

District-Wide Implementation of OSU Fire Safety for Young Children: An Early Childhood Education Curriculum: 2006-2007

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Introduction

Fire Safety for Young Children: An Early Childhood Education Curriculum was developed by the Center for Early Childhood Teaching and Learning and Fire Protection Publications at Oklahoma State University. After several years of extensive research and a pilot study in the Tulsa area, the next phase of curriculum development consisted of a district-wide implementation of the curriculum. Twenty-three kindergarten classrooms with 465 students and 24 pre-kindergarten (pre-k) classrooms with 419 students from Stillwater Public Schools as well as the child development lab on the OSU campus with one classroom and 12 students participated in the implementation study during the 2006-2007 school year. Kindergarten classrooms implemented the curriculum in the fall and pre-k classrooms implemented the curriculum in the spring.

Before classroom implementation began, teachers and teacher assistants attended a half-day training session to inform them of the purpose and expectations of the study, to introduce them to the content of the curriculum and to demonstrate effective methods of curriculum integration. (See Appendix A) Teachers also received a kit of materials to use in conjunction with the curriculum. Kit materials included a floor puzzle, books, child-size firefighter gear, a miniature fire station and accessories, a fire truck, puppets, a smoke alarm, and a pop-up tent. Each school was given enough kits to share between one kindergarten and one pre-k class.

Prior to the start of implementation, teachers were asked to send home a packet of information for parents to fill out and return. The packet consisted of an informed consent, a family demographic survey and a home fire safety practices survey. At the conclusion of implementation, parents were also asked to report how often their children talked about any of the eight fire safety messages or any of seven fire safety-related classroom activities. Eighty one percent (n=718) of the 884 pre-k and kindergarten students returned the signed consent forms and at least one of the surveys. Just 38% (n=332) of parents completed and returned the final survey. By small margins, kindergarten classrooms had higher return rates on all three surveys. (See Table 1)

Table 1: Response Rates by Grade Level

Survey	Kindergarten		Pre-K		Total	
	N	%	N	%	N	%
Family Demographics	376	81%	326	78%	702	79%
Fire Safety Parent Survey	381	82%	328	78%	709	80%
Fire Safety Messages	176	38%	156	37%	332	38%

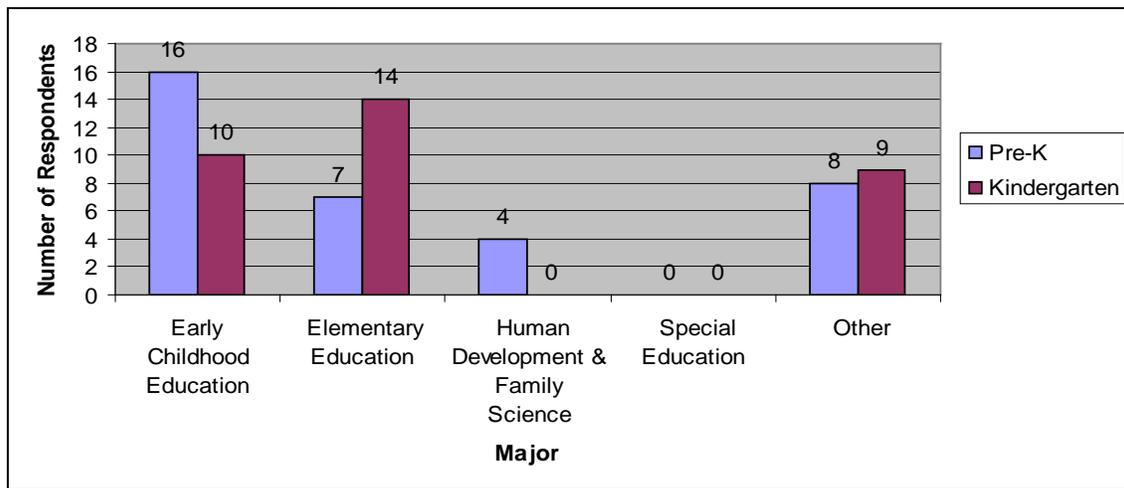
Teacher Demographics

Teaching background information was obtained with the completion of surveys from 23 kindergarten teachers and 24 pre-k teachers along with 21 kindergarten teacher assistants and 20 pre-k teacher assistants during the training session. (See Appendix B) Among teachers, years of experience teaching pre-k ranged from 0-33 while years of experience

teaching kindergarten ranged from 0-28. Among teacher assistants, years teaching pre-k ranged from 0-12 and years teaching kindergarten ranged from 0-6 years.

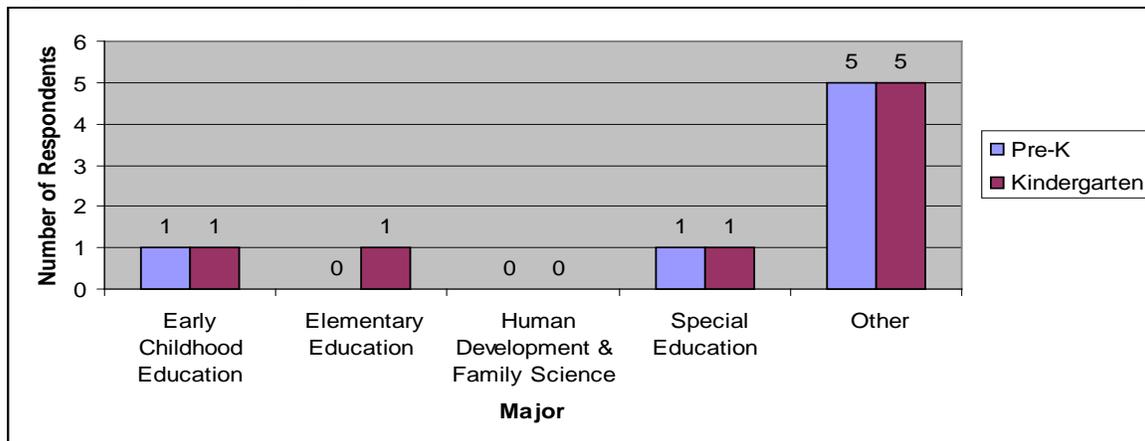
In addition, 29% (n=26) of the 89 teachers and teacher assistants who returned surveys reported having a bachelor’s degree in Early Childhood Education while 24% (n=21) reported having a bachelor’s degree in Elementary Education. Four pre-k teachers also reported degrees in Human Development and Family Science. In addition, three teachers and 14 teacher assistants reported bachelor’s degrees in “other” fields including, but not limited to, Psychology, Sociology, English, Spanish, Leisure Studies, Business, Art, and Biology. Three teachers reported degrees in “other” fields and all three reported being certified in either Early Childhood Education or Special Education. (See Figure 1)

Figure 1: Bachelor’s Degrees of Teachers and Teacher Assistants



Eleven kindergarten and pre-k teachers, along with four assistants also reported having master’s degrees. Two pre-k teachers listed masters’ in Early Childhood Education while one kindergarten teacher reported having a master’s degree in Elementary Education. Additionally, two teachers reported masters in Special Education and ten teachers and assistants reported master’s degrees in “other” fields, including Curriculum, Counseling, Administration, and Teaching and Leadership. (Figure 2)

Figure 2: Master's Degrees of Teachers and Teacher Assistants



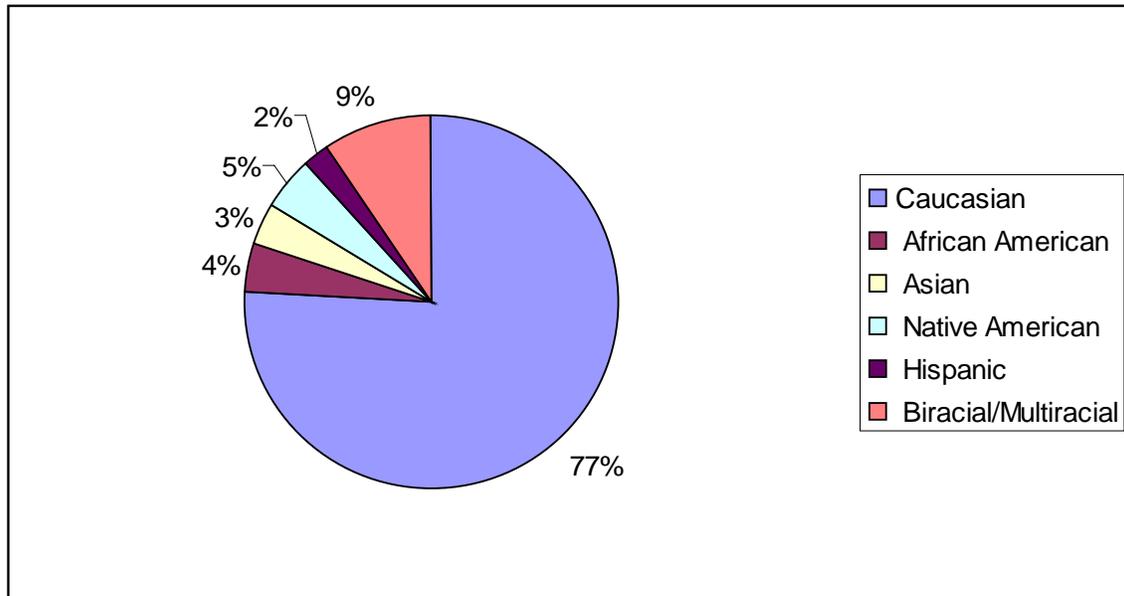
Family Demographics

As previously mentioned, parents were asked to complete a Family Demographic Information survey prior to the implementation of the curriculum in each classroom. Some of the information covered from the survey included marital status, number of adults in the home and yearly income. (See Appendix C)

- Out of the 702 completed surveys, 79% (n=552) reported being married or living with a partner. In addition, only 12% (n=83) of the families were divorced or widowed, while 9% (n=63) were single or never married
 - Significant differences were found when comparing the marital status of the kindergarten families and the school site. School site 3 had 17% (n=67) of parents who were married or living with a parent. School site 6 had the highest number of parents who were divorced or widowed with 7% (n=11). ($\chi^2(10) = 28.30, p = .002$) When comparing the marital status of pre-k families and school site, no significance differences were found.
- When comparing the number of adults in the home in kindergarten families with school site, significant differences were found. School site 3 had the largest percentage of families living with multiple adults in the home with 20% (n=74). School site 2 had the smallest number of families, 1% (n=4) living with more than one adult in the home. School site 6 had the largest percentage of only one adult in the home with 7%. Overall, there was a higher number of families who had multiple adults in the home. ($\chi^2(5) = 28.371, p = .000$)
- Only one percent (n=7) of families surveyed made over \$250,000 annually. There were three percent (n=17) of families whose income fell between \$11,000 and \$15,999. The largest percentage, thirteen percent (n=90) of families earned between \$75,000 and \$99,999 yearly.

On the same survey, families were also asked to report which ethnic group they most closely identified with from a list of five choices including, Caucasian, African American, Asian, Native American, and Hispanic. If a family selected more than one ethnic group, they were classified as biracial or multiracial. As indicated by Figure 3 below, the majority of families (76%) identified themselves as Caucasian. The least number of families (2%) identified themselves as Hispanic.

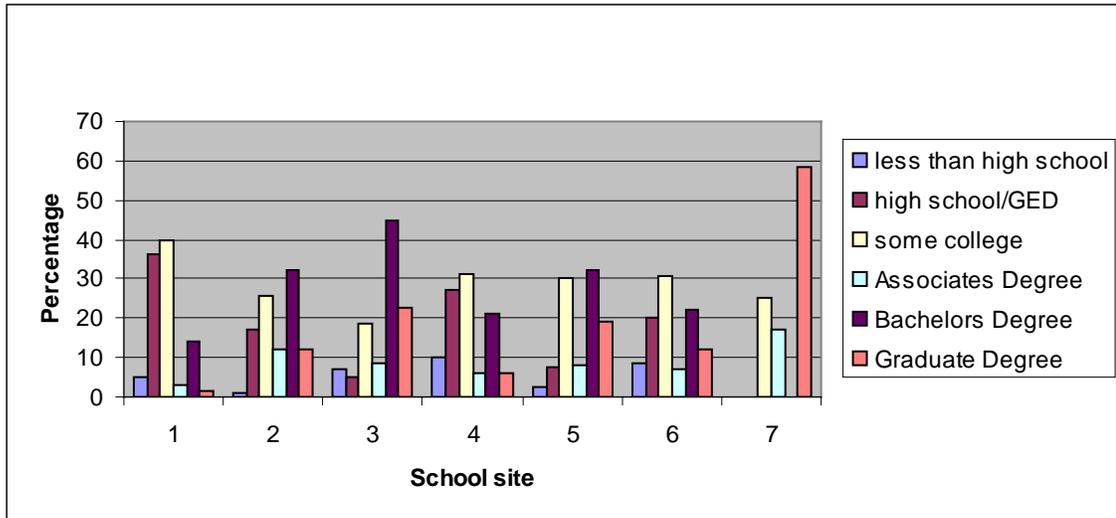
Figure 3: Kindergarten and Pre-K Family Ethnicity



Lastly, parents were asked to report the highest level of education completed for the child's mother and father. They had six options from which to choose; less than high school, high school diploma or GED, some college, associates degree, bachelor's degree or graduate degree.

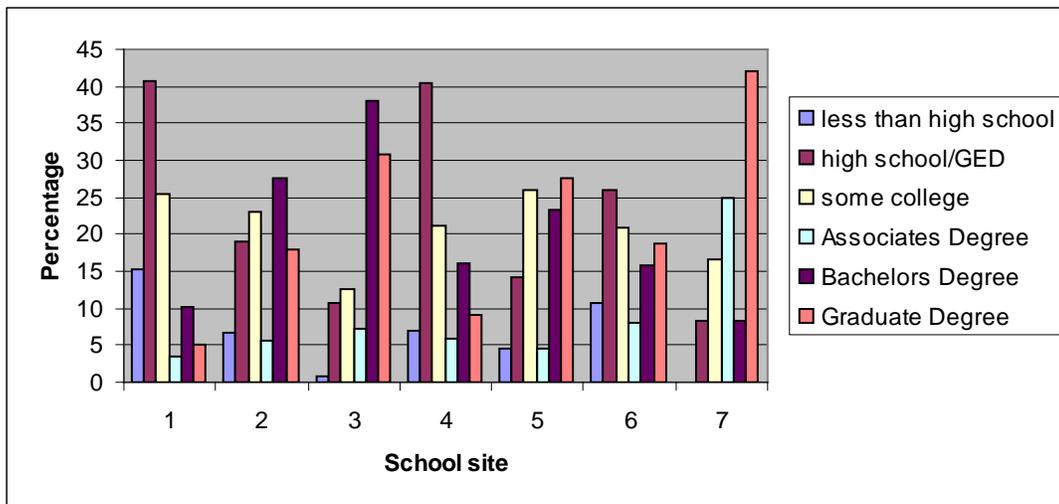
- Twenty-one percent (n=139) of kindergarten and pre-k fathers had a graduate degree. There were 23% (n=157) of fathers who had attained a bachelors degree. Seven percent (n=44) had an associates degree. There were 21% (n=139) of fathers who completed some college while 23% (n=153) had a high school diploma or a GED. A small number of fathers, 7% (n=44) had less than a high school education. (See Figure 4)

Figure 4: Kindergarten and Pre-K Fathers' Education



- Fourteen percent (n=101) of mothers of children in kindergarten and pre-k reported having a graduate degree. Twenty-nine percent (n=202) had completed a bachelors degree. There were 8% (n=56) of mothers with an associates degree and 30% (n=195) who had some college. Sixteen percent (n=114) had a high school diploma or GED and only four percent (n=31) of mothers had less than a high school diploma (See Figure 5)

Figure 5: Kindergarten and Pre-K Mothers' Education



Fire Safety Parent Survey

The home fire safety practices survey was completed and returned by 80% (n=708) of pre-k and kindergarten parents. The survey consisted of 15 questions pertaining to families' beliefs about and experiences with fire safety practices. Parents were asked to answer "yes," "no," "don't know," or "not applicable" to a series of statements ranging

from “our family has discussed fire safety with children living in our home” to “our family has experienced the loss of a loved one through fire.” (See Appendix D) Responses of “no,” “don’t know,” and “not applicable” were combined for data analysis purposes.

Looking at the responses provided parents on the survey provides support for the reasoning behind the development and purpose of the curriculum. Thirty-seven families including 15 pre-k and 22 kindergarten families reported experiencing material loss through fire. In addition, 15 families reported experiencing the loss of a loved one through fire. However, 450 or 64.4% of families reported that they had not developed nor practiced a fire escape plan at home compared to the 249 or 35.6% who had developed and practiced a fire escape plan. Of the families who returned completed surveys, 125 or 17.8% had not discussed fire safety practices with children in the home.

- A significant difference was found when looking at the discussion of fire safety in the home and children who spoke about the fire safety message pertaining to practicing an escape plan. Children who discussed fire safety practices at home with their parents were more likely to mention practicing an escape plan (n=225) than children who had not discussed fire safety practices at home with parents (n=36). ($\chi^2(2)=11.314$, $p=.003$)

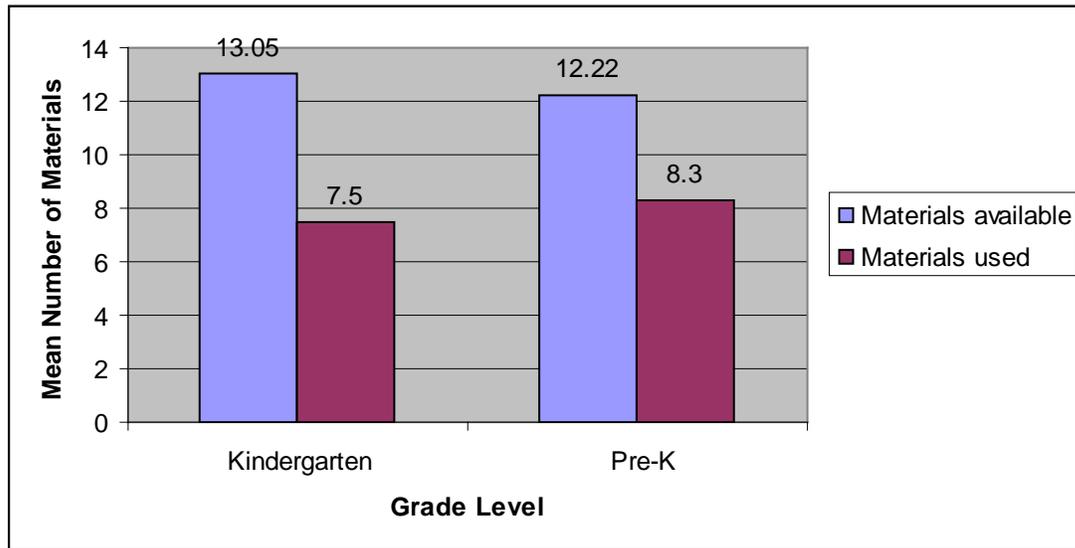
This information shows the importance of the home and school connection. Children retain more information and understanding when parents reinforce what is being taught in the classroom through conversation or activity.

Fire Safety Materials

As mentioned, a kit of materials was given to participating teachers to accompany the curriculum. During classroom observations, observers noted what fire safety materials were made available to the children as well as which materials were also used by the children. The observation checklist included 21 items including firefighter gear, fire safety books, miniature firefighters, a fire truck, puzzles, puppets, as well as materials not provided in the kit such as telephones, folder games and writing journals. (See Appendix E) As part of data analysis, materials available and used in each classroom were added together in order to obtain a total score. The number of total items available in all kindergarten and pre-k classrooms ranged from 9-18 with an average of 12.62 (SD=1.71) while the number of total materials used ranged from 0-14 with an average of 7.91 (SD=3.07).

The total scores were then used to identify a mean score for materials available and used for each grade level. Although kindergarten classrooms had more materials available, only 57% of materials were used compared to 68% of materials used by pre-k students. Please see Figure 6 below

Figure 6: Mean Fire Safety Materials Available and Used



There were several significant differences between kindergarten and pre-k when looking at specific materials available and used. (See Table 2)

- Seventy-seven percent of kindergarten classrooms had writing journals available compared to just 26% of pre-k classrooms. ($\chi^2(1)= 11.790, p=.001$)
- Children in 87% of pre-k classrooms did not use the writing journals that were made available while children in 59% of kindergarten classrooms were observed using the journals. ($\chi^2(1)= 4.465, p=.035$)
- Folder games were available in half of all observed kindergarten classrooms compared to just 17.4% of pre-k classrooms. ($\chi^2(1)=5.380, p=.020$)
- Children in 44% of the 13 pre-k classroom that had telephones available for the children used them compared to students in 14% of the 7 kindergarten classrooms that had telephones available for use. ($\chi^2(1)=4.874, p=.027$)
- Children in 57% of the 23 pre-k classroom that had books available used them while children in just 18% of the 21 kindergarten classrooms with books available also used them. ($\chi^2(1)=7.032, p=.008$)

Table 2: Fire Safety Materials Available and Used in Kindergarten and Pre-K

Fire Safety Related Play Materials	Kindergarten Materials Available N=22		Kindergarten Materials Used N=22		Pre-K Materials Available N=23		Pre-K Materials Used N=23	
	N	%	N	%	N	%	N	%
Firefighter Gear	22	100%	15	68%	22	96%	22	96%
Firefighter Hats	22	100%	15	68%	22	96%	20	87%
Firefighter Boots	1	4.5%	1	4.5%	3	13%	3	13%
Firefighter Equipment	6	27%	5	23%	9	39%	8	35%
Telephones	7	32%	3	14%	13	57%	10	43%
Pop-up Tent	19	87%	17	77%	19	83%	17	74%
Smoke Alarm	3	15%	0	0%	1	4.3%	0	0%
Miniature Firefighters	22	100%	19	86%	22	96%	22	96%
Miniature Fire Trucks	22	100%	19	86%	22	96%	22	96%
Miniature Fire Station	21	95%	18	82%	22	96%	20	87%
Children's Literature	21	95%	4	18%	23	100%	13	57%
Informational Books	9	41%	3	14%	15	65%	2	9%
CD's or Cassettes	8	36%	4	18%	4	17%	2	9%
Videos	0	0%	0	0%	0	0%	0	0%
Puppets	21	95%	7	32%	18	78%	6	26%
Flannel Board Stories/Pieces	6	27%	0	0%	5	22%	0	0%
Pictures	16	73%	4	18%	19	83%	7	30%
Posters	13	59%	3	14%	10	43%	1	4.3%
Folder Games	11	50%	6	27%	4	17%	2	9%
Writing Journals	17	77%	9	41%	6	26%	3	13%
Puzzles	20	91%	13	59%	22	96%	11	48%

Classroom Observation of Interest Centers

Classrooms were observed during center time activities. The *Interest Center Observation Tool* was used for the observations. (See Appendix F) Observations took place the first week of implementation. The focus during the observation was on the five main learning centers, blocks, dramatic play, manipulative play, art and library/books. Observers assessed the organization of each center, the amount of accessibility children had in each center, the level of exploration, instruction or modeling and the topic of each learning center that was provided throughout this time of the school day.

Out of 47 kindergarten and pre-kindergarten classrooms, 45 interest center observations were completed. There were 2 classrooms that did not get observed. One teacher was out on maternity leave and one classroom scheduling challenges were due to inclement weather and snow days.

Of the 45 classrooms in which interest center observations were completed, four classrooms implemented a controlled rotation during center time activities. Children were given a set amount of time to be at each center. Models/specific instructions were given in just one classroom at the dramatic play, manipulative, block, and art centers. Materials used in a certain way or place was the most frequently marked category with classroom numbers ranging from 26 to 38 across all centers. Lastly, the center that was least defined throughout all classrooms was manipulative play. Fourteen classrooms had the materials available, but it was not defined as a clear center.

Day 6 Implementation Check

Observers made visits to all kindergarten and pre-kindergarten classrooms to complete day 6 implementation checks. There were certain fire safety activities related to matches and lighters, which were to have taken place on this day. The observers documented what type of format teachers used for implementing fire safety activities on day 6. There were 4 types of format to check; whole group, small group, center time or other. Depending on what type of format the teacher used to teach the activities the observer marked all that applied. (See Appendix G) Eighteen pre-kindergarten teachers taught the activities during a whole group setting. There were 4 kindergarten and 3 pre-kindergarten teachers who used both a whole group format and center time for the activities.

Observers were looking for 5 fire safety activities that were to be implemented on day 6. A majority of kindergarten and pre-kindergarten teachers completed all fire safety activities, and children understood a great deal of what to do if they found matches or lighters. Children were consistent with telling an adult if they found pictures of matches or lighters. A small number of classrooms had children who touched the pictures. Their teachers repeatedly explained to them about fire safety and the appropriate action if they were to find matches or lighters.

Significant differences were found between kindergarten and pre-k classrooms that had discussions during day 6 regarding the various uses of matches and lighters and the fire safety message of *Tell a grown-up when you find matches or lighters. Never Touch!* Children were more likely to discuss the message in their homes with an adult when discussions on the message and the usage of matches and lighters took place in the classroom.

- Forty-five percent of children (n=138) in classrooms that used the fire safety message, *Tell a grown-up if you find matches or lighters, Never Touch!*, during the observed group time discussion sometimes mentioned the same message at home as reported by parents compared to just 5% of children (n=17) in classrooms that did not use the message during discussion. ($\chi^2(2)=8.333, p=.016$)
- Twenty-six percent of children (n=81) who frequently mentioned the fire safety message of, *Tell a grown-up if you find matches or lighters, Never Touch!*, were in classrooms that discussed the uses of matches and lighters during group time

compared to the .7% of children (n=2) in classrooms that did not cover the uses of matches and lighters. ($\chi^2(2)=8.333$, $p=.016$)

In addition, when looking specifically at grade level, kindergarteners talked about the same fire safety message (*Tell a grown-up if you find matches or lighters, Never Touch!*) more frequently in the home when the matches and lighters pictures were hidden in the classroom for the children to find and practice “telling a grown-up.”

- Twenty-two percent of children (n=34) who frequently mentioned the message were in classes in which the pictures were hidden and the activity took place compared to the 2% of children (n=3) in classes that did not hide the pictures who also frequently mentioned the message. ($\chi^2(2)=6.944$, $p=.031$)

Day 10 Implementation Check

As mentioned above for day 6, observers again visited all kindergarten and pre-kindergarten classrooms to complete day 10 implementation checks. There were more fire safety activities that were to take place on this day. These activities centered around the “escape map”. Observers were to document what type of format or formats teachers used to teach the activities. They were whole group, small group, center time or individual time. (See Appendix H)

There were 12 kindergarten and 9 pre-kindergarten teachers that used the whole group format to teach the activities. Three kindergarten teachers used both small group and center time. One pre-kindergarten teacher used the small group layout.

Several teachers explained they had trouble getting parents to return their family escape map. Many classrooms did not have their children participate in “follow the leader”. Instead teachers practiced fire drills. Observers also documented several discussions by teachers and children about the meeting place and 911.

Teachers were observed in their classroom during day #10 of implementation of the fire safety curriculum. Observations were done in 20 kindergarten classrooms and fourteen pre-kindergarten classrooms. Day 10 implementation check activities pertained to the fire safety message, “*Crawl low under smoke!*” In addition to understanding crawling low, children were asked to identify their meeting place and to share the family escape map that they created at home.

- Eighty six percent of pre-kindergarten classrooms used the fire safety message during group time compared to 80% of kindergarten classrooms.

Parent Report of Fire Safety Messages

Once implementation was concluded in each classroom, parents were asked to complete the final survey in which they reported how often their children mentioned the eight fire safety messages during implementation. (See Appendix I) Three hundred thirty-two

parents returned surveys including 176 parents of kindergarten students and 156 parents of pre-kindergarten students.

- *Stop, drop and roll* was the most frequently mentioned message followed by *recognize a firefighter as a friend and helper* and *stay away from hot things that hurt* among kindergarten and pre-kindergarten students.
- *Cool a burn (with cool water)* and *know the sound and purpose of a smoke alarm* were the messages least likely to be mentioned by both kindergarten and pre-kindergarten students.

When comparing messages mentioned between kindergarten and pre-kindergarten students, significant differences were only found for one message. Thirty percent of children (n=54) in kindergarten frequently mentioned practice a fire drill using your escape map compared to 19% (n=31) of children in pre-kindergarten ($\chi^2 (2)=11.302$, $p=.004$). (See Table 3)

Table 3: Parent Report of Fire Safety Messages Mentioned by Children

Fire Safety Message	Kindergarten N=176		Pre-Kindergarten N=156	
	N	%	N	%
<i>Stay away from hot things that hurt.</i>				
Frequently	66	37.5%	73	46.7%
Sometimes	86	48.9%	67	42.9%
Not at all	22	12.5%	14	8.9%
<i>Tell a grown-up when you find matches or lighters. Never Touch!</i>				
Frequently	46	26.1%	46	29.5%
Sometimes	89	50.5%	75	48.1%
Not at all	41	23.3%	33	21.2%
<i>Stop, drop, and roll if your clothes catch on fire.</i>				
Frequently	81	46.0%	79	50.6%
Sometimes	82	46.6%	63	40.4%
Not at all	11	6.2%	13	8.3%
<i>Cool a burn (with cool water).</i>				
Frequently	27	15.3%	27	17.3%
Sometimes	78	44.3%	60	38.5%
Not at all	69	39.2%	68	43.6%
<i>Know the sound and purpose of a smoke alarm.</i>				
Frequently	49	27.8%	48	30.8%
Sometimes	80	45.5%	61	39.1%
Not at all	46	26.1%	44	28.2%
<i>Practice a fire drill using your escape map.</i>				
Frequently	54	30.7%	31	19.9%
Sometimes	100	56.8%	83	53.2%
Not at all	20	11.4%	37	23.7%
<i>Crawl low under smoke.</i>				
Frequently	43	24.4%	43	27.6%
Sometimes	100	56.8%	81	51.9%
Not at all	33	18.8%	28	17.9%
<i>Recognize a firefighter as a helper and friend.</i>				
Frequently	70	39.7%	70	44.9%
Sometimes	84	47.7%	72	46.1%
Not at all	22	12.5%	12	7.7%

Parents were also asked on the final survey to report how often their children mentioned the classroom activities related to fire safety throughout implementation. The seven activities included books and songs about fire safety, role playing stop, drop and roll or crawling low under smoke, a classroom visit by firefighter(s), drawing fire escape maps, and listening to the sounds of different smoke alarms. (See Table 4)

Table 4: Parent Report of Fire Safety Classroom Activities Mentioned by Children

Fire Safety Classroom Activity	Kindergarten N=176		Pre-Kindergarten N=156	
	N	%	N	%
<i>Books about fire safety/firefighters</i>				
Frequently	30	17%	30	19.2%
Sometimes	91	58.3%	76	48.7%
Not at all	52	29.5%	47	30.1%
<i>Songs about fire safety/firefighters</i>				
Frequently	38	21.5%	23	14.7%
Sometimes	79	44.9%	61	39.1%
Not at all	56	31.8%	69	44.2%
<i>Role playing stop, drop and roll</i>				
Frequently	58	32.9%	58	37.2%
Sometimes	88	50%	73	46.8%
Not at all	29	16.5%	23	14.7%
<i>Role playing crawl low under smoke</i>				
Frequently	35	19.9%	39	25%
Sometimes	93	52.8%	79	50.6%
Not at all	44	25%	36	23.1%
<i>Classroom visit by a firefighter</i>				
Frequently	72	40.9%	65	41.7%
Sometimes	87	49.4%	75	48.1%
Not at all	15	8.5%	13	8.3%
<i>Drawing maps of fire escape routes</i>				
Frequently	49	27.8%	32	20.1%
Sometimes	92	52.3%	71	45.5%
Not at all	34	19.3%	51	32.7%
<i>Listening to the sounds of smoke alarms</i>				
Frequently	26	14.7%	26	16.7%
Sometimes	84	47.7%	67	42.9%
Not at all	65	36.9%	61	39.1%

Significant differences were found between kindergarten and pre-kindergarten classrooms for two of the activities. Kindergarten classrooms were more likely to frequently mention songs about fire safety/firefighters while pre-kindergarteners were more likely to not mention this activity as well as drawing maps at all. (See Table)

- Twenty-one percent of children (n=38) in kindergarten frequently mentioned songs about fire safety and/or firefighters compared to 14% of children (n=23) in pre-kindergarten. Additionally, 44% of pre-kindergarten students (n=69) did not mention songs at all. ($\chi^2 (2) = 6.151, p = .046$)

- Thirty-two percent of children (n=51) in pre-kindergarten did not mention drawing maps at all compared to 19% of children (n=34) in kindergarten. ($\chi^2 (2) = 8.367, p = .015$) As part of the teacher curriculum evaluations, pre-kindergarten teachers reported having more difficulty teaching the escape map lessons than kindergarten teachers. Several pre-k teachers reported that they did not even teach the related lessons due to problems and confusions, which could be a potential explanation for the high number of pre-k students not mentioning this particular concept.

Webbing

A web is used to assess children's knowledge and understanding of a topic over a period of time. Before the curriculum was implemented in the classrooms, teachers asked children a broad question pertaining to fire and fire safety such as, "What do you know about staying safe from fire?" The same question was also asked halfway through implementation and again at the end. Responses were written in different colors and branched off the original question and previous responses to show growth in comprehension. The web was then displayed in the classroom throughout the duration of the curriculum implementation.

Once implementation was complete, teachers turned in the webs on large butcher paper to project staff. Thirty-one webs were submitted including 15 from kindergarten teachers and 16 from pre-k teachers. The webs were then analyzed and summarized based upon themes and dispersion of ideas throughout the three week implementation and assessment for both kindergarten and pre-k.

Table 5 below shows the messages and ideas mentioned by kindergarten students. One comment of particular concern to teachers was when children said they would spray out the fire with water. This was mentioned during the first round of questioning as well as during the second round in addition to putting the fire out with an extinguisher, but was not said at all during the final questioning. This shows support for the length of the curriculum and the idea that fire safety should be taught in-depth and longer than just one week.

Furthermore, during fire prevention week in October the local fire department conducted school-wide assemblies. Several teachers voiced their concerns that web responses could potentially have been influenced in classes that attended these assemblies prior to the curriculum implementation. Also in support of the curriculum, is the fact that certain messages, such as cool a burn with cool water or practice your escape map, were not mentioned by the students until the second or third rounds after the messages had been discussed in class.

Table 5: Kindergarten Webbing Responses

Time 1	Time 2	Time 3
Recognize a firefighter as a friend and helper	Recognize a firefighter as a friend and helper Don't hide	Recognize a firefighter as a friend and helper Don't hide
Stop, drop, and roll	Stop, drop and roll	Stop, drop and roll
Go outside	Go outside	Go outside
Get low or crawl low	Crawl low	Crawl low
Don't go back in	Don't go back in	Don't go back in
Stay away from hot things	Stay away from hot things	Stay away from hot things
Don't touch fire	Go away from fire	
Run away		
Jump out the window	Jump out the window	Jump out the window
Feel the door	Feel the door	Feel the door
Fire drill		
Spray or pour water on fire	Use water or fire extinguisher to put out fire	
Call 911	Call 911	Call 911
Tell parents if there is a fire		
Listen to the smoke alarm	Listen to smoke alarm	Listen to smoke alarm
Don't touch matches	Don't touch matches or lighters	Don't touch matches or lighters
Go to the meeting place	Go to the meeting place	Go the meeting place
Blow a candle out	Don't light candles	Don't touch candles
	Use your escape map	Use your escape map
	Cool water on a burn	Cool water on a burn
	Don't leave anything on	

Pre-K web responses from the first, second, and third rounds of questioning are also displayed in a table (Please see Table 6). Because pre-k implementation began in the spring, all pre-k classrooms attended the aforementioned fire prevention assemblies by the fire department which could have influenced these responses as well, but the influence may not have been as great due to length of time between the assembly and implementation. As with kindergarten, the messages of cool a burn with cool water and practice your escape map were not mentioned until the second and third rounds of questioning which occurred after the messages were discussed in class. Also similar to kindergarten, pre-k students mentioned during the first and second rounds that they would put the water out with fire. However, some pre-k students continued to say this until the final round of questioning. There was concern amongst several pre-k teachers that three weeks was too long for one curriculum and they were also worried that having the same material in kindergarten would be too much. This shows that it is, on the other hand, important to continue teaching fire safety and that they may need more repetition and more reinforcement.

Table 6: Pre-K Webbing Responses

Time 1	Time 2	Time 3
Recognize a firefighter as a friend and helper	Recognize a firefighter as a friend and helper	Recognize a firefighter as a friend and helper
Stop, drop and roll	Stop, drop and roll	Stop, drop and roll
Spray water to put a fire out	Spray water to put a fire out	Use water to put out fire
Go outside	Go outside	Go outside
Don't touch fire/ hot things	Stay away from hot things	Stay away from hot things
Go out the window	Go out the window	Go out the window
Don't touch matches or lighters	Don't touch matches or lighters	Don't touch matches or lighters
Crawl low	Crawl low	Crawl low
Get away from fire		
Call 911	Call 911	Call 911
Feel the door	Feel the door	Feel the door
Go to the meeting place	Go to the meeting place	Go to the meeting place
Listen to the smoke alarm	Listen to the smoke alarm	Listen to the smoke alarm
	Use your escape map	Use your escape map
	Use cool water for a burn	

Teacher Evaluations

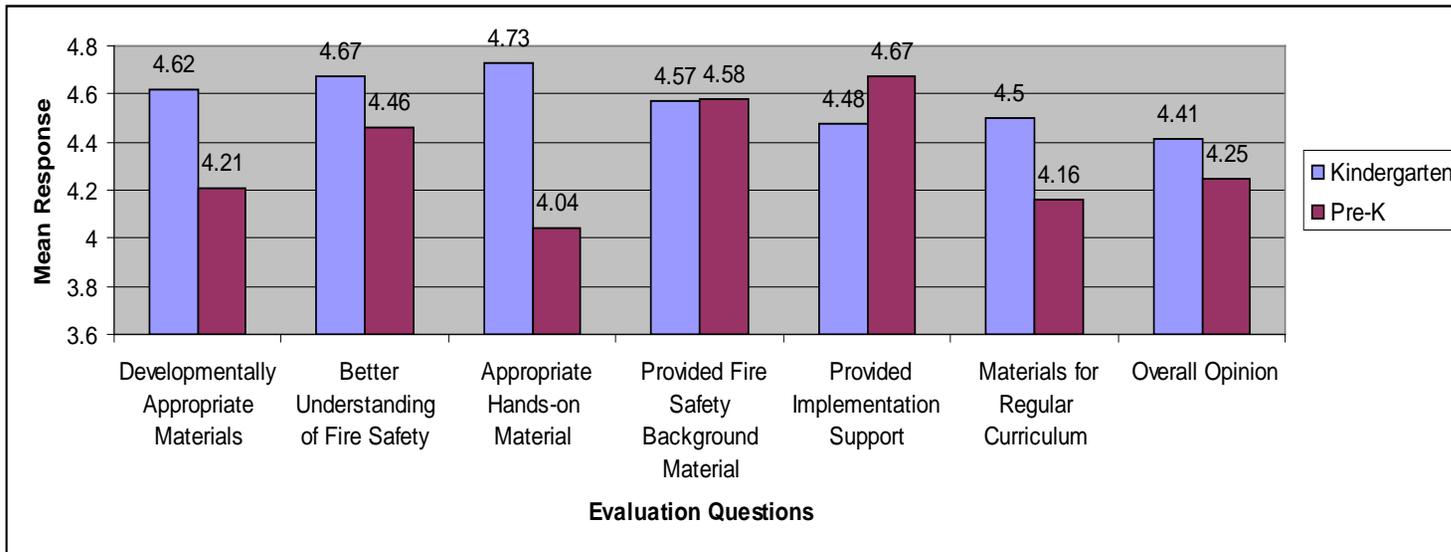
At the end of implementation, all teachers were asked to complete an evaluation of the curriculum and of the implementation process. Teachers were asked to rate the curriculum on six questions and then give an overall opinion rating of the curriculum. (See Appendix J) These responses were averaged by grade level for each question and are presented in Figure 7 below. Twenty-two kindergarten teachers and 24 pre-k teachers completed and returned the evaluation forms.

In addition to the seven questions described, teachers also reported how often listed activities occurred in the classroom, as they did in the initial survey completed at the teacher training. The responses from the first survey and this last evaluation were compared, however no significant differences were found for either grade. On this final evaluation, teachers also responded to 8 free response questions in which they were given the opportunity to discuss specifically what they liked or didn't like about the curriculum, what they felt was challenging, if they or their students received any benefit from the curriculum and suggestions for improvement.

- Fifty-nine percent of kindergarten teachers (n=13) and 33% of pre-k teachers reported that they followed the curriculum closely. Several classrooms made adaptations such as adding additional activities, modifications for special needs, or combining days and activities due to lack of time
- Eleven pre-k and kindergarten teachers reported that escape maps were the most difficult lessons to teach and 16 teachers also reported that the length of the curriculum (3 weeks) was too long

- On the other hand, all but two teachers reported receiving some benefit from implementing the curriculum in their classroom including kit materials, ideas and suggestions, students learned a lot and they learned a lot concerning fire safety practices.

Figure 7: Teacher Evaluation Responses



Appendix A

Teacher Training

An in-service training was held for all participating teachers and teacher assistants prior to the beginning of the school year and the curriculum implementation. Two half day sessions were offered for participants in the fire service training classroom on the Oklahoma State University campus.

As an incentive for training attendance, teachers were offered a \$200 stipend and teacher assistants were offered a \$50 stipend. In order to receive the stipend, they had to attend the training, complete all necessary paperwork, including a consent form and survey, implement the curriculum in their classrooms, and attend a follow-up session at the end of implementation for each grade level.

The content of each training session was the same. As teachers arrived, they signed provided registration sheets, picked up informational handouts and a fire safety tote bag that included a copy of the curriculum, a folder with their implementation schedule, and packets of surveys and consent forms that they were asked to distribute to parents for completion and return. A welcome and introduction of project staff began the training session followed by a brief history and background of fire safety showing the significance and benefit of the curriculum. Next, a detailed overview of the curriculum focusing on its development, empirical support, and content was presented. Teachers were encouraged to pull out their curricula to follow in the discussion and ask questions as they arose. Teachers were then divided into small groups in which they would travel from station to station learning various teaching methods and integration ideas for the curriculum. Teachers and local firefighters helped with the facilitation of each group. The stations were as follows:

Activities and Integration- A kindergarten teacher was recruited to show and offer ideas on how to integrate the curriculum activities with additional activities and curricula being taught in the classroom.

Special Needs- A special education teacher in the district demonstrated ways of adapting the curriculum activities for children with special needs.

Webbing- An important assessment component for the implementation project is webbing. Two more teachers within the district demonstrated the appropriate way to conduct the webbing exercise and discussed why it is an important and beneficial assessment tool.

Firefighter Visit and Fire Station Tour- A local volunteer firefighter and project partner conducted this group and showed teacher items he usually covered during a classroom visit and fire station tour. Teachers were given the opportunity to discuss their expectations for both the classroom visit and station tour.

Kit Materials- Materials provided in the kit were on display throughout the duration of the training giving teachers the opportunity to explore the materials.

Appendix B

Fire Safety Survey for Teachers

Grade Level:	Pre-Kindergarten	Kindergarten			
Education:	Bachelors	Masters	EdD or PhD		
	Bachelors +hours	Masters + hours			
Major:	Bachelors:		Masters:		
Certificates Held	ECE (Pre-K – 3)	Elementary (K-8)	Special Ed	Other (Please List)	
Number of Years Teaching	Pre-Kindergarten	Kindergarten	1 st -3 rd Grade	Other	

Please indicate how often the following activities take place in your classroom.

	Daily	Weekly	Biweekly	Monthly	Occasionally	Never
Dramatic play						
Creative dramatics						
Puzzles						
Legos or other manipulatives						
Block play						
Sensory play, i.e. water, beans, sand						
Cooking						
Field trips						
Classroom visitors or speakers						
Videos, films, TV shows						
Craft projects, i.e. holiday themes						
Open-ended art experiences						
Math manipulatives						
Insect farms, hatchings, etc.						
Science experiments						
Computer activities						
Math journals						
Storytelling						
Basal readers						
Big Book reading						
Chapter book reading						
Literature-based reading						
Phonics instruction						
Invented spelling						
Journal writing						
Worksheets						
Workbooks						
Music						
Poetry						

Appendix B

In your classroom, how much time in the typical day do children spend in the following?

	None	1-25%	26-50%	50-75%	76-100%
Whole group					
Small group					
Individual tutoring					
Centers					
Cooperative learning groups					
Individual seatwork					

Appendix C

Family Demographic Information

Thank you for participating in the implementation of the fire safety curriculum developed at Oklahoma State University. For descriptive purposes please share the following household information.

1. How many children live in your home? _____
2. What are the ages of the children living in your home? _____
3. Please indicate the relationship of the adults in your home to the children in your home.

Mother		Step-Parent		Grandfather		Uncle	
Father		Grandmother		Aunt		Other	

4. What is your marital status?

Single/never married	
Divorced/Widowed	
Married or Living with a partner	

5. What is your yearly household income?

Less than \$5,000		\$5,000-\$10,999		\$11,000-\$15,999		\$16,000-\$20,999	
\$21,000-\$25,999		\$26,000-\$30,999		\$31,000-\$35,999		\$36,000-\$40,999	
\$41,000-\$49,999		\$50,000-\$59,999		\$60,000-\$74,999		\$75,000-\$99,999	
\$100,000-\$250,000		Over \$250,000					

6. What is your ethnicity?

Caucasian		African American		Asian	
Native American		Hispanic			

7. What is the highest level of education completed by your child's mother?

Less than high school		High school/GED		Some College	
Associates Degree		Bachelors Degree		Graduate Degree	

8. What is the highest level of education completed by your child's father?

Less than high school		High school/GED		Some College	
Associates Degree		Bachelors Degree		Graduate Degree	

Appendix D

Fire Safety Parent Survey

Your child will be exposed to the “Fire Safety for Young Children” an early childhood education curriculum during this school year. In order to help the classroom be better prepared and know what experiences your children have concerning fire safety please fill out this survey and return it to your child’s teacher. All information for the entire class will be summarized and returned to the classroom teacher before the implementation of the fire safety curriculum.

Fire Safety Statement	Yes	No	Not Applicable	Don't know
Our family values the sharing of fire safety information with young children.				
Our family has discussed fire safety with children living in our home.				
Our family has working smoke alarms in the home.				
Our family has working fire extinguishers in the home.				
Our family has developed and practiced an evacuation plan in case of fire.				
Our family uses an open radiator, furnace, fireplace, etc. for heating.				
Our family burns candles in the home (includes decorative, birthday, etc).				
Our family uses matches and/or lighters in the home.				
Our family uses fireworks during celebrations/holidays.				
Our family uses fire for outdoor recreational activities (ex. Camping)				
Our family uses fire to burn trash and/or brush.				
Our family uses fire for religious/cultural practices.				
Our family has experienced material loss through fire.				
Our family has experienced the loss of a pet through fire.				
Our family has experienced the loss of a loved on through fire.				
Our family is comfortable with fire safety being taught in the classroom.				
Our family is willing to participate in fire safety activities in the classroom.				
Our family is willing to share fire knowledge/experiences in the classroom.				

Appendix E

Fire Safety Material Check

Lesson # _____ Target Day _____ Time _____

Availability	Used	Kind of Material
		Uniforms for dress up
		Boots
		Hats
		Equipment
		Smoke detectors/alarms
		Miniature firefighters
		Miniature fire trucks
		Fire Station
		Children's literature
		Informational books
		CD's or Cassette's
		Video's
		Puppets
		Flannel board stories/pieces
		Pictures
		Posters
		Folder Games
		Telephones
		Writing journals
		Puzzles

Map of the classroom

Appendix F

Interest Center Observation Tool

	Blocks	Dramatic Play	Manipulative Play	Art	Library/ Books
Organization					
1. Clearly defined center/area labeled					
2. Materials available (not as a clear center)					
3. No Materials or center					
Accessibility (fill in all that apply)					
1. Children not allowed to use (verbal or physical restrictions)					
2. Limit number of children (verbal or physical restrictions)					
3. Controlled rotation					
4. Child initiated access freedom to move in and out and stay as long as wanted					
Nature of Experience (fill in all that apply)					
1. Models or specific instruction provided					
2. Children can explore, experiment, problem solve and be creative					
3. At least some materials must be used in a certain way or stay in a certain place					
4. Children can add other materials from center besides ones selected by teacher					
5. Children can bring materials from other areas of room					
6. Children may freely interact with other children and adults					
7. Center was not used					

Norris, D & Dunn, L. (2003). Early Childhood Collaborative of Oklahoma

Appendix G

Day #6 Fire Safety Activities Afternoon Group Time Implementation Check

Date: _____ **Day of the Week:** _____ **Time of the Day:** _____

Which format were the activities delivered? (Mark all that apply)

Whole Group _____ Small Group _____ Center _____ Individually _____ Other _____

	Yes	No	Comments
Were the pictures of lighters and matches ready to use?			
Was there a discussion on uses of matches and lighters?			
Was the fire safety message of "Tell a grown-up! Never Touch!" used during the check time?			
Were the pictures of lighters and matches hidden?			
Did the children consistently tell an adult when they found pictures of the lighter and/or matches?			

Appendix I

**Day #10 Classroom Escape Map
Morning Group Time
Implementation Check**

Date: _____ **Day of the Week:** _____ **Time of the Day:** _____

Which format were the activities delivered? (Mark all that apply)

Whole Group _____ Small Group _____ Center _____ Individually _____ Other _____

Did the children know where the meeting place was located from the previous lesson?

Was there a discussion during the classroom escape map preparation?

Was the fire safety message of "Crawl Low Under Smoke!" used during the check time?

Did the children in the classroom participate in "Follow the Leader?"

Did any of the children share their family escape maps?

Yes	No	Comments

Appendix I

Fire Safety Messages

In the last three weeks, teachers in your child's classroom have been implementing a fire safety curriculum for young children. Activities in the curriculum were designed to help teach the eight fire safety messages identified as important by fire safety personnel.

Please indicate whether your child said anything related to the messages below in the last three weeks.

	Frequently	Occasionally	Once	Not at all
Stay away from hot things				
Tell a grown-up when you find matches or lighters				
Stop, drop and roll if your clothes catch on fire				
Cool a burn				
Crawl low under smoke				
Know the sound of a smoke detector or smoke alarm				
Practice an escape plan				
Recognize a firefighter as a helper				

Please indicate whether your child said anything related to the classroom activities listed below during the past three weeks

	Frequently	Occasionally	Once	Not at all
Books about fire safety or firefighters				
Songs about fire safety or firefighters				
Role playing stop, drop and roll				
Role playing crawling low under smoke				
Classroom visit by a firefighter				
Drawing maps of fire escapes routes				
Listening to the sound of smoke alarms				

Appendix J

Teacher Evaluation

How good a job did the implementation project of Fire Safety for Young Children: An Early Childhood Curriculum approach do in meeting the following	No Opinion	Excellent	Very Good	Average	Fair	Poor
Introduced your students to developmentally appropriate fire safety material		5	4	3	2	1
Helped your students develop a better understanding of fire safety		5	4	3	2	1
Provided you with appropriate hands-on material for your classroom		5	4	3	2	1
Provided you with background material concerning fire safety		5	4	3	2	1
Provided support during implementation		5	4	3	2	1
Provided you with material that could be implemented into your regular curriculum		5	4	3	2	1
Overall, your opinion of the "Fire Safety for Young Children: An Early Childhood Curriculum"		5	4	3	2	1

Please indicate how often the following activities take place in your classroom.

	Daily	Weekly	Biweekly	Monthly	Occasionally	Never
Dramatic play						
Creative dramatics						
Puzzles						
Legos or other manipulatives						
Block play						
Sensory play, i.e. water, beans, sand						
Cooking						
Field trips						
Classroom visitors or speakers						
Videos, films, TV shows						
Craft projects, i.e. holiday themes						
Open-ended art experiences						
Math manipulatives						
Insect farms, hatchings, etc.						
Science experiments						
Computer activities						
Math journals						
Storytelling						
Basal readers						
Big Book reading						
Chapter book reading						
Literature-based reading						
Phonics instruction						
Invented spelling						
Journal writing						
Worksheets						
Workbooks						
Music						
Poetry						

Appendix J

Please answer the following questions.

How closely did you follow the “Fire Safety for Young Children: An Early Childhood Curriculum?”

What adaptations did you make to the “Fire Safety for Young Children: An Early Childhood Curriculum?”

Which topics did you have difficulty in teaching using the “Fire Safety for Young Children: An Early Childhood Curriculum?”

Overall, what do you feel are the advantages of the “Fire Safety for Young Children: An Early Childhood Curriculum” approach over the traditional approach?

Overall, what do you feel are the weaknesses of the “Fire Safety for Young Children: An Early Childhood Curriculum” approach in comparison with the traditional approach? Explain.

What problems did you encounter in your teaching of the “Fire Safety for Young Children: An Early Childhood Curriculum?”

What suggestions do you have for improving the “Fire Safety for Young Children: An Early Childhood Curriculum?”

Did you get any benefit from the program?