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Historical Notes on German Press Coverage of Technology

Hans Mathias Kepplinger*

Introduction

Since the mid-sixties, press coverage of actual and potential benefits of technology has decreased in the Federal Republic of Germany. Press coverage of actual and predominantly potential threats has increased. The numerous explanations for this development can be classified as involving either external or internal factors. External factors refer to the subject area itself, both the damage caused by technology and activities of protest groups that complain about the risks of modern technology. Internal factors refer to changes within the media, i.e., role definitions of journalists and their attitudes towards modern technologies.¹

To describe and explain this process, we have analyzed the coverage of energy, information, traffic, chemicals and military technology in seven newspapers and news magazines from 1964–86,² the coverage of genetic engineering from 1987–89 in eighteen newspapers, newsmagazines and scientific journals,³ and the coverage of

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¹ Theoretically, competition between the media should be a third factor. Because there was no remarkable change in the market during the period under investigation, it can be excluded here. This would be different for the second half of the eighties after private TV entered the arena.

² Hans Mathias Kepplinger, *Künstliche Horizonte: Folgen, Darstellung und Akzeptanz von Technik in der Bundesrepublik* (Frankfurt am Main 1989) and Hans Mathias Kepplinger, *Artificial Horizons: How the Press Presented and How the Population Received Technology in Germany from 1965–1986* in *The Mass Media in Liberal Democratic Societies* 147 (Stanley Rothman, ed. 1992).

³ Hans Mathias Kepplinger, Simone Christine Ehmig & Christine Ahlheim, *Gentechnik im Widerstreit: Zum Verhältnis von Wissenschaft und Journalismus* (Frankfurt am Main 1991) and Hans Mathias Kepplinger & Simone Christine Ehmig, *Press Coverage on Genetic Engineering. Facts, Faults and Causes*, in *Modern Biotechnology: Legal, Economic and Social Dimensions* (Dieter Brauer, ed.

psychiatric and cardiac drugs from 1991–92 in nineteen newspapers, newsmagazines, women’s magazines and scientific journals.⁴ In addition, we have conducted a representative survey among 2,176 Germans in 1992 exploring general attitudes towards technology as well as the evaluation of psychiatric and cardiac drugs,⁵ a representative survey among 498 journalists dealing with the political orientation and the role definitions of three generations of journalists⁶ and a nonrepresentative survey among 30 leading researchers in the field of genetic engineering, 30 influential science writers and 30 political journalists.⁷ In addition, we have used several representative surveys conducted by the Institut für Demoskopie Allensbach over the last three decades, which contain data concerning opinions about the costs and benefits of modern technology.⁸

Key Findings

- 1. The assumption of a dramatic change in the evaluation of technology in the German press in the second half of the seventies is wrong. The press reevaluation of technology had already begun in the late sixties when coverage still emphasized positive consequences of technology. Because of the relatively small number of statements on technology until 1975, the general public did not recognize the change in the presentation of technology. When the press had begun to concentrate on negative side effects of technology in 1975, the number of articles on negative events as well as the number of negative statements sharply increased. This created the false impression of a dramatic change, which in fact was part of a rather less linear trend.⁹

forthcoming 1994).

⁴ Otto Benkert, Hans Mathias Kepplinger & Katharina Sobot, *Psychopharmaka im Widerstreit* (forthcoming 1994).

⁵ *Id.*

⁶ Kurt Lang et al., *Collective Memory and Political Generations: A Survey of German Journalists*, 10 *Political Comm.* 211 (1993).

⁷ Kepplinger & Ehmig, *supra* note 3.

⁸ See Kepplinger (1989), *supra* note 2, at 173-218.

⁹ Kepplinger (1992), *supra* note 2.

• 2. The change mentioned did not occur in all papers under investigation in the same intensity, and it did not occur in all sections of the newspapers and newsmagazines. The change was much more pronounced in the liberal papers, which had originally presented a very positive picture of technology, than in the conservative papers, whose coverage originally was less favorable. The change was more or less limited to the political sections of all papers under investigation, whereas the coverage in the business sections remained — apart from some minor changes — very much the same. Even today, the coverage of topics such as psychiatric drugs and genetic engineering in the scientific sections of the papers is positive, whereas the same papers publish primarily negative news in their political sections.¹⁰ Differences correspond to different opinions of journalists working for the political and science sections.¹¹ These differences suggest that developments in the political sections of some papers were not responses to stimuli outside the mass media.

• 3. Some major accidents like Seveso and Three Mile Island can be identified as key events. These key events were not the cause of the reevaluation of technology in the press coverage. Instead, the reevaluation which already had occurred in parts of the press was the cause of the attention given to the key events. Because the reevaluation had not yet begun in the fifties, a major nuclear accident in Windscale/Sellafield (U.K.) in 1957 and a major chemical accident involving dioxin in Ludwigshafen (Germany) in 1953 did not attract much press attention despite the fact that both had an extremely high catastrophic potential¹² — and the coverage of these accidents did not establish frames for the future. On the other hand, the intensive coverage of the key events mentioned above established such frames, which shaped the coverage of future events even if they were very different.¹³

¹⁰ Benkert, Kepplinger & Sobota, *supra* note 4 and Kepplinger & Ehmig, *supra* note 3.

¹¹ Kepplinger & Ehmig, *supra* note 3.

¹² The accident in Ludwigshafen was much more severe than that near Seveso because it killed 43 workers and had a massive long-lasting impact on the health of several others.

¹³ Kepplinger (1992), *supra* note 2.

• 4. The development in the depiction of benefits and harm of technology by the press from 1965–86 cannot be explained by real developments in benefits and harm. To test the impact of real world conditions on coverage, real and reported effects of technology were compared. Air and water pollution, damage to forests, radioactive fallout, disturbances in nuclear power plants, fatal traffic accidents, life expectancy (as a general indicator), and environmental investments (as a criterion for countermeasures) were used for comparison. A total of 175 correlations between real world indicators and the amount of press coverage were calculated. More than half of the correlations (57%) were not significant, even at the .05 level. More than one third (35%) were negative, mostly because damage had decreased whereas the amount of coverage had increased. About one fifth (22%) were positive at least at the .05 level, mostly because both damages and coverage had decreased. Therefore, press coverage of the consequences of technology is an artificial and more or less arbitrary horizon.¹⁴

• 5. The activities of protest groups had a limited effect on coverage about technology. Because there are no external data on the number and intensity of protests against technology, we have to rely on press coverage of environmental groups. From 1975–86, protest groups were mentioned more often than during the period from 1965–75. However, the percentage of articles on technology in which they were mentioned remained very low (1.5% in the first, 4.9% in the second period). During the second period, unconventional protests triggered articles more often. But again the percentage of articles on these events remained so low (0.6% in the first, 4.9% in the second period) that it does not explain much of the development.

• 6. The development of technology coverage was partly caused by a factor that has nothing to do with technology — changing role definitions of journalists. Until the mid sixties, German journalists perceived themselves mostly as neutral chroniclers who did not want to intervene in society. Since then, more and more journalists have

¹⁴ *Id.*

perceived themselves as critics who report others' criticisms and personally criticize living conditions. This was primarily due to the replacement of older journalists by younger ones with different motives and goals. Of the oldest active generation of journalists (born 1909–35), 28% said, in 1989, they had become journalists because they wanted “to uncover bad circumstances.” Of the youngest generation (born 1951–66), 48% mentioned that motive. From the oldest generation 8% approved of getting a job “in a factory to get inside information.” of the youngest generation 35% did.¹⁵

• 7. The change of political journalists' role definitions was accompanied by a change in perceived newsworthiness of events: Negative events (e.g., accidents) and conditions (e.g., pollution) were increasingly perceived as newsworthy; positive events (e.g., inventions) as well as positive conditions (e.g., economic growth) were decreasingly perceived as newsworthy. The change of criteria for news selection manifested itself in news content. For example, in the mid fifties — when Germany still suffered heavily from damage caused in World War II and threats of the cold war — about 27% of the news of one major public station (Hessischer Rundfunk) dealt with negative events. Until the mid seventies, when Germans lived much better and international relations were less dangerous, the amount of coverage on negative events rose to 44%. Since then, it has declined slightly to 41%.¹⁶ Similar trends were found in Sweden¹⁷ and in the U.S.¹⁸ As a consequence of this general trend, the press also paid more attention to negative consequences of technology, despite the fact that most damage decreased over time.¹⁹

¹⁵ For sampling details, see Lang et al., *supra* note 6.

¹⁶ Hans Mathias Kepplinger & Helga Weissbecker, *Negativität als Nachrichtenideologie*, 36 *Publizistik* 330 (1991).

¹⁷ Jörgen Westerstahl & Folke Johansson, *News Ideologies as Moulders of Domestic News*, 1 *Eur. J. Comm.* 133 (1986).

¹⁸ Thomas E. Patterson, *Out of Order* (1993).

¹⁹ Again, it should be noted that the change occurred long before private radio stations were allowed in Germany during the eighties. Therefore, this trend cannot be traced to competition among profit-oriented organizations.

- 8. Attitudes of journalists towards modern technology have changed. This was again primarily due to the stepwise replacement of the older generation by young colleagues whose attitudes were shaped by the student movement. In 1989, 31% of the oldest generation of journalists (born 1909–35) agreed entirely with the statement “Protection of the environment has priority to economic interests.” Among the youngest journalists, 47% agreed. Of the oldest generation, 20% believed that the Sandoz chemical disaster was important for the whole society, while 47% of the youngest journalists shared this belief. Of the older group, 71% believed Chernobyl to have such importance, compared to 91% of the youngest generation.²⁰ These data indicate that a new generation with different views about technology and its relevance for society has taken responsibility for the selection of news.

- 9. The change of attitudes among journalists had an impact on the selection of news about technology. From the late sixties to the mid-eighties, the attitudes of political journalists towards technology — as indicated by opinions expressed in the editorials — changed slowly but continuously from positive to negative. This trend was more pronounced in the liberal newspapers, but it also occurred in the conservative ones. The attitude change in the newsrooms was accompanied by a similar change in the selection of news: There was a correlation of $r = .80$ ($p < .001$) for the liberal dailies, of $r = .41$ ($p < .05$) for the conservative dailies, and of $r = .24$ (n.s.) for the weeklies. Editorials and news became more negative, despite the fact that negative side effects of technology had decreased. Therefore, one has to conclude that the attitude change among political journalists was one reason for the change in the selection of technology news.²¹

- 10. Increasingly negative coverage of technology had a direct impact on opinions of the population. As seen from several time series comparing results from media analyses and survey research, the

²⁰ Lang et al., *supra* note 6.

²¹ Kepplinger (1992), *supra* note 2.

German journalists who work for the political sections of papers write news as well as editorials. Editorial writing is an honor for journalists. Therefore, the views expressed in editorials can be regarded as indicators of dominant newsroom views.

coverage of actual and potential damage caused by modern technology turned diffuse concerns of the population about environmental problems into fears of specific technologies, and it eroded the support for modern technology. For example, the majority no longer believes that technological progress makes life easier and is no longer convinced that technology has more positive than negative effects. The majority is afraid of technology, the risks of which they know only from the mass media because they lack personal experiences — especially of nuclear energy, genetic engineering and chemistry.²² These findings are consistent with the results from experiments²³ and field studies from the U.S.²⁴ With respect to nuclear energy, the attitudes of the German population followed the presentation of nuclear energy in the press with a time lag of about one or three years (time lag correlations range from .47 to .71), depending on the papers included in the comparison.²⁵ A similar development was found in the U.S.²⁶

- 11. The coverage had at least three indirect consequences. First, it influenced the German party system. The Green party became a relevant factor in politics after environmental problems had become a major topic of coverage in the political sector of the press (and probably TV). The success of the Green party as well as the ongoing media

²² Kepplinger (1989), *supra* note 2, at 173–229.

²³ Eric J. Johnson & Amos Tversky, *Affect, Generalization and the Perception of Risk*, 45 *J. Personality and Soc. Psych.* 20 (1983); Susanna Hornig, *Science Stories: Risk, Power and Perceived Emphasis*, 67 *Jour. Q.* 767 (1990) and J. William Spencer et al., *The Different Influences of Newspaper and Television Reports of a Natural Hazard on Response Behavior*, 19 *Comm. Res.* 299 (1992). See also, Susanna Hornig, *Framing Risk: Audience and Reader Factors*, 69 *Jour. Q.* 679 (1992).

²⁴ Barbara Combs & Paul Slovic, *Newspaper Coverage of Causes of Death*, 56 *Jour. Q.* 837, 849 (1979); Allan Mazur: *Media Coverage and Public Opinion on Scientific Controversies*, 31 *J. Comm.* 106 (1981) and Cynthia-Lou Coleman, *The Influence of Mass Media and Interpersonal Communication on Societal and Personal Risk Judgments*, 20 *Comm. Res.* 611 (1993).

²⁵ Hans Mathias Kepplinger, *Die Kernenergie in der Presse. Eine Analyse zum Einfluss Subjektiver Faktoren auf die Konstruktion von Realität*, 40 *Kölner Zeitschrift für Soz. und Sozialpsych.* 659 (1988).

²⁶ Allan Mazur, *Media Influences on Public Attitudes toward Nuclear Power, in Public Reactions to Nuclear Power: Are There Critical Masses?* 97 (William R. Freudenburg & Eugene A. Rosa, eds. 1984).

coverage of environmental problems might also be seen as causes of a shift from economic to ecological concerns in the programs of established parties. Second, it influenced policy making. In the seventies an increasing number of political decisions regarding the environment preceded the increasing coverage of environmental problems and partly stimulated it.²⁷ Since then, still increasing coverage has preceded political discussions, partly stimulating, partly shaping and partly preventing decisions. For example in 1990, under heavy pressure from influential mass media,²⁸ the German Parliament passed a restrictive law which strongly hindered the development of genetic engineering in this country and therefore had to be modified in 1993. Third, it influenced the structure of the government. Because of the increased sensitivity of the population, in 1986 a special ministry for environmental affairs was established. It initiated several laws which deeply changed the conditions of industrial production. It has to be noticed, for example, that at that time pollution was much less than 20 or 30 years before.

• 12. The process did not originate within journalism, but journalists played an important — and apparently indispensable — role in its social diffusion. The process started in the second half of the sixties among a few scientists, writers and intellectuals. In the early seventies, it spread into the curricula of the universities. In the late seventies, it became a dominant force in the political sections of the mass media. Within the media system, some papers can be identified as early adopters which had an impact on other media.²⁹ Journalists did not passively reflect changes in the society. Instead they played an active role as can be seen from a detailed analysis of information about nuclear energy from 1965–86 as presented in the press. According to statements cited or referred to in the press, two groups did not change their views over time: environmental groups that entered the public arena early in the seventies and whose statements remained negative,

²⁷ Kepplinger (1989), *supra* note 2, at 162–164.

²⁸ Kepplinger, Ehmig & Ahlheim, *supra* note 3, at 161–200.

²⁹ Kepplinger (1989), *supra* note 2, at 64–75.

and members of organizations that develop, construct or run nuclear power plants, which entered the public arena about three years after their opponents and whose statements remained positive. Two groups changed their views from positive to negative: journalists and politicians, with the journalists running about two years ahead of the politicians in the early seventies. From 1974 on, the journalists joined, of course with many diverging voices, more or less the camp of the environmental groups.³⁰

Conclusions

Because the change in media coverage of technology in Germany cannot be explained by external factors — at least not by an increase of negative side effects — one has to assume that the change was caused by internal factors. This is not possible with timeless factors like the catastrophic potential of events because several events in the past have not been covered heavily despite an extremely high catastrophic potential. Instead, it is possible to explain the development by changes within journalism — role definitions and attitudes of journalists. Because the views of small minorities in the society slowly spread into journalism, the mass media increasingly reported on negative side effects of technology. This coverage first cultivated and later on — when spectacular reports on even minor accidents had become an element of the media business — exploited the fears of an increasing part of the population. Reports that originally reflected only views of very small minorities shaped in the long run the perception of the majority and became a political force.



³⁰ Hans Mathias Kepplinger, *Technik-Kritik in den Medien*, in *Krieg, AIDS, Katastrophen* 193 (Heinz Bonfadelli & Werner A. Meier, eds. 1993).

