The Elements of an Effective Hiring Model

For the Madison Township Fire Department

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CERTIFICATION STATEMENT

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ABSTRACT

This research identifies the major components, which will help minimize future personnel problems, to be used in a hiring model for the Madison Township Fire Department. The literature review is used to introduce the research of others, on each of the respective components, to identify the effectiveness of the component as presented in their research. Based on this review a generalization of the collective research was made about each component. A survey of all fire departments in Ohio with fulltime firefighters was conducted to determine which components were used by the departments, how effective the departments felt the component was in identifying and or eliminating personnel problems, what order the components were used in and if there was anything that the department would change. The survey and literature review were then compared and the results were consistent between the two devices. Based on the research the current hiring model was revised.

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INTRODUCTION

Statement of the Problem

The problem addressed in this study is the identification of the necessary components that should be a part of an effective hiring model for the Madison Township Fire Department. An effective hiring model will include reduction or elimination of legal actions resulting from the hiring model, hiring employees who are not qualified for the position, hiring employees who do not have the personality type and behaviors that will mesh with the organization, low morale from problems with low performing employees and the costs related to these issues.

The hiring model used by the Department has not been consistent for several years. This has resulted in personnel being hired who are not compatible with the Department. Their goals and the goals of the Department have not been compatible. This has created problems in achieving organizational goals, has caused conflict within the department and with organizations.

The agility test, elimination standards for background checks and the interview process were not consistent or uniform. Psychological testing, recruitment programs and validation of testing have not been utilized. There has not been any consideration given to affirmative action, minority hiring issues or adverse impact. The one consistent in process utilized recent years has been the hiring qualifications. When this was initiated it resulted in a grievance which resulted in the department hiring personnel who did not go to paramedic school as intended when they were hired.

Purpose of the Study

The purpose of this study was to identify what components are necessary to ensure that the hiring model utilized by the Madison Township Fire Department minimized future personnel

problems. The results of this study will be used by the department's administrative staff and township administration to update the Department's hiring policy in order to improve the policy's effectiveness. Some portions of the research which are transferable to other departments within the township may also be used by the respective department heads and township administration to update their hiring models.

Research Method

This action research project consisted of a review of available literature on the components involved in the hiring model and a survey to determine the frequency with which those components are used and how effective fire departments feel they are.

Research Questions

1. What components of a hiring model have been deemed as effective by non-fire service organizations?

2. What components of a hiring model are perceived as effective by fire-service organizations?

3. What is the most efficient order for using the components identified as effective?

4. What changes need to be made to the hiring model used by the Madison Township Fire Department to make the model more effective?

5. How and why will the changes identified in question 4 improve the effectiveness of the hiring model used by the Madison Township Fire Department?

BACKGROUND AND SIGNIFICANCE

The Madison Township Fire Department is located in Franklin County, Ohio. It serves a population of approximately 21,000 people in a 40 square mile area, providing fire suppression, fire prevention, fire investigation and advanced life support emergency medical services. The department has two stations, forty four fulltime and sixteen part time employees.

The current hiring model has resulted in the hiring of individuals who are not compatible with the Department or the Fire Service. This has resulted in individuals who have taken extended leaves. An individual was hired who had a misdemeanor record and ultimately resigned from the department when the behavior was repeated. There has been conflict between employees as a result of these and other situations.

The Department has tried to address these issues recently by formalizing the hiring model, establishing written standards, standardizing the model and addressing issues which were not previously addressed. The current hiring model is to hire fulltime personnel from the part time ranks. This is done because it is felt that this allows an opportunity to determine if there are any issues with personnel prior to their appointment as fulltime.

Part time personnel are required to have Firefighter II and EMT-B Certifications at the time of hire. The hiring model is a written exam using basic firefighting and EMS texts, a physical ability test utilizing the CPAT program, background checks, interviews and a post conditional offer of employment pending the results of a medical and drug screening.

The development of an effective hiring model is significant to the Department and the community because our personnel are our most important and costly asset. Personnel costs annually account for over 85% of the budget. Personnel are the heart of the Department and if

the right people are not hired, there will be problems like those experienced or others such as disability separation and severe morale problems.

It must be ensured that the hiring model is legal. The model must meet the requirements of Federal and State law related to the hiring model including Title VII and ADA. Without a legally valid model, as a result of legal action, the Department may have to hire personnel who would not otherwise be hired and face financial sanctions.

The results of this study will be used in the future to ensure that candidates who are hired are healthy, physically fit, have a good attitude, and have the right type of personality to work in the fire service, do not have criminal records and understand what will be expected of them prior to employment. Without these qualities being checked prior to employment the department may hire candidates who develop health problems, have increased worker's compensation claims, retire on disability, are not able to meet training requirements and become unhappy in their position. All of these issues lead to problems for the department.

After considering the amount of time an employee will be with the department, their salary, benefits and retirement contributions hiring an employee is the equivalent of making a million dollar investment. Unfortunately many departments put more time, energy, effort and man hours into purchasing apparatus than they do in hiring employees. The Department and community need to be assured that the most qualified personnel are being hired and that the Department is hiring qualified professionals. The personnel hired need to be compatible with the Department and the Department's goals.

LITERATURE REVIEW

The International Association of Fire Chiefs (2001) conducted a survey of their members to determine the level and type of background checks conducted. There were 320 combination departments that responded to this survey. Of these, 310 reported having a background check system for new applicants. The types of checks conducted include: personal references listed on application, other references not listed on application, local criminal history check, national criminal history check, credit/financial check, previous employment references, education/ training verification, driving record check, medical physical – upon conditional offer of employment, psychological evaluation and drug testing. Forty two percent of the departments that responded have an established written policy for elimination of candidates. Over 60% of the departments reported rejecting 0-10% of the applicants because of background problems and just fewer than 10% reported rejecting 11-30% of the applicants for background problems.

Kales and Cristiani (2002) report that preliminary results from a NIOSH review of firefighter fatalities from 1995 to 1998 indicate that the absence of medical screening programs may be a contributing factor in firefighter fatalities resulting from heart attack. They also report that data from NFPA indicates that over 94% of firefighters who die from heart attacks have a history of heart disease or known risk factors.

The International Association of Firefighters (IAFF) and the International Association of Fire Chiefs (IAFC) (1999) have developed the Candidate Physical Agility Test (CPAT). The test was a result of the IAFF/IAFC Joint Labor Management Wellness/Fitness Task Force. As the Task Force worked toward developing a wellness program that would ensure the ability of uniformed personnel to perform necessary job function, the Task Force realized that a concern and priority was the continued hiring of individuals who may not possess the skills needed to be

able to perform the identified job functions. At this point, the Task Force chose to concentrate on the development of CPAT. The test was developed based on job analysis, job task surveys, job descriptions and current candidate performance tests. The tasks were validated through questionnaires by 1,000 firefighters in ten participating departments. Individuals, including technical staff, incumbent firefighters, lay people and a recruit class were put through the test. When using incumbent firefighters to judge the accuracy of the test, 89 incumbent firefighters participated in the test process. At the completion of the test, they were asked if the test actually simulated the job and the test received a rating of "reasonable" to "accurate" from 90% of the participants. All aspects of this test were validated with surveys and studies from establishment of a passing time to the weight of the equipment used. The overall consensus of the technical committee was that the test was a good predictor of an applicant's ability to perform basic firefighting tests.

Conrad and Schober (no date given) reported that respondents answering interview questions about typical situations where no clarification was needed, answer accurately regardless of the interview technique. It was further found that respondent's accuracy in answering questions about atypical situation where clarification is needed depends on clarification from interviewers. Respondents receiving no clarification answered correctly 28% of the time, while respondents receiving clarification by use of the conversation interview technique answered correctly 87% of the time.

Smith and Robertson (1989) have reviewed successive studies of the validity of interviews and report that these studies suggest that interviews have very little predictive power. They also report that studies involving situational interviews conducted by Latham, et al., (1980)

and Latham and Saari (1984), reveal validity coefficients of up to 0.35 which indicates that situational interviews are not very valid predictors.

The Department of Labor (1999) gives guidance on the testing and assessment of employees. They recommend that reliance on one test is not a good practice. The recommendation is that a whole person approach be utilized. Instruments and assessment procedures should be reliable, demonstrated to be valid for the specific purpose being used and appropriate for the target population. The Department reports that the validity of knowledge tests tends to be high. They further report that mental and physical ability tests are valid in many jobs but often result in adverse impacts on some classes and that in some situations; personality tests used with other assessment instruments can yield helpful predictions. It is reported that structured interviews based on job analysis are generally more valid predictors of job performance than unstructured interviews. Recommendations and references generally do not separate good employees from poor employees because of positive reports given by references. Lastly, it is reported that integrity and honesty tests have appreciable prediction errors.

Terpstra, Bryan and Foley (2000) reviewed litigation related to five screening devices based on the following data from the Bureau of National Affairs. Use of screening devices were reported as follows: 52% of employers use reference checks, 26% conduct background investigations, 52% conduct medial/physical exams, 26% conduct drug tests and 6% conduct polygraph tests. In their review of the devices, the authors found that the small number of studies conducted on reference checks indicate reliability estimates of .40 or less and validity estimates of reference checks vary from .14 to .26. They report no or little empirical data for background investigations and medical/physical exams. It is reported that more empirical testing is needed for drug tests, but the available research suggests that drug test are highly reliable. All

federal court cases of hiring discrimination reported in Fair Employment Practice Cases between 1978 through 1997 were used for this study. When investigating these legal challenges after normalizing the data, it was found that background investigations and reference checks were over represented, resulting in a greater risk of litigation.

Philbrick, Bart, Sparks and Hass (1999) produced an article reporting on the changes of pre-employment screening during the 1990's in which they reviewed available studies. In this article they report that "It appears that some combination of written tests and work samples can be reliable and valid indicators of job performance." Structured interviews are valid pre-employment tools and are fairly accurate predictor of the applicant's fit with the organization. When the questions are standardized and a standard criterion is used to evaluate responses, the validity and reliability of the interview is increased. Generally speaking, the research on personality inventories has also shown significant predictive ability.

Gale (2003) reported on three case studies that offer some anecdotal evidence on pre-employment testing. She found that when each of the companies studied implemented pre-employment assessment test the companies reduced their employee turnover by 20 to 115%.

Rudner (1992) wrote a paper discussing pre-employment testing. There was no hard data or studies presented, but there was several useful points made. The accuracy of pre-employment testing is a function of the correlation between test scores and productivity, the percentage of applicants being hired and the proportion of applicants classified as successful by a test. He points out that implementation of pre-employment testing is critical. While this testing may be useful, it is only an estimate of an individual's ability or the degree to which a person possesses an attribute. The main point is that these tests should only be used to enhance employment decisions and not be viewed as scientific evidence. These tests can not and should not replace

professional judgment. In fact Van Aken v. Young is cited by the author as a case in point. In this case, the court ruled that a general intelligence test is not automatically valid for the selection of firefighters.   In reviewing other assessment techniques, it is reported that Reilly & Chao (1982) have concluded that reference checks are not effective, and several researchers (Wagner, 1949; Mayfield, 1964; Arvey, 1979) have found that interviews lack sufficient reliability and validity.

Connerly, Arvey & Bernardy (2001) conducted a descriptive study of local government agencies use of background checks. A survey was sent out to 114 public agencies and 62 agencies responded. All agencies indicated that they do criminal background checks on at least some of their candidates and half of them do the checks on all of their candidates. Of the agencies that did not do background checks on all candidates, many reported that they perform background checks on positions involving public safety as well as some other selected positions. In terms of when the check is done, 35% report doing them only when the candidate is being considered for hire, 26% after making a contingent job offer and 6% allow the employee to start work pending the results of the check. Most public safety positions indicated the check is done after a test is given, list certified and an interview completed. With respect to how the checks are done, 65% of the agencies utilize their own employees, 15% utilize an outside source and 6% utilize a combination of the two. The conclusion is that background checks can be designed to screen out unsuitable candidates.

Mercer (1993) points out that there are four characteristics of both useful prediction methods which are legally justified prediction methods. These characteristics are job-related, valid, reliable and used by the company in a nondiscriminatory manner. He also reports that

Hunter & Hunter found that the following predictive validities interviews 0.14, ability tests 0.53, personality tests 0.38 and reference checks 0.26.

Winans and Cairns (1996) conducted a study of data collected by the National Council on Compensation Insurance Incorporated. According to their data approximately 20% of applicants have a lost time worker's compensation claim with an average cost $17,000. There was additional research presented that shows employee's who have filed a worker's compensation claim in the past are likely to file one again or re-injure themselves. They point out that under ADA regulations questions related to worker's compensation claims may not be asked until after a conditional job offer is made and these questions must be asked of all candidates. It is also pointed out that the EEOC has stated that an employer may be justified in withdrawing a conditional job offer if a worker's compensation history shows multiple claims in recent years have been denied.

Goch (1999) wrote an article in which she cited the results of a study conducted by Gradner, Gardner and Butler. This was a study of worker's compensation costs for employee's who were subjected to pre-employment medical screening with a group of employee's who were not subjected to pre-employment medical screening. The employees who were screened had a claim rate of 31.8 per 100 workers with an average cost of $1,257 per claim. The employees who were not screened had a claim rate of 29.4 claims per 100 workers with an average cost of $1,498 per claim. It was further found that 15% of those not screened would not have been hired if they had been screened and this group had a generated claim rate of 41.4 claims per 100 employees with an average cost of $1,860 per claim.

Zwerling, Ryan and Orav (1992) conducted a study of the cost benefits of pre-employment drug screening using 2537 postal workers in the Boston area. They found that 308

employees tested positive for drugs using a simple yes no test. They calculated the costs of the drug screening and the savings realized in reduced absenteeism, accidents, injuries and turnover avoided. These calculations showed a net savings of $162.48 per applicant hired. They do point out that the cost-benefit analysis is very sensitive to the prevalence of drug use in the population being tested and this can be impacted by geographic area and the work force.

Bradford (1998) wrote an article on the use of background investigations for hiring police officers. One of the points he made was that by lowering the hiring standards both on written examinations and in conducting background investigations has an adverse impact on the department. He cites the Miami and Washington D.C. Police Departments as examples of here this occurred. Both departments lowered their standards and expedited hiring in the late eighties and early nineties. The results were shocking. In Washington D.C. more than half of the classes were brought up on charges and arrested. The U.S. Attorney said the officers were so tainted they could not be used as witnesses. Miami had a similar outcome. Now referred to as the River Cops Scandal newly hired officers formed drug rings. When it was over almost 10% of the Miami Police Department was charged or convicted of felonies. Three elements of a background investigation are identified in this article. They are; positive candidate identification which is establishing the true identity of a candidate including fingerprint identification, candidate's responsibility attitudes by conducting personality assessment and evaluation and the candidate's criminal history including records checks at all jurisdictional levels and directly questioning the candidate about their arrest history. Bradford goes on to outline the financial and other costs associated with the failure to do effective background investigations.

In an article written on correcting the problems with Civil Service and recent changes in Georgia Olson (1997) gives a citation of how legal challenges have watered down the hiring

model. In Pittsburg the police department agreed to allow the re-testing of applicants who failed a target-shooting test after the test was challenged. In Washington D.C. the written exam for firefighters was challenged and by the time all was said and done the passing score was set at "a score one could expect to receive if one randomly answered the questions". A federal appeals further noted "Dart-throwing methods of test answering sufficed". The author's point is that what was intended with the passage of the Pendleton Act over one-hundred years ago has been manipulated to the point of ineffectiveness and counter productivity when seeking to select the best candidates.

In a article which applied standard scientific validity criteria to the Control Question Test (CQT), which is the most common form of a polygraph test, Fiedler reported that even though the tests coding objectivity was satisfactory the remaining validity criteria are not met or seriously tested. It also reports that the tests optimistic estimates of predictive validity have sampling-bias problems. This article was based on a review which caused a German Supreme Court to abandon COT in penal procedures.

Based on the information presented several useful conclusions can be drawn about some of the components used in a hiring model.

Interviews need to be structured and situational in order to be effective components. Thorough background checks that include driving record checks, criminal history checks and workers compensation checks are effective components of a hiring model. Reference checks are not good components of a hiring model. Written examinations that do not test job related information are not effective components of a hiring model. Medical and drug screening are effective components of an effective hiring model. Physical ability tests are effective predictors

provided that they are shown to be job related. Psychological tests and personality profiles have questionable value in a hiring model.

The results of this review have not only revealed those components that are scientifically valid or invalid but also were used to help develop the survey developed for this study. This included how components were grouped, which components were used in the survey and questioning how the component was implemented in particular background checks. This review has also reinforced the need to survey fire department satisfaction with the components identified to see if the perception of the effectiveness of a component matches the scientific value of the component.

Each of these components should be considered in the totality of a hiring model. No single component can be used as a stand alone predicator for eliminating future personnel problems.

PROCEDURES

The procedure used was two fold. Most fire departments are not able to assess how predictive various pre-employment tools are so the literature review was used to address this issue. Due to the scope of the research that may be conducted on the individual components of the hiring model the literature review only considered the general validity of the components and was not specific in nature. Most of this data came from research conducted by others.

The types of pre-employment tools used, who does it and how it is done was determined by surveying fire departments throughout Ohio. Only departments indicating that they have full time personnel in the Ohio Fire Marshal's Fire Department Directory, fulltime and combination departments were surveyed. This was done because the method used for hiring personnel by Madison Township essentially establishes the hiring of part time personnel as the "gate" for fulltime personnel. This places Madison Township's hiring model for part time personnel on an equivalent level to that utilized by other departments for hiring fulltime personnel.

Included in this survey were questions to determine if the respondents feel a particular component could have or should have eliminated an employee whom they have had problems with. The survey was structured to give feedback on each tool used as a predictor for employee problems.

The responses provided were recorded and the percentage in each category was calculated to the nearest tenth of a percent so that responses could be compared relative to each other. Combinations of responses were not recorded.

Upon completion of the survey and literature review a comparison was then drawn between what the actual and perceived effectiveness of these tools are and what the research says about each of the tools. The tools which were most effective were identified by comparing the

results of the survey and literature review. The results were compared to see if there are any

common results in both surveys.

<u>Limitations of the Study</u>

This study is limited by the depth and scope of the topic of the study. The subject was so large and complex that some areas requiring more in depth study were not able to be studied as in depth as they should be. For example when discussing and evaluating psychological testing the component should be studied in a level of detail that would indicate what tool is the most effective for this component. For example is the Minnesota Multiphasic Personality Inventory or the California Aptitude Test more effective? This limitation is addressed in the recommendations section of this study.

The results are limited because all of the possible combinations of responses to the survey were not recorded as a matter of practicality. The data provided can be analyzed in a number of ways that may yield significant information.

Limitations on the results as they relate to the order in which the components are used are limited because the number of steps or components used by each department was not documented. In turn the components requiring a conditional job offer, specifically the medical screening and drug testing, could not be identified as to where they are legally required to be placed in the individual departments process. Therefore only a generalization about their placement in the usage order can be made.

RESULTS

This research included conducting a survey, which is provided in Appendix 1, of all Ohio

Fire Departments that are listed as either fulltime or combination departments in the Ohio Fire

Marshal's Fire Department Directory. This survey was e-mailed or mailed to 363 departments

and 159 or 43.8 % of the departments returned the survey. The survey was intended to determine

what components are used in the hiring processes, which of these components are useful in

avoiding personnel problems in the future and what is the most effective order to utilize the

components in.

To better understand the hiring process departments were surveyed to determine any

hiring restraints they have on them. Of the responding departments 57.2 % are civil service,

13.8 % have other restrictions, 3.1 % are under a consent decree for hiring and 25.9% reported

having no restrictions on their hiring model. Respondents were questioned about data kept on

minority applicants. The respondents were almost evenly split with 27 % of the departments

keeping no data, 25.8 % keeping data on race and 29.6 % keeping data on sex of the applicant.

With respect to the components effectiveness in identifying future personnel problems

respondents were asked to rate the listed component as highly effective (5), mostly effective (4),

effective (3), mostly ineffective (2) and highly ineffective (1). Respondents were also asked to

indicate what components of their hiring process have been validated. All of the components

presented in the survey were rated overall as effective to highly effective. The results of this

portion of the survey are presented in Table 1.

Table 1

Component Effectiveness

Component	5	4	3	2	1	Total Use
Written Exam	18.2	33.3	25.2	5.0	4.4	86.1
Agility Test	25.2	33.3	21.4	1.9	3.1	84.9
Oral Exam	14.5	13.2	3.8	1.9	0.6	34.0
Interview	34.0	41.5	17.6	4.4	2.5	100.0
Background Check	40.3	37.7	16.4	6.3	0.6	
Psychological Test	22.0	22.6	13.8	1.9	1.9	62.2
Medical Screening	30.0	39.6	20.8	6.9	2.5	99.8
Drug Screening	32.7	35.2	13.2	3.8	3.1	78.0
Polygraph	18.2	18.9	6.9	3.1	1.3	48.4

The second objective of the survey is to determine the most effective order to utilize the components in. To accomplish this, respondents were asked to indicate the order in which the components are utilized. The results of this are presented in Table 2. In general, the most commonly used first components were the written exam and or agility test. The components used at the end of the hiring process were the medical screening and drug screening. This is because the law requires that these be done after a conditional offer of employment.

Table 2

Component Usage Order

Component	1	2	3	4	5	6	7	8	9	10
Written Exam	52.2	8.2	2.5	0.0	0.6	0.0	0.0	0.0	0.0	0.0
Agility Test	6.3	40.9	5.7	5.0	0.6	0.0	0.6	0.0	0.0	0.0
Oral Exam	1.9	3.8	6.3	3.1	1.3	0.0	0.6	0.0	0.0	0.0
Interview	10.1	9.4	18.9	20.8	8.8	4.4	1.9	1.3	0.0	0.0
Backg. Check	3.8	12.6	24.5	16.4	12.6	3.8	0.6	0.6	0.0	0.0
Psych. Test	1.3	1.3	5.0	10.7	10.1	11.3	9.4	1.3	0.0	0.0
Med. Screen	0.0	2.5	6.9	10.1	21.4	17.6	10.1	3.8	0.6	0.6
Drug Screen	0.0	3.8	3.8	6.3	15.1	13.2	12.6	7.5	1.3	0.6
Polygraph	0.0	0.6	10.1	8.2	6.3	2.5	2.5	0.6	1.3	0.0

To determine what was done with the results of these components the survey asked a simple yes or no question about the establishment of hiring and elimination criteria. The respondents indicated that 120 had hiring and elimination criteria and 38 did not.

A narrative section was provided for respondents to identify what types of personnel problems they have experienced which they felt could have been eliminated through the hiring process. The answers to this question are summarized in Table 3. The leading problem that departments felt needed to be addressed and or identified in the hiring process was "attitude". The responses generally indicated that this is related to the employee's work ethic and performance.

Table 3

Personnel Problems

Response	Percentage
Turnover	3.1
Absenteeism	1.9
Physical Capability / Medical Conditions	2.5
Drug / Alcohol Use	1.3
Attitude	22.6
Excessive Workers Compensation Claims	2.5
Employee Expectations	3.1
Employee Performance	3.1

In order to allow the opportunity for the respondents to express their opinions on the short comings of their hiring process they were asked to identify anything they would change in their hiring process. These changes are summarized in Table 4. The most desired change was to improve the quality of the background checks conducted by departments. There were a number of departments that wanted to change their written exam and civil service system along with a similar number that wanted to add psychological and agility testing in their process.

Table 4

Desired Changes

Change	Percentage
Civil Service Change	7.5
Change Written Exam	8.8
Change Agility Test	5.7
Eliminate Psychological	1.3
Change order of components	5.7
Eliminate Politics	1.9
Add Agility Test	6.9
Add Psychological Test	8.8
Improve Background Check	18.9
Add Oral Testing	5.0
More stringent hiring & Elimination Criteria	2.5
Add Polygraph	2.5
Delete a Component	1.9

Survey participants were asked who performed their background checks. A number of departments indicated that a combination of agencies conducted the checks with 58.5 departments utilizing the police department, 34.6 departments doing them and 28.3 departments utilizing outside agencies.

Table 5

Validation of Components

Component	Validated
Written Exam	13.8
Agility Test	9.4
Oral Exam	1.3
Interview	3.8
Background Check	6.9
Psychological Test	5.7
Medical Screening	8.8
Drug Screening	5.7
Polygraph	1.9

This research project has resulted in the development of the model hiring procedure contained in Appendix 2. The model incorporates several changes that should be made to the existing model hiring procedure based on the results of this study. The employment removal standards to be utilized by the department are contained in Appendix 3.

A major change made to the hiring model center around the psychological testing component. This component was divided into two sub components testing and evaluation. The testing portion will be conducted earlier in the hiring process. The evaluation will be made a part of the step that includes medical and drug screening.

Previously the hiring model simply referred to conducting a background check. This section has been expanded to include the minimum checks to be included in this step. The

majority of this step will be completed by a qualified outside agency. The checks with current and former employers will be conducted by department administrative personnel because there will be information that will be given which we would want to get ourselves and be able to ask follow up questions on if necessary.

A review of worker's compensation records was added to the model. This component was added at the post job offer stage because it can only be done after "the employer has already evaluated all relevant non-medical information" (Winans, 1996, p. 32).

There are some overarching principals that must be strictly adhered to in developing and more importantly utilizing the hiring model. These are:

1. The hiring model has to take a holistic approach to hiring personnel.

2. Candidates must be eliminated when required by the elimination criteria.

3. The department should not take any short cuts in hiring.

The hiring model used by Madison Township has had some updates made to it based on this study. The result of this study that is as important as the changes that have been made to the model are the holisitc principals that have been outlined here.

DISCUSSION

Arguably the hiring of a firefighter is a million dollar investment for the department. When 25 years of salary, hospitalization, retirement contributions, training and equipping are totaled the investment in the firefighter easily exceeds one-million dollars. When the investment is this significant we need to give it the attention it deserves. This study has endeavored to do that.

Overall the results of the survey were fairly consistent with the information presented in the literature review with respect to how well a predictor of future personnel issues a particular component. The order in which the components are used and what specific type of component is used showed some inconsistencies.

There are some overall conclusions to be drawn from this study about the hiring model. The first conclusion to be drawn is that there is not one single component that can be used to identify all future personnel performance and or problems. The components need to be used in combination. As Rudner (1992) states, "At best, tests only estimate a person's ability or the extent to which a person possesses some attribute. Tests should only be used to enhance an employment decision" (p.134). No one single component can address all of the issues which must be looked at by the fire service in selecting candidates. The components need to be looked at as a model in totality to make a decision about a candidate.

The other conclusion that can be made about the hiring model is the need to follow the results when indicated. This is best summarized by one of the respondents who when asked if they had any personnel problems they felt could have been avoided responded by saying "Have a firefighter that the psychologist recommended we not hire, but did anyway. He was right and we were wrong". Another of the respondents noted that psychological issues identified in the

psychological testing phase would have eliminated some of the department's turnover if the interviewer's recommendations had been followed. Many departments have established guidelines for the disqualification and in some cases the qualification of candidates. These must be followed if they are to be of any value.

The literature review revealed that written knowledge tests for specific job knowledge based on job descriptions are valid predictors of a future employee's job knowledge and skills. This was reflected in the results of the survey. There are not as many respondents considering the written exam as highly or mostly effective as compared to some of the other components even though the majority of the respondents utilize written exams. There was a significant number who felt the component to be only effective. A change to the written exam was the second most desired change by respondents which correlates with the effectiveness results. In one case personnel were hired with no certifications and were sent to training only to be unable to pass the tests for the class. With respect to general intelligence tests Rudner (1992) reports "In Van Aken v. Young, the court rejected the concept that a general intelligence test is automatically valid for selecting firefighters" (p, 140).

Respondents felt that the agility test was an excellent or mostly effective predictor. This is supported by the number of respondents utilizing agility test and the number of respondents that desire to change their agility testing. When viewed as a component the agility test is the second most desired change. The literature review revealed that an agility test based on job analysis is a good predictor of a candidate's ability to perform the required physical tasks. The lack of use of this component has caused problems for at least two respondents. One reported hiring candidates that were "not physically able to perform the job" and another reported having three employees leave the department on disability pension in a five year period. In both cases no

agility testing was performed. These tests are more easily reproduced. Philbrick (1999) reported"tests of physical attributes tend to be more reliable that tests of personality characteristics when the results of the tests from two separate administrations are compared." (p.76).

Oral exams are used by a relatively low number of the respondents. Those that do utilize them do feel that they are a good predictor of future employee's performance and a small percentage of the respondents would like to add this component to their process. There was nothing found in the literature review that directly related to this component but it is reasonable to believe that oral examinations would have similar predictive value as interviews.

The interview is one of two components used by all respondents. Over 75% of the respondents feel that interviews are mostly or highly effective. None of the respondents reported a desire to change anything in their hiring model related to interviews. Despite these results a number of respondents feel that candidates are able to move through this component because the candidate "knows how to answer the questions" and several noted that the person hired is "Not the person we interviewed". This inconsistency, coupled with the information presented in the literature review which indicates that interviews need to be structured and situational in order to be effective, suggests that most departments need to significantly overhaul their interview process. As Philbrick (1999) points out "Standardizing questions and the criteria used to evaluate applicants' responses are two aspects of interview structure that have been shown to increase reliability and validity" (p. 79).

The other component used by all of the respondents is the background check. The results of this study are consistent with the study conducted on background checks by Connerly, Arvey & Bernardy both with respect to usage and who conducts the background check. The majority of

the respondents indicated that they believe that the background checks are mostly or highly effective. The only issue raised with respect to the background check is with reference checks. Most respondents indicated in their narrative responses that they feel that the reference check is not of any use because no one will list a bad reference and most employers are reluctant to give a bad reference. This result is consistent with several studies cited in the literature review which consistently reported that reference checks are not effective. The one inconsistent result with respect to this component is the desire by a number of respondents to improve this component. One respondent indicated that a more thorough background check would have resulted in some personnel not being hired. Wright (1991) correctly observes "If a proper and thorough investigation is conducted, an agency can eliminate undesirable applicants from consideration and hire qualified, dedicated employees. If, however, a thorough pre-employment investigation is not conducted, the agency exposes itself to a vast array of libelous situations, occupational problems, or at the very least, non-productive employees." (p. 16).

Psychological tests and personality inventories have significant predictive abilities based on the literature reviewed. Philbrick (1999) reported "Generally, the research on various personality inventories in a variety of settings … has shown significant predictive ability" (p.80). The Department of labor has reported that when used with other assessment instruments personality inventories yield helpful predictions. Less than 4% of the respondents feel that this component is ineffective which is consistent with the literature review. One respondent reports that this component is far more effective in identifying the candidate's ability to get along, work ethic and other personality aspects than he "ever imagined". Another noted that hiring solely on technical skills has resulted in having personnel who are technically competent but have different values than the organization.

Nearly all respondents utilize the medical screening component and rate only the interview as more effective overall. It was interesting that not all respondents utilized medical screening, because it is required by the Ohio Police and Fireman's Pension Fund before an employee can be enrolled in the fund, which is required by law. The literature review for medical screening shows that medical screening is a very good predictor of future personnel problems ranging from workers compensation claims to firefighter fatalities resulting from heart attack. This is consistent with the findings of Goch (1999) who reported "The data indicate that the medical exams provided useful information in identifying potentially high-cost employees and that the absence of the medical screening has significantly raised workers ' compensation costs to this employer" (p.75).

Fewer respondents utilize drug screening than those utilizing medical screening. Like medical screening a significant majority of the respondents utilizing drug testing believe that it is a good predictor of future personnel problems. The literature review shows that like medical screening drug screening is a good indicator of future personnel problems and can save costs related to absenteeism, accidents, turnover and injuries. As Goch (1999) pointed out "An average of 15% of U.S. workers are substance abusers and, as a result, they are four times more likely to be injured at work" (p. 74).

Nearly one half of the respondents utilize a polygraph or voice stress analysis components and the majority of those utilizing this component felt that it is an effective predictor of personnel problems. The Department of Labor and several other studies have all indicated that use of this component is not legal in most circumstances and is not recommended for use in the hiring process, including hiring firefighters. Some respondents are aware of this and indicated that they did not do polygraphs but rather voice stress analysis. Despite this fact a few number of

respondents would like to add this component. Based on the current legal climate surrounding the polygraph and its questionable results this component should be eliminated from use in the hiring process.

When a particular component is used in the hiring process is a combination of practicality, cost effectiveness and legal requirement. The law requires that potential employees be tenured a conditional offer of employment before medical screening and drug screening can be conducted. This was consistent with the results of the survey. None of the respondents utilized either of these components as their first and less than ten percent utilized it prior to step four in their hiring model. Many departments noted that these components were utilized after the conditional job offer.

The most cost effective means of eliminating candidates is the written exam and agility test. This was reflected in the survey results. Of those using these components the vast majority use these as their first or second steps in their hiring model. This can be done in order to establish a rank order of the candidates so that the department has a starting point. How effective this process is in identifying future personnel problems is directly related to the type of examination and test utilized and is not addressed in this study.

The middle components, when utilized, are the interview, background checks and polygraph. These components are more costly on a per candidate basis and are more time consuming. Because of these factors it can be reasoned that departments are less likely to utilize these components until a candidate has made the first cut of the hiring process. Departments are not willing to invest the time and money that these components require until they know that the candidate can physically and mentally perform.

The personnel problems identified did not have any single area of major concern other than those classified as attitude problems. Some of the problems identified could have been avoided by utilizing one or more of the components identified in this study. For example medical and physical ability to perform the work may have been avoided by the utilization of an agility test.

Some of the personnel problems may have been eliminated by changing the specific tool utilized in the component such as using a different psychological examination.

There were some problems which probably could not have been eliminated regardless of the components utilized.

Only one respondent reported any kind of a problem that could be traced back to the background check. Yet a relatively large number of respondents reported a desire to improve their background checks. This may be due to the tools utilized in this component.

The components which are effective in predicting future personnel problems and the order in which they are most effective are: Written Exam, Agility Test, Background Check, Interview, Psychological Test, Medical Screening and Drug Screening. These results have been used to develop the hiring procedure and related material for Madison Township Fire Department contained in Appendix 2.

RECOMMENDATIONS

There are several improvements which can be made to enhance this study in the future. The suggested improvements to the survey would be to limit the responses to the question "What would you change in your hiring process?" When asking if a department has hiring and elimination criteria it should be two different questions so a distinction can be drawn between hiring prerequisites and elimination criteria. Respondents should have been asked what their feelings are about the limitations, such as civil service, that have been placed on their department.

Future research which is more specific in nature and more in depth should be conducted for the following components: Written Exam, Agility Testing, Background Checks, Psychological Testing and Hiring and elimination criteria.

The Madison Township Trustees should adopt the policy contained in Appendix 2. Changes in this policy from the existing policy include: conducting psychological testing earlier in the hiring process, change the interview process to one based on job analysis and record race and sex data on applicants.

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APPENDIX 1 – FIRE DEPARTMENT SURVEY

Dear Chief,

Allow me to introduce myself. I am Assistant Chief Robert Bates with the Madison Township Fire Department. I am currently enrolled in the Ohio Fire Executive (OFE) Program Class 4.

My research project for OFE is determining the components of an effective hiring model for the Madison Township Fire Department that will help to reduce future personnel problems. I would appreciate your help with this project by taking a few minutes to complete the enclosed survey and returning it to me.

In the first part of the survey, you are asked to rate how effective you feel the various components of a hiring model have been for your department. The second part of the survey is a series of questions about how some of these components are conducted.

When considering effectiveness I am interested in the ability of the component to identify, reduce or eliminate future personnel problems within the fire department. These problems include things such as disability retirement; personnel who are not a good personality match for the fire service, the expectations of candidates are different than the expectations of the department and other issues that may arise during the candidate's career which will adversely impact the department.

Please return this survey to me no later than January1, 2005. Thank you in advance for your assistance in this research project.

Sincerely,

Robert Bates
Assistant Chief

Ohio Fire Executive Survey

Using the scale below, please rate each component in terms of how effective you believe it is in identifying future personnel problems.

In the column marked "Step", please indicate the step in the hiring process that the component is used i.e. 1st, 2nd etc. If the component has been validated, place a "v" next to the step number.

If you do not use the component listed mark the column N/A.

(5) Highly Effective   (4) Mostly Effective   (3) Effective

(2) Mostly Ineffective   (1) Highly Ineffective

Component	5	4	3	2	1	Step	N/A
Written Exam							
Agility Test							
Oral Exam							
Interview							
Background Check (BCI, Reference Check, Etc.)							
Psychological Test (Standardized Test Etc.)							
Medical Screening							
Drug Screening							
Polygraph							
Other (List below)							

1.   Do you have hiring and elimination criteria?   Yes   No

2.   Is your department under one of the following hiring restraints?

       Civil Service   Consent Decree   Other

3.   Who conducts your background checks?

       Police Dept.   Fire Dept.   Outside Agency

4. What type of data do you keep on minority applicants?

    Race   Sex   None   Other _____

5. Describe any personnel problems you have experienced that you feel could have been

    identified and avoided by a component in the hiring process?

    _____

    _____

    _____

    _____

    _____

    _____

    _____

    _____

6. What, if anything, in your hiring process would you change? _____

    _____

    _____

    _____

    _____

    _____

    _____

Name of Department: _____

Survey Participant: _____   Phone: _____

APPENDIX 2 – EMPLOYEE HIRING PROCEDURE

Madison Township Fire Department

Employee Hiring Procedure

Minimum Qualifications:

- 18 years of Age at time of Application High School Graduate or GED
- Valid Ohio Drivers License
- State of Ohio Firefighter I & II Certification
- Ohio EMT-Basic Certification (Part-time Firefighter)
- Ohio EMT-Paramedic Certification (Full-time Firefighter)

Note: A $20 Non-refundable fee is assessed at the time of application. Candidates

are also responsible for any fees charged in association with the Physical Agility Test.

Selection Process:

Step #1

- Application filed with township office.
- Written examination, applicants must receive a minimum score of 70% in each category and a minimum average of 70% overall.
- Physical Agility Test consisting of the Candidate Physical Ability Test (CPAT) as designed and endorsed by the International Association of Firefighters and International Association of Fire Chiefs. This is strictly a pass / fail test.
- Upon successful completion of both the written and agility tests applicants will be ranked according to score. In the event of a tie, candidates will be ranked according to the date their application was received
- Applicants will be photographed, fingerprinted and waivers for background investigations secured. Usually at the time of the written exam.

Step #2

- Background investigation will be conducted by an outside agency/vendor, this will include but is not limited to:
  - State and Federal Criminal Records check
  - Credit check
  - Local criminal records check
  - Driving record

- Department personnel will interview current and former employers and fire service references given by candidate.

- Once completed background investigations will be checked against the background removal standards for elimination of any candidates not meeting the standards.

Step #3

- Interview with Fire Chief and selected department members.

Step #4

- Psychological testing.

Step #5

- Submission of eligibility list to the Madison Township Board of Trustees and the Township Administrator to establish an Eligibility List.

- Eligibility lists are effective for two years from the date of approval by the Madison Township Board of Trustees.

Step #6

- Conditional offer of Part-time Employment when a opening exists and appointment pending successful completion of the following:
  - Medical Evaluation including stress test meeting the requirements set forth by the Ohio Police and Fireman's Pension Fund (This may be waived at the sole discretion of Madison Township if candidate has completed a similar evaluation in the previous six months)
  - Drug screening
  - Psychological evaluation
  - Worker's compensation claim history review

Step #7

- Presentation of name(s) of eligible applicants for employment to the Madison Township Board of Trustees and Township Administrator for consideration of appointment as Part-time Firefighters.

Step #8

- Appointment as Part-time Firefighter.

Full-time Firefighter Appointment

Step #1

- Eligibility is established by seniority from Part-time Firefighters who are certified by the State of Ohio as EMT-Paramedics. This list is continuous and does not require formal action by the Madison Township Board of Trustees.

Step #2

- Presentation of name(s) of eligible applicants for employment to the Madison Township Board of Trustees and Township Administrator for consideration of appointment as Full-time Firefighters.

Step #3

- Appointment as Full-time Firefighter.

APPENDIX 3 – EMPLOYMENT REMOVAL STANDARDS

Madison Township Fire Department

BACKGROUND REMOVAL STANDARDS FOR EMPLOYMENT

A.   Honesty/Falsification – Applicants will be removed from the eligibility list for any of the following reasons:

1.   Any intentional falsehood or attempt to conceal disqualifying information during the selection process.
2.   Use or attempted use of political influence to change the employment standards in securing employment as a firefighter.

B.   Family History - Applicants will be removed from the eligibility list for any of the following reasons:

1.   Verified or admitted physical or emotional abuse of one's spouse, ex-spouse, child, stepchild, and parent or any other relative or person with whom one lives or has a relationship within the last ten (10) years.
2.   Non-compliance with a court order or legal contract to provide child support, alimony or other financial responsibility as determined by the appropriate enforcement bureau or a court of law within the preceding five (5) years.
3.   Intentional violation of any protective or temporary restraining order as determined by a court of law within the last seven (7) years.
4.   Verified or admitted sexual abuse of one's spouse, ex-spouse, child, stepchild, and parent or other relative or person with whom one lives or has a relationship.

C.   Employment - Applicants may be removed from the eligibility list for any of the following reasons:

1.   Failure to retain employment as an adult, for an average period of twelve (12) months or longer during the last five (5) years.
2.   Discharge or resignation in lieu of discipline from any occupation.

D.   Military History - Applicants will be removed from the eligibility list for any of the following reasons:

    1. Dishonorable discharge from military service.
    2. Conviction of any article of the Uniform Code of Military Justice that would be equivalent to a felony under the Ohio Revised Code.

E.   Traffic - Applicants will be removed from the eligibility list for any of the following reasons:

    1. Any conviction for vehicular homicide shall permanently eliminate an applicant from consideration.
    2. OVI
        a) Conviction within the last five (5) years; or
        b) More than one conviction as an adult ;or
        c) More than two convictions, if one of those convictions was as a juvenile.
    3. Three (3) moving violations in the last twelve (12) months.
    4. Four (4) or more moving violations in the past five years as an adult. If there are no moving violations during the three (3) most recent years, the above rule shall be negated.
    5. If the applicant owns a vehicle at the time of the interview and the applicant does not possess a valid driver's license and auto insurance as required by the residence state.
    6. One (1) revocation or suspension of a driver's license as an adult, in effect during the past five (5) years, due to points violation, or Financial Responsibility Act violation or by a court. Certain circumstances related to suspensions may be taken into consideration provided they possess a valid license.

F.   Criminal Activity - applicants will be removed from the eligibility list for any of the following reasons:

    1. Any pattern of theft offenses as an adult, within the last five (5) years, which cumulatively exceeds $200.00.
    2. Any theft offense as an adult or within the last five (5) years, which singularly exceeds $200.00.
    3. Any fraudulent insurance claims or fraudulent applicants for welfare, worker compensation, unemployment compensation or other public assistance programs in excess of $200.00.
    4. Any admission or conviction of an offense, as an adult, defined as a felony by the federal, state, or local law of the jurisdiction where the offense occurred.

5. Any admission or conviction of an offense, as a juvenile, of one (1) violent felony as defined by the federal, state or local law of the jurisdiction where the offense occurred.

6. Any conviction of an M-1 or M-2 misdemeanor as a juvenile, as defined by the federal, state or local law of the jurisdiction where the offense occurred, as an adult in the last five (5) years or more than one (1) M-1 or M-2 conviction as an adult.

7. Any conviction of an M-1 or M-2 as a juvenile, as defined by the federal, state or local law of the jurisdiction where the offense occurred. (Does not include traffic or minor misdemeanors).

8. Any admission of an offense for carrying a weapon within the last five (5) years if it is defined as a felony by the federal, state or local law of the jurisdiction where the offense occurred.

9. Any pattern of theft offenses from an employer or during the course of employment as an adult.

G. Substance abuse - Applicants will be removed from the eligibility list for any of the following reasons:

1. Any use or purchase of illegal drugs within three (3) years before application or after application.

2. Any pattern or use of illegal drugs, including marijuana within the last seven (7) years.

3. Any illegal sale of drugs of abuse, including marijuana or prescriptive drugs unless the sale(s) involved:
    a) the pooling of resources/money by the applicant and others for substances for their own personal use,

    Or:

    b) The substance was sold without profit to the applicant and the amount of the substance sold was the minimum. If the sales occurred when the applicant was a juvenile or more than five (5) years ago, then the above rule shall be negated.

4. Abuse of alcohol, chemical agents/solvent-based substances or prescriptive drugs.

H. Gambling - The term "gambling offense", shall include any activity defined as gambling by a federal, state, local statute or ordinance in the jurisdiction where the offense occurred. Applicants will be removed from the eligibility list for any of the following reasons:

1. Conviction of a gambling offense, within the last five (5) years.

2. Admission to gambling that has resulted in unstable financial or credit history within the last seven (7) years.
3. Conviction of, or admission to, engaging in the promotion of illegal gambling activity wherein the applicant gains a financial benefit.

I. EMS Certification - Applicants will be removed from the eligibility list for any of the following reasons:

1. Suspension of EMT certificate to practice by the Ohio Emergency Medical Services Board.
2. If the applicant is on probation from the Ohio Emergency Medical Services Board.
3. Any pattern of being placed on probation by the Ohio Emergency Medical Services Board.