

A Study on Children's Image Cognition of Dangerous Objects Which Cause Fire

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Abstract: Accidental injury is the main reason causing the deaths of children. Although there are many causes of accidental injury, the main reason is usually related to “human negligence”. For children with limited literacy, the important issue is how to effectively convey safety messages, and teach children about the concept of danger and identify potential dangers. This study explored children's conceptions of fire-causing objects and dangerous environments. The photographs of fire-causing objects were used as the sample. Before the formal survey, 10 children from 4-13 years of age were surveyed about dangerous objects and environments. The cognitive survey for children about fire-causing objects focused on 31 children from 9-10 years of age as research subjects, to understand factors that influence children's perceptions of fire-causing objects and dangerous environments. Research results showed that in the home environment, children notice that kitchens tend to cause fires, but they tend to overlook the danger of electrical appliances in causing fires. Some children have a low understanding for the danger of electrical appliances causing fires due to high temperatures. Children are more likely to identify objects that require ignition as fire-causing objects, but overlook the danger of unlit firecrackers that may cause fires.

Key words: *fire, cognition, perception, children*

I. Introduction

In modern families, because of reduction of birth rate and difficulty of having birth, children's safety becomes important. Children are the minority and they rely on adults' instruction and guidance. Since there are more families with working parents, the time of these parents to accompany children is less. Due to lack of supervision and care, children tend to be the victims of the accidents. Children are curious and adventurous; in activities or games, their carelessness may lead to accidents, thus causing serious harm or even casualty. Accidents involving children are tragic to their families, the society and even the nation. Thus, in order to avoid the accidents, we must spend time teaching children and be careful about children's physical and mental security in activities or games.

Coles et al. (2007) indicated that besides the traffic accidents, injuries caused by house fire, burning and street accidents are common for children [2]. Fire is the most serious accident in family which causes the loss of life and property, thus, teaching the children about home safety and avoiding fire at home is an important issue.

Developing the correct understanding regarding fire accidents in children, and cultivating correct living habits and awareness in children, could reduce the chances of fire accident. Under this concept, this study attempts to explore whether differences in children's recognitions and comprehensions of fire could serve as specific safety indicators. This study discusses children's recognition of dangerous objects and environment that may cause fire, and tests their recognition of dangerous objects. This study tries to find effects of children's backgrounds on cognition of dangerous objects and environment which cause fire, analyze factors of children's cognitive difference of dangerous objects and provide useful information message communication factors in children's cognition of fire as the criterion of image design and promotion.

2. Literature Review

Accident is the main cause of death of children and young people, estimated there are 10,000 cases of permanent disability injure occurred to children every year in UK. These accidents are mostly traffic accident, fire, drowning and falling [3]. Fire is caused by accidental and improper use of fire, and should be extinguished. According to report of U.S. Fire Administration (2013), from 2006 to 2010, cases of fire caused by cooking were the most; and the following were heaters, electric appliance and cigarette butts [22]. In Taiwan, according to statistics of National Fire Agency, Ministry of the Interior (2013), fire was mostly caused by electrical equipment from 2007 to 2011. In 2011, the first cause of fire was electrical equipment (36.1%) and the following were man-made arson (10.4%) and cigarette butts (5.8%) [13]. Based on statistics of Safe Kids in 2009, about 90,000 children of and below 14 years old got hurt in non-fatal accident fire and burns [18]. Fire and burns are the fourth cause of death related to accidents for children of and below 14 years old. Because of different environments and cultures, causes of fire can be different. In northern areas, heaters are frequently used, thus increasing the probability and frequency of fire accidents. Under environmental effects, electric appliances and cigarette butts are also dangerous objects that cause fire. In this study, dangerous objects that are relevant to the local environment and culture are extracted for recognition test.

According to burning materials, fire can be divided into four categories (Table 1), which are general fire, oil fire, electric appliance fire and metal fire. According to statistics of U.S. Fire Administration and National Fire Agency, Ministry of the Interior in Taiwan, general fire, oil fire and electric appliance fire are the three which mostly cause the calamities. They are the main factors of domestic fire. If not used properly, inflammable materials and electric appliances may cause fire. According to above statistics, general fire, oil fire and electric appliance fire are the main categories caused fire in the families. Metal fire is more unique and it involves inflammable metal and water- reactive materials. It should be related to industry and thus this study will neglect it.

In 2010, National Fire Protection Association (NFPA) and Johns Hopkins Center for Injury Research and Policy conducted a research to find out what are the most effectively safety messages and the communication methods with 4-9 years old children. That research tried to find if safety messages should be based on active communication and focused on the positive outcomes of proper behavior (or the negative outcomes of improper behavior) [6]. The researcher supported the suggestion of educational method and it meant to clearly suggest correct safe behavior. In other data, some flash cards, riddles and animation related to fire security are used to teach children fire related knowledge. It is also the focus of this study.

Table 1. Classification of fire

General	Description	Dangerous objects which cause fire	Domestic environment which causes fire
Fire A (general fire)	It means the materials of furniture in buildings, such as solid inflammable materials, wood, cotton, fiber and plastics, which cause fire.	Flames, lighters, matches, candles, BBQ grill, gas stoves, cigarette butts, sticks of incense, firecrackers, fire stove, etc.	Kitchen, living room, bedroom, outdoor
Fire B (Oil fire)	It means petroleum, paints, vegetable (animal) oil and organic solvents.	Gasoline, paints, alcohol burners, salad oil, peanut oil, etc.	Kitchen, outdoor
Fire C (electric appliance fire)	Fire caused by electrical equipment, such as voltage breakout, electronic machine, transformer, etc.	Sockets, ovens , microwave oven, electric kettles, hair dryers, irons, etc.	Kitchen, living room, , bedroom
Fire D (metal fire)	Fire caused by inflammable metal (active metal), such as potassium, sodium, magnesium, lithium, and water- reactive materials.	Potassium, sodium, magnesium, lithium, etc.	Outdoor

[Source: National Fire Agency, Ministry of the Interior of Taiwan]

According to Heinrich's (1959) proposal of process of accidents and investigation based on Domino Theory¹, accidents are associated with human factors. After the first domino falls, the rest four dominos will fall. The accidents are caused by the causal relation. With the combination of Ancestry and social environment, Fault of the person, Unsafe act and/or mechanical or physical hazard, The accident itself and The injury or damages sustained, once an accident happened, it will influence other accidents which then happen and lead to the result. The insignificant outcome will be loss of property and the significant result will be the injury and death of people. If we can remove any one of the dominos, we will avoid the final result. It suggests that in order to prevent the factors of accidents, it must recognize the causes to terminate the serial accidents. The concept is applied to children's safety education. It is the main goal of safety education for the first three dominos, Ancestry and social environment, Fault of the person, unsafe act and/or mechanical or physical hazard. It should first learn to recognize the prior factors and dangerous factors in environment in order to find the factors of improper behavior and avoid the accidents and injury and death. Safety education aims to teach children to learn dangerous factors to protect themselves and avoid accidents. In test and research of safety education, the website "Safe kids worldwide" introduces many children safety tests and cases. Great amount of pictures replace the words. The said research is based on the resource and function as the criteria for related picture design and simulation of situations.

Piaget (1964) suggested that perception and cognition are two different kinds of psychological process [15]. They have different definitions, functions, patterns and development models. Besides, they cannot provide the copy of external things. Perception is the psychological process to calculate and organize current stimulus. On the other hand, cognitive process helps people consider or calculate things out of the field and it can match the past

¹ The Domino Theory is developed by Heinrich, H.W. (1931) that accidents result from a chain of sequential events, metaphorically like a line of dominoes falling over [19] .

memory with current perception [8]. When we receive visual messages, sensory organs are triggered and we have perception and save it in the memory. It further becomes short-term or long-term memory. The interaction between memory and perception will lead to cognition and related meanings. Since children are not relatively literate, they mostly develop cognition by pictures through visual receiving. Thus, their interpretations and judgments will have different meanings. The interpretation will influence their feelings. Thus, in literature review, pictures are transformed into feelings by cognition. The danger in the situations of pictures for children will be the issue for further validation in symbol interpretation.

Accidents are usually unexpected; they may occur even under strict safety prevention. It is important to teach the children to recognize the causes of accidents, which is the Ancestry and social environment in the first domino, as well as the correct recognition and concept to detect the second domino (Fault of the person) and avoid the third domino (Unsafe act and/or mechanical or physical hazard). If they can be careful about the first domino, they will avoid the expansion of harm, construct the cognition in safety education, have correct factor cognition and clarify the danger in accidents. They will immediately respond to the accidents and lower the loss and harm. It will enhance children's cognitive development and it directly influences their healthy learning and growth. It suggests that cognition is critical in children safety education.

3. Research method

This study generalizes the causes based on the results of literature review, environment and dangerous objects of fire as the bases of the test. With different backgrounds, children have different interpretations and cognitions on dangerous objects and environment. It will influence their improper behavior. This study tries to explore children's cognition of dangerous objects and environment which cause fire and conduct the test by pictures of real things. Kitchen, living room and bedroom are the environments which easily cause fire; we use these environments as samples for children to judge the dangerous things in the environments in order to find if they can recognize the danger in home environments. In the second part, objects which easily cause fire are adopted to test children's cognition of dangerous objects. By statistics, the researcher probes into children's cognition. Pretest is conducted after children's responses to find how children recognize dangerous things. Based on the results of the pretest, the researcher properly modifies the investigation as the base of formal test.

3.1 Pre-test

Samples of this study referred to certain group. The researcher tried to find if children have correct cognition and thus purposive sampling was used. 10 children aged 4~13 were tested and interviewed. The subjects were school-age children and preschool children in order to accomplish the arguments. Respondents included 2 children aged 4, 1 child aged 6, 1 child aged 8, 1 child aged 9, 1 child aged 10, 1 child aged 11, 1 child aged 12 and 2 children aged 13. The survey was based on paper and phonetic symbols. With verbal explanation and according to children's character recognition rate and expression, the responses were based on children's simple circles of pictures in order to find if children could judge dangerous objects.

According to result of pretest, children aged 4 made more mistakes on environment and objects. Since they did not familiar with the objects, they lacked the idea of those causing fire. The child aged 6 had primary cognition of dangerous objects in the environment because of lessons at home. The child aged 8 was impatient with the test and

she (he) did not know some dangerous things and made more mistakes in the recognition of environment and objects. The reason was due to the lack of lessons at home. As to children aged 9 and 10, although they did not notice the smoke and light in the items of environment, they recognized the small items in the environment, such as lighters, lighter guns and electric boiler. Thus, they had the capability of observation and some cognition of dangerous objects. Error rate of children aged 11~13 was lower significantly. Although they neglected few electric appliances in the environment, they had good cognitive capability on the objects which cause fire. They could correctly use them and would not cause fire. According to the finding, children aged above 11 have good cognitive ability of dangerous objects of fire. Thus, 11 years old is treated as the divide. The researcher conducts formal survey on young children and modifies the pictures according to children's uncertainty and questions.

3.2 Investigation on children's cognition of dangerous objects

1. Research subjects

According to analytical result of pretest and interview, the samples for the formal test were children aged 9~10. Subjects were children aged 9~10 in one class of an elementary school in Central part of Taiwan for the concern of location and convenience. Intelligence of children in the class was assessed by Raven's Progressive Matrices (CPM)². The researcher judged that these children had general, instead of special, cognition and language. In other words, they were children with basic cognition and language concepts in order to avoid the effect on the precision of research findings. There were 34 students in the class. After eliminating one sample which did not pass the intelligence assessment, 33 subjects were participant in this survey. After we reviewed all the samples, 2 invalid samples were eliminated for not complete the test, 31 valid samples were collected.

2. Research procedures

According to the dangerous objects, which are generalized based on literature review, this study used photographs for test and analyzed the test results. Small-scale test was conducted in January 2013, based on paper and verbal explanation. The subjects filled in the questions by crayons distributed. The teacher assisted with and guided the process. In the test, except for the explanation of the procedure and the assistance with the questions which children did not understand, the teacher did not guide children's responses in order to avoid the intervention and effect on the reliability of research.

3. Test instruments

Besides personal basic information, the environment test in the first section contains multiple choice questions, which ask the respondents to circle the answers. The first photograph is a simple kitchen (Figure 1), and the follow-up photographs are more difficult spaces, which are living room (Figure 2) and bedroom (Figure 3), each color photo was printed out in a A4 size paper by a high resolution color laser jet printer, the size of each photograph is 274mm X 185mm. Significant and insignificant dangerous objects are hidden in the pictures, with a total of 14 dangerous items. The object (Figure 4) test of the second section asks the respondents indicate their answers by circles and crosses. Each object is one independent item and there are 24 dangerous objects, the size

² CPM for use with Children 5 through 11 years of age published by Lewis, that measure Spearman's g factor or general intelligence [10].

of each object photo is between 30 mm X 40mm and 53mm X 40mm. 24 object photos were arranged in two A4 papers which were printed out by a high resolution color laser jet printer. There are objects which do not cause fire and objects which are not used and can cause fire. Thus, respondents will not have consistent responses and this study can distinguish the invalid samples. Scoring is based on number of circles. One point is given to each correct circle, totaling 38 points. This study thus tests if children can correctly recognize dangerous objects which cause fire.



Figure 1. kitchen



Figure 2. living room



Figure 3. bedroom

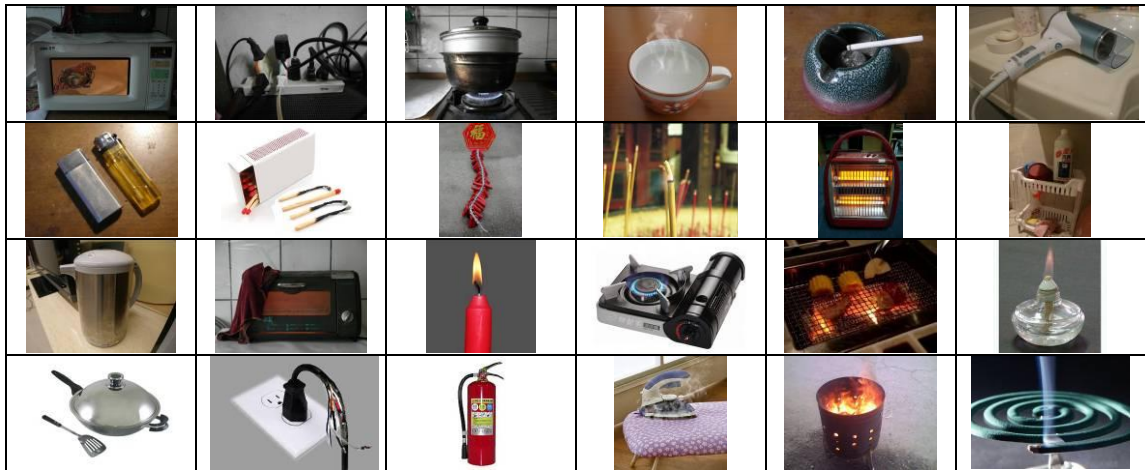


Figure 4. 24 objects

4. Research Limitations

In pretest, since preschoolers are young and shy, they were not willing to answer the questions interactively, and were unable to specifically explain the causes of the objects on fire. Although the researcher attempted to guide them with language, most of the children just shook their heads or repeated the words. They cannot completely express their thoughts and it is difficulty to test on preschool children. The formal test result is the investigation on cognition of 10-year-old children in an elementary school in central Taiwan and it cannot infer total 10-year-old children’s cognition.

4. Conclusions

4.1 Test and analysis

Subject’s backgrounds are shown in Table 2. Among 13 boys and 18 girls, 71% are cared by parents, and 29% are cared by the seniors or other relatives.67.7% children are taught by the adults at home regarding dangerous objects would cause fire and77.4% children are taught by the adults at home regarding the evacuation. The school has taught them the same things. Some children may forget about it or they were absent. The background

influences children's primary cognition. The figures are reorganized in the table below:

Table 2. Children's basic backgrounds

Gender	Backgrounds		Lessons of dangerous objects at home (N/%)	Lessons of dangerous objects in school (N/%)	Evacuation lesson at home (N/%)	Evacuation lesson in school (N/%)
	Care by parents (N/%)	Care by parents and non-parents (N/%)				
13 boys	9/29	4/12.9	7/22.6	12/38.7	9/29.0	11/35.5
18 girls	13/41.9	5/16.1	14/45.2	17/54.8	15/48.4	17/54.8
31 children in total	22/71	9/29	21/67.7	29/93.55	24/77.4	28/90.3

4.2 Children's cognition of dangerous environments and objects

According to the results (Table 3), in the first section, the highest score is 13(NO.20) and the child only does not circle insignificant electric kettle in living room. The scores are mostly 11 (38.7%). These children do not circle the insignificant objects. The lowest score is 7 (subject NO.29). She did not circle significant electric appliance and insignificant objects. Her score in the second section is also low. The girl is taught by the family and school regarding dangerous objects and evacuation. It shows that she has inferior learning effectiveness. In the second section, the highest score (full score, 24 points) is from the girl NO.16. She is taught by family and school and she has better cognitive learning effectiveness. The scores are mostly 22 (41.9%). Children mostly make mistakes on electric kettles and hair dryers. The boy NO.3 and the girl NO.23 obtain the lowest scores (16). They are not taught by the family. Thus, their precision rate on the objects is low. In conclusion, the highest score is 34 (6 children, 19.4%), including 4 girls. The precision rate in the second section is higher. Children can correctly circle the independent objects. The lowest score is 24 (2 children, 6.5%): the girls NO.23 and NO.29. They respectively have the lowest scores in the first and second sections.

Table 3. Child's score in investigation

NO.	Item	Gender	Environment test (score)	Objects test (score)	Full score
1		boy	12	22	34
2		boy	9	22	31
3		boy	11	16	27
4		boy	8	22	30
5		boy	8	22	30
6		boy	11	22	33
7		boy	10	22	32
8		boy	8	19	27
9		boy	10	21	31
10		boy	8	20	28
11		boy	11	22	33
12		boy	11	23	34
13		boy	11	22	33
14		girl	9	23	32
15		girl	8	23	31
16		girl	10	24	34
17		girl	9	21	30
18		girl	11	23	34

19	girl	9	21	30
20	girl	13	20	33
21	girl	12	22	34
22	girl	11	19	30
23	girl	8	16	24
24	girl	11	23	34
25	girl	8	20	28
26	girl	11	22	33
27	girl	11	22	33
28	girl	11	22	33
29	girl	7	17	24
30	girl	9	20	29
31	girl	11	22	33

In order to find if boys and girls have different cognitions of dangerous objects, this study conducts independent sample test (Table 4). Average of boys' correct responses in environment items is 9.85, which is lower than girls' average (9.94). As to average of correct answers in object items, boys' (21.15) is higher than girls (21.11). Besides, girls' responses are more different than boys. In sample test, environment items $p=.864 > .05$ and object items $p=.954 > .05$. The test is significant. Thus, gender does not have significant difference in responses of environment items and object items. In other words, different genders will not result in different responses and different cognitions of dangerous objects.

Table 4. Test of independence

	Gender	N	Mean	Std	p
Environment test	boys	13	9.85	1.463	.864
	girls	18	9.94	1.626	
Objects test	boys	13	21.15	1.864	.954
	girls	18	21.11	2.139	

In environment items of the first section, in kitchen photo sample (Table 5), except for significant gas stove which is circled by all children, oven and microwave oven are not circled by 4 children. Precision rate is 87.1% which is inferred that fire caused by electric appliances tends to be neglected by children. As to small item, lighter gun, in kitchen, 64.5% children do not circle it. The reason can be that these children might not know lighter guns and their cognition is lower. As to living room photo sample (Table 6), regarding significant iron, worshipping table and cigarettes with smoke, children have more correct responses. They all make mistake on insignificant electric kettle. The reason can be that the electric kettle is too small in the picture and children cannot recognize it in short time. Drying quilt machine is also insignificant and only 35.5% children have correct responses. The reason can be that it is blocked by other things and the precision rate become lower. As to bedroom photo sample (Table 7), except for significant electric heater which is circled by all children, 90.3% circle socket with too many plugs. Thus, children can recognize the fire caused by electric overloading. Candle of oil burner is circled by 64.6% children. It is inferred that the rest of children do not know the object and they lack the knowledge that the burner is lightened by the candle. Lighter is circled by 51.6% children. Thus, children are more careful and they can notice the small items in the environment. The question regarding the desk lamp requires some thinking because the cloth underneath the lamp may get caught in fire when the heat from the lamp is too high. Only 32.26% children have correct responses. Thus, children's cognition of fire caused by heat is inferior.

Table 5. Gender * Dangerous objects in kitchen Crosstabulation

Gender \ Objects	Gas stove (N/%)	Lighter gun (N/%)	Oven (N/%)	Microwave ovens (N/%)
Boys(13)	13/41.9	9/29.0	12/38.7	12/38.7
Girls(18)	18/58.1	11/35.5	15/48.4	15/48.4
Total(31)	31/100	20/64.5	27/87.1	27/87.1

Table 6. Gender * Dangerous objects in living room Crosstabulation

Gender \ Objects	Iron (N/%)	Worshipping table (N/%)	Electric kettle (N/%)	Cigarettes with smoke (N/%)	Drying quilt machine (N/%)
Boys(13)	12/38.7	10/32.3	0/0	13/41.9	3/9.7
Girls(18)	18/58.1	16/51.61	0/0	17/54.8	8/25.8
Total(31)	30/96.8	26/83.4	0/0	30/96.8	11/35.5

Table 7. Gender * Dangerous objects in bedroom Crosstabulation

Gender \ Objects	Socket (N/%)	Lighters (N/%)	Fragrance Extract light(N/%)	Lamp (N/%)	Electric heater (N/%)
Boys(13)	11/35.5	5/16.1	10/32.3	5/16.13	13/41.9
Girls(18)	17/54.8	11/35.5	10/32.3	5/16.13	18/58.1
Total(31)	28/90.3	16/51.6	20/64.6	10/32.26	31/100

As to object items in the second section questionnaire, K-R reliability is .674 and it is acceptable. Dangerous objects (Table 8) are divided into objects lighted by fire and high temperature fire of electric appliances. Children can easily recognize the objects, such as gas, cigarettes, lighters, firecrackers, sticks of incense, candles, small gas stove, BBQ grill, alcohol burner, fire stove and mosquito-repellent incense, which are burned by fire. However, precision rate of firecrackers is 77.4% and the reason can be that the picture shows firecrackers which are not lighted and children thus neglect them. Electric appliances which cause high temperature by fire include microwave ovens, sockets, hair dryers, electric radiators, electric kettles, ovens, broken electric wire and iron. Among others, microwave oven and oven have appeared in environment items and only 4 children have the wrong answers. However, in object items, 7~8 children think that they do not cause fire. It is inferred that in environment items, these two electric appliances pile up and children might think that they can easily cause fire. When electric appliance appears individually, children tend to neglect it. As to socket with too many plugs, only one child has the wrong answer and it is not significantly different from environment items. Thus, the children recognize the danger of sockets with too many plugs and broken electric wire. Electric radiators and iron have appeared in environment items. The precision rate is 100%. Thus, children have recognized the danger of the objects. Precision rate of hair dryers is only 35.5%. It is inferred that children's cognition of high temperature caused by electric appliances is low. Electric kettle has appeared in environment item and only 6.5% have the right responses. It is inferred that children are not familiar with the electric appliance. As to the intervention of objects which do not cause fire, the precision rate is high. Thus, children can recognize dangerous objects in lives which cause fire.

Table 8. Gender * Objects Crosstabulation

Objects Gender	Microwave oven (N/%)	Socket (N/%)	Gas stove (N/%)	Hot water (N/%)	Cigarette (N/%)	Hair dryer (N/%)
Boys(13)	10/32.3	13/41.9	12/38.7	12/38.7	13/41.9	3/9.7
Girls(18)	14/45.2	17/54.8	18/58.1	18/58.1	17/54.8	8/25.8
Total(31)	24/77.5	30/96.8	30/96.8	30/96.8	30/96.8	11/35.5
Objects Gender	Lighter (N/%)	Matcher (N/%)	Firecracker (N/%)	Sticks of incense (N/%)	Electric radiator (N/%)	Cleaning Product (N/%)
Boys(13)	13/41.9	13/41.9	10/32.3	12/38.7	13/41.9	12/38.7
Girls(18)	18/58.1	16/51.6	14/45.2	15/48.4	18/58.1	18/58.1
Total(31)	31/100	29/93.55	24/77.4	27/87.1	31/100	30/96.8
Objects Gender	Electric kettle (N/%)	Oven (N/%)	Candle (N/%)	Small gas stove (N/%)	BBQ grill (N/%)	Alcohol burner (N/%)
Boys(13)	1/3.2	10/32.3	13/41.9	13/41.9	13/41.9	13/41.9
Girls(18)	1/3.2	13/41.9	18/58.1	18/58.1	18/58.1	18/58.1
Total(31)	2/6.5	23/74.2	31/100	31/100	31/100	31/100
Objects Gender	Pot (N/%)	Broken electric wire (N/%)	Fire extinguisher (N/%)	Iron (N/%)	Fire stove (N/%)	Mosquito-repellent (N/%)
Boys(13)	13/41.9	12/38.7	13/41.9	13/41.9	12/38.7	13/41.9
Girls(18)	18/58.1	15/48.4	17/54.8	18/58.1	18/58.1	17/54.8
Total(31)	31/100	27/87.1	30/96.8	31/100	30/96.8	30/96.8

5. Conclusions

This study probed into children's cognition of safety messages. The results show that Children tend to neglect electric appliances in the environment and single electric appliance are dangerous objects can cause fire. They have lower cognition of high temperature caused by electric appliances. Small objects which easily cause fire are also neglected. The reason can be that they are unfamiliar with the objects. Less than half of them have the correct response on fire caused by radiation. Therefore, it is inferred that children aged 10 have inferior cognition of fire caused by high temperature. Children can easily recognize the objects directly burned by fire. They tend to make mistake on firecrackers which are not lighted. Children might neglect the objects which are not lighted. Noticeably, firecrackers are lighted in festivals in traditional Taiwanese societies; we should emphasize the danger of firecrackers to children. Only few children have wrong answers regarding too many electric appliances connected on the same socket or extended lines and broken electric wire which causes fire by short circuit. Thus, children know the danger of the loading of sockets at home. It is inferred that it might be related to their living habit at home. Although the adults at home do not specifically teach them about the danger of sockets and broken electric wire, they can directly learn it from living habit. Children didn't recognize hair dryer is a dangerous object can cause fire and this object is commonly used very often from their daily experience. We should emphasize the introduction of high temperature caused by this electric appliance to the children. As to electric kettle, only 2 children have the right answers. It is inferred that children are not familiar with it and thus they cannot be sure that the fire will be caused by high temperature of this electric appliance. We should introduce electric appliances in life to children to avoid fire caused by their carelessness.

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