Evaluating an Effective Fire Prevention Program for the Ross Township Fire

Department and Ross Local School District

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A proposed research project submitted to the Ohio Fire Executive Program

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CERTIFICATION STATEMENT

I hereby certify that the following statements are true:

1. This paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

2. I have affirmed the use of proper spelling and grammar in this document by using the spell and grammar check functions of a word processing software program and correcting the errors as suggested by the program.

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ABSTRACT

After providing fire prevention programs for Ross Township Fire Department for over 20 years, it is time to evaluate the effectiveness and consistency of our program delivery. With an increase in call volume, reduction in staff (volunteers), and the rare occasion of short staffing, many of the scheduled fire prevention programs are being cut short or not being completed at all. This leaves many children with no fire safety lesson for the year.

Numerous texts and articles pertaining to fire prevention and education were reviewed during the writing of this research project. Much of the information and recommendations mentioned in the articles will help to ensure consistency and further reinforce the safety messages that Ross Township Fire Department is presenting to the students. In addition, the addition of three career firefighter/paramedics (the first career personnel for Ross Township Fire) during the course of this project will tremendously help improve the program delivery.

Surveys were created and disseminated to the teachers at Elda Elementary school, Butler and Hamilton County Fire Departments, and Ross Township Firefighters who deliver the programs. Insight was sought on how to improve the program delivery to better serve the customers and to ensure the message is consistent across the board. In talking with teachers, coworkers, and community members, it seems that Ross Township Fire Department is doing a good job of fire prevention; but how can the programs be improved?

Several recommendations have been developed on how to ensure consistent, educational programs with a positive message are delivered to the students. These recommendations include shortening the program, developing a pre- and post-test to evaluate the program, writing a

"script" for each class to ensure consistency, and using an outside agency to help with the program delivery.

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INTRODUCTION

Statement of the Problem

Fire prevention and safety education are two of the most important aspects, and often the most overlooked part of a fire department's job. Over the past decade, Ross Township Fire Department has built a strong relationship with the community in part due to the fire prevention and safety programs we offer. Looking back over the last three years, Ross Township Fire Department has taught approximately 3,000 children the importance of fire safety. Even though the main focus is on Elda Elementary School, which has approximately 700 children in kindergarten through fourth grade, programs are also given to various other organizations including church groups, day cares, Boy Scout and Girl Scout groups.

While all of Ross Township Fire Department's fire prevention and education efforts have always been well received by the community, the problem lies with the consistency of program delivery and safety message presented to the students. Currently each class of students receives the same "lecture" which includes all of the topics mentioned previously. With multiple topics being presented to each class, the presenters often skip or forget to discuss one particular topic or another. This leaves the students missing out on potentially life-saving lessons. Is Ross Township consistent in its delivery of fire prevention and education programs? Is the message being adequately conveyed to the students?

Purpose of the Study

The purpose of this study was to determine if the fire prevention programs that are being conducted by the Ross Township Fire Department are consistent and the lessons the students are learning are adequately reinforced. Several areas will be studied in trying to improve the delivery model that is currently being used by Ross Township. The Boy Scouts use the motto "Be Prepared", which means that they are always in a state of readiness in mind and body to do their duty. Similarly, firefighters use this same motto at the beginning of each shift as they ensure their equipment is ready for use at a moment's notice. Shouldn't they also be confident to educate the public how to "be prepared" in the event of a fire or other emergency in their home? The other purpose of this study is to determine if the students are retaining the lessons that they are taught, by using quizzes, tests, hands-on activities, multiple visits to the school each year, or a combination of all.

Research Questions

The following questions will be answered by this descriptive and evaluative research:

1. Is the message being conveyed to the children consistent for each program that is given for each age group? In other words, is one first grade class being taught the same information as all of the other first grade classes?

2. After the fire prevention programs are delivered, are the kids retaining the information they learned or, is it immediately forgotten once they go back to class? Maybe a short quiz needs developed to gauge how much information is retained.

3. Are the personnel that present the programs comfortable with delivering a fire prevention program or message? Would a "script" help the personnel stay on track with the programs and help them deliver a consistent program and message each time for each age group/grade level?

BACKGROUND AND SIGNIFICANCE

Ross Township Fire Department is located in the south central portion of Butler County. Ross is a part-paid department that covers the southern end of the township. The part-time staff provides fire protection and paramedic EMS service twenty-four hours a day, seven days a week. There are still a few volunteers that respond for larger incidents such as structure fires and auto accidents. The Ross Township trustees contract Fire and EMS service to the Village of Millville for fire and EMS services to the northern end of Ross Township for a monetary sum. Ross Township is a rapidly growing community with housing developments springing up in the northern and southern areas of the township.

Over the last three years, Ross Township Fire Department has taught approximately 3,000 children the importance of fire safety. The main focus of the fire prevention programs is Elda Elementary School, which has approximately 700 children in kindergarten through fourth grade. During Fire Prevention Month, October, the on-duty crew conducts two prevention programs each day for two and a half weeks. These programs cover topics such as "Stop, Drop, and Roll", "Know Two Ways Out", and how to dial 911 for an emergency. The programs initially were taught in the classroom with the firefighter "lecturing" to the children. Thanks to a FEMA grant in 2008 the department was able to obtain a Fire Safety Trailer. The safety trailer allowed for a more interactive program by allowing the kids to practice the concepts they were taught, such as how to crawl under smoke, feeling the door for heat, and how to properly dial 911 for an emergency.

During informal discussions with firefighters, teachers, and parents, the concern was mentioned that there is no consistency in program delivery or message that is being taught by the fire department. This fact causes concern that each student may only be receiving part of the message, or may not be learning certain aspects of fire safety that could potentially save their life.

LITERATURE REVIEW

The educational message that the fire safety educator uses is one of the most important tools that can be used, according to Grant and Eksteen's (2008) section entitled *Fire and Life Safety Education Messages* in the Fire Protection Handbook. Part of this paper will address whether or not Ross Township Fire Department is delivering the "right" message to the audiences that we deliver programs to. Grant and Eksteen's section further describes the communication process which includes the sender, the receiver, the message, the medium, barriers to communication, and feedback. This paper will also touch on that entire communication process.

"Among the many measures that can be taken to reduce fire losses, perhaps none is more important than educating people about fire" (1973), according to the United States Fire Administration's publication *America Burning*. Ross Township's philosophy on public education echoes that statement in believing one of the most important aspects of a firefighter's job is to educate their customers on how to be fire safe residents.

International City/County Management Association's publication *Managing Fire and Emergency Services* features a chapter written by Jim Crawford entitled "Comprehensive Prevention Programs". In this chapter, Crawford states that "comprehensive prevention efforts are made more challenging by a number of factors: a shortage of resources, cultural biases, an increase in the size and cultural diversity of the population served, and an increase in potentially hazardous new technologies" (2012). Ross Township has experienced two of these factors in the last ten years: a shortage of resources, and an increase in population served. Another factor Ross Township has experienced which affects the delivery of our prevention programs is an increase of calls for service. The prevention programs are delivered by the duty crews which are often called away for emergency details in the middle of the program. This leaves several classes of students that do not receive the safety message or only part of the message.

During initial research, several articles were located pertaining to evaluation of public education programs concerning fire prevention, though most, if not all authors from the works cited agree that prevention is a key component of the fire service's job. In a December 2015 article in *Fire Engineering*, Joseph Sirianni discusses a 2007 study that was done that compared the frequency of fires in the United States and that of fires in other countries. Despite smoke detectors and stringent fire codes, the United States was well behind the rest of the world in terms of fire safety. Sirianni further states that "schools in the United States are not teaching students enough about fire safety" and that a "once-a-year visit is not enough time for children to remember these lessons" (2015). Sirianni's observation about a once per year visit to the school by the fire department is precisely what this paper hopes to address. Is Ross Township providing enough fire prevention education to the students in the Ross Local School District, or does the program need to be expanded to several short visits to the classroom by the fire department each school year?

An article in *Teaching K-8* magazine entitled "How Do We Teach Them If We Don't Know How They Learn?" author Rita Dunn states that "most teachers know what to teach, but don't realize that they can't possibly know how to teach it without first identifying how their children learn" (1999). Dunn further states that "research has made it clear that most children can master the curriculum when they're taught with strategies, methods or resources that compliment how they learn" (1999). There are five categories that educators report that help or hinder a student's learning; these categories are classroom environment, emotionality, sociological, physiological, and psychological.

Does Ross Township Fire Department effectively reach its audience when it comes to fire prevention activities? Kathi Osmonson, Youth Firesetting Intervention Coordinator with the Minnesota State Fire Marshall Division, explores this idea in her article "Cultural competency" Effectively reaching your audience" (2016). This article defines cultural competency as "understanding your community, whether delivering public fire and life safety education, working with a young firesetter, or responding to emergencies" (2016).

As with anything, there is always room for improvement. "Getting new programs started takes a lot of work. The best way to avoid burnout and frustration is to get more people involved" (2008). This is from Tom Kiurski's article "Fire Safety Education from the Ground Up" that appeared in *Fire Engineering* in 2008. With the addition of three career firefighters at Ross Township, this idea can become a reality and bring fresh ideas and educators to the fire prevention program.

Not only does Ross Township Fire appear to be aligned with other area fire departments when it comes to fire prevention, but are also aligned with a majority of departments around the country. "A recent national survey of Fire and Life Safety Education in U.S. fire departments found that 91% provided public education activities, and the most common activity, reported by 80%, was presentations to elementary school children" (2010). This information was from the National Fire Protection Association's document "Evaluating and Creating Fire and Life Safety Materials". This document also provides Piaget's Stages of Cognitive Development and Teaching Implications, an important guide on how children in different ages and stages of development learn.

PROCEDURES

During this research project, several groups were surveyed for different purposes. The first group to be surveyed was the teachers at Elda Elementary. This survey gathered information on areas such as age group, learning styles best used by the age groups, attention span of the children, and whether or not the teachers feel there is too much information being given to the students at one time. The second group surveyed was the Butler and Hamilton County fire departments. There are twenty fire departments in Butler County- 3 career, 6 all-volunteer, and 11 combination departments; Hamilton County has thirty-nine fire departments- 4 career, 6 all-volunteer, and 29 combination departments. This should allow a great representation of various methods of delivering fire safety programs and help to determine which method is the most effective. The third group surveyed was the Ross Township Firefighters who deliver the current fire prevention programs. These individuals gave great insight on what is and is not working when delivering a program. Their input was crucial in determining where Ross Township's Fire prevention programs are deficient. The surveys questions that were sent out are as follows:

Fire Prevention and Life Safety Education Survey for Fire Departments

The following draft survey was sent out to every fire department in Butler and Hamilton County, in Southwest Ohio via email using *Survey Monkey*. These surveys were addressed to the Fire Safety Educator or person in charge of conducting fire safety programs for that department. The purpose of this survey was to identify any resource or training needs of the Ross Township Fire Department. These survey results will be used to improve the fire and life safety education programs that are conducted by Ross Township Fire Department.

Public Education Activities

What public education activities does your agency participate in or provide?

- Preschool/Kindergarten
- Elementary School (grades 1-5)
- Middle School (grades 6-8)
- High School
- College/University
- Older adults
- Juvenile fire setting/intervention
- *Fire Department open house/Station tours*
- Home Safety Inspections
- Smoke detector/CO alarm installation
- None
- *Other (please list)*

Does your agency partner with any community groups to support, promote, or deliver

education activities?

- Schools
- Hospitals
- Local businesses
- Civic organizations
- Youth groups
- Social Services/Senior Services
- None

• Other (please list)

Fire Prevention/Life Safety Materials

Does your agency use any educational materials (brochures, coloring books, flyers,

posters)?

- Yes
- *No*

If yes, where are these materials obtained?

- NFPA
- State of Ohio Fire Marshall's office
- Red Cross
- FEMA
- Vendor (specify vendor)
- Our agency creates our own materials
- *Other (please list)*

Barriers to delivering public education programs

Below is a list of possible barriers that may be encountered when delivering fire and life safety education programs. Please mark how much of a barrier each would be for your department (not a barrier, somewhat of a barrier, significant barrier, unsure)

- Not enough personnel in the department
- Not enough training among personnel
- Not enough time to deliver programs
- No funding for safety programs
- *No support from community government (township trustees, city council)*

- No support from department leadership (chief, safety director)
- No support from local school officials
- Other (please list)

Evaluation of programs

Does your department evaluate the safety programs?

- Yes
- *No*

If yes, how are the programs evaluated?

- Informal feedback from participants
- Formal feedback from participants (surveys)
- Pre-tests & post-tests
- Number of participants or activities tracked
- None
- *Other (please list)*

Demographics

Which best describes your agency?

- All Volunteer
- Combination (Volunteer, PT, Career)
- All Part time
- All career

What is the population of your jurisdiction?

- Under 2,500
- 2,501-5,000

- 5,001-10,000
- 10,001-20,000
- 20,000-25,000
- >25,000

Fire Prevention and Life Safety Education Survey for Educators (teachers)

The following survey was sent out to all Elda Elementary school teachers (grades K-4) via email using *Survey Monkey*. The purpose of this survey was to help determine the effectiveness of the current delivery method of the fire prevention programs. This survey helped determine if too much information was being presented, if the programs were too lengthy, and identified deficiencies in the programs. These survey results will be used to improve the fire and life safety education programs that are delivered to the elementary school.

Demographics

What age group are your students?

- Kindergarten
- First grade
- Second grade
- Third grade
- Fourth grade

Learning Styles

How do your students best learn and remember material?

- Lecture
- Activities (games, puzzles)
- *Hands on (instructor shows, student repeats)*

<u>Attention</u>

Approximately how long can your students stay interested without becoming bored?

- Less than 15 minutes
- 15-30 minutes

- *30-45 minutes*
- 45 minutes or more

<u>Programs</u>

Are the fire prevention programs presented by Ross Township Fire department:

- Too lengthy?
- Too short?
- Just right?

<u>Message</u>

Is there too much information being given to the students at one time? (Too many topics

presented in one session?

- Yes
- *No*
- Unsure

Fire Prevention and Life Safety Survey for Ross Firefighters

The survey that was sent to Ross Township Firefighters gathered information on current delivery method of fire prevention programs. The Ross Firefighters are the ones delivering the programs and their input was very important in improving the programs.

Is there too much information to present to the students at one time in the current delivery system of public education programs (too many topics to cover in one session)?

- Yes
- *No*

Would a "script" written for each grade level be beneficial in keeping each program identical and help keep the program on topic?

• Yes

• *No*

Is the size of student groups Ross Fire is presenting to?

- Too large
- Too small
- Just right

Are the fire prevention programs holding the students' attention while teaching them?

- Yes
- *No*
- Unsure

How important is it to deliver fire prevention programs to Elda Elementary School?

- Very important
- Somewhat important
- Not important

Is the length of the fire prevention program?

- Too long
- Too short
- Just the right amount of time

Definition of Terms

<u>Career Fire Department.</u> A fire department in which "all firefighters are full- or part-time employees and are paid a salary for their services" (International City/County Management Association [ICMA], 2012, page 95).

<u>Combination Fire Department.</u> "A department that relies on both career and volunteer firefighters" (International City/County Management Association [ICMA], 2012, page 96).

<u>Paid-call Fire Department.</u> "Essentially part-time employees who are paid on a per-call basis, or per hour for time spent in training or at alarms" (International City/County Management Association [ICMA], 2012, page 96).

<u>Volunteer Fire Department.</u> A fire department "in which firefighters are not paid by the department and do not work full time as firefighters" (International City/County Management Association [ICMA], 2012, page 94).

Limitations of the Study

Limitations of this study were minute and were limited to the survey results that were received. Twenty-two surveys were sent to Elda Elementary School teachers (Grades Preschool through fourth grade) however only twelve teachers (60%) completed the survey. A large number of responses were received from Butler and Hamilton County fire departments (86) which helped determine if Ross Township was aligned with what other area departments are doing when it comes to fire prevention activities. Positive feedback was received from surveys sent to Ross Township Firefighters, which proves that fire prevention is one of the most important activities performed by firefighters.

RESULTS

After researching the issues of program length, content, delivery, demographics, and feedback from area fire departments, Ross Local School District teachers, and Ross Firefighters who are presenting the programs, it was obvious that Ross Township Fire Department is on the right path to deliver adequate fire prevention programs. However as with anything, there is always room for improvement.

In surveys sent to local fire departments, general information was gathered, such as types of programs offered, partnerships with any external groups that assist in delivery of programs, external or internal barriers that hinder delivery of such programs, and evaluation methods of programs delivered. Survey results determined that Ross Township Fire is aligned with these results when it comes to external barriers (not enough personnel), evaluation methods (informal feedback), and partnership with the local school district.

The second group surveyed was the teachers at Elda Elementary School. One-hundred percent of surveys submitted reported that they participate in the fire prevention programs at the school. Over half of teachers responded that their students learn best with hands-on activities, and thirty-five percent learn best with activities such as puzzles or games. Programs delivered by Ross Township are lacking in these two areas and will be one area that will be reevaluated during the "overhaul" of Ross Fire Prevention activities.

When asked about program length, a majority of teachers responded that their students stay interested for between 15 and 30 minutes without becoming bored. The programs presented by Ross Township are currently an hour in length, which is a concern. Are the students receiving all of the information presented? Or are they tuning out and missing important life-saving messages?

The third and final group surveyed was the firefighters that are presenting the prevention programs to the school. It is apparent that they believe fire prevention is a very important aspect of their job with 86% stating it is "very important" and 14% stating it is "somewhat important". The one area that Ross firefighters feel would help them with program delivery is development of a "script" to keep them on topic and ensure a consistent message is being delivered.

DISCUSSION

Without a doubt, fire prevention is one of the most important activities Ross Township Fire Department offers its residents. The United States Fire Administration's 1973 publication also has the same stance, stating "Among the many measures that can be taken to reduce the fire losses, perhaps none is more important than educating people about fire" (1973). The publication further states that "many injuries and deaths could be prevented if people knew how to react to a fire" (1973). This is the exact principle that Ross Fire wants to follow; if we create fire-safe children, they will grow into fire-safe adults.

In an article published in *TeachingK-8.com*, author Rita Dunn writes that "most teachers know *what* to teach, but don't realize that they can't possibly know *how* to teach it without first identifying how their children learn" (1999). The way elementary students learn is important to the presenter(s) of the fire prevention programs, and the best way to determine that information is from their school teachers. This was information that was extracted from surveys sent to Elda teachers in an effort to help Ross Fire Prevention programs be successful. This article goes on to report that research reports that "most children can master the curriculum when they're taught with strategies, methods or resources that compliment how they learn" (1999). With information

gathered from teacher surveys, it appears that more hands-on practice or activities need to be added to the programs.

Joseph Sirianni wrote an article that appeared in *Fire Engineering* magazine in 2015 titled "Fire Education K-12: Lowering Fire Deaths" which stated that a "once-a-year visit is not enough time for children to remember these lessons" (2015). The research gathered has led to Ross Fire Department to entertain the idea of a twice a year visit to each classroom. The initial visit would introduce and teach the students the message and the second visit would be a review of the first message and introduction of a new topic, which would then be reviewed the following school year.

"Most fires are preventable and with simple practices we can create safer environments in our homes and communities" (2016). This was a statement written by Fire & Life Safety Educator Amanda Swenson in her article "Same behavior, different day" that was published in *Minnesota Fire Chief*. This is the exact thought that Ross Fire has when it comes to Fire Prevention and Education programs.

RECOMMENDATIONS

The Ross Township Fire Department has provided fire prevention programs to Ross Local School District for over fifteen years. These programs should be continued and the program should be expanded to include more than one yearly visit to the elementary school. After researching and reviewing the information, several recommendations have been identified. These recommendations are as follows:

- Create a "script" for each grade level's program. This would allow the presenter to stay on track with the program and ensure a consistent message is delivered to each student group.
- 2. Create more hands-on activities for the students. According to the survey results, nearly 92% of teachers stated their students learn best with hands-on activities.
- 3. Shorten the length of fire prevention program from one hour to one-half hour. All teachers surveyed agreed that their students stay interested for about thirty minutes before they begin to lose interest in the topic.
- Develop a pre-test and post-test for each grade level that can better evaluate the effectiveness of the fire prevention programs that are offered by Ross Township Fire Department.
- 5. Form a Fire Prevention and Education Committee to ensure there is always a consistent liaison between the school and Ross Township Fire Department.
- 6. Research further information in partnering with external agencies to deliver programs. The "Firefighter Phil" program uses professional performers who use puppets to teach fire safety. This allows all programs to be consistent and ensures a complete program is given each time. The fire department will still be present at the programs, but in the event of an emergency call, the program is delivered fully.

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APPENDIX 1 – FIRE PREVENTION AND PUBLIC EDUCATION SURVEY FOR FIRE DEPARTMENTS

The following survey information was collected via Survey Monkey from 86 respondents from fire departments in Butler and Hamilton Counties in southwest Ohio. These questions were developed to determine if Ross Township's public education programs are "in-line" with programs other local departments are providing to their customers.





Responses to "other" included CPR and first aid classes, free reflective address signs, public events, and safety/career days at local schools.



Question 2: Does your agency partner with any community groups to support, provide, or deliver education programs or activities?

Responses to "other" include local police department, State Fire Marshall's office, local health department, recovery center, Red Cross, and Safety Creations' Firefighter Phil program.



Question 3: Does your agency use any educational materials (brochures, flyers, posters, etc.)?





Question 4: If the previous question was answered "yes", where are the materials obtained?

Question 5: What barriers (if any) are encountered when delivering public education programs?

Responses in the "other" category included emergency details interrupting the duty crews that provide the programs, as well as "cultural" barriers in one respondent's jurisdiction.



One respondent stated in "other" that "fires are down and there have been no fire injuries

or deaths in their jurisdiction.





APPENDIX 2 – FIRE PREVENTION AND EDUCATION SURVEY FOR TEACHERS

The following survey questions were sent out to the teachers at Elda Elementary School, Ross Local School District. Twenty-two teachers were sent the survey however only twelve responded.











APPENDIX 3 – FIRE PREVENTION AND PUBLIC EDUCATION SURVEY FOR PRESENTERS (ROSS TOWNSHIP FIREFIGHTERS)

The following survey questions were provided by Survey Monkey to Ross Township firefighters who help present the fire prevention programs.











