on (1) the quality of individuals' work, and (2) on the time taken to perform tasks.[15]

METHOD

Questions relating to journalists' perceptions of technology were included in a national survey of Australian journalists conducted in 1992.[16] The sample was drawn using a random method from lists of editorial staff obtained from all Australian daily newspapers (national, metropolitan and regional), all Sunday newspapers, all television networks and stations and from samples of radio stations and weekly paid newspapers, as well as from the national wire service (AAP) and the two news magazines (the *Bulletin* and *Time Australia*). The questionnaire replicated approaches used in major United States studies, while introducing new items. Questions included, in addition to standard demographics, details on professional backgrounds, attitudes to current media issues and scales to explore journalists' job attitudes (including professional orientations), views on the functions of the news media, and attitudes to situations involving ethical decisions.

Interviewing was conducted by telephone by the market research firm Quadrant Research Services, except in the case of country weekly newspapers and some radio stations, where interviewing was done by a graduate student. Interviews were achieved with 1068 journalists (a 90.1% response rate). The sample closely reflected the distribution of journalists between regions and media types. State break-downs were: New South Wales, 36%; Victoria, 22%; Queensland, 15%; South Australia 7%; Western Australia, 9%; Tasmania, 5%; Australian Capital Territory, 3%; Northern Territory 2%. Forty percent of the journalists worked for metropolitan newspapers and news magazines, 28% for non- metropolitan newspapers, 29% for broadcast media, and 2.5% for the wire service.

The research for this first comprehensive national survey of Australian journalists was funded primarily by the Australian Research Council, with additional support from the University of Queensland.

FINDINGS

It is clear that Australian journalists have reacted positively to the impact of newsroom technology. More than eight out of ten journalists believe that new technologies have improved the quality of their work; only one in twenty believe that the quality of their work has been harmed (Table 1). Similarly, more than eight out of ten journalists believe that new technologies have saved time in their work; one out of ten believe new technologies take up more time (Table 2).

TABLE 1

Journalists' assessment of impact of technology on the quality of their work

(Question: "Do you think new technologies introduced to journalism in the last few years have in general improved or harmed the quality of your own work?")

	Percentage (n=1068)
Improved quality	81.8
Harmed quality	5.2
No difference	11.1
Not sure	1.8

TABLE 2

Journalists' assessment of impact of technology on the time taken in their work

(Question: "Do you think the new technologies save time for you or take up more time?")

	Percentage (n=1065)
Save time	83.8
Take up more time	10.0
No difference	0.2
Not sure	6.1

The diffusion of new technologies has not occurred at an even rate within Australia or between media. In the case of print media, the first generation of phototypesetting software had been universally established in newsrooms by the mid-1980s, but is now technologically obsolete. More "state of the art" technology has been introduced recently to broadcast newsrooms, whose managers in general saw little benefit in early wordprocessing facilities, but have been quick to see the potential in computerised audio editing. This may explain the finding that in general, broadcast media journalists are more in favour of new technologies, both as improving quality and saving time (Table 3). In particular, journalists employed by the Australian Broadcasting Corporation favour new technologies, obviously reflecting contentment with the innovative "D-cart" system used for digitised radio editing and dissemination.[17]

TABLE 3

Assessment of technology's impact on quality, by media sector

	Metro print	Reg. print	Metro b/cast	Reg. b/cast	ABC
n=	445	290	140	54	120
	%	%	%	%	%
Improved quality	80.7	83.1	87.1	81.5	90.0
Harmed quality	6.3	9.0	.7	0	.8
No difference	13.0	7.9	12.1	18.5	9.2

TABLE 4

Assessment of technology's impact on time, by media sector

	Metro print	Reg. print	Metro b/cast	Reg. b/cast	ABC
n=	425	279	136	46	114
	%	%	%	%	%
Save time	88.9	83.5	96.3	95.7	93.0
Take up more time	10.8	16.1	3.7	4.3	7.0

Who are more comfortable with new technology — men or women? It is popularly believed that women have less aptitude for, and less interest in, technology.[18] According to Frissen: "Technology is socially and culturally constructed as a male practice carried out in male institutions. This has led to a dominant value system underlying technological creative processes and decision making, which is considered to be fundamentally masculine."[19]

Against expectations, women journalists were more likely to give more favorable responses to the technology questions, with 86 percent believing the quality of their work was improved, while 93 percent felt time was saved.

TABLE 5

Assessment of technology's impact on quality, by sex

	Male (n=702) %	Female (n=345) %
Improved quality	81.9	86.1
Harmed quality	6.6	2.9
No difference	11.5	11.0
Chi square = 6.316	2 d.f. $p < .05$	

TABLE 6

Assessment of technology's impact on time, by sex

	Male (n=664) %	Female (n=334) %
Save time	87.5	92.5
Take up more time	12.3	7.2
No difference	0.2	0.3
Chi square = 6.45	2 d.f. $p < .05$	

For the variable of age, expectations about the impact of technology were met: the general trend is for older journalists to be less convinced than their younger colleagues about the capacity of new technologies either to improve the quality of their work or to save time (Table 7). Those aged under 20 are unanimous in the view that technology does both (although one wonders at their capacity to draw comparisons based on experience). Assessments of improvements in quality are in the high eighties/low nineties for journalists in their twenties, dropping to the low eighties or high seventies for those between 30 and 55. The lowest rating, at 71 percent, is among journalists in their late 50s, while those aged over 60 seem more positive about the quality issue. A similar decline, with another pre-retire-

ment jump, is found on the issue of whether technologies save time.

TABLE 7

By age, percentage who say new technologies have...

	Improved quality	Saved time
	%	%
Under 20	100	100
20-24	88	95
25-29	92	92
30-34	83	92
35-39	77	89
40-44	80	87
45-49	78	82
50-54	79	74
55-59	71	78
60+	78	86

The clear correlation with age also gives the clue to the unexpected women-pro-technology finding: women journalists are younger as a group than are men. When controlling for sex, there is effectively no difference in the age-technology correlations (Table 8).

TABLE 8

Correlations between age and responses to technology questions, controlling for sex

	Pearson correlation coefficient	
	Male	Female
	(n=720)	(n=345)
Technology improving quality of work	-.12	-.14
Technology saving time	-.15	-.15

(All correlation co-efficients significant at the .01 level)

There are slight but significant correlations between education and positive reactions to technology (Table 9). Overall, those with more formal education tend to believe that new technologies have improved quality and saved time. However, journalists with graduate degrees are less likely than most to have seen an improvement in quality.

TABLE 9

By education, percentage who say new technologies have...

	Improved quality	Saved time
	%	%
Some high school	79	81
Completed high school	81	88
Some tertiary	83	89
Completed a diploma	93	95
Completed a degree	86	92
Some graduate study	89	94
Completed graduate degree	80	96
	r=.07 p<.01	r=.09 p<.01

Understandably, the type of work undertaken by journalists has an effect on their reactions to technology. For some, the transition has been relatively painless. Newspaper reporters have had to do little more than exchange typewriters for wordprocessors (although the software has been rather cumbersome in major newspaper plants, reflecting the early introduction of the technology). The task has been considerably harder for sub-editors, who have had to learn a whole new language of embedded commands requiring great textual precision, to replace the former system of scribbled instructions to linotype operators or compositors. Again, because of the haste with which major Australian newspapers introduced computer typesetting, the software has been very user unfriendly: compared with desktop publishing software available for personal computers, the mainframe installed typesetting packages still being used in some newspapers are archaic in the extreme (with, for example, no on-screen representation of fonts or type-sizes).

In television news, the replacement of film with video has been of immediate benefit to reporters, who have been able to review their shots in the field. The elimination of the need to process film results in net time saving. But of course very little vision is put to air raw. Younger editors, who have known nothing but videotape, take much delight in the effects possibilities of video technology, although old hands maintain that is quicker to cut film (involving splicing strips of

film together) than to edit videotape (which involves dubbing in real time).

The different levels of experience with technology are reflected in the data of Table 10. In terms of time saving, reporters are the most happy with new technologies, while sub-editors are least happy. Chiefs-of-staff (concerned with managing reporters' output) are also happy with the saving of time. Chief sub- editors, who manage the sub-editors' processing of stories, are also happy with time saving.

TABLE 10

By type of work, percentage who say new technologies have...

	Improved quality	Saved time
	%	%
Reporter	86	94
Sub-editor	80	80
Feature writer	83	88
Producer	83	88
Chief-of-staff	94	93
Chief sub-editor, back bench	82	88
Section editor	68	79
Editor, exec producer	76	83

Journalists in most of the different types of work feel that quality has improved — but it is revealing to discover that the most senior journalists — editors and executive producers, as well as section editors — are rather less likely than most to consider new technologies have improved the quality of their work. This may be partly a function of age, as these people as a group are older than other journalists, but it may also indicate a more critical — and perhaps more realistic — appraisal of total output from people in senior newsroom positions.

Related to this, it was found that those journalists (just over a third of the total) who believe that standards of journalism in Australia have declined, are less likely to consider that technologies have improved work quality.

Stress is another factor. Perceptions about the level of stress experienced at work are faintly, but significantly, related to the issue of whether new technologies save time. Those who are more stressed are less likely to believe that time is being saved ($r=-.05$, $p<.05$). Similarly, those who judge their own levels of cynicism to be high, are less likely to believe that new technologies save time ($r=-.06$, $p<.05$). Perhaps they are suitably cynical about grandiose claims concerning the wonders of technology.

There is a significant relationship between both technology measures and levels of job satisfaction. Thus, of those who are "very satisfied" with their jobs, 86 percent believe technology has improved quality, compared with only 75 percent of those who are "very dissatisfied".

TABLE 11

Job satisfaction levels, by impact of technology on work quality

	Very dissatisfied (n=40) %	Somewhat dissatisfied (n=164) %	Fairly satisfied (n=536) %	Very satisfied (n=307) %
Improved quality	75.0	78.7	84.1	86.0
Harmed quality	15.0	4.9	5.2	4.6
No difference	10.0	16.5	10.6	9.4

Chi Square 13.5 6 d.f. $p<.05$

As further evidence that positive feelings towards technology are associated with a rosy view of the world (or vice versa), a clear difference was found between those who are optimistic rather than pessimistic about the future of journalism in Australia (Table12). Optimists are far more likely to believe new technologies have improved the quality of their work and to feel that new technologies save time.

TABLE 12

Views of technology by level of optimism about future of journalism*

	Optimistic (n=623) %	Pessimistic (n=387) %
Improved quality	87.8	77.8
Harmed quality	2.9	9.0
No difference	9.3	13.2

Chi Square 23.4 2 d.f. $p<.001$

	Optimistic (n=596) %	Pessimistic (n=370) %
Save time	92.8	84.1
Take up more time	7.2	15.9
	Chi Square 18.4 1 d.f. p<.001	

* "Are you basically optimistic or pessimistic about the future of journalism in Australia?"

SUMMARY AND CONCLUSION

Australian journalists are overwhelmingly positive in their responses to newsroom technology: more than eight out of ten journalists believe that new technologies have improved the quality of their work and also save time. Favorable views of technology are found in all media, with broadcast journalists, and especially employees of the national broadcaster, the Australian Broadcasting Corporation, particularly supportive of new technologies.

As predicted, older journalists are somewhat less happy about technologies, although in all age groups more than 70 percent of journalists believe quality has improved and time has been saved. Against predictions, women journalists are more in favour of new newsroom technologies than are men, but this is explained by the fact that women in journalism are as a group younger than men. When controlling for age, there is no sex difference in responses to new technologies. Education is slightly related to approval of technology.

Type of work affects journalists' attitudes, with sub-editors somewhat less pro-technology than reporters. Section editors are the least convinced about positive impacts on technology.

Those who are more stressed are less likely to believe that new technologies save time, as are those who admit to a high level of cynicism. Favorable views of technology are likely to be held by those who are more satisfied with their jobs, or who are optimistic about the future of journalism.

The link between optimism and favorable views of technology may result from the apparent lack of impact of technology on employment. While workers in the printing trades such as linotypists and compositors have seen their crafts annihilated by the introduction of computer typesetting, journalists' jobs have been unaffected. Indeed, the taking on of technical responsibilities by sub-editors has resulted in an expansion of opportunities. (There is evidence, however, of a net shrinkage in the journalistic workforce, especially as a result of the newspaper amalgamations and closures of the 1980s.[20])

Journalists therefore seem to have benefited from the introduction of newsroom technologies: certainly that is their impression. If there is successful development of artificial intelligence or more sophisticated software to replicate decision-mak-

ing processes by reporters or sub-editors[21], journalists may become less sanguine about the benefits of technology. But until or unless such developments become viable, journalists appear to be net winners in the contemporary technological era.

NOTES AND REFERENCES

1 Hillier Krieghbaum, *Science and the Mass Media,* New York University Press, New York, 1967; Peter Farago, *Science and the Media,* Oxford University Press, London, 1976; Sharon Friedman, 'The journalist's world', in Sharon M. Friedman, Sharon Dunwoody & Carol Rogers (eds) *Scientists and Journalists: Reporting Science as News,* American Association for the Advancement of Science, Washington, 1986; Peter Pockley, 'Communicating chemistry', *Australian Journalism Review,* 8, 1986, pp. 40-49; Ian Barns, 'Interpreting media images of science and technology', *Media Information Australia,* 54, 1989, pp. 22-29; Ann Villiers, 'Science communication deserves closer study', *Media Information Australia,* 52, 1989, pp. 61-63; Sharon Dunwoody, *Reconstructing Science for Public Consumption: Journalism as Science Education,* Deakin University Press, Geelong, 1993; Brian Woodruff, 'The popularising of science', *Australian Journalism Review,* 8, 1986, pp. 29-32; Stephen Utick, 'Tuned in or switched off', paper presented to the annual conference of the Australian and New Zealand Association for the Advancement of Science, 1993, Curtin University, Perth, Western Australia, September; John Henningham, 'Who are Australia's science journalists?', *Search,* 26, 3, 1995, pp. 89-94.

2 Mike Noon, 'Control, technology and the management offensive in newspapers', *New Technology, Work and Employment,* 8, 1993, pp. 102-110, at p.106.

3 Kerry Green, and Lyle Radford, 'Digital cameras: industrial problems?' *Australian Journalism Review,* 15, 1, 1993, pp. 99-102; Sheila Reaves, 'What's wrong with this picture? Daily newspaper photo editors' attitudes and their tolerance toward digital manipulation', *Newspaper Research Journal,* 13, 4, 1992, pp. 131-153.

4 John Henningham, *Looking at Television News,* Longman Cheshire, Melbourne, 1988; Ridley Williams, 'Journocam and beyond: a look into the future of ENG', *Australian Journalism Review,* 15, 1, 1993, pp. 93-98.

5 Anne Dunn, 'Towards the tapeless newsroom: the development of D-cart' *Media Information Australia,* 67, 1993, pp. 77-82.

6 Alan Kershaw, 'Living with VDTs', in K. & E. Windschuttle (eds), *Fixing the News: Critical Perspectives on the Australian Media,* Cassell Australia, Sydney, 1981.

7 Geoff Turner, 'Changes in a metropolitan daily newspaper's copy flow system', *Australian Journalism Review,* 12, 162-170; Geoff Turner, 'Information underload: recent trends in the Courier-Mail's information news content', *Australian Studies in Journalism,* 1, 1992, pp. 43-72; Margaret Dombkins, 'The impact of technology and environmental factors on newspaper organisational design', *Australian Journalism Review,* 15, 1, 1993, pp. 29-51.

8 Judee Burgoon, M. Burgoon and C. Atkin, *The World of the Working Journalist,* Newspaper Advertising Bureau, New York, 1982, p.100, cited in David Weaver and G.C. Wilhoit, *The American Journalist: A Portrait of US News People and Their Work,* Indiana University Press, Bloomington, 1986, p.153.

9 Bruce Garrison, 'Electronic editing systems and their impact on news decision making', *Newspaper Research Journal,* 3, 2, 1982, pp. 43-53.

10 Don Sneed, 'VDTs as potential health hazards: a critical analysis', *Newspaper Research Journal,* 6, 4, 1985, pp. 66-72.

11 David Weaver and G.C. Wilhoit, *The American Journalist: A Portrait of US News People and Their Work,* Indiana University Press, Bloomington, 1986.

12 John T. Russial, 'Pagination and the newsroom: a question of time?', *Newspaper Research Journal,* 15, 1, 1994, pp. 91-101; Starr D. Randall, 'How editing and typesetting technology affects typographical error rate', *Journalism Quarterly,* 63, 1986, pp. 763-770.

13 Gerald Stone, *Examining Newspapers: What Research Reveals About America's Newspapers,* Sage, Newbury Park, 1987.

14 Catherine McKercher, 'The push to pagination: the impact of a new technology on Canadian daily newspapers', *Canadian Journal of Communication,* 16, 1, 1991, pp. 110-117; Doug Underwood, A. Giffard and K. Stamm, 'Computers and editing: pagination's impact on the newsroom', *Newspaper Research Journal,* 15, 2, 1994, pp. 116-127.

15 Weaver & Wilhoit, 1986, *op.cit.*

16 John Henningham, 'Characteristics and attitudes of Australian journalists', *Electronic Journal of Communication,* 4, 3, 1993, no page numbers; John Henningham, 'Journalism in the USA and Australia: some comparisons', *Australian Journal of Communication,* 22, 1, 1995, pp. 77-91.

17 Dunn, 1993, *op.cit.*

18 Peggy Kelly, 'When women try to work with television technology', *Canadian Journal of Communication,* 14, 3, 1989, pp. 63-75; Liesbet van Zoonen, 'Feminist theory and information technology', *Media, Culture and Society,* 14, 1992, pp. 9-29; Dale Spender, 'Women must tackle high-tech roadblocks', *The Australian,* 9 March, 1995, p. 9; Jonathan Margolis, 'And man created cyber space ...', *Sunday Times,* 26 February, 1995, p.3.6.

19 Valerie Frissen, 'Trapped in electronic cages? Gender and new information technologies in the public and private domain: an overview of research', *Media, Culture and Society,* 14, 1992, pp. 31-49, at p.34.

20 Geoff Turner, 'Quality journalism's vital role in Australian communication: a case for intervention', *Electronic Journal of Communication,* 4, 3, 1993, no page numbers.

21 One computer program designed to generate news stories is already being used by some small newspapers in the United States. "SportsWriter", written by Roger Helms, writes colourful reports of high school games on the basis of boxes ticked by coaches. An example: "In an excellent team effort, the Jonathan Law Lawmen rallied to pull off an upset of the archrival Milford Indians 66-61 in boys Big Nine Basketball Tuesday at Milford." (Mike Nadel, 'Hello sweetheart? Get me rewrite or that new software', Associated Press, 20th May 1994.)