

THE REAL CSI: RETENTION OF KEY EMPLOYEES IN THE CRIME LAB

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ABSTRACT

This case involves a forensic crime lab that created a new staffing model as a cost-savings effort while undergoing expansion. An entry-level technician position was created to provide support for the more highly skilled forensic scientist position. After one year the model was deemed a failure: both highly skilled forensic scientists and entry-level technician employees left the organization and the projected savings were lost. Follow-up interviews revealed that unrealistic expectations of the job, salaries that were not competitive with the private sector, and the lack of upward mobility discouraged new employees. A national survey of crime lab directors revealed interventions that help increase scientist retention, including the use of realistic job previews, shadow and internship programs, upgrading positions and salary structures, and linking with universities to create new training programs. The case challenges students in undergraduate classes in human resource management to identify creative ways to retain technical staff during dynamic employment cycles.

INTRODUCTION

The “CSI Effect” presents an unrealistic portrayal of the daily operations of crime scene investigators and crime laboratories ... cases are solved in an hour, highly technical analyses are accomplished in minutes, and laboratory and instrumental capabilities are often exaggerated, misrepresented, or entirely fabricated... convictions are quick and no mistakes are made. (National Academy of Sciences [NAS], 2009, p. 48).

Media attention through popular movies and television series such as *CSI: Crime Scene Investigation* have had a profound impact on science, technology, engineering, and mathematics (STEM) education (Bridge & Freeman, 2019). While significantly increasing interest in forensic

science in the general population and future college students, these unrealistic depictions have also blurred the lines between fiction and reality, contributing to misconceptions about the technical requirements of the forensic scientist job (Bridge & Freeman, 2019).

Forensic scientists collect, identify, classify, and analyze physical evidence related to criminal investigations (Bureau of Labor Statistics [BLS], 2020). The job involves testing substances such as fiber, hair, and tissue to determine their significance for investigation. Scientists testify as expert witnesses on evidence or crime laboratory techniques and serve as specialists in fields such as ballistics, fingerprinting, handwriting, or biochemistry (BLS, 2020). The forensic sciences encompass a broad array of technical disciplines, as such, there are distinctive practices associated with each in terms of scientific techniques, methodologies, reliability, level of error, and research (NAS, 2009, p. 1-3). Nuclear and mitochondrial DNA analysis, toxicology, and drug analysis are lab-based; other disciplines rely on expert interpretation of observed patterns, such as fingerprints, writing samples, and tool marks. Chemists and biologists require the analytical training and expertise of scientists, while other jobs require training in law enforcement (crime scene investigators, blood spatter analysts, and crime reconstruction specialists), medicine (forensic pathologists), or laboratory methods (technologists) (NAS, 2009, p. 1-3).

Public Sector Crime Labs

With 409 laboratories and an overall budget exceeding \$1.7 billion, the U.S. has the largest publicly funded crime lab system in the world (Burch, et al., 2016). Labs operate at the state, region, county, municipal, and federal levels (Peterson & Hickman, 2005). Despite increased requests for scientific evidence processing, funding for labs has not increased concurrently with demand. Laboratory directors cite budget cuts as high as 22 percent (Peterson & Hickman, 2005).

At present, there are 17,200 full-time-equivalent (FTE) personnel employed in crime labs. Median wages are \$29.13 per hour or \$60,590 annually (BLS, 2020). Job growth for forensic scientists through 2029 is projected to be much faster (8% or higher) than the average occupation (BLS, 2020) and additional scientists are needed to address an expanding case backlog.

THE CASE STUDY

A northeastern U.S. public forensic laboratory system hired 53 new scientists as part of an expansion to handle a dramatic increase in caseload (Dale & Becker, 2004). The staff of 150 provided forensic services to a community of six million people. Annually, the lab processed approximately 700 rape cases, 200 homicides, and 100 additional violent cases; all contained biological evidence. Each case included on average ten items for further analyses, a total of more than 10,000 items were received for DNA analysis each year. The lab had experienced a tenfold increase (3,000 to 30,000) in the number of samples processed per year.

The New Staffing Model Design

A new model for staffing forensic scientists consisted of classifying the job into two different positions. One group would receive lower wages at entry than another group; the qualifier was background and experience. In this case, entry-level technicians would be paid less than the more experienced forensic scientists. In addition, the staffing model proposed pairing two newly-hired technicians with an experienced scientist over the course of their first year on the job. All new hires require training and supervision for a minimum of one year while their casework is reviewed. During this time, productivity for senior scientists declines by 50% because their time is spent training new employees. Since the proposed technician position would require less training, the time that the experienced forensic scientist mentors were off the bench would be minimized.

The new staffing model proposed that rather than hire 53 experienced forensic scientists, 38 of the hires would be entry-level technicians. The technicians would be given routine tasks during their apprenticeship—more complex data analysis and interpretation would be performed by forensic scientists. The two-position strategy was estimated to save the organization \$1,062,442 because the entry-level technician position would be paid less than the skilled, forensic scientist position. In addition, since the technician position would require less mentorship, the senior scientists' productivity loss would be minimized.

Within one year, four forensic scientists and twelve technicians quit. The early departure of these employees cost the organization at least \$851,276 -- not including the additional costs associated with recruitment, selection, personnel support, and training. Thus, the anticipated savings were not realized. In addition, the impact of losing experienced forensic scientists was costly to the organization.

Employee Exit Interviews

Why did so many people quit during this pivotal year? Exit interviews were used to determine reasons for leaving. The results of the interviews are presented in Table 1 below. The most common reason given was salary. Another frequent response was the lack of upward mobility. New hires with excellent academic records and previous job experience had anticipated moving into forensic scientist positions relatively quickly. However, the organization did not provide an accurate timeline for promotional opportunities. Several employees interviewed noted that they were accepted into law and medical school; others accepted parallel positions in other labs with federal and state law enforcement.

Employees who remained with the organization were also interviewed to identify retention strategies. These employees valued the organization's policy of continuing education and tuition reimbursement. In addition, the lab's flexible hours in support of further education was seen as a positive component of employment.

Table 1: Exit Interviews

Employee	Title	Reason for Leaving
1	Senior lab technician	Accepted a position as a forensic scientist in a state laboratory system at higher pay
2	Forensic scientist	Accepted a position as a supervisor in a city laboratory at higher pay
3	Senior lab technician	Accepted into medical school
4	Senior lab technician	Accepted a position in federal law enforcement academy
5	Senior lab technician	Returned to a higher-paying job in a clinical laboratory
6	Senior lab technician	Accepted a position as a forensic scientist in a federal laboratory at higher pay
7	Senior lab technician	Accepted a position as a forensic scientist in a state laboratory system at higher pay
8	Senior lab technician	Accepted a position as a forensic scientist in a state laboratory system at higher pay
9	Forensic scientist	Desired to remain home with young children
10	Forensic scientist	Accepted in law school
11	Forensic scientist	Accepted a position in a state laboratory system at higher pay
12	Senior lab technician	Marriage and relocation
13	Senior lab technician	Accepted a position in a major pharmaceutical company at higher pay
14	Senior lab technician	Accepted a position in a hospital at higher pay and disliked night shift
15	Senior lab technician	Accepted a position in a private laboratory at higher pay
16	Senior lab technician	Accepted into law school

Adapted from Dale & Becker, 2004

Several common themes emerged from the analysis. A salary discrepancy was noted because several employees were able to move into higher-level grade positions in other laboratory systems. Expectations regarding promotion were not managed sufficiently. Typically, public labs have extensive recruitment phases. Recruitment and selection may take as long as 12 months to cycle through -- providing ample time to manage recruits' job expectations. In addition, a lack of fit between the job and the employees' values may exist because several new hires changed careers. It appears that the skills and education of the new hires may also have exceeded the skills necessary for the position. Limited career paths exist for scientists in public-sector laboratories other than traditional police ranks such as lieutenant, captain, and major (Kanable, 2005). This is because public sector labs are part of the hierarchy of police organizations and scientific personnel must often compete with sworn officers in the limited opportunities for advancement in public-sector agencies.

Forensic Science Laboratory Director Survey

As part of a larger study, a web-based survey was distributed to members of the American Society of Crime Laboratory Directors (ASCLD); these directors were identified as expert informants for staffing and retention issues (Becker & Dale, 2007). The survey consisted of 46 items grouped into six sections: demographics, caseload, recruitment, turnover, retention, outsourcing, and performance issues. Retention was addressed by such items as, "Do you lose scientists to public sector labs? Private labs?" and "Are your retention methods successful?" The extent of outsourcing to private laboratories was addressed by such items as "How many cases do you send out per year (due to backlog) for private laboratory analyses in the following disciplines?" and "Do you have sufficient scientists to handle cases?" Table 2 provides several retention strategies that were identified by the crime lab directors.

Table 2: Retention Strategies Identified by Crime Lab Directors

- Use Realistic Job Previews
- Use job shadowing
- Use internship programs
- Upgrade positions and salary structure
- Link with a local university to create new training programs
- Hire scientists with a link to the local area
- Provide flexible work hours
- Provide opportunities for further education
- Provide opportunities for research
- Provide opportunities for conference attendance
- Train scientists in multiple disciplines
- Provide opportunities for lateral transfers to other labs

Adapted from Dale & Becker, 2004

TEACHING NOTES

Summary

Highly skilled employees such as forensic scientists are vulnerable in times of organizational restructuring and systemic economic forces. This case presents a public-sector organization that experienced several HR challenges. The case asks students to consider the implications of important HR programs such as realistic job previews, hiring strategy, differentiated wage systems, and employee retention.

QUESTIONS FOR CLASS DISCUSSION

1. *Explain the logic of splitting the scientist job into two positions: forensic scientist and technician. What are the advantages? What are the disadvantages?*
2. *Propose a retention strategy for skilled knowledge workers. Assume that increasing pay is not an option. What are several creative, innovative ways to retain skilled workers?*

Students should discuss the case in small groups. Each group should identify the advantages and disadvantages of splitting a technical job into senior and junior positions. Students can reflect on experiences and observations that they have made when job classifications and pay systems differentiate employees. Each group should also strategize ways to retain knowledge workers. Students can also reflect on their personal experience and rationale for leaving previous jobs. Groups should be prepared to present their recommendations and rationale to the class.

Responses to Discussion Questions

1. *Explain the logic of splitting the scientist job into two positions: forensic scientist and technician. What are the advantages? What are the disadvantages?*

Splitting the scientist job into two positions differentiates the jobs at the hiring point as entry-level/generalist and experienced/expert. In this case, the inexperienced hires would receive lower pay at entry than the more seasoned new hires who would be expected to be able to perform more skilled work immediately. In addition, because the technician position required less on-the-job training, senior scientist mentors would not lose as much of their bench work productivity.

However, the proposed new staffing model proved unsuccessful. The new model had been proposed to save the organization \$1 million because newly hired technicians would be given routine tasks allowing the more experienced forensic scientists to handle the more complex data analysis and interpretation.

In reality turnover costs, including lost expertise, the cost of outsourcing work, and the requirement for replacement employees and additional training exceeded the projected

savings. The original staffing model that would have hired forensic scientists in all positions could have been used to strengthen the organization. Instead, the early departure of essential personnel using the alternate staffing strategy served to weaken the organization.

Employee turnover impacts organizational effectiveness is costly and is often unacceptably high. The cost of turnover increases as the complexity of the job increases; the loss of technical experts such as forensic science is expensive.

2. *Propose a retention strategy for skilled knowledge workers. What are creative, innovative ways to retain these workers?*

Students should use the information provided in the case, including data from the exit interviews and lab director survey, to identify possible interventions. In the case study organization, interventions to retain skilled workers included upgrading positions to be competitive with other public agencies and private laboratories. Existing laboratory technicians were reclassified to forensic science positions, eliminating the lower position in the career ladder. Crime lab directors proposed the use of realistic job previews, flexible hours, research opportunities, and hiring people with ties to the local community. Reaching out to local universities to set up educational programs such as job shadowing, internships and cross-training are also viable strategies.

To extend this discussion, instructors can explain that the needs of technical workers are often misunderstood. Better strategies are needed to understand and reduce turnover and improve retention (Von Glinow, 1988). Instructors can discuss Table 3 (below) which provides a list of unique characteristics of knowledge workers that yield clues to improving retention rates. Understanding these professionals may help human resource managers implement more-successful retention programs.

Table 3: Characteristics of Knowledge Workers

- Possess expertise in abstract knowledge acquired over a period of time
- Value developing their knowledge base
- Prefer working autonomously
- Identify with their chosen profession and members of that profession more closely than they identify with the organization
- Have an ethically based sense of responsibility to customers/clients
- Have professional codes of conduct that they are committed to enforcing

Adapted from Von Glinow, 1988

Additionally, instructors can discuss broader strategies related to retaining skilled workers such as emphasizing job design, social ties, and employer location (Cappelli, 2008). The reasons that employees leave a job are complex. Although some employees seem to use a rational process of considering job alternatives before leaving, other employees exit the organization abruptly, without explanation. Mitchell, Brooks, Holtom, and Lee (2001) propose four paths that people take when they leave a job -- following a plan, leaving without a plan, leaving for something better, and leaving an unsatisfying job. Since each path involves different thinking processes and behaviors and occurs over time, managers must become skilled in strategizing the retention of key employees.

Better forecasting and planning models are needed to anticipate technical staffing needs. Salaries in public agencies must be competitive with the private sector. Traditional models of retention and turnover can be expanded to identify the career motivations of technical personnel. In a crime lab, it is essential to hire and retain the best scientists so that the best science is available for all.

Individual Homework

Instructors may also assign individual homework in addition to, or as an alternative to, the group discussion. Instructors will evaluate the individual homework according to students' ability to follow instructions and for their thoroughness in the writing task. Instructions for the individual homework assignment are as follows:

Write a memo that responds to the HR issues in this case. The memo should be written as if you are the Human Resource Manager in an organization that is experiencing the loss of technical workers. The memo should identify and attempt to resolve the HR issues that you have identified in the case. Make sure that the memo is clear, concise, and action-oriented. Keep in mind that your summary and analysis will provide direction to your employees to carry out your actions and recommendations. At a minimum, your writing must do the following:

- Provide a brief synopsis of the HR issues.
- Explain what you will do in the short term concerning the HR issues.
- Provide specific long-term recommendations for how HR can respond to and manage the issue.

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