

THE IMPACT OF MIDCAREER TRAINING ON JOURNALISTIC WORK

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ABSTRACT

Training opportunities for working journalists have become a common feature of the professional environment in many countries. These programs—often referred to as midcareer training—are offered by the employer, by formal educational institutions, or by independent training organizations. Despite the prominence of these training programs, relatively little research has been done on the consequences of this training. This paper summarizes the findings of an evaluation of two training programs operated in the United States that are designed to help journalists better cover public health issues. The analysis shows that the journalists were more likely to deal with health risks in their stories after spending time in the program at the CDC than they did before. The journalists also changed their sources, relying more heavily on the experts at the CDC. The journalists did not include more statistical material. They did not rely more heavily on technical reports and research findings.

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I. Introduction

Training opportunities for working journalists have become a common feature of the professional environment in many countries. In Denmark, for example, journalists are guaranteed training opportunities as part of their union contracts. In the U.S., approximately 130 different training programs operate. Training of working journalists also is a common feature of media assistance programs funded by donor countries around the world.

These training programs—often referred to as midcareer training—are offered by the employer, by formal educational institutions, or by independent training organizations.

Despite the prominence of these training programs for working journalists, little systematic information has been available about their effectiveness.

Yet there has been much speculation, particularly among those who offer these programs, that they do, in fact, have impact. Proponents of midcareer training argue that journalists who participate in them actually acquire new skills and that they use these new skills on the job. Journalists who participate in these programs are expected to be more highly motivated and to perform differently from those who do not, to gain stature in the newsroom, and to advance in their careers. In addition, the trained journalists are expected to share their experiences with others in the newsroom, resulting in improved performance of the news organization at which they are employed. In this way, the actual practice of journalism should be improved.

This paper summarizes the findings of an evaluation of two training programs operated in the United States that are designed to help journalists better cover public health issues. The programs are supported by the John S. and James L. Knight Foundation, a U.S.-based funder of numerous professional training programs, and housed at the U.S. Centers for Disease Control and Prevention in Atlanta, Georgia, U.S.A.

The analysis shows that the journalists were more likely to incorporate information about health risks in their stories after spending time in the program at the CDC than they did before. The journalists also changed their sources, relying more heavily on the experts at the CDC. What did not change also

was interesting. The journalists did not include more statistical material. They did not rely more heavily on technical reports and research findings.

II. Literature Review

In evaluation research, a distinction is made between the evaluation of program process and the evaluation of program outcomes (Rossi, Lipsey and Freeman, 2004). The former monitors how the program was conducted; the latter looks at impact. Most of the evaluations that have been conducted of journalism training programs have focused on process.

One strategy for examining program impact is to ask participants to self-report on what they learned or did as a result of the participation in the program. Using this technique, Becker and Lowrey (2000) examined the impact of training programs conducted in eight European and three Latin American countries from 1994 to 1998. The researchers interviewed more than 530 program participants, who reported that the training programs had altered the ways they thought about journalism and did their work. They provided concrete examples to support that conclusion. Berger (2001), in a study of trainees who had participated in a variety of journalism programs in southern Africa over a two and a half year period, found that trainees reported that they had gained from the programs, that female trainees had more impact on their newsrooms, that some were frustrated they could not implement their skills because of the work environment, and that training took time to have impact.

Becker, Punathambekar & McConnell, P. J. (2002) analyzed interviews that had been conducted with 33 U.S. journalists who served as international trainers. Almost all the journalists said the international experience had a positive influence on their lives. Many cited personal growth and said they were able to learn the history and culture of other countries and to challenge themselves by learning to deal with new situations. For some journalists, the international experience sparked an interest in other career options. Philliber (2002) conducted an evaluation of Free Press Seminars offered for Journalists in Latin America between 2000 and 2002. Before and after the workshops, participants were asked to rate how familiar they were with the Declaration of Chapultepec, a free press manifesto for the Americas, and other key free press documents or restrictions. After the workshops, familiarity with Chapultepec, Article 19, the First Amendment, and legal restrictions on freedom of expression in the United States and in the home country

of the workshops increased significantly. After the workshops, the journalists attending the workshops in most countries were less likely to feel the press should be legally restricted, though the differences were not great. Participants also rated the workshops highly overall and rated individual components highly.

Nelson, S., Rowland, J., & Stinson, D. (2004) in an assessment of the impact of media training programs in Kosovo, found that much of that investment has been in training, according to the report, and the training has produced mixed responses. Some trainers were judged to be unqualified and course content did not always respond to local needs.

Becker, Vlad, Mace, & Apperson (2004) found that U.S. journalists participating in an international seminar said the experience provided them an opportunity to develop an international network of professionals with expertise in the topic covered by the seminar, exposed them to different views of the United States around the world, and provided them an understanding of the complexity of various issues affecting other parts of the world. These findings were supported by examples of impact provided by the journalists to the interviewers and by interviews with the editors to whom the journalists reported when they returned to work. In addition, the journalists provided the interviewers with stories they had written. An analysis of these stories supported their claims of program impact.

Becker, et al. (2004) also found that journalists who participated in two separate health training programs said they gained valuable information and in-depth knowledge on several ongoing health topics, developed working relationships with researchers and others that proved helpful to their reporting, and gained a better understanding of public health and public policy issues. Again, these reports of impact were consistent with examples given by the respondents and with independent reports of the editors to whom they reported. In addition, the journalists provided examples of stories they had written that supported their assertions of impact.

The United States Agency for International Development (USAID, 2004) has summarized the findings of its assessment work of media assistance projects in Bosnia, Central America, Russia and Serbia. The report concluded that USAID-supported professional training programs improved news content and coverage and helped institutionalize notions of press freedom. Kumar (2006) has developed a series of recommendations for media assistance programs based on this research.

Mussuri (2005) examined the impact of media assistance programs in Ukraine by comparing how four online publications supported by international donors in large part through training programs differed in their coverage of the country's Orange Revolution of late 2004 from four other online publications that had not received support from international donors. She found that the media with outside support and training were more likely to cover the political events taking place in Ukraine at that time. Though each of these media covered the opposition in those stories, the stories in the media supported by outside donors were more likely to provide balanced coverage of the opposition.

Takeuchi (Sasakawa Peace Foundation, 2005) completed an evaluation of a program that, from 1991 to 2004, brought 81 journalists from the Pacific Islands to Japan for visits of differing duration. The purpose of the program was to expose the journalists to Japanese culture, politics and media. Takeuchi surveyed participants and reviewed stories written upon their return to assess impact of the program. The evaluator concluded that the program undoubtedly was successful in exposing a group without prior experience to Japanese life, but there was little evidence the program had an impact on the professional development of the journalists. It also had limited impact on what the journalists wrote or did after they returned.

III. Expectations

A survey (Princeton Survey Research Associates, 2002) conducted of U.S. working journalists and media executives showed considerable interest in training. Four in 10 of the 1,178 surveyed journalists said they were very interested in in-house training programs, and a similar ratio were very interested in programs such as those provided by Poynter and American Press Institute. Media executives also reported that they took advantage of training, with seven in 10 of the 785 executives saying they offered in-house training in the year before the survey and five in 10 saying their employees participated in the type of programs offered by Poynter or API.

Other studies also have found that journalists want more training. For example, a survey of mid-Western health reporters found that 83% said they had no training and they felt a strong need for it (Voss, 2002). Another study of environmental reporters found that more than 60% of the respondents said training was their greatest need (Detjen, et al., 2000).

Since journalists usually join training programs because of a desire to learn, and because the goal of the programs themselves is learning, it seems reasonable to expect a positive outcome. The existing research generally is supportive.

At the same time, actual journalistic performance is influenced by many forces, including routines in the newsroom, economic and political constraints, and newsroom culture itself (Shoemaker and Reese, 1996). For this reason, it is worth examining if actual journalism training programs do produce changes in journalistic behavior.

IV. Methodology

A. Overview

A study of two journalism training programs at the Centers for Disease Control and Prevention in the United States was undertaken, in two phases. This research built on the earlier study of this program by Becker, et al. (2004) by examining in detail the actual work product of the journalists. The first phase of the research was from February of 2004 through January of 2005. The second phase of the research was undertaken from February to December of 2005.

The Knight Public Health Journalism Fellowship at the CDC began in 2000, and the Knight Public Health Journalism Boot Camp started in 2002. The participants in those two programs in 2002, 2003 and 2004 were the subject of this analysis.

In 2002, the Fellowship lasted four months and began with the Boot Camp, which lasted 10 days. Six journalists participated in the Fellowship program. An additional 12 journalists participated in the Boot Camp. In 2003, eight journalists participated in a three-month Fellowship program and 17 participated in the 10-day Boot Camp program. In 2004, six of the Fellows participated in a three-month Fellowship program and 15 were participants in the 10-day Boot Camp.

The goal of the research was to obtain copies of stories written by the participants in the Boot Camp and Fellowship programs both before and after they completed the programs and by a control group of journalists during the same periods. To begin the search process, the media outlet for each of the journalists participating in the programs was identified from program records. The goal was to find as many electronic records of stories written by these journalists in the specified periods as possible.

LexisNexis was used as the primary archive. First, the news category was restricted to "U.S. News," meaning that only articles appearing in U.S. media would be included, if the journalist worked in the U.S. The news category was restricted to "News Wires" for those journalists working for wire associations, and to "World News" for international journalists. Next, the search was restricted to the actual media organization for which the journalist worked. A journalist's name, specific media organization, and the target dates were specified in the search fields. Everything that the journalist produced was collected. ProQuest was used as a secondary search tool if LexisNexis did not carry the specific media organization in its database. In 2003 and 2004, stories for some of the journalists were taken from the online archives for the journalists' publication or broadcast station. In addition, general searches were conducted using the Google search engine.

A group of health/medical reporters, who worked at publications comparable to those where the Boot Campers and Fellows worked, was identified to serve as a control. An examination of their work before and after the Knight training programs would identify any changes in journalistic product not attributable to the Knight program itself.

The first step in creating the control group was to obtain the names and publications of the participants in the Knight Boot Camp and Fellowship programs in the subsequent year. These individuals should be comparable to the participants in key ways, as they, too, had been selected for the training programs. The second step, used for the 2003 and 2004 phase of the study, involved searching the web sites of the same newspapers where the participant journalists worked to find the names of additional health reporters at the same organizations. As a third step, *Editor and Publisher Yearbook* was consulted to find a newspaper comparable in terms of size and location. The newspaper web site was consulted to find the name of a health reporter. In the 2002 phase of the project, the directory of the Association of Health Care Journalists also was used to locate health journalists working at media organizations comparable in terms of size and location.

Once a control group similar in makeup to the participant group was compiled, articles were collected using the same procedures as those used for the Knight program participants. Articles published during all three time frames were collected for the control.

In sum, for the 2002 phase of the project, data were available for 14 journalists in the training program (nine of them from the Boot Camp program and five Fellows) and for 14 journalists in the control group. For 2003, data were available for 13 journalists (11 of them Boot Camp participants and two of them Fellows) and the same number of journalists in the control group. For 2004, data were available for nine journalists (eight from the Boot Camp and one Fellow) and the same number of control group members.

B. Formatting Articles for Content Analysis

The downloaded articles were saved as text documents. The media organization, headline, page number (if appropriate), and journalist's name were all recorded. All texts were formatted with the same sized font and margins. The headline, reporter's name, organization, date, and all other identifying information then were stripped from the text. Duplicates were removed from the files. For instance, the Associated Press often posts versions of the same article several times throughout the course of a day. Either the first story or the longest story was kept.

In 2002, after elimination of duplicate stories and stories written by the freelancers, the total number of stories available for analysis was 1,434. Of these, 626 were written by program participants and 808 were written by members of the control group, whose stories were captured in all three time periods. Of the 626 stories written by participants in the training program, 221 were written by Boot Camp participants before the training and 220 were written after. Fellows wrote 99 stories before the Fellowship and 86 afterwards. Of the 808 stories written by members of the control group, 281 were written before the Boot Camp was held, 255 were written after the Boot Camp but before the Fellowship ended, and 272 were written after the Fellowship ended.

After elimination of duplicate stories and stories written by the freelancers, the total number of stories available for analysis for 2003 was 1,455. Of the 1,455 for 2003, 623 were written by participants of the training program and 832 were written by journalists in the control group. Of the 623 articles written by program participants, 274 stories were written by Boot Camp participants before the 10-day training and 192 were written after the training. The two Fellows wrote 83 stories before the Boot Camp and 74 stories after the entire Fellowship ended. Of the 832 stories written by the journalists in the control group, 265

stories were written before the training program, 276 stories written after the Boot Camp ended, and 291 stories written after the Fellowship ended.

The total number of stories available for analysis for 2004 was 1,355. Of the 1,355 articles for 2004, 598 were written by program participants and 757 were written by members of the control group, whose stories were captured in all three time periods. Of the 598 stories written by participants in the 2004 training program, 246 were written by Boot Camp participants before the training and 241 were written after. The single 2004 Fellow wrote 46 stories before the Fellowship and 65 afterwards. Of the 757 stories written by members of the 2004 control group, 235 were written before the Boot Camp was held, 257 were written after the Boot Camp but before the Fellowship ended, and 265 were written after the Fellowship ended.

C. Coding Procedures

The content analysis was designed to measure characteristics of the articles that might be expected to change as a result of the training program. The article was classified as either news, features or column or opinion pieces and as routine or breaking news versus enterprise pieces. The article was classified by topic covered. The number of sources was counted, and sources were classified by type and affiliation. The number of attributions was counted, as was the number of sentences that contained at least one statistic. The article was classified as including research findings or not and including a description of research methodology or not. The number of times that the article mentioned the CDC was counted, and the nature of the CDC reference was classified. Use of medical terms was coded, and whether the terms were explained. The article was coded as mentioning a health risk or not. If so, the article was classified as explaining level of susceptibility, providing predictors of risk, providing advice on dealing with the risk, including chances of survival if affected, and discussing impact of the risk on society. The article was given a general classification as confusing or not and as to whether it included different viewpoints or opinions.

A coding booklet was developed to inform coders how to classify the articles. Instructions and definitions were given for each item. The articles were randomly assigned to coders, without regard to journalist or time period of publication.

In 2002, four coders analyzed the articles. An analysis of practice coding of the four coders with the coding supervisor showed a high level of agreement. Across 47 comparisons, 16 times agreement

was 100%, 17 times agreement was 90%. Average agreement across the 47 comparisons was 84.9%. These computations are based on the Holsti coefficient and are at an acceptable level of reliability. Reliability also was assessed by comparing the agreement among the coders once they actually started their coding and by comparing agreement for each of the coders across time. For the comparisons involving the articles of the journalists in the training programs, 15% of the articles were coded by all three of the coders then working on the project. Across 47 comparisons, eight times agreement was 100% and 14 times it was 90%. The average agreement across the 47 comparisons was 98.5%, using Holsti's coefficient. For the comparisons involving the articles of the journalists in the control group, 15% of the articles were coded by all four of the coders then working on the project. Across 47 comparisons, 17 times agreement was 100% and six times it was 90%. Average agreement across the 47 comparisons was 84.9%, again a high score for agreement. The three coders classifying the articles of the journalists who participated in the training program reread 20 articles selected randomly five weeks after they had coded them the first time. The average agreement was 89.4%. The four coders classifying the articles of the journalists in the control group also reread 20 articles selected randomly five weeks after they had coded them the first time. The average agreement was 90.1%.

For the 2003 and 2004 phase of the project, seven coders analyzed the articles. Six coders and two supervisors were involved in the initial phase of the coding. Each coded 20 articles, 10 selected randomly from 2003 and 10 selected randomly from 2004. At the end of this initial coding, a reliability test was run on each pair of coders, and the average across the 28 pairs computed. This score, using Holsti's Coefficient of Reliability, was 0.77. Because this coefficient was judged to be low, the procedure was repeated. In this second phase, five coders and the two supervisors discussed discrepancies and the coding rules. Two coders were switched to another project and a third coder joined the project. Each of the five coders then coded another 20 articles, 10 from each year, and a reliability test was run on each pair of coders. The average across the 10 pairs was .822. The range was from 0.79 to 0.84.

These five coders then began coding the articles in packets of 50 articles, half from 2003 and the other half from 2004. The articles were shuffled together within year, so that control and participant articles were intermixed and timing of the article was randomized. After three weeks of coding, the coders stopped their work. Each coder then was assigned an identical packet of 20 articles, 10 from each year. These

were randomly drawn from the available articles and were not the same as those coded in the training sessions. The coders spent a week coding these 20. Reliability coefficients were computed again. Across the 10 pairs, reliability was 0.81, with a range of 0.78 to 0.84. Coding then continued until it was finished in November of 2005.

Independently, the total number of words in the story, the total number of sentences, the total number of lines, and the total number of paragraphs were counted via the word processing program, Microsoft Word. The number of words per sentence, reading ease, and grade level required for comprehension also were computed by Word.

Since the data from the content analysis are a census of electronic records for the journalists in the Knight programs and the control group, the findings below are presented descriptively. In other words, differences observed are treated as real, and sample error is not computed. Of course, measurement error still can lead to false inferences about the effects of the Knight programs on the journalists. For that reason, only those findings that are consistent across all comparisons and are consistent with expectations about effects are treated as real.

V. Findings

In 2002, the control group consisted of journalists who matched either a Boot Camp participant or a Fellow. In 2003 and 2004, separate control groups were created to match either the Boot Camp participants or the Fellows.

In 2002, the participants in the Boot Camp program had produced slightly longer stories than the members of the control group in the three month period before the Boot Camp was held. The average story written by the Boot Camp participants was 771 words long, compared with 713 words for the members of the control group. Story length after the Fellowship dropped for the participants in the Boot Camp and increased for the members of the control group. In general, these differences are quite small. They hold, however, if total sentences, total lines of copy, and total number of paragraphs are used as measures of story length. Participants in the Fellowship program also wrote longer stories than members of the control group before the Fellowship program, but they shortened their average word length after the Fellowship program, while the members of the control group increased the average number of words in

stories written. These differences also exist if other measures of story size—total sentences, total lines of copy and total numbers of paragraphs—are used.

Both Boot Camp participants and Fellows in 2003 produced shorter stories in the three months after they completed their programs compared with what they had done in the three months before. The 11 Boot Camp participants had written 274 stories in the three months before the program, with an average length of 629.2 words per story. After the program, they wrote 192 stories with an average length of 580.2 words. The two Fellows for whom articles could be found in the archives produced 83 stories before the Fellowship with an average length of 485.7 words, while in the three months after they completed the Fellowship they wrote 74 stories with an average of 416.8 words per story.

The 11 journalists who served as controls for the Boot Camp participants actually produced slightly more stories in the three months after the Boot Camp program ended (237) than they did before it started (224). The two journalists who served as controls for the Fellows produced 29 stories in the period after the Fellowship program compared with 41 they had produced before. For the Boot Camp control group, average story length was lower after the Boot Camp (707.0 words on average) than before (717.2 words). For the Fellow control group, average story length was higher after the Fellowship program (773.5 words per story) than before (733.6 words per story).

In 2004, Boot Camp participants produced just slightly fewer stories after the program (241) than before (246). The average story length for the eight journalists whose work could be examined from the archives was 630.2 words per story after the program, compared with 623.6 words per story before. The single Fellow whose work could be captured and compared produced 65 stories in the three months after the program compared with 46 in the three months before. Average story length was 550.5 words per story after the program, compared with 583.0 before. The 2004 Boot Camp control group produced 218 stories after the program, compared with 224 before. Story length after the program was 677.9 words per story, compared with 688.5 words per story before. The single journalist serving as a control for the 2004 Fellow produced only six stories in the three months after the Fellowship program, compared with 11 in the three months before. Stories after the program averaged 638.3 words, while stories before averaged 676.2 words.

A common measure of writing complexity is average number of words per sentence. In 2002, the participants in the Boot Camp did not write more complex stories after the workshop. Complexity of the stories of the members of the control group also did not change. The Fellows also did not change appreciably the number of words per sentence in their stories from before to after the Fellowship program. The control group similarly did not change the complexity of stories written during the comparison period. Two other measures of writing complexity showed the same pattern: the Flesch Reading Ease measure and the Flesch-Kincaid Grade Level measure.

In 2003 and 2004, the mean number of words per story averaged across the stories produced by the Boot Camp Participants and the Fellows before and after the programs in 2003 and 2004 varied little. The same was true for the members of the control groups. As in 2002, there is no evidence that the participants in the CDC Knight programs started writing in a more complex fashion or style as a result of their participation in the program. The journalists did not increase the complexity of their writing as they became more knowledgeable about the subject matter.

In 2002, there is evidence that participants in the Knight CDC programs wrote more about health issues and topics after the programs than before. The increase seems to be beyond what would be expected by external circumstances, as reflected in the work of the control group. Table 1 shows that 71.0% of the stories written by the participants in the Boot Camp before the program were about health issues or topics; after the program, that percentage increased to 82.8%. The members of the control group, in contrast, showed a more modest change in the percentage of stories they produced that were on health topics between the comparison periods.

The Fellows produced a higher percentage of copy on health topics and issues in the three months before the program than did the control group journalists, and they increased the percentage of their copy on health topics in the three months after the program. The members of the control group did not change in terms of the percentage of stories produced on health topics.

In 2003, the Boot Camp participants actually showed a very small decline in the percentage of stories that were about health topics after the program compared with before (Table 1). The two Fellows whose work could be tracked, however, showed the expected gain. The control group for the Boot Camp participants also showed a comparable decline, while the control group for the Fellows showed a

comparable increase. In 2004, the work of the Boot Camp participants was not more likely to be about health after the workshop than before, nor was the work of the Fellow. In the case of the Fellow, however, there was no room for movement, as the Fellow had produced 100% of his/her copy on health before the Fellowship program. The 2004 control group for the Boot Camp participants showed a very slight increase in the percentage of stories dealing with health in the three months after the workshop compared with before, while the Fellow control actually produced considerably more stories about health after the workshop than before.

The remaining analyses focus only on the stories written by the journalists on health. In 2002, the health stories written by the participants in the Boot Camp program were less likely to be feature oriented (and more likely to be hard news in approach) after the program than before. The control group did not change during the period. The Boot Camp participants were less likely to do enterprise pieces (in favor of breaking news) after the program than before, while the control group participants did not change in this regard. The Fellowship program participants showed a small drop in the amount of feature writing they did, mirrored in the work of the control group. The Fellows also showed only slight changes in the percentage of their work that was of an enterprise nature, again comparable to what was experienced by the control group.

In 2003, the Boot Camp participants and Fellows were less likely to write about health issues using a feature format after the program compared with before, consistent with the findings from 2002. The control group for the Boot Camp participants also was less likely to use a feature format in the same time period, while the control group for the Fellows actually was more likely to use a feature format. In 2004, the Boot Camp participants actually were more likely to use a feature format after the program than before, while the Fellows were less likely to use this format in writing about health issues.

In 2003, the Boot Camp participants and Fellows were less likely to do enterprise pieces after the CDC Knight programs than before. In 2004, the Boot Campers were more likely to do enterprise pieces, while the Fellows were less likely to do such reporting. There is little consistent evidence across the years that the programs are producing more initiative reporting on the part of those who experience them.

In 2002, the Knight CDC programs did not alter the number of sources used by the journalists who participated in them. Boot Camp participants and Fellows used nearly the same average number of

sources before as after the program, and the numbers were very similar to those used by the control group journalists during the same time periods. There was a shift, however, in the types of sources used. In general, the journalists in the program shifted away from use of patients and doctors as sources of stories as a result of the program. The shifts were more pronounced than what would be expected based on the work of the control group. Differences between the two time periods in the work of the control group can be attributed to differences in the stories being covered across time. For example, the average Boot Camp participant story written before the program relied on .47 doctors or health practitioners, while after the program that number dropped to .24. Journalists in the control group showed a change from .44 doctors or health practitioner sources to .36. For the Fellows, the decline from before to after their program was from .49 health care practitioners or doctors to .28, while the control group journalists dropped from .44 to .35. The changes shown for the control group suggest that there was some change in the nature of health stories from before to after the program. The Knight program, in addition, seems to have contributed to a shift in the type of sources used. In general, the shift for the Boot Camp participants was to a variety of experts and officials and to public relations sources. For the Fellows, the shift was to government officials.

Similarly, there is no real evidence in 2002 of change in the number of attributions made by the journalists who participated in the Knight programs at the CDC from before to after the programs. What does change is the type of sources to whom information is attributed. The CDC is much more likely to be a source after the program than before both for the Boot Camp participants and for the Fellows. The average story written by the Boot Camp participants before the training program had .12 sources linked to the CDC. After the program, that number was .45. For the Fellows, the average number of sources affiliated with the CDC before the program was .07. After the program, it was .29. In comparison, the control group journalists showed no change in use of CDC sources in the three months after the Boot Camp program compared to the three months before it. These journalists actually were less likely to attribute to a CDC-affiliated source in the three months after the Fellowship program ended than in the three months before it began. The Boot Camp participants also were less likely after the program to attribute information to hospitals, doctors' offices and medical centers than before and less likely to attribute information to associations and medical organizations after than before. While the control group

showed drops during these periods as well, suggesting some change in the nature of the stories covered, the drops for the control groups were considerably smaller than for the Boot Camp participants. The Fellows also were less likely to attribute to sources affiliated with organizations and associations after the program than before, while the control group journalists actually increased their use of these sources during this period.

Consistent with the 2002 findings, the CDC Knight program did not alter the number of sources used by the participants in 2003 and 2004. Before the programs, the 2003 and 2004 Boot Camp participants and Fellows used about the same number of sources in their health stories as they did after those programs. The control groups also did not change much in this regard during the period of the analysis. Similarly, the average number of attributions did not change much during the period of study, for the participants or for the control groups. Again, the finding is consistent with the data for the 2002 participants in the Boot Camp and Fellowship programs.

In 2003 and 2004, though the number of sources and the number of times something is attributed in the story did not change from before the programs to after, the types of sources did change. This finding was consistent with what was learned in 2002. In 2002, the program seemed to have led to a shift away from the individual health practitioner and the patient as sources. In 2003, this same shift was present. In 2004, reliance on individual practitioners and victims increased slightly. In both 2003 and 2004, however, academic sources declined as sources. In contrast, the CDC was a more common source for the Boot Camp participants both years and for the Fellow in 2004.

In 2002, the Knight training programs did not lead the participants to increase the amount of statistical materials in their stories. Participants in the Boot Camp program, on average, had 1.7 sentences containing at least some statistical materials in their stories before the training program. That number dropped to 1.4 after the program. The control group also showed a slight decline in the number of sentences with statistical materials during this period. The Fellows, who wrote stories that, on average, had 2.0 sentences with statistical materials included before their program, showed no change afterwards. The control group, who uses fewer sentences with statistical materials before the training program, showed only slight change in the period after the Fellowship program.

In 2002, a third of the stories written by the participants in the Boot Camp program before the program began included findings of scientific research, a figure that was considerably higher than was the case for the control group journalists, for whom only a quarter of stories written deal with research. The percentage of stories dealing with research findings declined for both groups after the workshop took place. Four in ten of the stories written by the participants in the Fellowship program before the program began deal with research findings. That figure dropped quite strongly in the period after the program. The participants in the control group, however, increased their reporting of scientific findings, so the Fellows and the control group journalists actually looked quite similar in the three months after the Fellowship program.

In 2002, only 7.6% of the stories written by the participants in the Boot Camp program included information on research methodology in the period before the Boot Camp program. That figure was unchanged in the period after the program. The control group journalists actually showed a decline in inclusion of methodological details from the pre-program to post-program period. The Fellows, in contrast, included information on research methodology in three of 10 of the stories they wrote before the program began, but that figure dropped to half that level after the workshop. The control group journalists showed no change.

In 2003 and 2004, there is little evidence the CDC Knight programs led the journalists to include statistical materials in their stories. In fact, consistent with the 2002 findings, there is no evidence the programs lead the journalists who participated in them to rely more on research findings in their reporting as a consequence of the programs. They also were not more likely to focus on research methodologies.

In 2002, before the Boot Camp program, 23.6% of the stories written by the eventual participants included medical terms, while the figure for the control group in this period was a nearly identical 22.4%. The percentage of stories including medical terms increased for both groups by a nearly identical amount in the post-program period. The Fellows included medical terminology in nearly a third of the stories they wrote before the program, compared with a ratio of about two in 10 for the control group journalists. In the post-program period, however, the Fellows and the control group both included medical terminology in about a quarter of their stories. If the story included medical terms, the eventual Boot Camp participants explained the terms two-thirds of the time in the three months before the workshop, while the control group

explained the terms more than eight of 10 times. The participants in the Boot Camp program showed no change in their inclusion of explanations of terms in the period after the workshop; the control group journalists were less likely to explain terms than before the workshop, but their stories continued to include more explanations of terms than did the stories of the Boot Camp participants in the period after the program was completed. The Fellows, in contrast, were nearly as likely as the control group to include terminological explanations in the period before the workshop. After the workshop, the Fellows actually were more likely than the control group journalists to include explanations of terms in their stories.

Consistent with the 2002 findings, there is no evidence from the analysis of the work of the 2003 and 2004 journalists that the program led to an increase in the use of medical terms. Before the program, most of the medical terms used were explained; there is no evidence of change as a result of the programs. For the most part, the journalists who participated in the programs and those who did not knew how to explain medical terms and did so.

In 2002, clearly the Knight training programs at the CDC made the journalists who participated more sensitive to health risks and health threats, and they wrote about these topics as a result. Even before the workshops, the journalists who would be participating in them were more likely to write about health risks and health threats than the members of the control group, Table 2 shows. Four in 10 of the health stories written by those who would be participating in the Boot Camp and nearly five in 10 of the health stories written by those who would become Fellows dealt with health risks in the three months before the programs began. Only a third of the stories written by the journalists in the control group in this same period were focused on health risks. After the Knight programs at the CDC, the journalists who participated in the Boot Camp program devoted six in 10 of their stories to topics that focused on health risks, as did the journalists who participated in the Fellowship program. The control group journalists, in contrast, still only focused on health risks in a third of their health stories.

This finding is not replicated in 2003, though it is in evidence in 2004. In 2004, the journalists who participated in the programs were more likely to write stories involving health risks after the program than before (Table 2). In all four comparisons in the control groups, there is no evidence of increased coverage of health risks during this time period. In fact, the reverse is true. All four showed declines in coverage of

stories about health risks during this time. This contrast strengthens the inference that the effect in 2004 is attributable to the CDC Knight programs.

Despite the fact that the journalists participating in the Knight programs at the CDC in 2002 focused more on stories about health risks once they completed the programs, they did not change much the way they covered these stories. Stories about health risks, for example, were about equally likely to contain information on susceptibility to the health risk after the program as they were before it. The Fellows, in fact, were even less likely to include this aspect of the story than were members of the control group. In 2003 and 2004, although the evidence is that the programs increased the chances the participating journalists would write about risk, there also is not consistent evidence it changed the content of those stories.

The likelihood that the Centers for Disease Control and Prevention would be mentioned in a health story written by the journalists who participated in the Knight programs increased as a result of the programs (Table 3). Before the training programs, the CDC was mentioned, on average, 0.3 times in the health stories written by the Boot Camp participants. That figure increased to 0.7 after the program. The control group journalists showed a more modest change. For the Fellows, the CDC was mentioned 0.1 times per story before the program; the figure was 0.5 after the program was completed. For the control group, the mentioning of the CDC actually declined over the same time period. Consistent with the findings on use of sources, the data in Table 3 shows that the CDC became a somewhat more prominent part of the coverage of health for those journalists who participated in the program. The finding is hardly surprising, but it confirms that an outcome of the program is increased awareness of the CDC and the resources it provides to health journalists.

Again in 2003 and 2004, the effect of the program on mentions of the CDC is clearly in evidence (Table 3). On average, after the Boot Camp program in 2003, the journalists mentioned the CDC one time in their stories. Before the program, that figure had been 0.8. For the Fellows that year, the average increased from 0.6 times per story to 0.7 times per story. These increases are not dramatic, but the control groups show a rather different picture. The Boot Camp control journalists actually showed a decline from 0.5 mentions per story to 0.1 mentions per story during this time period. And the control group for the Fellows, also made up of two journalists, had no mentions before or after the program.

In 2004, the Boot Camp journalists increased from no mentions of the CDC before the program to 0.2 mentions per story afterwards. The Fellow showed exactly the same effect. The control group for the Boot Camp journalists showed no change in CDC mentions. The control journalist for the Fellow had had no mentions of the CDC in stories written before the Fellowship program (as was true for the Fellow), but the control journalist did not mention the CDC in the three months after the program either. It is clear the 2003 and 2004 journalists were rather different in their prior experience with and citation of the CDC in their copy. Yet the effect is the same. The rather pronounced effect—made all the clearer because of the availability of the control group comparisons—makes it obvious that the program has a consequence in one rather significant way. Increased use of CDC expertise is brought about by the Boot Camp and the Fellowship.

For the most part, it seems that the change in focus is the result of increased use of sources from the CDC, as the analysis of sourcing and attribution showed. In the case of the Boot Camp participants from 2003, there also was an increase in stories about the CDC itself. Before the training program, 2.6% of their stories had the CDC as the main focus. After the program, that percentage increased to 8.2%. For the Fellows in 2003, the percentage of stories about the CDC dropped from 9.0% before the program to 7.7% after. In 2003, the Boot Camp control group showed a decline in the percentage of stories with the CDC as the main focus from 3.9% before the time of the program to 0.0% in the three months following the Boot Camp program. The Fellow control group did no stories with the CDC as the central focus before the Fellowship program and no stories about the CDC as the central focus afterwards.

In 2004, neither the Boot Camp participants nor the Fellows did any stories in which the CDC was the main focus before the programs. They also did none in which the CDC was the main focus after the programs. The control group journalists also did no stories before the training programs with the CDC as the main focus and no stories after the training program with the CDC as the main focus.

Consistent with their goal, the training programs provided journalists with new sources of information within the CDC that they were able to use in writing about health issues, without making the CDC a central element of the story.

VI. Conclusions

The evidence of impact of the health training programs on the work of the journalists is quite limited. In fact, a critic might be tempted to conclude, based on the content analysis, that the Knight Programs at the CDC had little impact. It would be a mistake to reach that conclusion. Clearly, while there is little evidence that the journalists radically changed what they did as a result of the program, there is evidence that at least one important change took place. The journalists changed their sources, relying more heavily on the experts at the CDC. This is an intended outcome, an expected outcome, a documented outcome, and an important outcome. It seems likely that coverage of health stories is better because of it.

What does not seem to change also is interesting and important. What the journalists wrote about health did not become more difficult to understand as a result of their increased knowledge. They did not include more statistical material. They did not rely more heavily on technical reports and research findings.

The type of stories the journalists wrote does seem to change in one significant way. In two of the three years examined, the journalists were more likely to deal with health risks after spending time at the CDC than they did before. This suggests more sophisticated coverage is one outcome of the program.

The content analysis measures only clearly documentable changes in the content of the journalists on a limited set of characteristics. Critics can charge that the content analysis was too gross to miss more subtle changes resulting from the program. No doubt, some subtle changes were missed. Yet it is an easy criticism to suggest something was missed without specifying what it was.

VII. References

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Table 1: Story Type						
Year	Timeline	Story Type	Group			
			Boot Camper	Fellow	Boot Camper Control	Fellow Control
2002*	Before	Count	221	99	281	
		% Related to Health	71.0%	82.8%	73.0%	
	After Camp/ Fellowship	Count	220	86	255	272
		% Related to Health	82.7%	88.4%	77.6%	73.5%
2003	Before	Count	234	67	180	21
		% Related to Health	85.4%	80.7%	80.4%	51.2%
	After Camp/ Fellowship	Count	159	65	183	18
		% Related to Health	82.8%	87.8%	77.2%	62.1%
2004	Before	Count	118	46	148	7
		% Related to Health	48.0%	100.0%	66.1%	63.6%
	After Camp/ Fellowship	Count	114	63	147	6
		% Related to Health	47.3%	96.9%	67.4%	100.0%

* Control is same for Boot Campers and Fellows

Table 2: Health Risks*						
Year	Timeline	Story Focus	Group			
			Boot Camper	Fellow	Boot Camper Control	Fellow Control
2002*	Before	Count	157	82	205	
		% Focus on Health Risks	41.4%	48.8%	34.1%	
	After Camp/ Fellowship	Count	182	76	198	405
		% Focus on Health Risks	52.2%	59.2%	33.7%	35.3%
2003	Before	Count	128	15	51	2
		% Focus on Health Risks	54.7%	22.4%	28.3%	9.5%
	After Camp/ Fellowship	Count	72	11	50	0
		% Focus on Health Risks	45.3%	16.9%	27.3%	0.0%
2004	Before	Count	33	14	46	4
		% Focus on Health Risks	28.0%	30.4%	31.1%	57.1%
	After Camp/ Fellowship	Count	45	25	38	3
		% Focus on Health Risks	39.5%	39.7%	25.9%	50.0%

* Control is same for Boot Campers and Fellows

Table 3: Number of Times CDC Mentioned*					
Year	Group	Timeline	Mean	Std. Deviation	N
2002**	Boot Camper	Before	0.3	1.0	157
		After Boot Camp	0.7	1.7	182
	Fellow	Before	0.1	0.5	82
		After Fellowship	0.5	1.5	76
	Control	Before	0.4	1.2	205
		After Boot Camp	0.5	1.7	198
After Fellowship		0.2	1.0	200	
2003	Boot Camper	Before	0.8	1.7	234
		After Boot Camp	1.0	2.2	159
	Fellow	Before	0.6	1.4	67
		After Fellowship	0.7	2.0	65
	Boot Camper Control	Before	0.5	1.5	180
		After Boot Camp	0.1	0.3	183
Fellow Control	Before	0.0	0.0	21	
	After Fellowship	0.0	0.0	18	
2004	Boot Camper	Before	0.0	0.2	118
		After Boot Camp	0.2	0.8	114
	Fellow	Before	0.0	0.0	46
		After Fellowship	0.2	0.7	63
	Boot Camper Control	Before	0.1	0.4	148
		After Boot Camp	0.1	0.4	147
Fellow Control	Before	0.0	0.0	7	
	After Fellowship	0.0	0.0	6	
*Only health stories.					
** Control is same for Boot Campers and Fellows					