EVALUATION OF THE JUVENILE SAFETY EDUCATION PROGRAM IN NILES, MICHIGAN

Executive Development

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An applied research project submitted to the National Fire Academy
As part of the Executive Fire Officer Program

January 2003

ABSTRACT

The juvenile public fire education program designed and instituted in the Niles School System has not been fully evaluated.

The purpose of the study was to evaluate the effectiveness of the program and to examine the need for additional modification in delivery. An evaluative research method was used to answer several questions. First, how do the personnel of the NFD view the program? Next, what is the opinion of the program held by the teachers in the school system? More importantly, what are the children learning from the program and what of that information is actually being put to use? Finally, by evaluation of other nationally recognized programs, are there any other methods or programs that could be incorporated to increase the safety of the target audience?

The procedures used to complete this research included a review of fire service literature, fire and building department reports and an opinion study issued to school system teachers. Additionally, a standardized test was developed, implemented and evaluated.

The results of this research displayed both positive and inconclusive results in various stages of program evaluation. The study reinforced the need to advance departmental incident reporting and record keeping.

Recommendations included the increase in the department record keeping, the need for standardized testing and the need to inform the teachers in school of the entire curriculum being presented.

TABLE OF CONTENTS

Abstract……..…2

Table of Contents……...…3

Introduction……...4

Background and Significance……4

Literature Review……...8

Procedures……13

Table 1- Surveys delivered / returned……..16

Figure 1 – Set & Characters…….18

Results…….….21

Table 2-Involvement study……..23

Table 3-Educators evaluation by program…….……...……24

Table 4- Test results by school……25

Discussion……31

Recommendation……..37

References……42

Appendix A……..44

Appendix B…….….45

Appendix C…….…….50

Appendix D…….…….51

Appendix E……..52

Appendix F……..53

Appendix G…….54

INTRODUCTION

Niles, Michigan is a small city shared by 12,204 residents (2000 Census) that is completely encircled by Niles Township and their 13,325 residents (2000 Census). The two jurisdictions each maintain their own school systems with six public elementary and two private elementary schools. Both the Niles Fire Department (NFD) and the Niles Township Fire Department (NTFD) have worked together over the last decade to provide various safety programs to their residents. One of these efforts focused on the youngest segment of their population.

The problem is that the NFD and the NTFD have not effectively evaluated the performance of their long running juvenile safety education program. It was generally felt that the program was successfully fulfilling its mission of injury reduction through education, however these emotional evaluations have never been supported by factual information. The purpose of the study was to attempt to compile information that would accurately gauge the performance of this program.

The research would follow an evaluative method in attempt to find answers to the following questions. First, how do the personnel of the NFD view the program? Next, what is the opinion of the program held by the teachers in the school system? More importantly, what are the children learning from the program and what of that information is actually being put to use? Finally, by evaluation of other nationally recognized programs, are there any other methods or programs that could be incorporated to increase the safety of the target audience?

BACKGROUND AND SIGNIFICANCE

In the past, the NFD was satisfied to simply operate from a suppression platform. In the late 70's to early 80's the department began to initiate attempts designed to limit

the numbers of juvenile related fire occurrences in their community. These attempts were based with the youngest section of the population and activities ranged from poster contests to school visits with the fire engine.

These presentations were mainly lecture based and at best only simple concepts like 911 and Stop, Drop and Roll along with basic concepts of Exit Drills in the Home (EDITH) were touched. The cost of these programs was relatively not existent with mainly the Fire Marshal performing the bulk of the education and very little in the way of literature being distributed. This greatly reduced the cost of the program. With little influx of new personnel and the promotion of active individual out of prevention these programs slowly were brought to an end.

Then in 1990, NFD began to see a gradual attrition of its most seasoned members. As these employees left, employees that had previous firefighting experience in volunteer departments replaced them. All were involved in fire science related associate degree programs and attended other educational opportunities regularly. It was at that time that one of these members attended a class entitled “Public Fire Education Planning” offered at the National Fire Academy during a state weekend. The education that was provided, in addition to some very effective networking opportunities, assisted in the development of the “Captain Murph and Poky Show.”

This show was based on a straight guy-fall guy concept made famous by the Smothers Brothers. The concept allowed the fall guy to make the mistakes that the children may have made, protecting them from public embarrassment. Captain Murph, who filled the straight guy role, would then quickly correct these safety errors. This scripted stage show developed over the years borrowing from other approaches, utilizing several different characters and included various personal safety messages. The show

was mainly based in school gymnasiums and would accommodate 50 to 500 children for 30 minutes.

Concurrently, the Niles Township Fire Department (NTFD) had made similar strides educating their children using a classroom-to-classroom approach. Their approach used professionally designed videos available for suppliers like Syndistar, Inc. to keep the children's attention. Firefighters would show the videos and reserve up to 10 minutes for two-way communication with the students. Both departments were very proud of their achievements in this area but found difficulties operating each program with limited personnel and the requirement that crews to remain in service.

Then in 1993 the NFD and the NTFD decided to merge the two programs by offering each approach to both school systems. Each department cross-trained its personnel to operate the opposing departments system. This allowed each department to break from the program upon receiving a call, leaving the remaining department to continue the program unaffected. The NFD maintained a larger full time staff, thus contributing more to this relationship in the form of manpower. This was, however, balanced by the close involvement of NTFD Chief who, of course, had control of budget money. This gave him the ability to contribute substantially more dollars to purchase reinforcing material. This merger also benefited each program by increasing the regularity at which the program was delivered to the children.

Today, the program has undergone a retool of the script and a change in characters. The current program offers many of the same safety concepts utilizing a miniature fire truck and puppet to hold the children's attention while the educators deliver the various safety messages to the audience. Many of the videos used in the classroom presentation have been replaced by more modern versions. Additional videos have been purchased and assigned to each grade level from Kindergarten through the six

grade. These videos build on each other and increase the concepts as the students graduate from grade to grade. The program has seen its annual funding increase as the NFD has increased its education line item 500 percent over the past three years. Firefighter involvement has also increased with personnel hours in excess of 1000 hours annually. In 2002, 1101 personnel hours were invested in execution of the program with 44 percent being tallied by firefighters on their own time.

With increased energy comes an increased need to justify the expenditure. The Commission on Fire Accreditation International asks departments that wish to become accredited through their program if they have performed a "periodic appraisal made to determine the effectiveness of the public education program and its effect on eliminating unacceptable risks." The City Manager of the City of Niles has asked that NFD begin to take steps in order to become accredited. In addition, the National Fire Protection Association (NFPA) in standard 1201 requires that public safety education programs be "monitored for effectiveness."

In addition, the leadership of both departments will change in the first month of 2003 as both Chiefs retire after long careers with their respective agencies. With these changes come new individuals that will control expenditures in time and funding. With the economic picture remaining unclear it becomes even more important for these leaders to account for the effectiveness of every dollar as it is spent. "The main purpose of public fire and life safety education is to improve safety, and unless one can demonstrate that a program is achieving this goal, it will be hard to convince decision makers in the long run that the program should be supported" (Schaenman and Gunther, 1997).

Though manpower records of time expended doing prevention activities have been kept for the last decade, very little information on effectiveness of the program has been gathered. Without this information it could be easy for municipal leaders to

challenge the validity of expenditures in this area. Secondly, effectiveness studies could reveal ineffective methods allowing modifications in delivery that could lead to more positive results. Finally, new methods of delivery could allow firefighters to reduce the time needed annually to complete this mission.

The thorough study of the effectiveness of these programs and the application of the findings will substantially increase the quality of the program to department leaders, municipal representatives and the public that we serve. This concept is examined in great detail in Unit 10 of the Executive Development Curriculum. Additional correlation is found in the second part of that unit on marketing. More specifically, the information that discusses the differences between factual and emotional perception was greatly considered. This program has always justified itself by emotional perception of all involved. It was the goal of the researcher to examine the program from a factual light.

Finally, by increasing the quality of the juvenile education delivery system used in Niles, Michigan the researcher is directly in agreement with all four of the United States Fire Administration objectives. First, by increasing the quality of this program we are able to not only reduce the loss of life to those individuals under the age of fourteen, but through promoting safety lessons to the target audience, they will assuredly take the safety messages home to their parents. These parents then in turn use the information in the care of their parents. Secondly, by the proliferation of fire safety behavior, the reduction of needless fire occurrences reduces the exposure to our firefighters from injury. Lastly, by continuing to strive toward increased quality we are contributing one piece of reaching the goal of having a comprehensive, multi-hazard risk reduction plan in our community led by the fire service organization.

LITERATURE REVIEW

"America Burning" began the nations move to a more fire safe society in the late 1970's by identifying many shortcomings in the service at that time. Of the fire personnel who replied to the Commission's survey, 98 % reported a need for greater education of the public in fire safety. The commission report identified that paid fire departments of the day typically spend less than 5 % of their budget on fire prevention activities. "In order to provide the best possible public education effort in the most cost effective manner, we need to define the real versus perceived problems facing the community. Using a shotgun approach will not work: you must aim at a specific targeted behavior, audience, or location"(USFA & FEMA, 1998).

The first step in the development of a successful fire prevention program should be the identification of the major local problems (Nachbar, 1995). Two thirds of fire personnel surveyed believed that public apathy was the greatest reason for accidental fires (National Commission on Fire Prevention and Control, 1973). Next, by locating records of past fire causes and patterns locally fire problems can be identified. This step should be followed by identification of high-risk locations (Robertson, 1989). The 1989 report, "America Burning Revisited", Task Force 6, considered "the lack of knowledge and recognition of the fire problem and the value of fire prevention" to be one of its two most important issues. It saw a need to evaluate the effectiveness of public education programs and the need to coordinate their efforts.

In a 2002 newsletter report, Colleen Mohr, the Public Education Coordinator for the Michigan State Police Fire Marshal's Division, described the main causes of accidental fires in Michigan to be, " Unattended cooking, children playing with fire and careless use of smoking materials." She continues to describe these causes by stating, " In other words ignorance and indifference." She describes a need to be proactive rather

than reactive increasing our educational effectiveness (Mohr, October, 2002). In 1998 it was estimated that 70 deaths, 480 injuries and 38.2 million in property damage were reported in residential structures by fire started by children younger that age five playing with cigarette lighters (Smith, Green & Sing, 2000).

After a decline over the past two years in fire deaths, Michigan is on course in 2002 to break that trend. In September, the state had experienced 102 deaths, a subtle increase from 2001 numbers in that month. Michigan has also experienced a 50% increase in deaths through the summer months in 2002 with 41% of the 27 deaths being suffered by individuals under the age of 19 (Mohr, October, 2002).

Schanman and Gunther report that the evaluation of public education efforts can be divided into 6 levels of reliability. These levels called the "Hierarchy of Evaluation" range from the weakest proof to the strongest. They state, "people reached may not learn, people who learn may not act, and acting as instructed may not always work." They go on to describe the importance of evaluation at the highest level possible to truly determine program effectiveness (Schaenman & Gunther, 1997).

The first two levels consider others generalized opinions of the program. The first and least conclusive is "Institutional Change." This utilizes internal departmental acceptance to prove that the program must be working. The next level considers the "Likeableness and Usage" of the program. In the case of juvenile public education efforts the enjoyment of the children would be one indicator of this level. Another criteria could be the acceptance by local parents or educators.

The remaining four levels continue to become more reliable gauges. The third level in the Hierarchy model, "Extent of Program Outreach", examines details and statistics about the program itself. It takes into account the amount of children educated and the time spent educating them.

"Awareness and Knowledge" of the target audience is the fourth level to be considered. This takes into account what the people know, not what they actually do. Standardized testing has been used in the Niles High School for years to identify this facet. They are now experimenting with computer based testing to identify how well they are doing academically. Computerized testing saves time with more accurate results (Meenan, 2002). This is increased in the next level, entitled "Behavior or the Environment", which takes into account what safety messages are actually instituted by those receiving the education

Finally, the "End Results" are considered to be the most effective way to determine programs effectiveness. Fire responses, injuries and deaths can be tracked to determine the benefits provided by a program. The "Hierarchy of Evaluation" provided the basic framework for the researcher to follow in evaluating the programs effectiveness.

The message delivered should also be discussed. Analysis of NIFRS data reveals that fires are quickly being replaced by medical calls and man-made disasters as the leading reasons for fire service response (Nachbar, 1995). In a study performed by Interwest Applied Research designed to evaluate the effectiveness of the NFPA's Risk Watch program, the demographic similarity between the different classrooms is vital (Paradise, 2002). Studies have shown direct relationships between fire causes like smoking, cooking and child play ignition factors with lower income areas. Lower income have many factors including older homes containing less safeguards, older wiring and lower percentages of working smoke detectors that could alter the results of a study (USFA & FEMA, 1997). This information provided the researcher with direction in the development of sample groups and the information to be surveyed.

Additionally, the NFPA in standard 1201 A-13-5 outlines five additional considerations that should be examined quarterly to bi-annually. The first is again

"identification of high risk locations, victims, behaviors and hazards." Next evaluators should identify community needs and resources. The third consideration is creation of a program designed to attack problems located above. They then recommend training staff, production of materials and inclusion of the target audience in the process. Finally, in order to better evaluate the programs effectiveness they recommend the establishment of baseline data including characteristics gained from surveys tests and fire reports (NFPA, 2000).

The elementary and secondary schools should be the target area for fire prevention and safety education. Many programs exist that utilize community support to educate our youth. It is the fire department's responsibility to convince local school leaders that these programs are warranted (NFPA, 2000).

The first of these programs studied was the NFPA's, "Learn Not to Burn Program." This program teams up the local school system with the fire service to educate children thru the eighth grade. The program was first released in 1979 and focuses on teaching children 22 key fire safety behaviors. Included is a resource series that teaches 14 basic fire safety behaviors over a period of four years (NFPA, 2002). The City of Marquette, Michigan reported no difficulty in convincing the Board of Education and the Teachers Union of the need for this program (Marquette Fire Department, 2002). The program has been used in over 50,000 classrooms and has documented over 500 lives saved over the years (Denali Safety Council, 2002).

The next program examined grew out of the "Learn Not to Burn" Program. "Risk Watch," which became available for purchase in 1998, is also based in the school system. It is the first program that teaches safety while using core subject matter that teachers are already required to teach (NFPA, Riskwatch, 2002). Interwest Applied Research performed a two-year study for the NFPA. The study divided children into two groups.

The first group was exposed to the "Risk Watch Curriculum" while the second group was not. After the second round of tests, the study revealed a substantial increase in safety knowledge in the group exposed to the program. Interwest reported a 9.6 % gain in knowledge compared to a 3.9 % gain found in the group not involved (Paradise, 2002). Risk Watch uses a sequential program building on the current knowledge base of children educating through a positive, non-threatening approach teaching information at the proper time, based on grade level (Delisio, 2001).

The University of Michigan Medical Center is instituting the "Straight Talk Program", in order to fight juvenile arson. Developed by experts at the university, the program focuses on supplying children with the facts associated with fire experimentation, juvenile arson and the truth about burn injuries. "Over half of elementary children admit to experimenting with fire sometime during childhood" (Learning Not to Burn, 2002). The program designed for high-risk children ages 8 to 17 takes the children into the burn unit to teach the results of fire play. Firefighters not only assist with the education but are able to refer identified youth to the program as well. The program also includes a video and boasts a 100 percent non-recidivism rate among the 132 graduates.

The final program investigated was the "Safe at Home" program designed by the Michigan State Police Fire Marshal's Division in cooperation with several other state level fire service organizations. It is a classroom-based program that is administered by fire service personnel. The program is separated into two "sessions". The first is designed for combined classes with 40-60 students and those for individual classrooms with 20-30 students. Firefighters utilize overheads and existing lesson plans to deliver the fire safety messages. The program is a work in progress growing and adapting as

need is identified. The program is available free of charge from the division and covers messages from kindergarten through the six grade (Mohr, 2002).

PROCEDURES

This research project employed evaluative research methods in order to examine the effectiveness of the juvenile education program being delivered in the Niles community. The research project began with the study of several industry related peripherals and books maintained in our departmental library. The researcher sought to establish effective criteria in which to gauge the effectiveness of the program. The local municipal library was also visited to assist with this task.

Principally utilizing the “Hierarchy of Evaluation” model, the researcher developed independent instruments that would gauge effectiveness in each of the six categories.

The first level of the “Hierarchy” model examined was “Institutional Change.” The researcher attempted to gauge the amount of change that could be attributed to the success of this program in two categories. The first category was management’s acceptance of the program. The second category was the acceptance of the NFD rank and file.

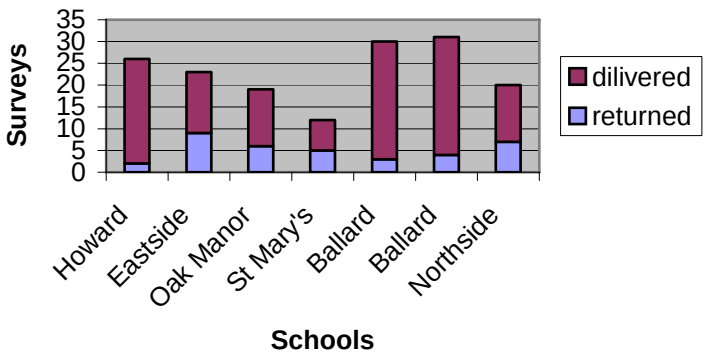
Managements acceptance was gauged through the study of time logs kept on the performance of the program. By examining the amount of hours spent by employees in execution of the program from 1993 to 2002 the research hoped to establish managements willingness to allow their employees to participate. In addition the researcher studied the amount of money spent annually for the performance of this program over the past four years. Finally, the researcher considered additional awards and accommodations distributed to departmental personnel for both the design and the implementation of this program.

The rank and file of the NFD was again gauged through the examination of performance records form 1999 through 2002. These records were studied in attempt to compare trends in the amount of time firefighters spent delivering the program while not being compensated. The researcher felt that this off-duty time would be an accurate gauge of the employee's commitment to the program. This commitment thus would demonstrate their acceptance of its worth.

The "Hierarchy" model discussed by Schaenman and Gunther next looked to examine the opinions of those being served by the program. The researcher chose to distribute a survey to the teachers that were responsible for the daily routine of students (see Appendix A). Teachers that taught special skills to children from several classrooms were excluded due to the assumption that they did not often attend the program. The researcher also wanted to tap the opinions of those individuals that were witness to the immediate reactions of the students upon returning from the show. Surveys were distributed following the October 2002 series to each school office. In all, 98 educators were polled with 36 surveys being returned (see Table 1).

The surveys examined both the educator's acceptance of the gymnasium show and the in-classroom program, independently. Educators were asked to choose a number on a ten scale that represented their opinion of the effectiveness of each program. The instrument was also designed to separate the opinions of the more tenured educators from those that had only watched the program a small number of times. Educators were grouped into 3 divisions. Each division was based on the educators seeing the program 1-3 times, 4-6 times and finally 6 or more times. The results of the survey were also grouped by school affiliation.

Table 1
Surveys delivered / returned



The third level of "Hierarchy" model was to determine the "Extent of Program Outreach." The researcher looked at available records to determine the numbers of children educated each year. Also considered was the amount of education in hours received by each student. The researcher finally examined the delivery method for the education presented.

The "Awareness and Knowledge" of the target audience is the fourth level of the "Hierarchy" model. Research was conducted to establish the most effective way to gauge the retention of the children. After performing extensive research, predominantly Internet based, the researcher felt that a standardized test would be the most effective method to gauge these results (see Appendix B).

This standardized test was developed using the "Learn Not to Burn" resource books published by the National Fire Protection Association as a guide. The tests were hand delivered to each of the three schools by the researcher. They were given to each Principal to distribute at their leisure. Due to the size of the testing instrument and the high cost of printing the children tested was limited. The researcher examined tests from

one class in grades three through six, from each of the three schools. The researcher chose not to test children under the third grade due to a reduced reading ability.

The schools were selected by the amount of hours and type of safety education received by students annually. The first school selected was Oak Manor Elementary. Oak Manor is in the Niles Community School District. Fire education personnel visit this school at three different times annually. These firefighters deliver safety messages using three main approaches. The first approach has firefighters travel from classroom to classroom in two groups made up of one firefighter from each of the two involved agencies. This system allows both crews to remain in service, leaving the opposing agency to complete the program if a call for service is received. These firefighters take 30 minutes per classroom, first showing a grade specific video purchased from one of several sources, then taking the balance of time to reinforce the videos messages. Each grade level is assigned a different video with corresponding handout material selected for both content and age appropriateness.

Next this school receives a gymnasium based program that utilizes an eight foot custom fire truck driven by a firefighter, a puppet, firefighter in uniform, a clown and several other accessory characters in order to hold the children's attention for the duration of the 30 minute show. A modular set, professional sound system and a detail script allow suppression crews from both departments to deliver the needed information for audiences of 500 children at a time. The gymnasium show is delivered twice annually with the first concentrating mainly on fire safety in the fall, and a second script focusing more on personal safety in the spring. The spring show is substituted every third year by a Scotty fire escape trailer demonstration.

Figure 1

The second school selected, Howard Elementary, is also in the Niles Community School District. This school however falls outside the jurisdictional boundaries of both the NFD and NTFD. For this reason fire crews have not been able to spend the length of time required out of district to administer the classroom portion of the program described above. Efforts to include the neighboring all volunteer department in the program have been relatively unsuccessful due to program demands during the time that most firefighters are serving at their full time job. It has been possible however to coordinate enough off-duty personnel to provide the Gymnasium Program to the children there.

Finally, the last school selected was Cassopolis, Michigan's Sam Adams Elementary School. Cassopolis is a neighboring town that was selected because of its similar climate and socio-economic conditions. Though Cassopolis is much smaller than Niles, its students come from an older town mainly made up of houses constructed between the beginning of the last century and the post war boom in the 1950's. A phone interview with Chief William Fitzgerald of the Cassopolis Fire Department was also conducted. This interview was used to establish the amount of safety education provided by his department.

The fifth level of "Hierarchy" model examined not what the target audience knows but what they do with that information. The researcher chose to gauge this level by examining the correct usage of smoke detectors in local rental property. The local building department files were examined to establish any trends in smoke detector inoperability during city based rental inspections. Local ordinance requires that properties offered for "let or hire" be registered with the city and their owner submit to an annual safety inspection.

All 653 inspection reports completed in 2002 were examined for discrepancies that included smoke detector inoperability. It was assumed that if no discrepancy existed, the inspector must have found detectors operational and they alarmed when the test button was depressed. These numbers were then compared with national statistics for smoke detection operation to draw conclusions.

In an attempt to evaluate the actions of younger four, five and six year old children the researcher examined testing used in the school system to identify entry-level students academic abilities. This instrument used a proctor to evaluate each student in place of a student-completed test. The researcher chose to use a similar system to learn the retention of four, five and six year old students (see Appendix C).

This instrument evaluated the physical response each student exhibited when asked what they would do if their clothes caught fire. The instrument also evaluated if, when provided with a push button phone, the student could dial the emergency number correctly without assistance. 46 Children from the Northside Child Development Center were removed from class and polled separately, three months after experiencing both programs. This school was selected because its student population of 300 is made up entirely of four and five and six year old students.

Finally the last level of "Hierarchy" model examines the end results, or statistical analysis of the problem being targeted. The researcher examined NFD run reports from 1992, 1997, 2001 and 2002 in an attempt to gather information on what caused the ignition of fires within the City of Niles. Fires thought to be arson related were not considered as was those fires fought outside the area. These fire occurrences were then grouped into 13 different categories. These categories included furnace maintenance, candle safety, clothes dryer maintenance, careless cooking, electrical maintenance, garage fires, spontaneous heating, smoking, chimney maintenance, children initiated, hot object, weather and finally undetermined. These fires were researched to determine if any change had occurred in this area since the program originated.

The researcher then evaluated several national and state approaches to safety education. The NFPA's Learn Not to Burn, and Risk Watch programs were examined. Primarily Internet research of fire department web sites was performed. A third program, available from the Michigan State Police Fire Marshal's Division, was also examined. This program called "Safe at Home" is available free of charge to Michigan fire departments. Information on this program was gathered primarily in the Michigan Fire Service News as the State Fire Marshal publishes it.

The researcher conducted a personnel interview with Captain Steven Hodgins of the Marquette, Michigan Fire Department (MFD). The interview was conducted at MFD station one on December 27th, 2002. The Marquette Fire Department was identified from an Internet search as a department that had good success with Learn Not to Burn. Marquette, Michigan is similar to the City of Niles, Michigan in square miles, configuration within a township and population. Captain Hodgins was very knowledgeable in the programs offered by their department and was in charge on the morning of my visit.

The researcher asked many questions of Captain Hodgins that related to the effectiveness and operation of the Learn Not to Burn Program. He was also asked about any future plans the department had in maintaining the current program or the implementation of Risk Watch or Safe at Home. Captain Hodgins was asked if numbers of children educated were available or if he had information on the total cost of the implementation of the program. Finally, Captain Hodgins was asked if he knew of any local success stories or if he felt fires had been reduced as result of the program.

Several limitations to the study were experienced. First, the researcher experienced limited data in many areas explored by the study. The target areas limited response volume increases the difficulty of establishment of safety related trends. The researcher, even after many hours of study in the areas of standardized testing, felt unqualified to design and evaluate the testing instrument (see Appendix B). Finally, the ineffective distribution and consequent lack of follow up of the educator surveys, only one third of the districts 98 teachers were polled.

RESULTS

Departmental reports documenting personnel involvement while performing public education duties were examined (see Table 2). The research showed a general increase in the amount of hours spent annually by department personnel. The total time expended from 1993 to 2002 had doubled ranging from a low of 448 hours in 1994 to 1101 hours in 2002.

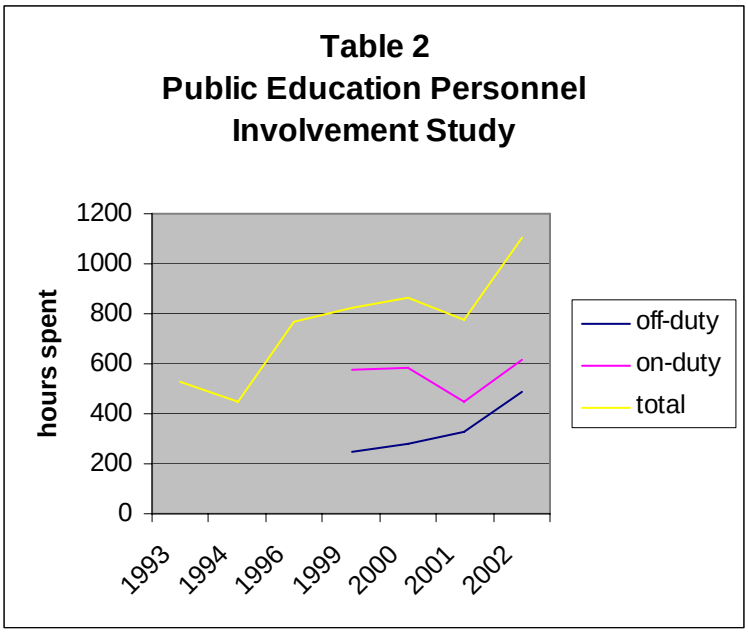
Departmental financial records were examined. The researcher found a gradual increase over the last seven budget cycles in public education funding. In the 1996-97 budgets the line item established to fund community promotion was $1,200. This amounted to and average of 70 cents per student served. This line item increased to $1,500 in the 1997-98 budget and to $2,000 during the 1999-00 budget. This facture

increased to $3,000 dollars the very next year and is currently listed at $3,300, which translates to $1.94 per student.

This portion of the budget was found to be increasing at a higher rate that the general budget over the same years. For example, the 1996-97 fire department budget was $875,600.00. By 2002-03 the fire department budget had increased to $994,844.00. This was an increase of 22.75%. The community promotion line item increased from 1200.00 dollars to 3300.00 dollars, an increase of 157%.

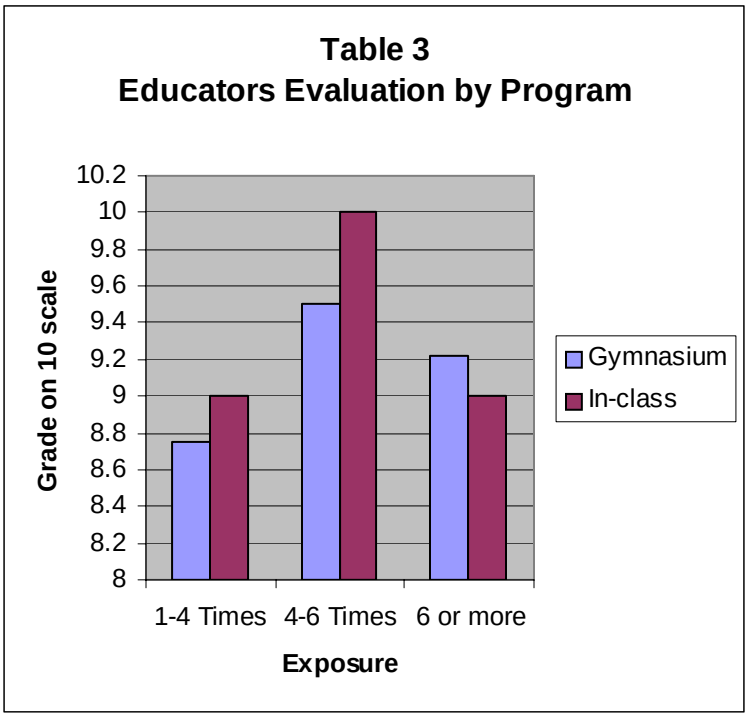
Increases were also discovered in hours expended by firefighters that were not being compensated (off-duty). The department began keeping off-duty hour totals in 1999. Over the past four years these numbers have had the same relative increase as those found in the total hour category over the past 10 years. Over that time off-duty hours have grown from a low of two hundred and fifty hours in 1999 to the 485 hours logged in 2002 (see Table 2).

Additionally, the researcher found that the number of employees donating their time had also increased over the past four years. Records showed that only 14 employees from a total of 30 donated their time during the 1999 season. This is in sharp contrast to the 25 employees that logged time in 2002. This calculates to an average of 17.9 hours and 19.4 respectfully.



A survey was done of the 98 educators in the school system, with 36 of these educators returning the completed questioner. The educators were polled on their opinion as to the effectiveness of the gymnasium program. Educators from Saint Mary's School averaged 9.8 on a scale from 1 to 10 for the gymnasium show. The teachers from Oak Manor gave the lowest score in this category, which still registered an 8.83. The survey also attempted to identify the educator's opinions as to the effectiveness of the In-classroom program. Eastside School delivered the lowest marks for this program at 8.89 while Ballard School registered a 9.75 for the high.

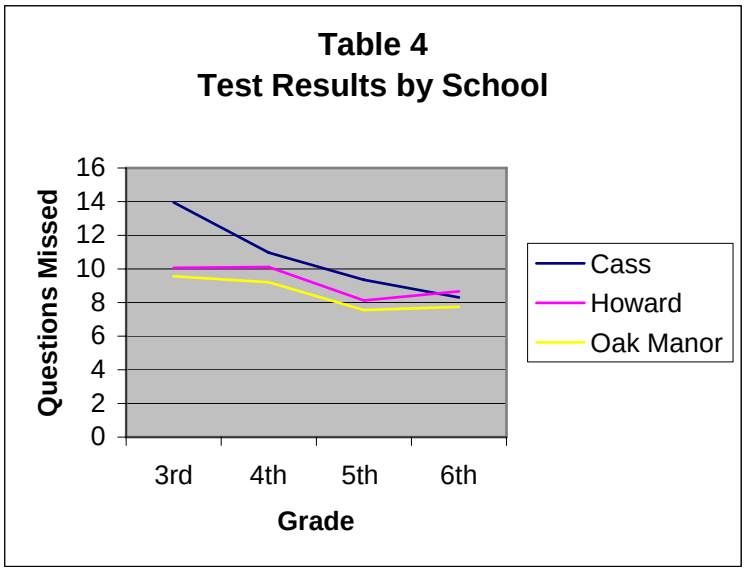
Interesting enough, Eastside, St Mary's and Northside schools preferred the gymnasium program slightly better, while Oak Manor and Ballard schools scored higher marks in the In-classroom program. The teachers that had experienced the programs the most, six or more times, scored higher marks for the gymnasium show. This was contrasted by the teachers that had only seen each program six or fewer times who felt the In-classroom program was more beneficial (see Table 3).



The researcher also learned that the program had won the Berrien County Firefighter's Association Public Educator of the Year Award in 2002 and 2003. The program also received an honorable mention at the Michigan Municipal League's 1994 Achievement Awards Competition. It has received many additional awards and letters from individual schools as well as artwork form children of all ages (see Appendix F& G).

During this time, personnel educated every child in Kindergarten through grade six in both the Brandywine and Niles Community School Systems. Firefighters in 2002, presented their program to 3324 students, 314 were at the preschool level. Each child received a total of 90 minutes annually in three separate installments. Two of theses installments were the gymnasium based "Captain Murph and Poky Show." The first, held during October, utilized a script with a focus on fire safety, while the second, held in the spring, focused on personal safety. The third 30-minute installment utilized an in-classroom approach and was also held in October. Personnel also performed educational

shows at the Niles Apple Festival, which is visited annually by thousand of residents of all ages.



A 31-question test was administered to students in three separate elementary schools, based on education programs received there (see Table 4). Oak Manor Students performed the best on the test with their third graders missing an average on 9.57 questions per test. These numbers improved slightly at the fourth and fifth grade levels to 9.2 and 7.56 questions missed respectfully. There was a small increase noted in the six-grade level of .19. Howard Elementary placed second in the amount of questions missed but never by more that one question over that missed by Oak Manor Students.

Cassopolis Sam Adams Elementary fared the worst in the test. Their third grade students missed an average of 13.95 questions. This however, was remedied the very next year as the scores drastically increased. Missed questions dropped to 10.97 questions or 1.77 questions over those missed by the fourth graders from Oak Manor. The six graders for the school actually scored higher marks than their counterparts at Howard Elementary.

The tests were also evaluated by gender. Females consistently missed less questions that those of their male counterparts in all but the fourth grade. This divergence was also very slight averaging only one question missed either way.

The third grade test was closely examined in order to attempt to identify the reason for the unequal performance between schools (see Appendix B, D). Cassopolis third graders received less than ten correct answers in 11 of the 31 scored questions. Oak Manor and Howard Elementary each scored less than 10 correct answers on six questions. Of the six questions missed, five were missed by all three groups. These questions included question four, five, seven, eight, eighteen and nineteen. These missed questions were related to smoke detection and fire behavior and many of the concepts were not yet offered to children of this age during our In-classroom program.

In an attempt to identify the unexpected success of the Cassopolis students seen in the later years of the study, a phone interview with Chief William Fitzgerald of the Cassopolis Fire Department was conducted on 1-6-03. Chief Fitzgerald reported that his department commonly experiences a lack of personnel available to perform prevention programs. They do perform some programs that require fewer personnel to operate. Examples he gave were poster contests. He stated that his department chooses to focus on younger children in pre-school and Kindergarten, thus visits a second school in the system with more regularity. Sam Adams School had received a visit from a regional prevention program called “Little Squirt” in September of 2002.

The “Little Squirt” Program operates under a private foundation, headquartered in Benton Harbor, Michigan. The program utilizes a miniature fire truck in a gymnasium setting similar to the Niles program. Little Squirt performs hundreds of show annually. This was the first visit by the program in many years.

The Niles Building Department was also asked to assist with the study. In an attempt to identify if the messages being taught were actually being implemented by the target audience the researcher looked to the Cities rental inspection program. These units are often associated with the lowest socioeconomic group, which are often thought to have the most fire occurrences. City inspectors visited 653 rental units in 2002.
Of these inspections, officials found 12 units that required the installation of smoke detectors in the general living areas of the dwelling. Thirteen units required additional detectors in basement areas. Eleven units had detectors in place that were not functional and required replacement. Finally, 21 detectors required new batteries.

With inspectors reporting 57 discrepancies, the combine total accounted for 11.5 percent of the inspections performed. The 12 units that required additional detectors installed in the general living area amounted to 1.84 percent of the total. The 13 units required in the basement areas equaled 1.99 percent of the total. The 11 detectors that were not serviceable and required replacement equaled 1.68 percent of the figure. Finally, the 21 detectors found to need new batteries amounted to 3.2 percent of this figure.

The data analyzed closer revealed that 98 percent of the sample homes have at least one working smoke detector. With 33 detectors not operating properly we could assume that five percent of those homes have smoke detectors that don't work, while two percent of Niles homes require additional coverage.

A poll was conducted at Northside Child Development Center in order to gauge the performance of smaller children. These children had only experienced the program a minimal number of times. Children were asked to perform two physical tasks.

First, the children were asked, "What would you do if your clothes caught on fire?" The children were expected to correctly demonstrate the "Stop, Drop and Roll"

maneuver. Children were considered correct even if they did not cover their face with their hands. One hundred percent of the 4 year old male children performed this task successfully, while 88 percent of the female children were successful. Next, the fifth grade reversed with the female children scoring 80 percent to the males 64 percent. The six grade found the male children back to a 75 percent success rate with the females scoring right in only 56 percent of the time.

The second action required was physically calling 911 on a touch-tone phone. The children were asked, "What number could you call if you needed a police officer, firefighter or an ambulance?" They were expected to depress a nine then a one then a second one to receive a correct answer. The four year olds scored a low 20 percent rate for both genders. Many children at this age level had the correct numbers reversed. The five-year-old males surpassed all ages in this exercise scoring 81percent while their female counterparts scored 20 percent. The six year olds scores were very close between genders with the males scoring 62 percent and the females scoring 55 percent correct.

To determine the six and finally level of the "Hierarchy" model, activity reports were studied from 1992, 1997 and again in 2002 in an attempt to learn if there have been any changes in residential structure fire occurrence (see Appendix E). The research found that the NFD responded to 25 fires of this classification in 1992. Of these fires, in no cases were children linked to ignition. This category was filed by three cases of children initiated fires in 1997. In this year 27 fires were reported. There were no cases of this fire cause in 2001 however one year later in 2002 fire investigators report six of these incidents from a total volume of 21calls.

Over the same period the researcher noticed a small decrease in the amount of fire responses in this area. Excluding arson fires and mutual aid responses firefighters responded to an average of 22.25 calls per year. In 2001, the 16 calls amounted to 3.75

calls below average. Though not as dramatic, 2002 calls were 1.25 calls below average as well.

The NFD has experienced three deaths from fire in the last decade. The first came when an 18-year-old male perished from smoke initiation. He was overcome when he left a pan on the stove and fell asleep in the living room. The second came when a 45-year-old male, who had reportedly left home due to an argument with his wife, was spending the night in a local commercial recycling center where he worked. It was thought that man set a warming fire in a barrel that spread causing a large commercial fire. His body was located several days later in the ruble. Witnesses stated that the man was seen purchasing alcohol at a local party store only hours before the fire started. The final victim was an abduction victim that was found in the trunk of his car. The car was found still burning near a local golf course.

Since the programs inception the jurisdiction has not experienced a single juvenile death from fire. The program is credited with saving several lives as a result of their messages. The researcher found examples of five such incidents where the children executed the programs message to save lives or injury. One Child was six years old when he called 911 to save the life of his mother who was suffering from an aneurysm (see Appendix H). The researcher found one report of a child telling his friend how to stop, drop and roll after his cloths were ignited by proximity to a burning barrel. Finally, reports of a child using the stranger abduction rules taught were credited with the child's safe return home.

The researcher also studied several commercially available education curriculums. The first, "Learn not to Burn" which is available from the NFPA, costs 93 dollars for the set from kindergarten through the eighth grade. The Next program called "Risk Watch" also available through the NFPA has a higher set price of 265 dollars. The

last program evaluated was the “Safe at Home Program” available from the Michigan State Police Fire Marshals Division at no cost.

The Learn Not to Burn Program uses a community approach to educating children about fires. Not only are firefighters used to teach the messages by local teachers participate on the majority of the lessons used to teach the 22 key fire safety behaviors. The Risk Watch Program also uses teachers to educate children in not only fire safety but injury avoidance as well. This program also integrates the messages taught in a format that considers the required academic curriculum at the same time. This is a selling point to educators that already experience pressure in preparing children to ever increasing standards. Finally, the Safe at home program utilizes firefighters to lead the bulk of the lessons. The cover a host of fire related topics using detailed lesson plans and slides.

An interview was conducted with Captain Hodgins of the Marquette Fire Department. Captain Hodgins department had operated the Learn Not to Burn Program for 8 years. The program was administered in the third through the fifth grades annually. The department assigned one firefighter to serve as the instructor and another firefighters to serve as an instructor assistant. Firefighters were compensated at one and one half their normal pay for their time. Captain Hodgins reported a “definite decrease in calls” in general jurisdiction wide however could not specifically link the results to this single program.

Captain Hodgins pointed out that the Department had plans to drop the LNTB curriculum in the fall in favor of the Safe at home Program. This change was instituted mainly to the departments identification that many of the teachers had expressed time constrains caused by teaching the program. He said that it was the department’s goal to alleviate this concern by moving to the Safe at home curriculum, which utilizes

firefighters to perform the lessons. Captain Hodgins also pointed out that his departments Chief, Tom Belt was involved with the Safe at Home Programs Design.

DISCUSSION

The study brought to life a very important trend in the modern fire service. The gradual identification that status quos is not and acceptable end. The child burning out their family home is no longer acceptable. The teenager found dead of smoke inhalation at the nailed shut windowsill of his single story home are no longer acceptable. But the real paradigm shift has come from the realization of fire service leadership, that they have not only the capability to perform but also the duty to prevent these events from happening in the first place.

It was evident that this trend got its beginnings in 1973 with "America Burning." It was this document that identified what tragedies firefighters already knew to the rest of the world. In gave precedence and justification so progressive chief officers could design the programs that we study today. It was this document that highlighted the disparity between suppression and prevention and the need for change. It was also the first document that really challenged to find the root of the problem and placed blame not only on those in the fire service but the public as well.

This researcher agrees with both the Commission and Colleen Mohr on this issue. The Commission first printed that fire was caused by the "careless actions of people, largely through the lack of concern and ignorance of hazards" (National Commission on Fire Prevention and Control, 1973). This year, after a close examination of the leading ignition factors of smoking, cooking and children and the long understanding of the existence of these problems, Mohr comes to the conclusion that " Ignorance and indifference" are still alive and well (Mohr, 2002). Mohr went farther to suggest that our

efforts have still not gotten to the real core of fire safety education – teaching people how to prevent fires (Mohr, 2002).

In order to understand if the NFD program was working the researcher looked to establish an acceptable means in which to judge that performance. The more standardized the approach the more portable the results. The research identified many approaches to the problem recognition side of education. Many experts identify the importance of understanding the root cause of the problem. Nachbar states that with every new program developed there is a need to go through and identification process to define exactly your local fire problem. Robertson also expanded to include the identification of high-risk locations or segments of populations (Robertson, 1989).

Though the information on the problem was important in the evaluation of the program in the study, it was not enough to base the project on. First, the program that was being evaluated had been in existence for over a decade. Secondly, the population being studied was very small with limited history of systematic incident reporting, making it difficult to identify quantifiable trends in response. Finally, determination of programs designed to change the behavior of individuals in their place of residence, performing tasks that they may never be forced to do, are hard to evaluate.

Schaenman and Gunther identify this need by stating, “Ideally, a program should prove that it caused the desired end impacts,” or in this case reduced the loss of life and injuries from fire (Schaenman and Gunther, 1997). In performing this survey it becomes important to utilize the most reliable gauges available. This lead the research toward the inclusion of the teams “Hierarchy of Evaluation” model as the framework of the study. This allowed the researcher to evaluate the available information and present the findings in an order that took into account its importance on the evaluation process.

With this model as a guide, the research began by evaluating the least effective determining factor available, “Institutional Change.” The result of the research was overwhelming in support of the program. Firefighters in all levels of the organization have demonstrated this fact by their increased on and off-duty activity levels. The off-duty time is more reflective of this support because the employee makes the decision to be there.

Upper level management also reflected this support. Not only were these individuals shown to be active in performance of the program, but in monetary allocation as well. The budget increase, though small in comparison to other lines in the budget, was quite significant in the scope of the department. Though the 2,500 dollars spent on education materials does not reflect an increase in the five percent figure first identified by the writers of “America Burning” in 1973, other items must be considered with this figure to get a true picture of the department’s commitment to prevention.

First, you have to look at the NFD prevention program in its entirety. Three firefighters are assigned to prevention daily, working 8 of their 24-hour shift with the Fire Marshal. Each inspector works one third of their day in prevention and takes home $39,040.17 in base salary. The Fire Marshal commands a salary of over 50,000 dollars, annually. This number increases again when one considers the time, both on and off duty, that other Niles firefighters invest performing education programs. The 1101 hours at the lowest pay grade would command $13.90 per hour or $15,303.90 in personnel costs. The grand total invested in public education equals well over 10 percent of the annual fire department budget or twice what the number was in 1973.

The next level evaluated was the “Likeableness and Usage” of the program. This level too, showed very favorable results. The teacher surveys returned showed scores with averages near 9 on a 10 scale in teacher support. The few teachers that had seen the

program only a few times seemed to like the classroom approach better than the gymnasium approach. Slightly lower scores were also received from these low tenured teachers. It was the opinion of the author that these younger teachers will have increased expectations of the programs methods and results than those teachers that have taught since the programs origination.

The researcher was also disappointed by the failure of some teachers to respond to the evaluation. In talking to one teacher that did not return the form she stated that she intended to but had forgot and thought the time to respond had expired. The return would have more would have been more effective with additional follow-up on the evaluation.

The next area examined was the "Extent of the Programs Outreach". This was a hard area to examine against a benchmark. The program has maintained the same audience since inception. The amount of energy expended has been spread from a core group to a larger unit over the years. This provides more security against the members becoming jaded causing an end to the program. With 100% of children in the Kindergarten through the six grade receiving 90 minutes of education over three visits annually the program dwarfs the other programs in the area. These numbers can, however, be jaded when compared to those programs that incorporate teachers on a daily basis.

The interview with Captain Hodgins raised some concerns that with the pressures that teachers face to meet standardized testing requirements. Can they be expected to have the time or the desire to properly deliver the program? If we utilize a teacher-based curriculum can we expect the children to view that message with as much esteem as when uniformed firefighters present it? It is the view of the author that a combination of the two methods would be the best platform.

The next “Hierarchy” level explored was the “Awareness and Knowledge” of the target audience. A test was developed and administered in order to draw conclusions of program effectiveness between the children that received no program and those that received safety education. In the end it was discovered that the children identified as not receiving education had indeed been educated by a secondary source unknown to the researcher only months before the evaluation.

The numbers still seemed to show an increase in the amount of general safety knowledge known by Niles students compared to Cassopolis students. This fact was most evident in the earliest grade polled. When the third grade scores were more closely evaluated it reviled that five questions were missed by a large percentage of all the schools. A Niles teachers surveys revealed that one of these questions gave the children only the option of changing their detector batteries only annually and not the six-month intervals that they wanted. This caused these students to err on the side of safety and select weekly.

The fifth level of the model is the “Behavior or the Environment.” The jurisdictions rental inspection program generated the example used to evaluate this category. The researcher examined records of rental inspections for violations relating to smoke detectors. Though argument could be generated the true reason the detectors are in place is from the existence of the inspection program itself, the researcher hoped to show an increase in the proper use of the units could be traced back to the program. It was the feeling of the researcher that children, after attending the program, would consult with parents about checking them. The study found very high levels of smoke detectors found in proper operational levels.

The attempt to evaluate children performing physical tasks was very interesting. The difference in children’s learning ability was very evident even in the short duration

of this study. Many of the children had no problem completing one or both of the tasks with confidence. Several children knew what to do but lacked the confidence to answer. For example, one child when first asked what he should do if his clothes caught on fire, didn't know the answer and received a did not execute score. After quizzing him on stop, drop and roll he remembered and executed the maneuver flawlessly. The author drew the conclusion, that an additional review is required between visits to increase the execution at this age level.

Though, one would hope for 100 percent in each age group most of the numbers remained positive. More work must be done to increase the retention of 4 and 5 year olds in relation with 911. This is arguable one of the most important abilities that we can give our youngest children. The ability to get help has proven time and time again to be a real need in modern day society. Increased scripting and props should be designed to attack this issued.

Finally, the last level hoped to evaluate the end results. Could the study reveal the success or failure of the program in meeting its goal? Response records found, if anything, an increase in child related causes. The total runs had decreased at the same time. It was difficult to find any valuable information in the low numbers of incidents evaluated. Additionally, due to changes in reporting systems fires reported in later years may not have qualified under the structure fire designation. Additionally, fire setters may have went unreported in earlier years that were now being reported to the department.

The author also examined the past performance of the program. The several reported cases of children using program knowledge to prevent injury are the most important indicator of all. These cases prove that the program is working. With the first report coming in 1993 and the last in 2000 the program continues to be a benefit to the community.

The author studied several commercially available programs on the market today. Also examined was the State of Michigan's "Safe at Home" Program. An interview was also conducted with a user of the LNTB program that plans to switch to the Michigan Program. With the history of the successful relationship between the local teachers and the fire department the consultation of all involved would be warranted. There is little doubt that all if executed as directed increase the retention of the children. There also no doubt that the expansion of the curriculum to a nationally or state recognized program would increase the ability of future evaluation processes. This could possible spread the burden of children safety to everyone involved increasing expectation of performance.

There is little doubt that the need for programs to display effectiveness is going to continue to be a part of doing business. Not only what is produced by how the program is funded. Fire service educators should maintain a continual effort to identify community needs and possible resources (NFPA 2000). The burden on prevention, whether it utilizes a fire service based or a community based approach to education, firmly rests on the shoulders of the fire service.

RECOMMENDATIONS

Increased data

This project would have been much more effective if statistical analysis of the target audience prior to the programs initiation would have been available. Concurrently. The NFD and NTFD should develop a program of pre and post testing that could over the long term be used to establish trends in program effectiveness. Even though the NFD has taken part in Michigan Fire Incident Reporting System (MFIRS) and now the National Fire Incident Reporting System (NFIRS) for many years this research was slowed by ineffective dissemination systems. Continual progress needs to be made allowing all fields to be queried from web-based platforms.

Standardized testing

The state of Michigan, as do many other states, requires standardized academic testing in their schools. Schools that do not comply or perform poorly on these tests risk reductions in state revenue and loss of accreditation. Though, controversy around the design and the interpretation of the results of these tests is being presented they remain one of the only ways of attempting to garner the effectiveness of the programs being presented. The findings of this study have only a slight interest to other departments because of the non-accredited nature of the testing element.

It would be quite beneficial if the fire service were to establish a standardized test designed by experts in education and evaluation that could be made available to educators across the country. These tests would evaluate the effectiveness of each jurisdictions approach to the fire problem and allow a benchmark for agencies to strive for. This standardized test could be tied to the Insurance Services Office (ISO) evaluation process allowing safer areas to receive reductions in rates.

Program analysis

The research seemed to point to a reduction in progression in both the fifth and six grade levels. In the standardized testing Cassopolis third Grade boys missed an average of 14.91 of the 31 questions, while the Oak Manor boys in the same grade level missed and average of 9.75 questions. This gap had closed to within a half of a question by the six grade. These age groups are not as effected by the mystique of firefighters and the methods of education used at earlier ages. Additional study is warranted to identify new approaches in order to increase the effectiveness in these age groups.

These results were however slightly skued by the program offered in September by the little Squirt Program. In an interview with the Cassopolis Fire Chief revealed the traveling program had performed only two months prior to the testing performed by the

researcher. With the other test subjects taking the test eleven months after they received fire safety education, their superior results only increased the validity of the Niles Program. This fact was especially true in the third grade classes polled where Cassopolis students missed.

The close examination of fire incidents revealed a large amount of incidents that were the result of careless cooking practices. This seemed to shadow numbers found nationally. The research would seem to recommend that more focus at community events festivals along with in-classroom programs in the fifth and six grade levels should include more kitchen safety messages.

The research also reviled several programs that are available to be used by teachers wishing to teach fire safety. When results from the teacher survey are examined it is apparent that the program has great support of our local teachers. The NFD should look to capitalize on this support and look to develop a teacher based program that educates children in fire safety while it teaches more mainstream subjects like math, English and science.

Educating our educators

The research also reviled the programs ineffectiveness in educating the teachers in the total curriculum being presented. Several teachers reviled a concern that the children were watching the same video during the classroom presentation year after year. This phenomenon is of course caused by the teachers remaining at the same grade level year after year while the students move from grade level to grade level. The NFD should develop and distribute, at a minimum, a brochure that discussed the multiple approaches used and the various safety messages delivered by those approaches to the staff and teachers at the schools they service. This brochure should also include feedback mechanism so that teachers can provide input on new trends in education, the

effectiveness of delivery systems and any safety messages that they have identified as needed locally. Teachers can also act as a conduit for possible funding sources.

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Appendix A

Niles City and Township Fire Departments
Public Safety Education Program

Comment Form

Name (optional) _____

Grade Taught: []K []1 []2 []3 []4 []5 []6

School [] Ballard []Eastside []Oak Manor []Howard []Merritt
[]Brandywine []St Mary's []Seventh Day [] Northside

Years in present school system []1-5 []6-10 []11-15 []20+

Have you attended the fire departments Captain Murph and Poky Show? [] No [] Yes
If yes how approximately how many times? [] 1-3 [] 4-6 [] 6 or more.

How effective do your feel the Captain Murph & Poky Show is? 1 2 3 4 5 6 7 8 9 10

Have you had fire department personnel visit your classroom? [] No [] Yes
If yes how approximately how many times? [] 1-3 [] 4-6 [] 6 or more.

How effective do you feel the classroom visits are? 1 2 3 4 5 6 7 8 9 10

How do you feel we could educate the students more effectively?

What additional safety messages do you feel we should cover?

How do you feel about the regularity of our visits? (Too much or not enough)

Please include and additional comments that you may have.

Appendix B

Niles City and Township Fire Departments
Public Education pre-test

(Please color in the box that best describes you)
Students Age []8 []9 []10 []11 []12 [] other_____
Students Grade Level [] 3 [] 4 [] 5 [] 6
Student [] Boy [] Girl
Students School [] Ballard []Eastside []Oak Manor []Howard []Merritt []Brandywine []St Mary's []Seventh Day [] Northside

Has the student been at this school since kindergarten?
[] Yes [] No (if no answer # 6)

Was the former school in the Niles or Brandywine school systems?
[] Yes [] No (if yes which one _____)

Please answer the following questions to the best of your ability. Please answer the questions seriously. You may have not been presented with this information depending on what grade level you are in.

1. Your camping and you run to close to a camp fire and you pant leg starts on fire, what is the first thing that you should do?
Drop
Stop
Roll
Cover your face with your hands.

2. Your little brother was using matches and his shirt is on fire, he drops on the ground what should he do next to put out the fire?
   A. Drop
   B. Stop
   C. Roll
   D. Cover his face with your hands.

3. What does a smoke detector do for us when we have a fire in our homes?
   A. Call the fire department
   B. See Fire
   C. Smell Smoke
   D. Wake up our neighbors

4. What are the two basic types of ***sensing*** technology of smoke detectors sold in stores today?
   A. Ionization and Photo Electric
   B. Battery and Electric
   C. Ceiling detectors and Wall detectors
   D. All of the above.

5. If a smoke detector falls off the wall and strikes the floor ***hard*** what should we do?
   A. Get a new detector
   B. Change the battery
   C. Reinstall with new screws
   D. Test the detector and reinstall

6. How often should my smoke detector be checked by pushing the test button?
   A. Every day
   B. Every week
   C. Every month
   D. Every year

7. How often should I take my old smoke detector batteries out and put new ones in.
   A. Every day
   B. Every week
   C. Every month
   D. Every year

8. How long will my smoke detector work before I should get a new one?
   A. One month
   B. One year
   C. As long as the test button beeps
   D. Ten years

9. I should sleep with my bedroom door in what position?
   A. Open
   B. Closed
   C. Makes no difference
   D. Slightly open

10. In order to get better air in a smoky room, I should??
   A. Run fast
   B. Hide under my bed
   C. Crawl on my hands and knees
   D. Wait for a firefighter.

11. After rolling out of bed when my smoke detector goes off I should do what before opening the bedroom door?
   A. Feel the door to see if it's hot.
   B. Open the window and yell for help
   C. Stop, Drop and Roll.
   D. Call 911.

12. If I see fire or lots of smoke in the hallway I should return to my room, close the door and.?
    A. Wait for the fire department.
    B. Call 911
    C. Wait in the closet for help.
    D. Go to the second exit.

13. After I get out of my house if it is on fire I should never go back in I should go where.
    A. Inside the garage.
    B. The back yard.
    C. The nearest fire hydrant.
    D. Our special Meeting Place.

14. When leaving a house that's on fire I should take what things with me?
    A. School books
    B. Pets
    C. Favorite toy
    D. Nothing

15. How many buttons do I have to push on my phone to dial the emergency number?
    A. 1
    B. 3
    C. 7
    D. 10

16. I should only call 911 when I have a?
    A. Fire
    B. Any Emergency
    C. Argument with my sister.
    D. Just to practice.

17. How much time do I have to get out of a fire after my smoke detector goes off?
    A. 1-2 minutes
    B. 5 minutes
    C. 10 minutes
    D. 1 hour

18. What chemical is in smoke that makes us sleepy?
    A. Nitrogen
    B. Carbon Dioxide
    C. Smoke
    D. Carbon Monoxide

19. Fire can be broken down into three basic components.
    A. Heat, Fuel and Oxygen
    B. Fire, smoke and Fuel

C. Orange, Blue and Yellow Fire
D. Large, Medium and Small Fires

20. If children are walking through the house and find matches or a lighter they should?
A. Pick them up
B. Ask a grown up to pick them up
C. Leave them there without telling anyone
D. See if they work.

21. If a stranger approaches you at a bus stop that makes you feel uncomfortable you should?
A. Do everything the stranger says.
B. Keep a safe distance even if it means running to a neighbor's house.
C. Never raise your voice.
D. Avoid looking at the person and hope they go away.

22. When riding my bike I should.
A. Wear a helmet.
B. Ride my bike through major intersections.
C. Use hand signals only when riding with others.
D. All of the above.

23. Where do you feel that you learned most of your safety knowledge?
A. Parents.
B. School Programs.
C. The Poky Show.
D. The Firefighters visits to the classroom with movies.
E. TV commercials.
F. TV Shows.
G. Other _____

(Fill in the blank)

24. A _____ wakes us up in the middle of the night if we have a fire in our house?

25. Hard Wired Electric and _____ are the power sources found in most smoke detectors?

26. "Crawl low in smoke" is used when?
A. When your clothes catch on fire
B. When you are in a smoke filled room
C. When calling 911
D. Your outside.

27. Stop, _____ and Roll.

28. After I escape the fire my whole family goes to our _____ _____ _____.

29. I push a ___ then a _1__, then another ____, on my phone if I need a Fireman a Policeman or an Ambulance.

30. What type of material would be burning if you had a class A fire?
    A. Wood and paper.
    B. Gasoline.
    C. Toaster that you were using.
    D. Metal shavings.

31. How far should a space heater be from a couch or a chair?
    A. 1 foot
    B. 2 Feet
    C. 3 Feet
    D. Not touching

32. Smoke detectors should be installed where?
    A. Basement
    B. First floor
    C. Outside bedroom
    D. All of the above.

Appendix C

City of Niles Fire Department - Public Education - Niles Township Fire Department

This is a skills survey designed to identify if the students can execute desired safety techniques. Please follow the script exactly without deviation. A child that tries to explain to the proctor the action should be asked to do what they think is right. Do not assist the students in any way. After a student that is allotted reasonable time does not correctly execute the skill the proctor may show the child the correct skill being sought.

Introduce yourself to the student " Hello, my name is firefighter _____."

What is your name? Boy [] Girl []

What grade are you in? Pre-K [] K[] 1 [] 2[] 3[]

Can you show me what you would do if your clothes catch on fire?

Student performed correctly []
Student did not perform correctly []

Can you show me how to call for a police office, firefighter or an ambulance?

Student performed correctly []
Student did not perform correctly []

Appendix D

	Cass	***Howard***	***Oak Manor***
Students	21	26	23
1	**9**	13	19
2	20	22	23
3	11	23	20
4	**0**	**0**	**0**
5	**3**	6	**7**
6	10	20	18
7	**4**	15	**9**
8	**1**	**8**	**3**
9	**2**	18	19
10	19	19	23
11	17	24	22
12	13	22	22
13	14	12	22
14	13	21	21
15	20	26	23
16	11	13	23
17	10	13	17
18	**9**	**6**	**5**
19	**6**	**2**	**5**
20	18	20	22
21	15	23	21
22	16	24	22
23	evaluative		
24	12	21	20
25	**6**	20	16
26	18	16	22
27	21	24	23
28	13	26	22
29	17	23	23
30	**9**	13	12
31	**5**	**9**	10
32	12	20	23

Appendix E

NILES COMMUNITY SCHOOLS

BALLARD SCHOOL

1601 Chicago Road Niles, Michigan 49120 (616) 683-5900

October 18, 1993

Mr. Larry Lamb
Niles Fire Department
4 South 3rd Street
Niles, MI 49120

Dear Mr. Lamb:

The Captain Murphy and Pokey show was outstanding. The presentation was entertaining without being silly. I had positive comments from teachers of younger and older students, saying that the students enjoyed the presentation. It is difficult to entertain sixth grade students at times, but you did. Teachers enjoyed the presentation and I liked it too.

I was impressed with the organization, the well developed script and that the two departments worked together. I know this sort of project requires a significant effort, a lot of hard work and a commitment of time.

Thank you again for the presentation. Children will survive potentially catastrophic events in their lives and you will never hear about it, but I know your hard work will make a difference.

Sincerely,

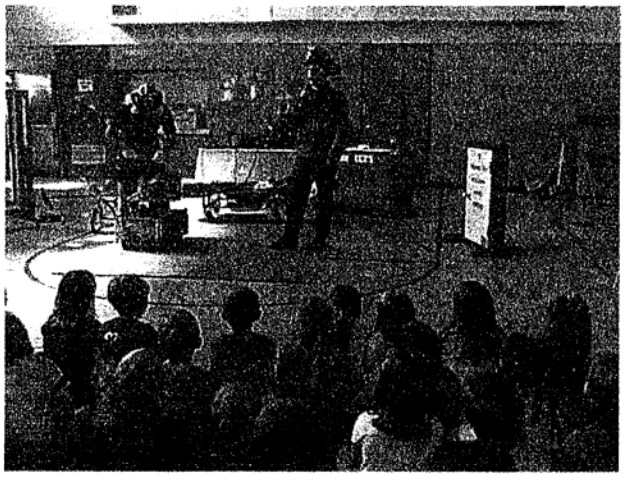
Steven A. Barber,
Assistant Principal

SAB/jlb

Appendix F

Brandywine Public Schools

Office of the Superintendent
Merritt Education Center
1620 La Salle Avenue
Niles, Michigan 49120
(616) 684-7150



May 21, 1999

Niles Township Fire Department
Bell Road
Niles, MI 49120

Greetings,

I just wanted to say that after 30 plus years at Brandywine, I am still impressed with the effort you put forth for all our Brandywine students. The programs are nicely paced and professionally done. The messages are always appropriate.

Thanks for all you do.

Martha Shreve

Martha Shreve, Teacher

Appendix G

☆ Young hero

6-14-99

Ricky Roach, 6, sits by his mom, Kathy, Friday in their Niles home. Ricky, an Oak Manor kindergartner, was honored Wednesday at a ceremony in the school's gymnasium for acting fast and dialing 911 after his mother had a blackout from an aneurism. Rick Roach, Ricky's father, was at work when the ordeal occurred. Ricky had heard about dialing 911 from TV commercials and from presentations made by Niles firemen at Oak Manor. "We're lucky, now he refuses to leave her (Kathy) home alone," Rick said. (Daily Star photo by Elizabeth Conley)