

A Literature Review on the Scenario Based Preparedness Construction of Social Security Emergency in the College and University

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Abstract

With strong unpredictability, the social security incident has been ineffectively managed by conventional prediction methods. At the same time, the “scenario – response” has become an effective method of emergency management dealing with the social security incident in universities and colleges. The study on social security emergency in the college and university belongs to the field of emergency management, and is of basic characteristics of the social security incidents as well as campus emergencies. This paper mainly reviews from the social security emergency management in the college and university, the scenario theory, and emergency preparedness. Therefore, conclusive research of the college and university emergencies and the social security emergency helps to improve and complement the theory of emergency management and to clarify and define the meaning of campus social security incidents.

Key words: Literature review; Scenario; social security emergency; College and university

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1. RESEARCH ON THE SOCIAL SECURITY EMERGENCY MANAGEMENT IN THE COLLEGE AND UNIVERSITY

With the external influence of social transformation, the changing international politics, network development, due to the college and university students' high education, active thinking, society caring, and immature thoughts, etc., social security emergencies become frequent in recent years, which have made great influence to the society. The in-depth analysis of emergency management in the college and university, can not only recognize the history continuation and characteristics evolution of internal problems, draw on the experience and reference of current emergency management, but also provide a basis for future emergency forecast analysis of colleges and universities.

1.1 Research on Social Security Emergency

To conduct research on social security emergency in the college and university, it is preliminary to clarify the connotation and denotation of emergency and its sub-event, the social security one. Research and results are as followed:

Emergency, mainly includes emergency events, unconventional emergency, accident, disaster, calamity, disaster, crisis, issue, incident, etc.. The connotation is similar and crossed in these concepts. The “9.11” terrorist attack in 2001 is widely seen as the important landmark in unconventional emergencies which is regarded as the turning point in the evolution of traditional risk management, crisis management to the unconventional emergency management, and also a substantial starting point in international unconventional emergency research (Zhang, 2014).

Emergency management theory was initiated in the early 1760s, whose preliminary major applications are in the field of natural disasters, military and diplomatic and appear as an independent discipline, then extends to the political, economic and cultural fields. Steven Fink (2002) originally described the crisis life cycle in medical terms, symptom, episodes, continuation, recovery of four stages, and put forward the idea of the focus of the crisis management in the prevention; Burkholder T B (1995), etc. according to the development of the incident, put forward the emergency stages, pre-emergency, end-stage emergency, emergency stage three phase models, and proposed that different goals must be set with different measures taken based on characteristics of the three phase to quell the emergency; Robert Health, from the perspective of system theory, put forward the method of integrated architecture to strengthen emergency management for the coordinate system of each component; Coombs (1995) regarded the spread of the crisis as essence of the crisis management, and came up with the spokesman system and the defense organization theory to avoid information vacuum; Williams G (2003) discussed the function of crisis management to controlled recovery with a terrorist attack in Manchester, England, to draw out that the coordination of disaster recovery played a positive effect.

It involves careful planning and organization, and also the emphasize of emergency management to respond to emergencies; Fogli D, Guida G (2013) constructed the decision support system of emergency management based on knowledge, adopting rational and structured approaches to extract expected information on the target environment, application fields, users, management tasks, and specific activity, for designing the data model to provide decision support. Miskel J. F. (2008) described the critical role of nonprofit volunteer organizations such as the Red Cross in the emergency; Williams L (2006), stressed that the lack of necessary training was the important cause of the failure of the emergency response plan, and everyone needed to accept the basic emergency training, including basic training and expansion training two levels; Paeka and Hilyard (2010), based on the theory of behavioral health and media effect, said that the emergency preparation phase was positive correlated to self-efficacy, subjective norms, emergency announcement and the possession of emergency resources; Koliba, Mills (2011) studied multi-scale and multi-sector of the crisis governance network characteristics and proposed the accountability mode around democracy, market, administration three aspects. CK Tveiten (2012) focused on three factors in the future consideration of emergency management development: the risk of early expectations, distributed behavior factor, the new technology and its application.

1.2 Research on the Social Security Emergency in the College and University

Emergencies in the college and university must happen on campus or related to members of the school, which

have erupted or latent, causing serious influence to the operation, reputation or part of the school members of the school. Robert T. Stafford Disaster Relief and Emergency Assistance Act(2014), divides the emergencies in the college and university into five types: public health emergencies (infectious diseases and food poisoning or drug leakage, etc.); mass as strike, demonstrations and marches incidents influencing the stability of the campus; security incidents influencing the stability of the campus (the campus violence, etc.); natural disasters (floods, earthquake, etc.); all kinds of accidents (fire, traffic accident, collapsing buildings, etc.).

The study of emergency management in the college and university originally derived from public relations of the public administration. In 1952, famous American scholars Scott M. Cutlip and Allen H. Center) put forward some countermeasures from the angle of public relations, such as “problems” in American colleges and universities. The one who formally put forward and speak out the crisis of higher education is the American scholar, Coombs, from a macro perspective of the world higher education crisis in the 1980s. Schonfeld David (2015) put forward campus public emergency such as mental health, natural disasters, terrorist activities, contact with hazardous materials, the threat of weapons, and the teacher strikes.

In addition, scholars listed outside impact factors such as war in the campus emergencies. At the same time, many scholars have studied emergency management countermeasures in the college and university, seeking the crisis for scientific management to take a variety of measures, such as the measure to strengthen the training of teaching staff and students’ personal safety education, the one of emergency plan, the one to create and update the campus safety equipment, and the one to create a good campus atmosphere, etc (Mutch, 2014). Due to more and more personnel involved in crisis handling, Tuswadi and Takehiro Hayashi (2014) thought that it included the management, network staff, media, parents, counselors, paramedics, psychological experts, and security personnel in the corporation.

Studies of campus emergency management began in The 1980s. In the book *The World Crisis in Education: The View from The Eighties*, Coombs (1985) proposed the concept of a “Crisis of higher Education”, microscopically elaborating the generation and development of higher education crisis, and problems existing in the world education. Since then, research on campus events and coping strategies significantly increased. Among them, *School Crisis Response Combat Guide* (1978) by Lerner is more authoritative and has been hailed as “a comprehensive campus crisis response plan”. By the impact of “9•11” event as well as frequent school shooting, the western has introduced a series of measures to strengthen the campus emergency management, which is typical in the United States. For example, in 2003 the United

States Department of Education issued *Practical Information on Crisis Planning: A Guide for Schools and Communities*, dividing emergency into prevention, preparedness, response, and recovery four stages, and formulating emergency modes for each stage. Grayson (2006), Kadison and Di Geronimo(2004) believed that in the practice of college counseling center not only dealt with serious psychological health on campus, and pressure from various aspects, but also took emergency intervention, control and post-processing work; Grayson(2006) pointed out, from the point of view of the campus community, there was nothing more important than to stop cause mayhem and murder incident, in which the most difficult problem was how to find out the potential perpetrators; Studies of Zdziarski and Dunkel (2007), Sherwood and Mc Kelfresh (2007) show that for emergencies like campus violence, while every system of emergency contingency plans includes the crisis management plan, threat assessment team, emergency response team, etc, due to the specific implementation methods, personnel, combined with the geographical, environmental, cultural, and political factors of constraints, each plan actually have significant difference; Moore (2009), from the angle of ecological system, expected that information systematic interaction followed the law of microscopic system extending to the peripheral system, and then to the macroscopic system. Events were easy to form and expanded to the peripheral system because of multiple modern university communication channels; Robinson (2011) did statistics to prove that the school district partner choosing was greatly based on strategic diversity, on the basis of hurricane of 2005 Texas school districts; Studer, Baker (2009), etc., through the survey found that most of the school administrators expected that campus counselors should play a dominant role in undertaking emergency beforehand, in the course and afterwards; but Wiger and Harowski (2003) argued that when campus emergencies occurred, the management should take on the role of decisions, which transcends the campus counselors' training and job category.

2. RESEARCH ON SCENARIO

The study of unconventional emergency is essentially the research on scenario. Scenario is a description of the future condition, emphasizing its procedural (San, Gershuny, & Ian, 1978), through a series of status of the construction and expression of the future (Georgoff & Murdick, 1986). The circumstance and the situation in the scene is a trend and results respectively, showing the process and status (Li, 2009). Scenario is different from forecasting, which focuses on the impact of present situation on the future, and a series of possible future conditions (Porter, 1982). At the same time scenario is of a strong uncertainty (Schnars, 1987) and foresight, prediction (Schoemaker, 1991).

2.1 Scenario Construction

Events are expressed by scenario, which is made up of elements. By these elements are events described; through the interaction between elements, researchers and the management know and cognize scenario; through study on evolution and its mechanism (including evolution drive, evolution origin, evolution path, evolution pattern, etc.), the researchers and the management recognize and grasp the breeding, development and change rules of unconventional emergency, so as to take scientific and reasonable decision, and to optimize the resource configuration, for adopting scientific way of disposing of unconventional emergencies.

In the concept of scenario is actually covers the meaning of the forecast, while forecast is based on the reality in many aspects of data or case, to judge the future and recognition, and scenario is biased towards diversity and uncertainty, also a kind of vision of building. There are different path in the process of from reality to vision. And vision has differences so that it can make the final scene different. Scenario is a general description of the future vision and a process, describing the actual situation from start to end (Gershuny, 1976). Through a reflection of large number of the immediate picture to hypothetical future (Georgoff & Murdick, 1986), scenario makes judgments and assumption on the status in the future with the aid of probabilities, which is basically refining of future conditions and belongs to a possible judgment or assumption (Schnars, 1987). Scenario also has the very strong foresight, emphasizing the strong causal relationship and grasping the actual details of future condition (Schoemaker, 1991), and is a consistent narration about the future possible status of internal.

2.2 Scenario Evolution

Scenario evolution analysis of unconventional emergency is divided into two main theoretical perspectives: unconventional emergencies development process cycle, unconventional emergency management process cycle in the angle of the emergency response. The main theoretical models include:

The current widely used type of life cycle model is the "four stages theory": the unconventional emergency is divided into disaster reduction, response preparedness, emergency response and incident recovery. The four stages cover whole unconventional emergency management process and help with classification study on the activities of decision makers. Nonetheless, its defect is that repetitive activities among the stages cause unclear boundaries differentiation in practice. Barton (Barton) divided catastrophic incident into five stages: pre-disaster, disaster monitoring and early-warning, the spontaneity of the unstructured emergency response, organized society emergency response and post-disaster recovery. Mitroff in 1994 put forward the five-phase model, including: signal detection and prevention that can be used to detect

early warning; damage control after the crisis that is used to avoid the spread; the recovery phase for normal operation of the organization after preliminary control; And feedback, sorting and summarizing learning phase at the end of the event.

For emergencies' occurrence, development and evolution, scholars and institutions have a different understanding of the process of emergency management, but generally follow the life cycle theory: in three-stage model, Pre-crisis, Crisis, Post-crisis (Farazmand, 2001; Rosenthal & Pijnenburg, 1991); in four-stage model, Robert Heath' "4R model"(2003) referring to the formation of the crisis and the development of its life cycle, Reduction, Readiness, Response, and Recovery; four stages; Fink's "F model" (1986), Prodromal, Breakout or Acute, Chronic and Resolution; "PPRR model", Prevention, Preparedness, Response, and Recovery(Chertoff,2008), which is revised by the Federal Emergency Management Agency :Mitigation, Preparedness, Response, and Recovery; Coombs' four-stage involves Prevention, Preparation, Performance, and Learn (1999); Mitroff's (1994) "M model" Signal detection, prevention/preparation, containment/damage, recovery, and learning five stages.

3. RESEARCH ON EMERGENCY PREPAREDNESS

There are much academic discussion on the differences and relations of disaster reduction and preparedness. Disaster reduction is the implementation of various measures before the crisis and provide passive protection in the occurrence. Emergency preparedness, by contrast, includes the preparation of plans and programs, recruiting and training personnel, obtaining the necessary facilities, equipment and materials, to provide active protection thought emergency response. Mitigation activities mainly include the long-term land planning, building standards, housing relocation, and all kinds of measures to reduce risk and risk assessment; Preparation activities mainly are the short-term plan establishment, personnel training, drills, supplies, equipment, communications support, etc.; however, some activities may cross the borders of disaster reduction and preparedness, such as establishing of alarm and emergency communication system, preparation of evacuation plan, public education, for they are not only mitigation activities but also important parts of the preparedness.

3.1 Theoretical Research on Emergency Preparedness

After "9 11", Homeland Security Presidential Directive-8 (HSPD-8) specially emphasis on the national emergency preparedness. The United States Department of Homeland Security defines emergency preparedness as "a continuous cycle of planning, organizing, training, equipping,

exercising, evaluating, and taking corrective action in an effort to ensure effective coordination during incident response " (DHS). States emergency preparedness cycle includes planning, organization, equipment and training, practice, assessment and improvement to get promoted to the whole process of action from prevention, protection, response and recovery.

3.2 Research on Emergency Preparedness Methods

3.2.1 Strategic planning method of emergency preparedness

emergency preparedness needs strategic planning, which is a set of standardized and procedural system analysis framework and planning process. The planning method is the theory of human experience in strategic thinking. Traditional method of strategic planning is mainly SBP (Scenario-based planning,), which is based on past experience to form a specific scene aiming at the worst scene and then design the strategy and tactics, the ability strengthening and resources. In order to make up for the inadequacy of past experience, since the 1960s, the U.S. military started using TBP (Threat-based planning).The TBP identifies the possible threat first, in particular the enemy's strengths, weaknesses and attempt to forecast, designs a likely scenario according to the scene of the most serious situation, and then plans out strategy, troops employment and resources for victory. (Davis P.K, 1994). Therefore, the TBP is an improvement of SBP. Because both the SBP and TBP rely on past experience and known threat, the limitations of these methods increase within non-traditional threats such as terrorism. A new method of CBP (Capabilities-based Planning,) is gradually accepted. CBP is under the condition of uncertainty and provides the appropriate capacity for today's broad challenges, with keeping up within the economic framework (Davis P.K, 2002).CBP's core is to analysis the enemy's ability to determine the needs of ability in present or abilities for all kinds of possible threat in the future, through comparing the gap between present ability and the future one, and to plan out the need of strategy, action and resources, etc. At present, the Department of Defense and the Department of Homeland Security undertake CBP as planning method to raise the capacity of preparedness (Caudle, 2005).

3.2.2 Components and Structure of Emergency Preparedness

What the elements (or dimensions) doe's emergency preparedness contains? What is the relationship between these elements? Scholars and institutions put forward many different models. Mileti (1999) studies on earthquake disaster and puts forward the "emergency preparedness pyramid" model for the earthquake, from bottom to top including: learning how to prepare and plan what to do, training and practice, management, materials, equipment and information, fixed objects in the property, protection of building structure, and financial security

(insurance) 7 layers. Sutton and Tierney (2006) classify emergency preparedness activities into eight dimensions: knowledge of disaster, emergency management, command and coordination of action, emergency response plans and agreements, support resources, life safety, property protection, the key functional recovery, the restoration and reconstruction enablement. FEMA's Capacity Assessment of Readiness (CAR) model defines 13 features, 209 properties and 1014 features. The Department of Homeland Security identifies the various disasters based on ability to prepare 37 target abilities of 5 missions areas. U.S. government puts forward the framework of a national emergency preparedness system, including: the strategy of emergency preparedness, principles, ability, planning, resources, logistics, training, education, practice, assessment and improvement, etc., especially emphasizes the importance of establishing feedback mechanisms in the system, and demands that the system must be dynamic, flexible, and the expanding (DHS). In 2007 *National Preparedness Guidelines* are to guide national investments in national preparedness; incorporate lessons learned from past disasters into national preparedness priorities; facilitate a capability-based and risk-based investment planning process; and establish readiness metrics to measure progress and a system for assessing the nation's overall preparedness capability to respond to major events, especially those involving acts of terrorism (DHS).

3.2.3 Capacity Assessment of Emergency Preparedness

It is an important topic how to measure the degree of emergency preparedness and whether preparation is sufficient.

Guidelines and checklist for emergency preparedness for a wide variety of specific events or objects (family, business, community, city, region, country) preparation of emergency preparedness. These roadmaps and standards are mainly set by organizations and government departments, as FEMA provides *Are You Ready?* for individuals and families (FEMA, 2004); *The Enterprise Emergency Management Guide* for the enterprise (FEMA, 1993); *The State and Local Guide (SLG) 101* for local governments (FEMA, 1996).

Standards or specifications for certain aspects of emergency preparedness. Many official or unofficial organizations are involved in standards of emergency management, emergency training, emergency supplies and equipment, emergency communication, safe operation: The National Incidents Management System (NIMS) on the emergency management and emergency command system specification (DHS, 2004); Guidelines for Conducting a Product Release Prevention and Incident Preparedness by The National Fire Protection Association (NFPA) (NFPA - 1600).

Index system and model design for the evaluation of emergency preparedness to make the accurate assessment of the status, to find out the deficiencies, and to provide

the basis for planning and scheduling projects: Capacity Assessment of Readiness (CAR) defines the 13 features, 209 properties and 1014 features (FEMA, 1997); National Preparedness System (NPS) being developed by the DHS assigns the national emergency preparedness ability of 37 targets and key tasks (DHS, 2009). As to quantitative evaluation of community emergency preparedness, Simpson designed a set of evaluation index, including 10 aspects of 47 indicators, which assign to each index according to the actual situation for getting a preparedness magnitude (PM) according to certain weight addition (Simpson David Ma, 2001).

3.2.4 The Emergency Organization Structure and Operation Mode

Emergency preparedness and response are inseparable from organized actions. Traditional emergency organization structure is based on the troop's battle command organization pattern. Sociologists, however, by the emergency organization behavior study concluded that: huge difference between the command and coordination of disaster environment and military operations in information, decision-making and coordination issues; the disaster emergency agencies should be more flatter, flexible, and coordinated (Quarantelli E.L, 1999); the fire department by summing up the experience of the forest fire emergency command, developed the *Incidents Command System (ICS)*, as the standardized management mode in the fire scene emergency command.

3.2.5 The Emergency Plan and Training Drills

Emergency plans, training and drills have conducted extensive research. In decades are many plan compiling principles, plan preparation guides, review guides, training, teaching materials, practice guidelines, and templates summarized; are development plans, training and practice management systems, training and drills and auxiliary computer systems designed. At the same time, most of the governments, enterprises, community have compiled the emergency plans and conducted various forms of training and practice activities. In 2005 to 2006, the Department of Homeland Security reviewed 2757 copies of various plans, concluded that "the current disaster preparedness is mixed and disorderly without forming a disaster plan system", "most of the state plans cannot be considered comprehensive, operational and acceptable", "outdated plan compiling process, the plans themselves and developing tools is the main causes of existing defects", and "it is necessary to modernize fundamentally national plan compiling process" (DHS, 2006).

3.2.6 Emergency Preparedness Culture

Emergency preparedness is a long-term challenge, whose tasks and effects are closely related to everyone. Through sociological study of emergency actions, people are getting awarded of the effect of the race, gender, personal habits, national culture, regional culture, and social circles, and knowledge on emergency preparedness decisions

and actions (Mileti, 1999). Creation of emergency preparedness culture must be stressed throughout the country, federal, states and local governments, the private sectors, communities and individual citizens for common homeland security goals and responsibility. Thus needs to reach a consensus in four aspects, the uncertainty of future disasters, emergency initiative, Shared responsibility, preparation together (DHS, 2006). In order to improve the public awareness of emergency preparedness, since 2004, the United States DHS sets every September as “ National Preparedness Month”.

SUMMARY

At present, the academic achievements on the theory of emergency management in colleges and universities are small in amount, especially exclusive study and literature on social security emergencies in the college and university. In general, the content of studies on emergency management in the college and university is relatively abundant, besides their complex perspectives. Scholars of different disciplines have studied a particular problem or a case with their own discipline superiority: emergency risk assessment from the perspective of economics research; emergencies emergency legislation from the perspective of laws; civil participation in the process of emergency response and public support from the perspective of sociology research; emergency funding problems from the point of view of public policy and public management; individual crisis intervention from the perspective of psychology research; crisis management from the angle of the theory of mass communication media; emergency organization structure from the perspective of organization theory, and so on. University emergency management research has achieved certain results, except special study on social security emergency management in the college and university. Therefore, it is of strong practical significance to strengthen the study of the social security emergency management in the college and university.

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