

A Content Analysis of Textbooks on Criminal Investigation: An Evaluative Comparison to Empirical Research Findings on the Investigative Process and the Role of Forensic Evidence

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ABSTRACT: A content analysis of textbooks on criminal investigation was carried out to determine the degree to which their coverage corresponded to empirical findings on the investigative process and the role of forensic evidence. The results showed that the texts overemphasize forensic evidence relative to its actual use. They underemphasize the role of patrol officers, detective post-arrest activities and the importance of interpersonal communication in investigations. Moreover, the texts are virtually silent on a number of key points such as detective evidence collection activities and how detectives use and give meaning to physical evidence. An analysis of material in newer texts, those available after research findings became widely known, showed little change in emphasis from older volumes. The findings are discussed in relation to training needs for those in the justice system who collect, use and make practical and policy decisions about forensic evidence and investigative outcomes.

KEYWORDS: forensic science, forensic evidence, criminal investigation, investigation process, detective work, content analysis, criminal investigation textbooks

In 1964, in *Escobedo v. Illinois* (1), the U.S. Supreme Court declared: “a system of criminal law enforcement which comes to depend on the ‘confession’ will, in the long run, be less reliable and more subject to abuses than a system which depends on extrinsic evidence independently secured through skillful investigation.” In 1966, in *Miranda v. Arizona* (2), the U.S. Supreme Court again expressed a need for increased police reliance on physical as opposed to testimonial evidence, and for broadened application of scientific analyses in criminal investigations. Since then, a number of authoritative bodies have called for greater use of the forensic sciences. The President’s Crime Commission (3), for example, identified an urgent need for the improved use of scientific applications in police work. It, as well as other groups, has also expressed a desire for greater professionalization in policing, in part, so that new and developing technologies would be properly applied. These calls were generally met with a favorable response, especially from the federal government. For instance, efforts to improve the qualifications of police officers were addressed by the now discontinued Law Enforcement Assistance Administration. Other federal pro-

grams, though revised in nature and scope from their earlier forms, still continue to fund crime laboratories and to sponsor research on forensic techniques that have become increasingly important, such as DNA analysis and Automated Fingerprint Identification Systems.

In the past two decades, rising crime rates, particularly for violent offenses, and falling rates of crime resolution, have reinforced the idea that the forensic sciences, generally, need to be enhanced and better integrated into police investigations. The research literature, however, suggests that the actual changes in police investigation practices have been less than dramatic. One of the reasons for this is that judicial and other forceful commentary (e.g., the *Escobedo* and *Miranda* decisions) seem to be predicated on false assumptions about detective work and the use of scientific analysis in investigations. These topics are not only not well understood, they are often comprehended in a way quite contrary to what is really known about them. This point was made clear in a recent review article by Horvath & Meesig (4).

In their article, Horvath & Meesig (4) reviewed the predominant empirical literature on the criminal investigation process and highlighted what it revealed about the role and utility of physical evidence in the work of police detectives. Those findings were then compared with the results reported in the major empirical studies on the use and effects of the forensic sciences in criminal cases. These two lines of research were found to be remarkably consistent and complementary in their descriptions of detective work and how physical evidence is used and viewed in the context of real-life criminal investigations.³ However, the disparity between what these studies revealed and what is commonly understood was fascinating; detective work, physical evidence and the forensic sciences as they generally are portrayed in the popular media, and sometimes even in the legal literature and court decisions, are clearly at odds with the facts.

Why is it that what detectives really do and how the forensic sciences are used are so commonly presented in ways quite different from reality? One logical starting point to address this question

³The terms “physical evidence,” “forensic evidence” and “scientifically analyzable evidence” are used throughout this paper somewhat synonymously. This is done because, unfortunately, in most of the research on the criminal investigation process (the work of Peterson and his colleagues is a notable exception to this), a distinction is seldom made between physical evidence that can be and typically is submitted for scientific analysis and that which is not. Because researchers have not been specific with respect to physical evidence that is “forensic” in nature and that which either was not scientifically analyzed or was not capable of being so analyzed, we have assumed that the availability of physical evidence also indicated an ability to carry out standard forensic tests.

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is to examine the make-up of what is included in textbooks on criminal investigation to determine how closely they agree with reality. That was the purpose of this study. Here, a content analysis of the major textbooks on criminal investigation is carried out and compared with the findings from the Horvath & Meesig (4) study. In other words, the empirical literature on both detective work and the effect of the forensic sciences on investigations is used as the contextual framework against which the content of the criminal investigation textbooks is compared. In this way, textbook presentation of material is assessed with regard to how congruent it is with what is known about how investigative activity is actually practiced and how physical evidence is actually used and viewed.

This paper is divided into several major sections. First, a summary of the findings from the Horvath & Meesig (4) examination of the empirical literature is offered. Second, the content analysis of the criminal investigation texts is described. Third, a comparison is made between the Horvath & Meesig (4) empirical findings and the textbook content analysis. Finally, because the empirical literature is rather recent, an examination is made regarding whether there were timely changes in the text material to accommodate research findings.

Summary of the Empirical Literature on the Investigation Process

Horvath & Meesig (4) reviewed eight of the major empirical works on the criminal investigation process and detective work in the U.S., Canada and Japan (5–12), and seven empirical studies on the use and effects of scientific evidence in criminal cases in the U.S. and England (13–19). This literature represents the great bulk of that which is available on these topics. The review showed that there were strong consistencies across studies regarding the role and use of physical evidence in the investigative process, whether the studies had been carried out in the U.S., Canada or Japan. Interestingly, this cross-culture similarity was also noted in the studies dealing with the effects of scientific evidence in criminal cases. These findings are summarized below with regard to the investigative roles of patrol officers and detectives; the nature of detective work and how detectives use physical evidence; and the differing views of physical evidence held by those who occupy various roles in the criminal justice system.

Investigator Roles

In the U.S., police personnel (patrol officers and detectives) investigate only a small percentage of crimes that actually occur, and an arrest of a suspect is made in only about one-fifth of the most serious crimes investigated. Of these arrests, most are made by a patrol officer who initially responds to the scene of a reported crime. The activities and information collected by the responding patrol officer at the crime scene are critical determinants of whether physical evidence is collected, whether an unsolved case is further investigated by detectives, and ultimately whether the case is “solved.” Detectives, who usually do not see a crime scene until after the initial response by a patrol officer, spend about half their time on administrative duties and the other half on investigations. At least 50% of their time spent on investigations involves the post-arrest processing of suspects for case disposition such as prosecution. Thus, on average, only about one-fourth of a detective’s overall time is spent investigating cases in which a suspect has not yet been arrested.

Detective Work and Use of Physical Evidence

Detective work may be methodical, systematic and logical, but it is not “scientific” in the sense that detectives either practice or rely on science to solve crime. Interpersonal communications—the use of interviews and interrogations to collect information from victims, witnesses, informants and suspects—is by far the most critical and predominant activity that defines the role of the detective.

Physical evidence is collected in less than 10% of the cases investigated by police. Typically, evidence specialists collect crime scene evidence; patrol officers and detectives are primarily responsible for collecting evidence from suspects. Most of the evidence submitted for laboratory analysis is collected by evidence specialists rather than by patrol officers or detectives; yet only a small proportion of the submitted evidence actually undergoes scientific analysis.

Detectives use physical evidence in investigations mainly for its practical value as leverage in either obtaining or corroborating confessions and to collect intelligence. Seldom is physical evidence relied upon by investigators solely for its intrinsic value in identifying or locating a suspect.

Views of Physical Evidence

Despite the infrequent use of physical evidence in police investigations and the problems surrounding its use, it can and does make a big difference in some cases. Further, in certain types of cases that traditionally have low resolution rates (i.e., burglary and robbery), it appears to improve clearance and conviction rates, and it also has been shown to play a significant role in certain court sentencing processes. Yet the literature consistently reveals that the different stakeholders in the criminal justice process have differing views of the nature and value of physical evidence. The use of physical evidence by investigators is limited by their knowledge and skills and also by the extent to which they are able to interpret it within the context of their investigations. Moreover, others involved in the processing of cases in the justice system (including evidence technicians, lab officials, prosecutors and judges) seem also to be constrained by similar limitations.

Summary

The Horvath and Meesig (4) study highlighted seven key points that are of interest in the present paper regarding investigator roles, detective work and the use of physical evidence, and views of physical evidence. They were identified as follows: (a) the patrol officer responding to a crime plays a critical role in determining the outcome of an investigation; (b) detectives spend about 25% of their time investigating unsolved cases and an equal amount processing solved cases (post-arrest activities); (c) interpersonal communication—talking to people—is the predominant activity of detectives; (d) physical evidence is collected in fewer than 10% of police investigations; (e) detectives are primarily responsible for collecting evidence from suspects, whereas most of the evidence collected at crime scenes is collected by evidence specialists; (f) physical evidence is used by detectives primarily as leverage in conducting interviews and interrogations; and (g) the manner in which detectives view physical evidence largely affects how they will use it. In order to clarify the presentation of material in this paper, these seven points, (a) through (g), will be noted where appropriate.

Content Analysis of Criminal Investigation Texts

The purpose of content analysis is to examine the latent and/or the manifest content of documents or other forms of communication in order to understand or draw conclusions about points of interest (20). In this paper the general content of textbooks on criminal investigation was analyzed and compared with the seven key points in empirical studies about the investigative process and forensic evidence, as described in the Horvath & Meesig (4) study. With regard to investigator roles, the interest was to examine the distribution of topics in the textbooks to determine how it squared with the distribution of activities that are done by patrol officers (point a) on the one hand, and by detectives, (point b) on the other, as revealed in the empirical literature. With regard to detective work and the use of physical evidence, the effort here dealt with a comparison of what is revealed about the use of such evidence (and the forensic sciences) in textbooks and how it is actually viewed and applied in the real-world, according to the empirical literature (points c, d, e, and f). Finally, it was of interest to determine how the texts addressed the issue of the differing views of scientific evidence by role-players in the criminal justice system in comparison to what research has revealed (point g).

By addressing issues such as these it was hoped that a better understanding of the criminal investigation process would be realized. It was also hoped that by disaggregating the content of textbooks, an indication of what is being taught to those who are learning about the investigation process would be revealed. The emphasis in training and educational regimens, almost always based upon textbook material, appeared to be an especially valuable source of knowledge about how expectations in this area, especially those of a naive observer, might be developed. It was thought that this might provide some insight regarding the disparity between what research has revealed and what is commonly understood about the role and utility of forensic science. Finally, it was anticipated that an analysis of the content of textbooks, considered in relation to current social science knowledge, might show how empirical research findings—primarily in the social science arena—were and are utilized. In other words, there was an intent to get a better sense of direction for continued research on the criminal investigation process and the role of the forensic sciences in that process.

Search and Selection of Textbook Sample

The content analysis was initiated by searching available resources at Michigan State University (MSU) to identify titles of criminal investigation texts. The major sources searched were: the MSU library index data base, *Books in Print* (21), *Cumulative Book Index* (22), *American Book Publishing Record* (23), *Criminal Justice Abstracts Data Base* (24), the *National Criminal Justice Reference Service Data Base* (25), and books in the possession of the authors. A total of 28 titles of criminal investigations texts published between 1975 and 1995 were identified (26–53). The year 1975 was used as the early cutoff date because it provided a reasonably long time frame for analysis and also because it was the year in which the initial empirical research on the criminal investigation process (the Rand study (7)) would have become generally known.

Twenty-one of the 28 texts were located. Each was an original or revised version and no texts were double-counted in this group; that is, the sample included only the most recent version of each text and did not include both an original and a revised version of a text by the same author or authors. All 21 of the located texts

were included in the content analysis (26–46). Inspection of the years of publication of these texts revealed that five had been published between 1975 and 1979, four between 1980 and 1989, and 12 between 1990 and 1995.

Textbook Analysis

The unit of analysis was pages of text. All numbered text pages in the 21 books were visually scanned; if a topic was estimated to occupy at least half a page, it was counted as at least one page. If it was estimated to occupy less than half a page, or if it was blank, it was not counted. However, such pages were tracked so that all numbered pages in the books could be accounted for when the pages were tallied.

In the 21 book sample, a total of 10,466 numbered pages containing topic information was counted. There was also a total of 379 numbered pages not counted for reasons already specified. Thus, there was a grand total of 10,845 numbered pages of text in the sample.

Distribution of Topics in the Texts

Pages of topic information were categorized consistent with the various chapter subheadings and paragraph headings as presented by the book authors. This, of course, maintained as much as possible the context of the books as the authors intended it. Once topics were identified, they were then sorted and grouped into four broad categories and a number of subcategories. The four categories, together with the subcategories, are shown in Table 1, along with the number and percentage of pages in each grouping.

As indicated in Table 1, the four major categories of topics were as follows: (1) General: This category included primarily descriptive introductory text material and covered 9% of the pages in the sample. One subcategory of direct interest was the role of the patrol officer, which accounted for 1% of the pages. (2) Information Collection: This category included descriptions, explanations and discussions of the acquisition and use of information; it covered 39% of the pages. The topics in this category were subcategorized as related to either “People” (22%) or “Things” (18%). The People subcategory presented material on interpersonal communications, including the collection of information from victims, witnesses, other human sources and suspects. It also included

TABLE 1—Number and percent of pages in criminal investigation textbooks (N = 21) by category.

Category	Number of Pages	Percent of Pages
General	967	9
Patrol Officer	(142)	(1)
Other	(825)	(8)
Information Collection	4113	39
People	(2259)	(22)
Things	(1854)	(18)
Crimes	4412	42
Person	(1872)	(18)
Property	(1811)	(17)
Other	(729)	(7)
Information Disposition	974	9
Reports	(326)	(3)
Legal/Courts	(648)	(6)
Total	10,466	99*

*The percentage of pages in each category were rounded to the nearest whole percent and do not sum to 100% due to rounding.

collection techniques used to obtain information from people, such as interviewing and interrogation, surveillance, undercover activities, intelligence, etc. The Things subcategory presented material on the collection of information from inanimate objects including the searching and recording of crime scenes, evidence located at crime sites, types and analysis of forensic evidence, and so forth. (3) Crimes: This third category, to which 42% of the pages were devoted, included discussion and explanation of specific crimes and the guidelines and techniques that might apply to investigating each. The material was grouped into three subcategories: Crimes Against Persons (18% of the pages), Property Crimes (17%), and Other Crimes (e.g., narcotics, organized crime, juvenile crimes, etc.) (7%). (4) Information Disposition: This was the fourth category into which the text material was sorted, and it accounted for 9% of the pages. This group consisted of discussions of detective post-arrest activities, such as the nature and purpose of reports and report writing (3% of the pages), and legal and court matters (6%).

Summary

The content analysis of 21 textbooks on criminal investigations revealed that the topical category to which the greatest number of textbook pages was devoted was Crimes (42%), closely followed by the Information Collection category (39%). Next in order were the much smaller Information Disposition (9%) and General categories (9%).

Comparison of Empirical Literature and Textbook Material

In this section, the empirical research results reported in the Horvath & Meesig (4) study are compared with the content analysis results of the textbooks with regard to investigator roles, detective work and detectives' use and views of physical evidence.

Investigator Roles

With regard to investigator roles, the empirical literature emphasizes the critical importance of the role of the patrol officer (a) in determining whether physical evidence is collected at a crime scene, whether a follow-up investigation is conducted, and whether a crime is solved. The texts, however, devote only 1% of their pages to this subject (reference Table 1, General category, Patrol Officer subcategory). Additionally, the empirical literature reveals that about 50% of a detective's investigative time, or about one-fourth of a detective's overall time, is spent on post-arrest activities (b). Yet the texts devote only 9% of their space to these activities (Table 1, Information Disposition category, 3% on reports and 6% on legal/court matters, which includes preparing and presenting cases for prosecution). Hence, the relative distribution of text pages regarding these aspects of investigator roles is inconsistent with the significance attributed to them in the empirical literature. While the empirical research emphasizes the importance of the patrol officer's role in the investigative process and identifies post-arrest activities as consuming a significant portion of a detective's time, the textbooks devote only 10% of their space to these topics.

Detective Work and Use of Physical Evidence

The textbooks portray the role and use of physical evidence and the forensic sciences quite different from that shown in the empirical research. First, the role of interpersonal communications (c)—talking to and collecting information from people—is underplayed in the texts compared to the importance ascribed to it in

the empirical literature. The empirical research clearly reflects that interpersonal communication is by far the most predominant activity that defines the role of the detective; however, only 22% of the text pages are devoted to this topic (see Table 1, Information Collection category, People subcategory = 22%).

Further, the role of physical evidence in investigations (d) as presented in textbooks is clearly different from what is described in the empirical research. Whereas the textbooks devote almost as much space to identifying, collecting and analyzing physical evidence as they do to interpersonal communication (Table 1, Information Collection category, Things subcategory = 18%, compared with 22% in the People subcategory), the empirical research reveals that physical evidence is collected in fewer than 10% of the crimes which police investigate, that it plays only a minor, corroborative role in most investigations, and that it is not nearly as important as interpersonal communication in conducting investigations.

Additionally, while the material in the Things subcategory in the texts focuses on crime scene searches and on the identification and collection of physical evidence for scientific analysis, the empirical literature clearly indicates that physical evidence at crime scenes is collected mostly by evidence specialists, who also are primarily responsible for submissions to crime laboratories. The empirical literature clearly reflects that patrol officers and detectives have primary responsibility for collecting evidence from suspects (e); however, the textbooks barely make mention of this fact. There is a little or no information emphasizing investigator responsibility for searching suspects or for obtaining samples or standards of physical evidence from suspects for laboratory analysis.

Finally, the empirical research is uniformly revealing about the fact that detectives use physical evidence primarily as a lever to obtain information from people (f), whether for inculpatory, exculpatory or intelligence purposes, and that it is the predominant way in which detectives use physical evidence in their work. Yet, the textbooks provide little or no coverage of this use of physical evidence as a means of enabling or facilitating information collection from people.

Views of Physical Evidence

In the earlier article, Horvath & Meesig (4), concluded that the use of physical evidence by detectives is limited by their knowledge and skills and their ability to interpret evidence within the context of an investigation (g). It was also argued that others involved in the processing of cases within the justice system seemed to be similarly constrained by such limitations. The textbooks do not address this issue at all and, because of that neglect, appear to suggest that differing views of physical evidence are unrelated to its perceived utility in the justice system.

Summary

This comparison of the distribution of topical coverage in textbooks with the distribution of activities that detectives actually engage in, and how they actually use and view evidence, shows a number of significant disparities. The investigative process as it is portrayed in textbooks is, in a number of areas, quite inconsistent with what detectives actually do and with what is really involved in "solving" crimes. Specifically, the patrol officer role (a), the detective post-arrest activities (b), and the role of interpersonal communications (c), were all underemphasized in the texts compared to the empirical research. However, the identification, collec-

tion and analysis of physical evidence at crime scenes received considerably more emphasis in the texts than in the empirical research, which indicated that physical evidence was collected in fewer than 10% of police investigations (d). Moreover, the investigator's responsibility regarding collection of physical evidence from suspects (e), the use of physical evidence as a lever in interviews and interrogations (f), and the detectives view of physical evidence (g), all of which were highlighted in the empirical research, received little or no mention in the texts.

One possible reason for these disparities is that, as the research on detective work is relatively recent, it may be that there has not been sufficient time for it to become fully integrated into textbook material when considered collectively as was done here. For that reason it was important to determine if there were changes in the textbook material over time. Discussion of this topic follows.

The Effect of Research Findings on Textbook Material

It is reasonable to believe that there would be a time lag between the reports of research findings and the time frame during which they would influence and be incorporated into standard textbooks. It was anticipated, therefore, that if the research base were to have an effect on textbook presentation, it would be more likely to appear in the more recent volumes rather than in those published almost contemporaneously with much of the research.

To test this hypothesis, the sample of textbooks was sorted into two groups based on their date of publication. The first group, called Early Texts, included the nine volumes that were published prior to 1990 (26–34). The second group, Recent Texts, included the 12 books published from 1990 to 1995 (35–46). These two groupings of textbooks were then subjected to analysis in order to determine if the availability of, and knowledge from, the empirical research could be discerned in their content. First, the two groups of texts were examined to determine whether there had been any changes in the number of pages per text between them. Such changes in the amount of information presented, either an increase or a decrease in the coverage of the seven key points highlighted in the empirical literature, would indicate greater or lesser infiltration of research results. Next, the two groups were examined to determine whether there had been any changes in pages devoted to the four categories of information described in the content analysis of the texts. Changes in the more recent texts would indicate a different emphasis on the various categories, either toward or away from the direction of the seven key points emphasized in the empirical literature.

Changes in Number of Pages between Early and Recent Text Groups

Table 2 displays the mean number of pages in each textbook grouping for each category and subcategory, and the percentage of change in the means between the groups.

Shown at the bottom of Table 2 is the mean number of pages in each group. It can be seen that there was an overall increase in pages from the Early to the Recent group, with 335 in the former and 621 in the latter. This was an average increase of 85% (621/335). With respect to the number of pages per category in each textbook grouping, the Recent Text group devoted more pages to each of the categories and subcategories than did the Early Text group. Examination of the percentage increase in pages, however, shows that these increases were not uniform across categories.

In the General category, the mean page increase from the Early Texts ($M = 33, SD = 24.9$) to the Recent Texts ($M = 56, SD$

TABLE 2—Mean number of pages of coverage by category in early and recent textbooks and percentage of change from early to recent groups.

Category	Textbook Groups Mean Number of Pages			Percent Change from Early to Recent Groups
	Early Texts (N=9)	Recent Texts (N=12)		
General	33	56		+ 71*
Patrol Officer	5	8		+ 54
Other	28	48		+ 74
Information Collection	128	247		+ 92†
People	60	144		+ 140
Things	68	103		+ 50
Crimes	156	250		+ 61‡
Person	58	112		+ 93
Property	65	102		+ 58
Other	32	36		+ 10
Information Disposition	18	68		+ 268*
Reports	7	22		+ 197
Legal/Courts	11	46		+ 316
Total	335	621		

*Not significant.

†Significant, $t(19) = -2.78, p < 0.01$.

‡Significant, $t(19) = -1.75, p < 0.05$.

= 36.6) was 71%; however, the increase was not statistically significant, $t(19) = 1.64, p < .06$, one-tailed. In the Information Collection category, the mean page increase from the Early Text group ($M = 128, SD = 46.8$) to the Recent Text group ($M = 247, SD = 120.7$) was 92%, which was a significant change, $t(19) = 2.78, p < .006$, one-tailed. The Crimes category, which was the largest category of coverage in the texts (see Table 1), was also the largest category in both the Early ($M = 156, SD = 86.1$) and Recent ($M = 250, SD = 144.7$) groups. Although the increase in this category (61%) was lower than the overall average 85% increase, this was significant, $t(19) = 1.75, p < .05$, one-tailed. The Information Disposition category increased 268% from the Early ($M = 18, SD = 15.8$) to the Recent ($M = 68, SD = 93.4$) text groups. This was the largest percentage increase of all categories and represents a mean increase from 18 to 68 pages per text, but this change was not statistically significant, $t(19) = 1.55, p < .07$, one-tailed.

The 268% increase in the Information Disposition category and the 92% increase in the Information Collection category were both greater than the average increase (85%) in the text pages. On the other hand, the increases in the General and Crimes categories (71% and 61%, respectively) were less than the average overall increase. In other words, the more current texts included a greater percentage of pages on information collection and information disposition than did the earlier volumes, and a lower percentage of pages on general and crime matters. However, the only statistically significant changes were in the Information Collection and Crimes categories.

Changes in Emphasis between Early and Recent Text Groups

The changes between the Early and Recent Text groupings were further examined in order to determine whether the more recent textbooks merely included more material (as shown in Table 2), or whether they actually changed their emphasis on or away from the seven key points noted in the empirical research findings. In

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