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Study on administrative and educational measures of China urban public fire safety education

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Abstract

To provide basis of scientific research for administrative and educational measures of China urban public fire safety education in and to ensure its effective implementation, the present situation and problems of China urban public fire safety education are investigated. Based on the research on forming process of public fire safety quality, the requirements of public fire safety education and the efficient education measures are studied. The present management and implement system and its problems of China urban public fire safety education are analyzed, based on a developed information system of public fire safety education and management, a suggested administrative system, enforcement mechanism and implement scheme of public fire safety education measures are proposed in this paper to provide guidance in reforming administrative and educational measures of China urban public fire safety education so as to change the situation of “activities of fire safety education years after years resulting in no improvement of fire safety quality of the public” and make true contribution to improving public fire safety quality in China.

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1. Introduction

According to the survey of China national public fire safety quality, which was conducted by the Fire Department of Ministry of Public Security of China under the help of China's National Bureau of Statistics in October-November of 2005, more than 80% of the fire disasters of great injuries and deaths were caused by the lower consciousness

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about fire safety and lack of basic fire safety knowledge of public [1]. This shows it is really an urgent task to improve the fire safety quality of China urban public.

But in China city, there is a very large short of organizations and teachers to satisfy the demand of the improvement of public fire safety quality. For the urban fire related forces, they need to cope with the huge demand of fire prevention and fire fighting, they can't have much strength to be involved in the task of public fire safety education. For the other government committees, offices and bureaus, they are involved in public fire safety education in a passive way, thus they of course cannot undertake the main responsibility of public security. And the social intermediary agencies and volunteer forces [2] are almost not developed. So the capability of urban public fire safety education in China is far beyond the reach of their public fire safety education demand.

In order to enhance the China urban education ability to satisfy the huge demand of their public fire safety education, a project of "Study on Administrative and Educational Measures of China Urban Public Fire Safety Education" was submitted to the Ministry of Science and Technology of China by Shanghai Fire Research Institute of MPS in 2011. This project was approved with the item number of 2011GXQ4B002 and the research was finished in 2012.

The ultimate goal of public fire safety education is to improve the fire safety quality of public. To achieve this goal, an investigation is required to discover the process of forming and development of public fire safety quality and measures to be taken to ensure such development.

However, formation and development rules of public fire safety quality remain uninvestigated in present foreign and domestic study. This project takes reference of research results of forming and development of other individual quality [3–7] and uses them in the research of public fire safety education to discover the formation and development rules of public fire safety quality and requirement of such rule on public fire safety education measures.

Public fire safety education service is for all citizens. This project draws on powerful China ID Card Management System in studying public fire safety education management information system and mechanism of public fire safety education administration and implementation based on such system to address the requirements of serving the public.

2. Present situation of China urban public fire safety education

2.1. Educational measures

China urban public fire safety education is currently carried out through popular science publicity and education, specifically involving the following measures: educational bases, education via news media, education via art activities, education activities, education organized by governmental agencies, enterprises and public institutions, education organized by kindergartens and schools, education organized by urban communities, education delivered to the groups exposed to high risk in fires, and education in other forms [8].

2.2. Present situation of administrative system and enforcement mechanism

The organizations and their way to be involved in China Urban Public Fire Safety Education are introduced as following [8].

2.2.1. Relevant governmental agencies and activities organized

The governmental agencies responsible for public fire safety education [9] can be classified into following two categories:

- Publicity and education sections under public security fire control institutions

As an example, the publicity and education sections in Shanghai Municipal Fire Department are the Publicity Section and the Fire Protection Training Unit. Publicity Section, just as the name implies, focuses on fire control publicity but takes relatively few measures specific to fire safety education. However, publicity is only the first step of public fire safety education. In other words, it is only an external factor having influence and stimulus on the

public. Fire Protection Training Unit is mainly responsible for providing certification training for the personnel engaging in special type of work who must be certified to have required fire safety knowledge before assuming the post. The Training Unit occasionally organizes fire fighting experience activities for the public. Some Training Units establish a Fire Services Training School specialized in vocational training on fire service. Some publicity sections of public security fire control institutions additionally set up fire museums not only as a means of fire control history and fire protection publicity but also as a platform of lifesaving and escape experience in case of fire.

- Fire control management grids of all levels

The fire control management grid of all levels in subdistricts (together with public fire safety education organized by the same) developed by the Administrations of Work Safety acting as the Work Safety Commissions in cooperation with Fire Departments acting as the Fire Safety Commissions, both subordinated to municipal people's governments, in accordance with the Guidance on Introduction of Fire Safety Grid Management in Subdistricts, Villages and Towns.

Among the above organizations, Shanghai Municipal Work Safety Commission and Shanghai Municipal Fire Safety Commission [10] constitute a running body that takes an absolute leadership role. These two commissions are responsible for activity planning, reporting, day-to-day supervision and instruction, and assigning missions depending on the circumstances. The commissions are substantially run by executive agencies (the executive agency of a Fire Safety Commission is fire bureau along with its subordinate fire departments). Each Fire Safety Commission practices the real entity operation mechanism and has a subordinate office set up in districts and subdistricts. Fire Safety Commission is merely a macroscopic concept, and it is the subordinate office that is managing specific affairs of the Commission. Unlike other offices that may exist in name only, the subordinate office of a Fire Safety Commission is a fire department in the real sense and performs practically its functions. Given that fire department is inherently an executive agency, it will undoubtedly turn out to be different when the fire department acts as the subordinate office a Fire Safety Commission. For instance, the subdistrict-level office of a fire safety commission functions as a part of the Security Service Department.

The day-to-day management of the Commissions is in the charge of specific responsible departments set up in lower-level jurisdictions, such as subdistricts of a community. And the operation budget is under the control of finance bureaus of municipal, district and county levels.

With the issuance and further implementation of the Guidance on Introduction of Fire Safety Grid Management in Subdistricts, Villages and Towns on May 21, 2012, the above-mentioned two categories of governmental agencies responsible for public fire safety education tend to merge into one gradually. The governmental agencies of the first category tend to merge into the second category and to perform their functions and execute relative educational measures by leveraging governmental agencies of the second category.

Public security fire control institutions and local police stations also get involved in the public fire safety education by undertaking the following tasks: independently organizing public fire safety education and training activities; acting as the executive office of and enforcing the measures developed by the Fire Safety Commissions of all levels, in cooperation with these Fire Safety Commissions; offering operational instructions regarding the public fire safety education activities carried out by Fire Safety Commissions and fire safety management grids of all levels; and providing necessary assistances and instructions for social organizations and intermediaries of all levels upon request.

Taking Shanghai for example, the governmental agencies responsible for public fire safety education and the operation route are presented in Fig. 1.

2.2.2. *In-house activities organized by organs, organizations, enterprises, public institutions, street stores and family workshops*

Various units and institutions independently organize emergency evacuation, escape and fire fighting drills in case of fires, under the direction of fire prevention offices at the subdistrict level.

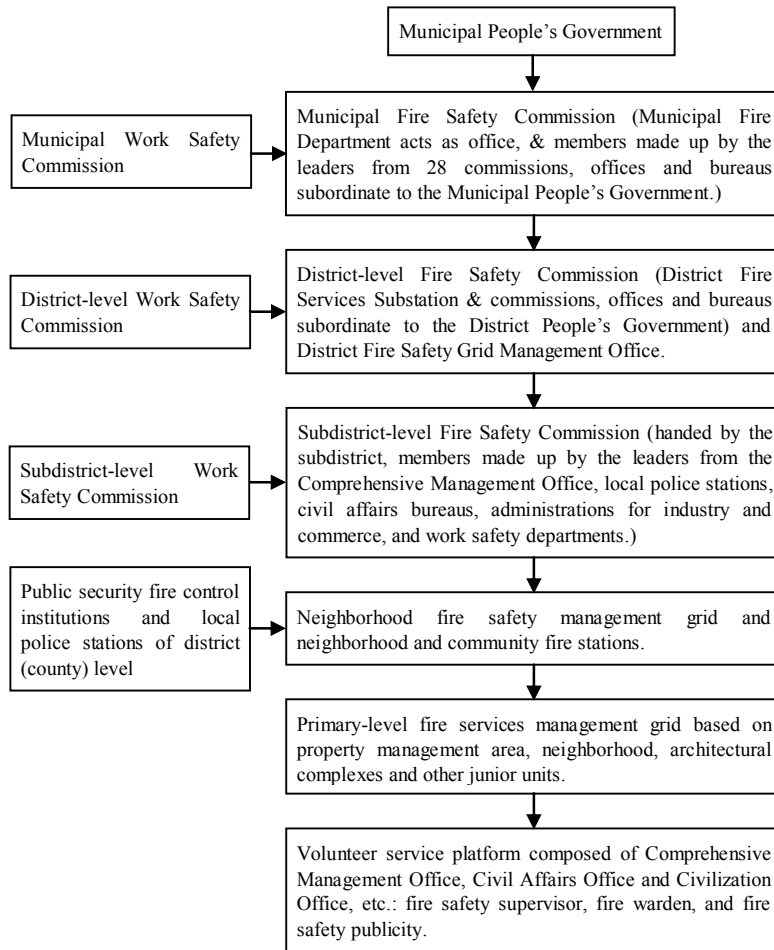


Fig. 1. Governmental agencies responsible for public fire safety education and their operation route.

2.2.3. Scattered experience bases

Some social intermediaries organize experience activities as a link of public fire safety education, such as public fire safety education bases set up nationwide, fire museums, Shanghai Eday Town, Fire Safety Presentation and Experience Base for Shanghai Primary and Secondary School Students (Citizens) under planning and a wide range of experience activities organized either regularly or irregularly by the Safety Experience Center of New Jiangwan Community and other institutions. But these activities are rather sporadic without unified urban planning.

2.2.4. Intermediaries

Science Popularization Education Working Commission of China Fire Protection Association and subordinate local chapters, together with local education committees and science & technology committees carry out public fire safety education activities in their respective jurisdictions with reference to their functions and powers.

2.2.5. Other commissions, officers and bureaus

Other public administrative authorities participate in fire control management via the grids of all levels of Fire Safety Commissions.

Municipal fire safety commissions have offices set up in municipal fire departments.

Under the framework of a municipal fire safety commission, all the districts in the city set up respective district-level fire safety commissions. For example, Fire Safety Commission of Jing'an District was established on Sep. 27, 2011. The Fire Safety Commission practices the real entity operation mechanism and all the constituent units cooperate closely in fire safety management to solve the key and difficult problems existing in current fire safety management and advance the progress of fire control socialization. All the sectors develop a long-term operation mechanism and responsibility system and strive for continuous improvement of the same, and they work closely with each other to realize the goal of "get everyone involved in fire control and build a public security defensive wall together". Each sector performs its own functions to promote the construction of comprehensive emergency rescue teams at district level and progressively develop an emergency administrative system and efficient operation mechanism characterized by systematic management, graded responsibility, integration of departments and regions at different levels and local management.

3. Existing problems of public fire safety education

3.1. Lack of continuity and systematicness

Chinese cities have launched various public fire safety education activities which are often discontinuous. For example, some large education activities just vanished forever after being carried out on a grand and spectacular scale for several days, making it rather difficult to make accurate statistics about the quantity of participants as well as the amount of knowledge obtained, remembered and converted into the improvement of fire safety quality by these participants. This is the reason why there is no significant improvement of public fire safety quality despite of many public fire safety education activities carried out every year.

3.2. Lack of scientificity

The public fire safety education in urban China is, in most case, large but relatively superficial. As the initial stage of public fire safety education, this form of education plays only the role of disseminating popular science of fire safety but rarely the role of educating the public and improving the public's fire safety quality.

The formation of public fire safety quality involves a self-criticism process in which frequent education is required to moisten the public's hearts so as to help them correct their bad habits and establish good ones conforming to fire safety requirements. To realize self-denial, we people need long-term moistening of heart by education.

3.3. Lack of specific stipulations in laws, regulations and rules

The articles and provisions of Chinese laws and rules concerning public fire safety education are mostly rough administrative stipulations without any requirements on specific measures, or supervision/ examination regulations on the implementation or implementation effect of such education. Therefore such education often emphasizes the form and neglects the actual effect of improving public fire safety quality.

3.4. Frequent population mobility

The frequent population mobility in urban China [11], especially the frequent mobility of migrant workers, causes much inconvenience for the public fire safety education and evaluation of fire safety quality.

3.5. *Insufficient education power*

Chinese fire force is critically weak and fire safety education actually scarce and short of scientific foundation. Other commissions, offices and bureaus except for the fire department and education committee get involved in public fire safety education passively, so the education cannot reach out to all the public. Besides, social institutions and volunteer groups for such education are barely developed and the original fire-control workforce is too insufficient to cover the whole public. Today, although it is possible for the fire-control management system of the government (including such grids of the subdistrict and community levels) to realize full coverage after the implementation of gridding measures of fire-control management supported by the government, it's still difficult for the public fire safety education to cover all citizens.

4. **Research on the formation and development process of public fire safety quality**

In absence of researches on formation and development rules of public fire safety quality home and abroad, the project takes reference of research results of other qualities [3–7] to reveal formation and development rules of public fire safety quality as follows:

The formation of public fire safety quality includes four stages: external influence and stimulus of fire safety education, reaction equilibrium of subject, movement of internal contradiction and self correction of the public. The detail introduction can be seen in Fig. 2.

4.1. *Stage of external influence and stimulus*

The public, through activities of fire safety education, comes into contact with abundant factors of fire safety quality which will deeply or shallowly, strongly or weakly, positively or negatively affect and stimulate the individuals from the general public who, after being exposed to the circumstances produced by such factors, will generate various reactions of human organism, mentality, thought, emotion and the like, resulting in human's attention, understanding, confrontation or acceptance.

4.2. *Stage of subject reaction equilibrium*

The equilibrium process of reaction involves three levels of reactions, i.e., the physiological (psychological) reaction, thought reaction and behavior reaction from low to high, and consists of such three links as attention, understanding and acceptance.

4.3. *Stage of internal contradiction movement*

The stage refers to a dialectical movement and balanced development process of such internal and psychical elements as cognition, emotion, belief, volition and conduct.

Cognition refers to fire safety cognition.

Emotion refers to fire safety emotion. It is a kind of emotional experience generated when people try to understand and evaluate surrounding people and events in accordance with certain social principles and standards of fire safety, and it can catalyze and strengthen the formation and development of fire safety quality.

Belief refers to fire safety belief. It is people's inner belief in certain social principles and standards of fire safety. Its formation is the key to forming fire safety quality.

Volition refers to fire safety volition. It is the willpower of conscientiously conquering all difficulties and obstacles showed when people are practicing and implementing the fire safety principles and standards. Certain fire safety volition can adjust, supervise and control the formation process of fire safety quality.

Conduct refers to fire safety conduct. It is the practical action carried out by people when they are implementing certain fire safety principles and standards in practical activities under the governance and regulation of certain fire safety cognition, emotion, belief and volition.

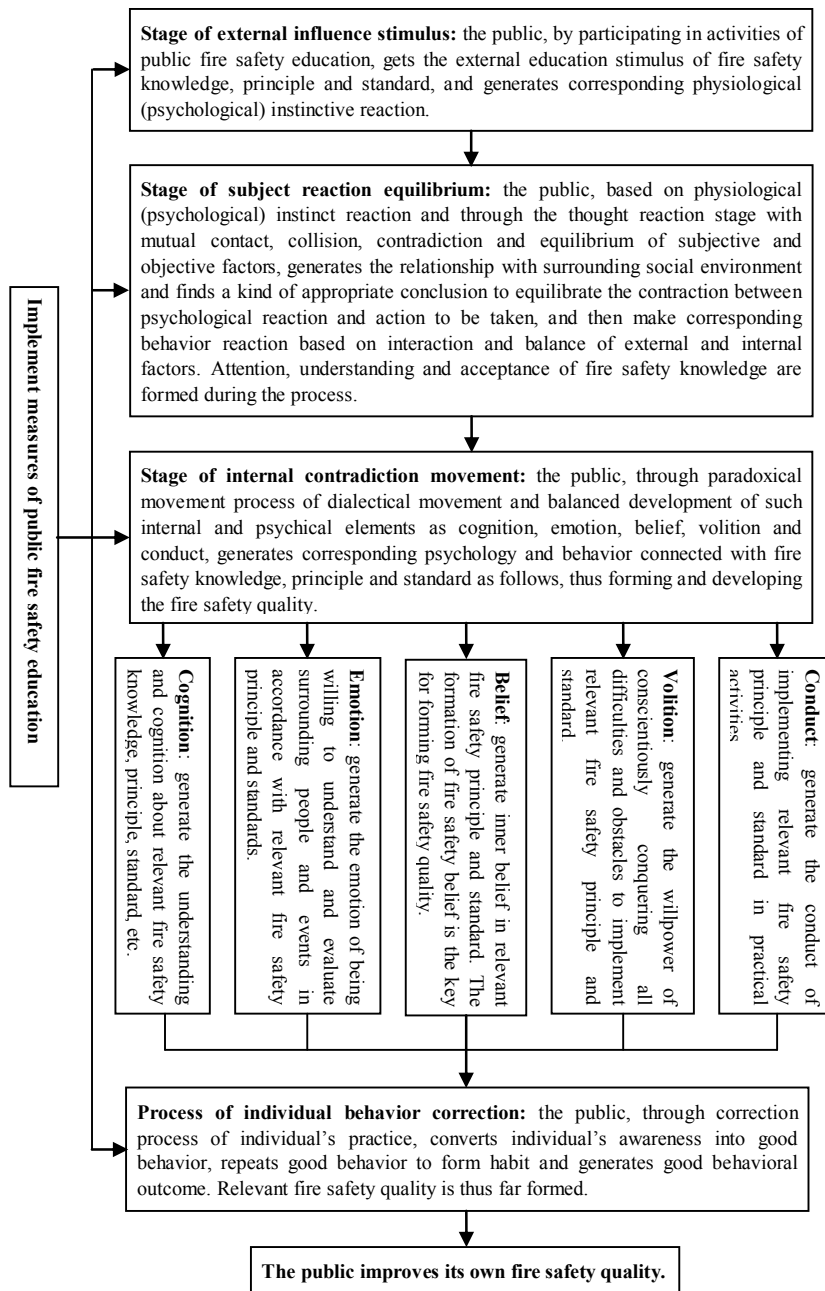


Fig. 2. Process through which the public forms fire safety quality by receiving fire safety education and self internalization.

4.4. Process of public behavior correction

The process of public behavior correction refers to the process in which the educatees convert their fire safety awareness into good behaviors and repeat such good behaviors to form habits, thus generating good behavioral outcome.

Specifically, it can be divided into three stages:

First stage: to understand fire safety problems and pay attention to the objects of fire safety activities under certain moral motivation. This is the beginning of practical activities of fire safety.

Second stage: to choose the behavior approach and form under the restriction of fire safety purpose. To convert fire safety motivation into behavior, corresponding behavior approaches and forms must be chosen since the motivation can be converted into behavior and plays its role in the officially-formed individual characters of the public only after corresponding behavior mode has been found. Therefore a link to be reckoned with during the externalization process of fire safety quality is to choose appropriate behavior mode.

Third stage: to externalize fire safety motivation into behavior and repeat and strengthen such behavior to form habit in practical activities of fire control. The reason to particularly emphasize habit is that the behavior of fire safety awareness is often with contingency and situationality, and can become stable behavior pattern and public individuals' fire safety quality only after habit formation through repeated training. Therefore the formation of habit can be deemed as the formation mark of fire safety quality.

To sum up, the formation and development process of each fire safety quality requires such four stages as the influence and stimulus of external fire safety education, reaction equilibrium of subject, movement of internal contradiction and self correction of the public. Some fire safety qualities may be formed through one time of such cycle (for example, caused by fire safety circumstance with strong influence and stimulus of fire safety education), some may be formed after several times of such cycle while others may be difficult to be formed even with lifetime efforts. However, in any case, continuous proceeding or even reciprocating circulation of such four stages is the necessary course of the formation and development of each individual's fire safety quality.

5. Research on effective fire safety education measures

5.1. Requirements for education measures implemented during public fire safety quality formation and development

In order to facilitate the formation of the fire safety quality of the public educated, the fire safety education department must develop corresponding fire safety education measures according to the fire safety quality formation process of individuals and promote the educatees to develop fire safety awareness and safety willingness, learn skills, overcome obstacles caused by their own habits and finally have sub-conscious safe behaviors (i.e. fire safety quality) through the implementation of the fire safety education measures. The fire safety education measures and their implementation are measures meeting the requirements of developing public fire safety education quality and based on scientific researches. Measures developed and implemented according to these requirements can yield twice the result with half the effort.

5.1.1. Measure development principle: causing external influence and stimulus

The fire safety education is mainly conducted through the publicity of fire safety knowledge by banners, broadcast, television, network, media, classes and the like to show the importance of fire safety and horrifying cases and realize the publicity of relevant legal policies and rewarding and punishment measures.

5.1.2. Measure development principle: coordinating with the subject reaction equilibrium for smooth development

The measures of this stage should impose positive influence on the hearts of individuals and make individuals willing to accept relevant fire safety requirements obtained from the external stimulus at the first stage. The most effective measures imposing positive influence on the awareness of the public should meet relevant laws, regulations and requirements. Implementation of the measures without complying with relevant laws, regulations and requirements results in the violation of laws. In general, the public will prevent themselves from violating laws, but the provisions of laws must be specific instead of being broad-brush. Broad-brush provisions are not legally binding since they cannot determine whether an individual violates the provisions. Secondly, it is important for the environment where the public live to implement the rewarding and punishment systems of individuals according to fire safety requirements. Violation of the rewarding and punishment systems will result in the decrease of income

and the loss of promotion opportunity and even the embarrassing situation of paying fine, so self-discipline public will also strive to prevent these situations. In addition, through the publicity of fire cases in which horrifying fire scenes are terrifying and shocking, individuals are willing to accept requirements and behave according to fire safety regulations. However, without repeated consolidation and deepening, the fear and shock will slowly reduce and even disappear after a period of time and gradually lose its effect.

The measures at this stage should comply with the following: 1. relevant laws, regulations and administrative provisions having assessable requirements; 2. regulations and rules with rewarding and punishment rules which are issued under various environments to ensure fire safety requirements and regulations and can be recognized and implemented; 3. knowledge about fire hazard, especially the publicity of fire cases.

5.1.3. Measure development principle: coordinating with internal contradiction movement for sound development

Firstly, the measures of this type should focus on the learning of fire safety knowledge and skills of individuals. As for the learning of the knowledge and skills, in addition to the publicity method used at the first stage to introduce relevant knowledge and skills to the public, the most important thing is training and experience which allow relevant knowledge and skills to be deeply rooted among the public so that the public can firmly remember, master and understand relevant knowledge and apply the skills with high proficiency in practice, thus preventing panic and anxiety in case of fire.

The emotion, belief and volition of the public of this stage are formed owing to strong body and spirit benefiting from laws and regulations, publicity, moral sentiment cultivation and training and strong will exercise.

5.1.4. Measure development principle: facilitating public behavior correction

In order to define fire safety problems, the measures at this stage can be targeted specific fire safety education measures and are implemented to help the public under specific environments understand the fire safety problems existing in their environments and surrounding. For instance, as for welders, targeted training with respect of potential fire hazards during welding operation and welding operation procedures should be conducted to help them understand what potential hazards they need to pay attention to during welding operation, why they are potential hazards, what kind of fire will be caused if such potential hazards are ignored and not corrected and what serious consequence will be caused by the fire. During this period, cases in terms of fire caused by welding can be introduced to the welders. On this premise, trainers should introduce welding operation procedures to the welders, interpret the significance and effect of each procedure and help the welders understand risks possibly caused if they fail to carry out welding operation according to the procedures, know how to meet the requirements of each procedure and the like. Specific fire safety education measures are developed for specific environments to help the objects of education understand the fire safety problems existing in the specific environments and point out the seriousness of these problems. The public must pay attention to and have corresponding moral motivation to think and pay attention to these problems and require themselves to deem these problems as important matters and think how to solve these problems.

In order to help individuals choose behavior approaches and forms and cooperate with the fire safety education measures at this stage under the restriction of fire safety motivation, scientific fire safe behavior modes can be obtained through relevant researches and experiments on safe behavior modes and forms according to specific requirements for specific places and education and training are carried out to help the public form safe behavior modes. During research, various approaches and forms applicable to various circumstances can be obtained and introduced to educate and train the public to help them choose safe modes and forms based on specific situation according to the behavior modes meeting the fire safety requirements for their environments.

In order to enable individuals to externalize fire safety motivation into behaviors and repeat and strengthen such behaviors to form habit in practical activities of fire control, the measures at this stage should include study and development of relevant insurance systems, supported with periodic check and assessment system and implementation of these systems. Relying on these systems and their implementation, the public can persist in and continuously enhance safety knowledge and skills in real work and lives and finally form their habits. These systems

are related to the content, coverage, frequency and the like of check and assessment, should be developed after researches and experiments and cannot be rigidly simple. For instance, the awareness and skills of some people have been enhanced and reached a certain level after receiving education, training and check and assessment for many times, so the frequency of check and assessment can be reduced accordingly according to the conclusion of relevant research results and the time interval of check and assessment can be lengthened, which not only ensures the safe behavior modes of the public but also reduces their time spending in check and assessment.

5.2. Principles for developing public fire safety education measures

According to the requirements for education measures during the formation of fire safety quality, public fire safety education measures must be comprehensive, effective (and specific) and continuous.

5.2.1. Universality

Public fire safety education measure should completely cover people of all sectors, which should be ensured by a perfect public fire safety education system and mechanism; the content of publicity should consider prevention and extinguishment of fire and escape, which should be ensured by the development and implementation of scientific public fire safety education measures.

5.2.2. Effectiveness

Public fire safety education measures should be developed and implemented according to the requirements of the formation and development of public fire safety quality for public fire safety education measures. Firstly, the requirement for pertinence should be met. The development of public fire safety education measures should consider different implementation objects, implementation situations, education content and the like and pointed measures are developed on this basis. Secondly, the serialization of measures should be realized in order to ensure that there are corresponding measures to facilitate the formation of quality in each link during the formation of public quality.

5.2.3. Continuity

Public science education measures shall be continuous and the frequency of education should be determined according to the turnover characteristic of targeted people during the maintenance of continuity. Governments of various levels, functional departments, mass organizations and social organizations should establish a long-term education system.

5.3. Development of public fire safety education measures

All regions should, based on local conditions, develop series of public fire safety education measures complying with the principles for developing public fire safety education measures according to the requirements for education measures during quality formation and development.

6. Study on the administrative system and enforcement mechanism of public fire safety education

China city public fire safety education administration mechanism still remains unexplored. This project studies China city public fire safety education administrative system and enforcement mechanism and subsequent implementation scheme according to the requirements of education effectiveness, universality of educational objects and continuity of education on the basis of the above research result.

The continuity of public fire safety education determines that it is a task lasting for years, which calls for an administrative system and enforcement mechanism that is permanently feasible and effective. To this end, the governmental agencies subordinate to fire departments and Fire Safety Commissions, including the agencies of subdistrict or lower level, may perform their administrative and partial educational functions.

Universality, one of the requirements for public fire safety education, is a heavy burden on Chinese municipal governments and subordinate fire departments which have a long way to go before they satisfy such requirement. The reason lies in the undersized work force of public fire safety education compared with a vast number of persons in need of fire safety education, coupled by a significant mobility of rural-to-urban population. To solve this problem, on the one hand, it is recommended to design and develop an information management system for public fire safety education based on or using the well-established Resident ID Card Information Management System. In this way, the powerful public management capacity of the ID Card Information Management System can be effectively used by the departments involved in public fire safety education to get the whole public under its control based on a controllable and adjustable workload. In addition, the information management system for public fire safety education so developed can be utilized to follow up on the fire safety quality of the public, especially the rural-to-urban population. Furthermore, we may use this information management system to analyze a wide range of educational measures before implementing the same, so as to improve the public's fire safety quality easily and effectively.

On the other hand, in consideration of universality of public fire safety education, the governmental fire safety management agencies only cannot make fire safety quality-oriented education accessible to the whole public due to vast number of the mass and continuity of quality-oriented education, even though the information system of public fire safety quality management is already in place, which has considerably enhanced the efficiency of governmental fire safety management agencies in tracking of public fire safety quality management and even that of quality education. The power of citizens and non-governmental sectors is called for addressing the issues involving the public. Therefore, regarding the enforcement of public fire safety education, the government should encourage the involvement of non-governmental sectors, especially social intermediaries.

To this end, municipal governments or even the State should launch some supporting laws and regulations to encourage involvement of non-governmental and specify expressly the obligation of all organizations to deliver public fire safety education to their employees. Under this operation mechanism, governmental fire safety management agencies are in charge of management and statistics analysis instructions, non-governmental organizations are responsible for making public fire safety education accessible to their employees, and major intermediaries engaging in public fire safety education take charge of delivering lectures and trainings on public fire safety. Such an operation chain linked by relevant rules and regulations makes it possible for fire safety education to reach out to the whole public through due performance of respective duties by all the entities on the chain pursuant to relevant laws and regulations. As a result, the universality of public fire safety education is satisfied.

Fig. 3 illustrates a desired administrative system and an enforcement mechanism required for efficient implementation of public fire safety education are developed based on an exploration into the powers and functions of governmental and non-governmental institutions in the field of public administration and public fire safety education and an analysis on the universality, pertinence, effectiveness, continuity and coordination power required for public fire safety education.

The grid management system composed of governmental fire departments, fire safety commissions and community fire safety offices presented above refers to the subdistrict-community management grid developed by the Administrations of Work Safety acting as the Work Safety Committees in cooperation with Fire Departments acting as the Fire Safety Committees, both subordinate to municipal people's governments.

7. Implementation program of public fire safety education

The public fire safety education must be implemented according to the universality, effectiveness and continuity required for public fire safety education.

7.1. Guarantee for implementation of public fire safety education

To set up an urban fire safety assessment indicator system that incorporates public fire safety education as one of assessment indicators, to conduct specific studies on the penetration, effectiveness, systematicness and continuity of

urban public fire safety education, and to design detailed measurement and assessment indicators so as to guarantee the implementation of public fire safety education.

7.2. Guarantee for full-coverage implementation of public fire safety education measures

7.2.1. Full coverage of public fire safety education administration

With the aid of the information system for public fire safety education management, the management grids of all levels of urban Work Safety Commissions and Fire Safety Commissions (all are executive agencies) extending to the fire safety management network of subdistricts, communities and architectural complexes is likely to guarantee that the public fire safety education is made accessible to the whole public in respective jurisdictions and to ensure full coverage of public fire safety education management.

Fire safety education management and guidance is of a top-down management type, namely, municipal fire safety commission delivers instructions and guidance to the safety committees of all subordinate levels. For example, Municipal Fire Safety Commission directs Subdistrict Fire Safety Committee, Subdistrict Fire Safety Committee directs Community Fire Safety Committee, social workers in Community Fire Safety Committee take charge of specific execution of education measures, and Community Fire Safety Committee directs all organizations and units in a jurisdiction to carry out education activities.

However, the tracking and testing of the public's fire safety quality as well as statistics, recording and supervision of public fire safety education are all of bottom-up type. For example, the fire safety education subdivisions of residential buildings are undertaken by the volunteer groups occupying different floors. These volunteer groups are responsible for supervision, inspection and recording of the fire safety education and fire safety quality of the residents in the specific jurisdiction.

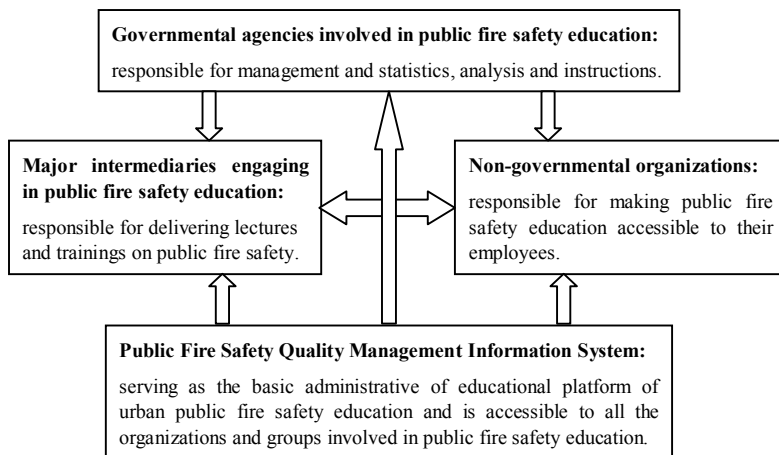


Fig. 3. Administrative system and enforcement mechanism required for efficient implementation of public fire safety education.

7.2.2. Guarantee for full-coverage implementation of public fire safety education

- Laws and regulations requiring a full coverage of fire safety education

It is suggested that the state and local governments may issue related laws and regulations to set forth the obligations of all the public to receive the fire safety education, the obligations of all units to organize the education of fire safety to all their staff and the obligations of governmental fire protection related management departments and network to provide guidance, supervision and inspection on the provision of the fire safety education to the staff

of each organization and that the social intermediary organizations with educational function should be opened to the public.

- Each organization organizing the fire safety education and assessment for their staff

Each organization (including the community) will regularly deliver fire safety education to its staff as per the requirements of applicable laws and regulations. It may invite related educational experts to deliver the training and provide experience internally, or organize its staff to receive the fire safety education in related educational intermediary organizations or volunteer service organizations. Proper regulations and rules, award and punishment systems and system implementation mechanism may be formulated to guarantee the opportunity for each employee to participate in the public fire safety education; further the education assessment results should be input to the public fire safety education management information system.

- Intermediary educational organizations implementing the public fire safety education and training

It may open the application for the qualification of public fire safety education and training to intermediary educational organizations and volunteer service organizations and provide guidance to those organizations to establish sound public fire safety education and training organization structure. Qualification certificate may be issued to the organizations passing the proper review to grant them the public fire safety education function.

- Administrative agencies responsible for the supervision on assessment

A management, guide, supervision and assessment network system of public fire safety education may be established by the fire safety committee led by the government and operated in physical entity and their subordinate networks at all levels. After the proper statistics and analysis of the fire safety education assessment results of each organization input in the public fire safety education management information system, proper supervision, assessment and guide measures may be drawn up and improved to realize full coverage of supervision, management and guide.

7.2.3. Guarantee for full-coverage implementation of public fire safety education content

The contents of public safety education should cover all knowledge points about fire report, escape, keep safe, fire safety hazards and prevent ways, etc.

Coverage of all related public fire safety education contents may be realized by drawing up series of fire safety education measures and further implementing related measures on demand.

7.3. Guarantee for effective implementation of public fire safety education measures

Guarantee for effective implementation of education measures: 1. the measures should be targeted; 2. the measures should be implemented according to the formation and development rules of public fire safety quality.

7.3.1. Guarantee for targeted implementation of fire safety education measures

- Targeted content of public fire safety education measures

The fire safety education measures should be developed based upon the research on the object and place, reflecting the characteristics of the specific object and place.

- Targeted implementation of fire safety education measures

The administrative departments of fire safety education should guide to implement different fire safety education measures in different jurisdictions depending on respective characteristics of the public and environment in different jurisdictions. Meanwhile, the administrative departments of fire safety education may carry out statistical analysis and research based upon the information related to the current status of the public fire safety quality and fire safety education in the network at each level acquired from the management information system of public fire safety education and then put forward specific requirements for public fire safety education in line with the characteristics of the publics, region, business activities and housing construction of each jurisdiction.

7.3.2. Guarantee for implementation of measures in line with formation and development rules of public fire safety quality

The fire safety education measures should be implemented in line with the formation and development rules of public fire safety quality. In addition, the measures should be serialized and matched when developed and implemented.

- Arouse the interests of the public in fire safety. Measures: banner, media publicity, poster & video and laws and regulations which may arouse the interests of the public. Implementer: any agency/department.
- Persuade the public to accept the fire safety management requirements. Measures: publicity and education of laws & regulations and cases and establishment and implementation of relevant reward and punishment system by the government and working units. Implementer: the working units.
- Stimulate the emotion, belief and will of fire safety of the public and teach the public relevant fire safety knowledge and skills. Measures: publicity and education of laws & regulations and cases, rules and regulations of working units and education of intermediary agents. Implementer: cooperation of working units, educational institutions and government departments. Working units are responsible for organizing the public to accept the educational training.
- Help the public to practice the fire safety knowledge and skills learnt and develop them into subconscious behaviors (namely, the quality of the public) through continuous consolidation and strengthening. It takes long to develop the quality. Furthermore, the development of the quality should be incorporated into the daily life and work of the public so as to gradually replace bad habits with safety habits without material impact on the life and work. Implementer: working units and communities. Measures: implementation of rules and regulations, daily safety supervision, publicity and punishment. Working units are responsible for helping the employees to gradually get rid of bad habits and strengthen good habits until the employees have sub-conscious safe behaviors, which means that fire safety quality is developed.

7.4. Guarantee for continuous implementation of fire safety education measures

7.4.1. Continuous supervision, examination and guidance of administrative department of fire safety education

The administrative department of public fire safety education should regularly examine the public fire safety education of the employees in different institutions and organizations according to the management information of public fire safety education, inform the non-conforming institutions and organizations and supervise and guide them to make a correction.

7.4.2. Continuous Guarantee Systems set by each organizations

For example, the schools integrate fire safety education into the teaching program and set certain credit hours; working units formulate relevant rules and regulations, which require new employees to accept fire safety education and examination and old employees to participate in the examinations of fire safety knowledge at regular interval,

and then enter the examination results into the management information system of urban public fire safety education. It is required to set up relevant bodies and designate relevant personnel to take charge of the implementation of the systems.

8. Conclusions and Suggestions

In this paper, the author studies and puts forward an administrative system and enforcement mechanism of urban public fire safety education based on the education management information system, and proposes a series of fire safety education measures in line with the formation and development rules of public fire safety quality and the implementation program of these measures.

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