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THESIS

**THEORY TO PRACTICE: HOW DEVELOPING A K-12
CURRICULUM IN EMERGENCY PREPAREDNESS, LIFE
SAFETY, OR HOMELAND SECURITY CAN LEAD TO
RESILIENCY**

by

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September 2012

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**THEORY TO PRACTICE: HOW DEVELOPING A K-12 CURRICULUM IN
EMERGENCY PREPAREDNESS, LIFE SAFETY, OR HOMELAND SECURITY
CAN LEAD TO RESILIENCY**

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ABSTRACT

In 2002, The White House issued the National Strategy for Homeland Security. Since then, the federal government has authored several documents from the Department of Homeland Security and The White House relating to a growing recognition of developing a resilient United States. The documents identify regions, states, local agencies, communities, and individuals in order to develop a resilient America.

The development of resiliency discussed in the documents needs to be addressed through a comprehensive program that includes an educational component that begins with a K-12 curriculum experience. Unfortunately, education is absent from any discussion on developing resiliency. In order for resiliency to be realized, children must be exposed to education that promotes resiliency and learn it in addition to the traditional three R's—reading, (w)riting, and (a)rithmetic.

This thesis reviews the strategic documents issued by The White House and Homeland Security; reviews the world campaign on disaster risk reduction. This thesis then looks at teaching and learning strategies, a case study, selected educational theories, and the link between the educational theories and resiliency. The use of K-12 curricula seems the most plausible source of obtaining the goal of a resilient U.S.

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LIST OF ACRONYMS AND ABBREVIATIONS

APA	American Psychological Association
ARC	American Red Cross
BEST	Building Educational Success Together
BRI	Building Research Institute
CalEMA	California Emergency Management Agency
CCC	California Community Colleges
CDE	California Department of Education
CEMHS	Coalition of Emergency Management and Homeland Security
CRED	Centre for Research on the Epidemiology of Disasters
CSU	California State University
CTE	Career Technical Education
DCPA	Defense Civil Preparedness Agency
DHS	Department of Homeland Security
DRR	Disaster Risk Reduction
EM	Emergency Management
EMI	Emergency Management Institute
ESEA	Elementary and Secondary Education Act
FEMA	Federal Emergency Management Agency
GAO	Government Accountability Office
GRIPS	Graduate Institute for Policy Studies
HS	Homeland Security
K-12	Kindergarten Through Twelfth Grade
MEXT	Ministry of Education, Culture, Sports, Science, and Technology-Japan
NCLB	No Child Left Behind Act
NCREL	North Central Regional Education Laboratory
PK-12	Pre Kindergarten Through Twelfth Grade
PPD-8	Presidential Policy Directive-8
SB	Senate Bill
U.S.	United States
UC	University of California

UNDESD	United Nations Decade of Education for Sustainable Development
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNISDR	United Nations International Strategy for Disaster Reduction
USSR	Union of the Soviet Socialist Republics

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I. INTRODUCTION

A. PROBLEM

The beginning of the twenty first century has ushered in multiple tragedies and natural disasters on a worldwide scale that are seemingly more unpredictable and dangerous. According to the Centre for Research on the Epidemiology of Disasters (CRED), between 2000 and 2007, there were an average of 74,000 deaths and over 230 million people affected by floods, winds, ice storms, earthquakes, drought, tsunamis, and volcanic eruptions every year. (CRED, 2008) These are natural disasters occurring throughout the world and do not include figures on pandemics, man-made disasters, or terrorist acts.

The United States suffered a catastrophic terrorist attack on September 11, 2001 when members of Al-Qa'ida hijacked four commercial airplanes within the United States (U.S.). The planes were flown into the World Trade Center's Twin Towers-destroying them, one was flown into the Pentagon causing damage in our Nation's capital, while the fourth plane never made it to its destination due to the bravery of those on-board. The plane crashed in a field in Pennsylvania and the true destination was unknown. (9/11 Commission Report, 2004)

After the 9/11 attacks, the White House issued the National Strategy for Homeland Security through the Office of Homeland Security (2002); the Department of Homeland Security (DHS) authored and disseminated the National Strategy for Homeland Security (2007), and the Quadrennial Homeland Security Review Report (2010); and President Obama distributed the National Security Strategy in May 2010. Each of these documents discusses the importance of preparedness and later, resiliency, in the event of an emergency, natural or man-made. The National Security Strategy (2010) defines resiliency as "the ability to adapt to changing conditions and prepare for, withstand, and rapidly recover from disruption." (National Security Strategy, p. 18)

Resilience is an important outcome for the people of the United States, as evidenced by the number of important strategic documents that have been issued by The

White House or the Department of Homeland Security through two Administrations. (National Security Strategy, 2010; National Strategy for Homeland Security, 2002) Resilience is critical in order to achieve the goal of withstanding and then recovering from a “disruption.” While the discussion about resilience within the strategic documents is important, there needs to be a systematic plan for developing the resilience within the U.S. populace that has not been clearly described or defined by either of the administrations within the strategic documents.

In June 2011, President Obama released the National Strategy for Counterterrorism (2011) that discusses “all hazards” preparedness and community engagement in order to build resilience within our communities and throughout the nation. President Obama issued Presidential Policy Directive/PPD-8 (2011) on the subject of *National Preparedness* and the development of a national preparedness system. PPD-8 states that “national preparedness is the shared responsibility of all levels of government, the private and nonprofit sectors, and individual citizens. (PPD-8, p. 1)”

Although collaboration, coordination, training, and exercises are discussed within each of the documents in order to achieve a resilient America, there is no mention of education, either formal or informal. Developing an educational component or curriculum in emergency preparedness, homeland security, or overall disaster risk reduction should be a priority in order to attempt to achieve the goal of resiliency. Absent from all of the documents is a large and potentially critical group of people who are generally a “captive audience” on a daily basis throughout the nation. The Kindergarten through Twelfth grade (K-12) educational sector, which is very large with approximately twenty percent of the United States population (U.S. Census, 2012), is critically important due to the sheer numbers of students and should be included within this framework and discussion for developing resiliency throughout the United States.

The development of a curriculum for a K-12 environment in emergency preparedness, homeland security, or disaster risk reduction could be a potential solution to develop a resilient America by starting with our young school aged children. The long term implications would provide for K-12 students learning about disasters, natural and man-made, as a normal part of an overall educational program and would also solve an

immediate need since we would be educating one of our most vulnerable populations, children, who generally suffer disproportionately during a disaster. (Peek, 2008)

Whether driven by the Federal Department of Education, another federal agency, or a state agency, developing resilience throughout the United States to the level of the individual as mentioned in PPD-8 (PPD-8, 2011), could be achieved through the development of a K-12 curriculum in emergency preparedness, homeland security, or disaster risk reduction taught in the local schools and utilizing the local or regional threats from those areas.

With a K-12 student population of approximately 61,314,000 (U.S. National Center for Educational Statistics, 2011) students attending public, private, and charter schools in the U.S., this selected population makes up approximately 20 percent of the entire U.S. population of nearly 314 million Americans. (U.S. Census Bureau, 2012) The numbers make the K-12 population a large force growing up and thinking about emergency preparedness, homeland security, and disaster risk reduction principles and strategies as a normal part of life.

B. RESEARCH QUESTION

The research questions to be answered by this thesis are the following:

- What role, if any, can education play in enhancing resiliency at the K-12 level? And;
- Can *resilience* be achieved by developing or embedding homeland security and emergency preparedness, or disaster risk reduction learning objectives within the present K-12 curricula?

This thesis examines educational and curriculum standards being developed globally, nationally, regionally, and locally for emergency preparedness, homeland security, and disaster risk reduction in schools. It explores current teaching and learning theories within the United States; reviews Japan, a country known for developing “resiliency” through their primary and secondary school programs; and finally, how those educational theories link to resiliency.

C. SIGNIFICANCE OF RESEARCH

The resiliency of the American people must be the goal in order to survive and successfully recover from a disaster, natural or man-made. There have been previous U.S. campaigns launched with similar needs when the U.S. was threatened by the former Union of the Soviet Socialist Republics (USSR) after WWII. During the 1950 and 1960 time frame, the U.S. embarked on a “Civil Defense” preparedness campaign that was designed around a threatened nuclear attack from the former Soviet Union. (Defense Civil Preparedness Agency (DCPA) archives-2011)

The fear of a nuclear strike led to the Cold War and generations of Americans learned how to prepare for an attack with slogans such as “duck and cover” while participating in some form of exercises. (DCPA Archives, 2011) The American Civil Defense program was also taught in schools and allowed for children to understand the threat, with age appropriate materials, and to respond to a catastrophe should it ever have occurred on U.S. soil. As the threat of a nuclear war diminished with the USSR, so did the training, education, and exercises for such a disaster in local schools.

Much has been learned through the arena of educational research since the Civil Defense strategies were in place decades ago. A key finding was “fear” is not necessarily the best way to promote learning and using pedagogy for learning is a better strategy since there are multiple ways children learn. (Wisner, 2006; Wachtendorf, Brown & Nickle, 2008) The previous implementation of the civil defense program for schools across the country was sponsored by the federal government and would allow for the a new and updated curriculum developed with pedagogical theory to prepare our school aged children for an all hazards approach to disasters with age appropriate materials, lesson plans, small group projects, and exercises. (Wachtendorf, et al., 2008)

Incredibly, 9/11 taught us about a newer and more agile enemy and one that was not afraid to wage “war” on U.S. soil. Not only did we have a new type of enemy, natural disasters such as Hurricane Katrina in 2005, have caused more damage and cost more than “man-made” incidents. Natural disasters continue unabated with hurricanes, tornadoes, wild fires, and flooding across the many parts of the U.S. while inevitably

waiting for an earthquake to strike. According to Hedde (2011), natural disasters in the first six months of 2011 exceeded 16 billion dollars in the United States, eclipsing the 2001–2010 January through June average of 6.4 billion dollars annually and these numbers are expected to continue to grow.

Emergency preparedness, homeland security, life safety, and disaster risk reduction educational programs taught in primary and secondary schools is not a new concept and can lead to resiliency in our young school age children. If allowed to develop these types of curricula, the schools would be a major force in developing a resilient America, as desired through multiple government sponsored documents, while preparing our children for the inevitable disaster whether man-made or natural.

For the Program and Literature Review—The All Hazards Approach, we look beyond our borders to find information about an “all-hazards” approach used in many parts of the world and examine if other countries have similar programs or projects developed. An assessment of national, regional, state, and local programs and projects within the United States will also be reviewed and discussed.

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II. PROGRAM AND LITERATURE REVIEW—THE “ALL HAZARDS” APPROACH

A. THE WORLD CAMPAIGN

Presently, there is information available about elementary and secondary curricula in emergency preparedness, homeland security, life safety, or disaster risk reduction around the world. Petal and Izadkhah (2008) review the United Nations concept of the disaster resilient communities through the extensive use of educational curricula. The United Nations has been the primary sponsor beginning with the “Decade of Building Resilience of Nations and Communities to Disasters 2005–2015.” (United Nations International Strategy for Disaster Reduction, UNISDR, 2012) Internationally, a 2007 study on Disaster Education by the Building Research Institute (BRI) and the National Graduate Institute for Policy Studies (GRIPS) commissioned by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) found many countries, including the United States, are developing or attempting to develop educational programs and public awareness campaigns as the “cornerstone of approaches aimed at reducing vulnerabilities to hazards.” (p. i) The information presented in the study attempts only to “lay a foundation” for the overall integration of disaster management principles and preparedness into the various countries’ current educational programs.

The study was completed in response to the United Nations Secretariat of the International Strategy for Disaster Reduction in the 2006–2007 World Campaign “Disaster Risk Reduction Begins at School. (UNISDR, 2008)” The study highlights several countries that are developing or have developed elementary and secondary age appropriate subjects dealing with disasters-both natural and man-made. There are generally no international standards or levels set within the countries that were reviewed and although disasters, natural or man-made, may be reviewed informally through posters, exercises, and some training, a “formal” K-12 curriculum was not among the findings of the report. (UNISDR, 2008) Another finding of the study is the present lack of “formal education” being taught within the curricula of the schools throughout the

world since most countries do not mandate an emergency preparedness, disaster risk reduction, life safety, or homeland security type of curriculum as compulsory.

B. ALL HAZARDS APPROACH FROM THE UNITED NATIONS

Since 2005, addressing disasters, natural or man-made, in an all hazards approach to disaster risk reduction and planning has been a constant discussion outside of the United States borders since worldwide, disasters and hazards, both natural and man-made, are a major and growing problem. (Ronan & Johnston, 2005) In 2011, around the world, 332 disasters claimed 30,773 lives; affected over 244 million people and inflicted damages worth an estimated 366 billion dollars, the highest dollar figure ever for disasters. (CRED, 2012) This topic, disaster risk reduction and preparedness, including an educational component, on a worldwide scale was the focus of an international conference in Japan in 2005 hosted by the United Nations International Strategy for Disaster Reduction. (UNISDR, 2012)

The World Conference on Disaster Reduction was held in Hyogo, Kobe, Japan in January 2005 and had five major outcomes called the “Pillars of the Hyogo Conference.” (UNISDR, 2012) The work for the decade of “Building the Resilience of Nations and Communities to Disasters 2005–2015” would derive from these pillars. (UNISDR, 2012) There were 168 countries (signatories) that adopted the pillars from the world conference within the UN General Assembly. The pillars, known as the “priorities for action 2005–2015,” are as follows:

- 1) Ensure that Disaster Risk Reduction (DRR) is part of the national agenda but with a local priority with a strong institutional basis for implementation;
- 2) Identify, assess, and monitor disaster risks and enhance early warning systems;
- 3) Use education, knowledge, and innovation to build a culture of safety and resilience at all levels;
- 4) Reduce the underlying risk factors;
- 5) Strengthen disaster preparedness programs for effective response at all levels.

These strategic goals and priorities for action developed multiple disaster risk reduction programs in several countries throughout the world since the conference was held in 2005. (UNISDR, 2005) There were listings of “key activities” under each of the pillars and examples are included in the following under Pillar One:

Ensure that Disaster Risk Reduction (DRR) is a national and a local priority with a strong institutional basis for implementation (UNISDR, 2005);

- DRR national and institutional priorities and designated responsibilities
- DRR development of policies and planning in multiple sector(s)
- National, state, and local legislation to support DRR
- Regional, state, and local resources and responsibilities-decentralized approach
- Assessment of human resources and capacities
- Foster political will and commitment
- All community participation

The key activities under Pillar Two and examples included:

Identify, assess and monitor disaster risks and enhance early warning (UNISDR, 2005);

- Risk assessments and maps, multi-risk: elaboration and dissemination
- Indicators on DRR and vulnerability
- Data and statistical loss information
- Early warning: people centered; information systems; public policy
- Scientific and technological development; data sharing, space-based earth observation, climate modeling and forecasting; early warning
- Regional and emerging risks

The key activities under Pillar Three and examples included:

Use knowledge, innovation and education to build a culture of safety and resilience at all levels (UNISDR, 2005);

- Information sharing and cooperation
- Networks across disciplines and regions; dialogue
- Use of standard DRR terminology
- Inclusion of DRR into school curricula, formal and informal education
- Training and learning on DRR: community level, local authorities, targeted sectors; equal access
- Research capacity: multi-risk; socioeconomic; application
- Public awareness and media

The key activities under Pillar Four and examples included:

Reduce the underlying risk factors (UNISDR, 2005);

- Food security for resilience
- DRR strategies integrated with climate change adaptation
- DRR integrated into health sector and safe hospitals
- Protection of critical public facilities
- Recovery schemes and social safety-nets
- Vulnerability reduction with diversified income options
- Financial risk-sharing mechanisms
- Public-private partnership
- Land use planning and building codes
- Rural development plans; DRR
- Develop sustainable ecosystems and environmental management

The key activities under Pillar Five and examples included:

Strengthen disaster preparedness for effective response at all levels (UNISDR, 2005);

- Disaster management capacities: policy, technical and institutional capacities
- Dialogue, coordination and information exchange between disaster managers and development sectors
- Regional approaches to disaster response, with risk reduction focus
- Review & and exercise preparedness and contingency plans
- Emergency funds
- Volunteerism and participation

These strategic goals and priorities have become the basis for the international research that has been conducted through the United Nations sponsored programs on a worldwide basis since 2005 when the conference was held. Each of these pillars crosses the traditional boundaries of working within a “silo” and suggests a “multi or all-hazards” approach to dealing with disasters and preparedness. (UNISDR, 2005)

The focus of this thesis, and of significance, is Pillar Three that targets the development of disaster risk reduction education into the formal school curricula. Pillar Three lists as a major component, education, to “build a culture of safety and resilience at all levels” while standardizing the use of disaster risk reduction terminology; and to include the use of disaster risk reduction into the school curricula, through both formal and informal education. (UNISDR, 2005) Although education is the major component of Pillar Three, all five of the Pillars cross over into one another to develop a comprehensive approach to disaster planning, preparedness, and response, and ultimately, recovery with a resilient population. An educational program learned while a K-12 student in school and as a part of the educational curriculum is important for several reasons.

One of the most important reasons is the development of emergency preparedness and disaster risk reduction education, which is designed to empower children to help with preparedness activities and post disaster recovery. Children are often overlooked during a disaster and they are usually a very vulnerable group, have special needs, and have never

been part of the “political” process. (Peek, 2007) According to Peek (2007), children generally lack life experience, have fewer coping skills, and rely on adults to support and protect them; physically, they are “smaller” as a population and are socially disempowered. Peek states that educating children through school based lesson plans, along with community based programs, can prepare children for the ultimate test of developing resiliency through these types of educational programs while developing an additional resource not traditionally utilized during a disaster. (Peek, 2007)

Building upon the significance of developing the curricula of disaster risk reduction and emergency preparedness for schools was the United Nations program “Disaster Risk Reduction Begins in Schools” worldwide campaign, which spanned 2006–2007. The campaign was developed to highlight the importance of schools in developing an entire “resilient local community” around an educational component, schools, and within the neighborhoods where the schools reside. The 2007 study on Disaster Education by the Building Research Institute (BRI) and the National Graduate Institute for Policy Studies (GRIPS) commissioned by the United Nations Educational, Scientific, and Cultural Organization, UNESCO, found many countries, including the United States, are developing or attempting to develop educational programs and public awareness campaigns as the “cornerstone of approaches aimed at reducing vulnerabilities to hazards.” (p. i) As previously mentioned, the information presented in that study attempts to “lay a foundation” for the overall integration of disaster management principles and preparedness into the various countries’ current educational programs. (UNESCO, 2007)

The 2008 Disaster Prevention for Schools-Guidance for Education Sector Decision-Makers, which was a part of the UNISDR framework, and suggests that “disaster impacts” on schools contain the following four elements: Physical, educational, economic, and psychosocial.

1. Physical

The ultimate physical impact occurs when a student or staff members are killed in unsafe schools that are built in harm’s way or not built to withstand expected and recurring hazards such as earthquakes, floods, or hurricanes. (UNISDR, 2008)

2. Educationally

A disaster will result in lost instructional and learning time and the quality of education diminishes greatly especially if the students have no alternative location to be educated. Also, if no plans are “in-place” with other schools, districts, or government departments to use other facilities, valuable educational time is lost that cannot be “made up.” (UNISDR, 2008)

3. Economically

When a building or school is not built safe to begin with, the economic disaster impact will increase substantially; and the costs soar when having to rebuild or replace the facility that causes a major strain to an already large economic problem due to the disaster. (UNISDR, 2008)

4. Psychosocial

The psychosocial disaster impact creates a lack of resiliency development and the loss of empowerment leaving the larger school communities ill-prepared to deliver psychological help in order to quickly recover after an incident. (UNISDR, 2008) Peek (2007) takes the psychosocial element further through her research on children showing the exposure to disaster often results in serious rates of stress and more severely affects children than adults due to a lack of life experiences. Some of the factors influencing the disaster vulnerabilities include the intensity of the event, the extent to which a child was exposed to the event, the post disaster environment, coping skills of the child, and the assistance received after the event. (Peek, 2007) All of these factors play a role in the resiliency of the child and how a child will experience the event.

Besides the educational component within the framework, the concern for the building and sequencing of school development is to physically locate the school in an area that will be safe and not within an area that is prone to hazards. In this arena, the adage “cheaper, faster, better” does not translate well into safety or safe environments, especially if there is a concern of governmental corruption or graft. The collaboration among governmental entities, the site and building contractors, and the stakeholder

groups should prevent the school from being built in harm's way. Once the issues of physical site safety and the principles for building development have occurred and have been approved, an educational program in disaster preparedness and risk reduction can actually begin at the school site.

The UNISDR report also shows that the goals of developing a school disaster prevention and educational program should include the following information that will be presented to the students during their coursework. The goals should be:

- To save lives and prevent injuries;
- To prevent interruption of education due to recurring natural hazards;
- To develop a resilient citizenry able to reduce the social, economic, and cultural impacts of recurring hazards.

The objectives are to “create and maintain safe learning environments, to teach and be able to learn about disaster prevention, and to build a culture of safety around the school communities.” (UNISDR, 2008 p. 5) Although the goals may seem simplistic and ideological, they are foundational and taken with the research from all United Nations programs, they develop a base from which to develop and operate an educational component ultimately involving the entire community with a goal of developing resiliency.

Both of the United Nations reports, the 2007 UNESCO report and the 2008 UNISDR report are a part of the larger “United Nations Decade of Education for Sustainable Development (UNDESD)” for 2005–2014, which runs concurrently with the Hyogo Framework of 2005–2014 and all of the United Nations sponsored initiatives are designed to attempt to limit the numbers of casualties and damage from natural or man-made disasters.

The Disaster Education Research Project from UNESCO (2007) states:

....the pride of place that the international community, national academic institutions, and educational establishments concerned with disaster risk reduction are giving to education is based on evidence that education contributes towards the knowledge and skills essential for disaster preparedness. (UNESCO, 2007 p. 1)

The United Nations reports show there are many countries listed that have curriculum in development stages or already have some components of a disaster resistant, disaster or emergency preparedness, and homeland security “type” curriculum worldwide. The reports reviewed over 40 countries and mentioned many more. The United States was also mentioned in the report; however, not in the same context as a “national” effort in this arena. There were a few United States individual state programs and initiatives that were highlighted in the report.

The UNISDR report acknowledges the need to educate children about disaster risk reduction and preparedness in curricula, but to also involve other segments responsible for the building, planning, and the construction of schools, as mentioned previously. The proper sequencing of these agencies would limit the physical destruction of the site through poor planning, poor construction, or questionable oversight practices if a disaster occurred. Additionally, curriculum content experts, in these newly evolving areas, and even organizations that represent administrators, teachers, parents, and students are an important voice in articulating the local challenges as well as possible and potential solutions. (UNISDR, 2008)

Throughout the research, Japan was recognized as having many of the programs and projects developed for a resilient populace and a very good educational program already developed for elementary and secondary school aged children. A case study of Japan will be presented in Chapter III—Methodology.

C. AN ALL HAZARDS APPROACH FOR THE UNITED STATES

The development of several authored and disseminated White House and Department of Homeland Security documents such as the National Strategy for Homeland Security through the Office of Homeland Security (2002); the Department of Homeland Security’s (DHS) National Strategy for Homeland Security (2007), and the Quadrennial Homeland Security Review Report (2010); and the White House National Security Strategy in May, 2010, have each discussed resiliency as the goal in order to survive a disruption from terrorism, other man-made activities, and disasters.

The release of the National Preparedness Report that was issued in March, 2012 and authored by DHS includes an “all hazards” approach that is based on the previously issued Presidential Policy Directive 8: National Preparedness (PPD-8) that describes the “Nation’s approach to preparing for the threats and hazards that pose the greatest risk to the security of the United States. (National Preparedness Report, 2012)” There is much similarity between the United Nations documents and those issued of late by the United States government.

D. THE FEDERAL GOVERNMENT EFFORT

The development of a national educational or school curriculum by the federal government is generally excluded by the Tenth Amendment to the U.S. Constitution. The Tenth Amendment to the U.S. Constitution allows states to develop and organize those areas not specifically authorized in the Constitution, such as education. (U.S. Citizenship and Immigration Services, 2008) Although there has been a Department of Education in some form or another since 1867, the department generally collected information on schools and teaching. However, there is precedent for the U.S. becoming involved in a more direct educational role since the Smith-Hughes Act of 1917. (U.S. Department of Education, 2011) The Smith-Hughes Act was considered the federal government’s first foray into a national education project with a federal board developed to oversee the operations of national vocational education. (Scott, J. L. & Sarkees-Wircenski, M. (1996)

Since then, the U.S. Department of Education has been involved in several legislative acts including the Elementary and Secondary Education Act (ESEA) of 1965, and the reauthorization of the ESEA including the No Child Left Behind Act (NCLB, 2001) enacted under the Bush Administration in 2002. (U.S. Department of Education, 2011) The U.S. Department of Education, in the present form, was authorized by Congress in 1980. The Secretary of the Department of Education is a Cabinet level position and the Department of Education is presently involved in multiple initiatives to “promote student achievement and preparation for global competitiveness by fostering educational excellence and ensuring equal access.” (U.S. Department of Education, 2011) Reviewing previous educational campaigns and issues sponsored by the U.S. Department

of Education, the Department should have the ability to lead this type of an initiative to develop an emergency preparedness, homeland security, life safety, or disaster risk reduction curricula for the elementary and secondary educational systems in order to promote resiliency throughout the U.S. Marzano (2003) states, the role of leadership is critical in any educational endeavor in order to move an educational process forward.

Without a strong and fairly centralized curriculum from a federal agency or at least sponsored by a federal agency, a project of this magnitude could be difficult to develop. According to Gustafson (2009), a successful educational campaign and program was identified as having the following components:

- 1) A single lead agency;
- 2) A consistent message delivered by a trusted entity;
- 3) A dedicated media outlet;
- 4) Targeted and robust ad campaigns;
- 5) Mandatory K-12 preparedness curriculum;
- 6) Baseline and follow-up studies.

These components were based on research from not only the United States but several other countries. (Gustafson, 2009) An educational and preparedness program will not necessarily utilize each aspect of the components in a particular order, but rather, the campaign has a much better chance of success if all the components are utilized.

While the U.S. Department of Education would be a main focus for this type of curricular development, another federal agency, which previously had cabinet level status, has been involved in the educational arena for several years. The Federal Emergency Management Agency (FEMA)–Emergency Management Institute’s (EMI) Emergency Management Higher Education Program has been involved with colleges and universities since 1994. (FEMA, 2012) Directly from the FEMA EMI Emergency Management Higher Education Program website:

The primary goal of the FEMA Emergency Management Higher Education Program is to work with colleges and universities, emergency management professionals, and stakeholder organizations to help create an

emergency management system of sustained, replicable capability and disaster loss reduction through formal education, experiential learning, practice, and experience centered on mitigation, preparedness, response and recovery from the full range of natural, technological and intentional hazards which confront communities, States and the Nation. (FEMA, 2012)

The FEMA EMI Emergency Management Higher Education Program is focused on higher education, particularly college and university programs, and does not mention K-12 within the text. FEMA does have some programs for children and students but there remains little developed curriculum in any of these areas primarily for the K-12 audience that is fully sponsored by FEMA. Many of the “kids” K-12 planning and preparedness information on the FEMA website has been developed by others, including private entities, and is being disseminated through FEMA. (FEMA, 2012)

The Department of Education or FEMA could be a sponsor to a K-12 curriculum and neither has pledged to develop a program for K-12 that could be implemented at a state, regional, or local level. The dynamics of federal involvement in the development of a K-12 curriculum in emergency preparedness, disaster risk reduction, life safety, or homeland security would need to be resolved, so a federal department or agency sponsorship could actually begin developing this important curriculum that could potentially lead to a resilient nation.

A national unity of effort in emergency preparedness, homeland security, life safety, or disaster risk reduction curriculum development may be limited since the Tenth Amendment to the Constitution allows each of the states to determine their own statewide educational needs. The impetus should still come from a centralized agency in order to prioritize this important component to develop resiliency.

Notwithstanding the potential inability of the United States to have a centralized or federal level curriculum, the UNISDR 2008 Disaster Prevention for Schools-Guidance for Education Sector Decision-Makers also discusses the need for policy making at the national level so that school disaster prevention forms an integral component of a national agenda for discussion on disaster risk management, overall risk reduction and preparedness, and to increase resiliency. (UNISDR, 2008; Petal, 2008) In the case of the

United States, this would require the collaboration of several cabinet level or higher level governmental bodies, such as DHS, Health and Human Services, the Department of Education, and possibly, FEMA acting through DHS.

The centralization of the development of a national curriculum may not be necessary as long as the leadership is from a central authority. Our nation's capital, Washington DC, through multiple departments such as the Department of Education, the Department of Homeland Security, or the Department of Health and Human Services could take a leadership role.

E. THE U.S. GOVERNMENT ACCOUNTABILITY OFFICE REPORT

A U.S. Government Accountability Office (GAO) report issued on May 17, 2007, on Emergency Management-The Status of School Districts' Planning and Preparedness found that federal and state governments do have a role in supporting emergency management in the Nation's more than 17,000 local school districts. The report highlighted many of the issues such as school shootings, pandemics, Hurricane's Katrina and Rita and other areas of importance that can affect a school and the larger school community. Within the report, there were a number of problematic issues and problems specifically cited by school district administrators throughout the country. Some of the major challenges related to identifying school or educational based personnel with expertise in emergency planning, the ability to train staff with a level of expertise, and coordination with the local first responders.

The report cites 32 states that presently require some type of emergency plans or training; however, none mandate K-12 education in emergency preparedness, homeland security, life safety, or disaster risk reduction as a component of the plans. The report highlights the need for the federal government, primarily the DHS, The Department of Education, and the Department of Health and Human Services to provide support to the states and local jurisdictions in order to develop programs to implement emergency management, planning, and preparedness to assist the educational system. (U. S. GAO, 2007)

The topics cited in the GAO report for emergency management and emergency preparedness covered Intruder/Hostage, Bombs/Bomb Threats, Natural Disasters, Terrorism, Radiological, Anthrax, and Pandemic Influenza. These are examples of the topic areas needing consideration when developing an educational component for the elementary and secondary grade levels in emergency preparedness, homeland security, life safety, or disaster risk reduction. Besides the topic areas previously listed, in order to develop a curriculum or embed a curriculum into already developed curricula for the emerging academic disciplines of emergency preparedness, homeland security, life safety or disaster risk reduction, there are some other areas that should be given consideration when developing the curriculum, at the age appropriate level, that would include the following for the area of natural hazards:

- Avalanche
- Blizzard
- Drought
- Earthquake
- Fire
- Flooding
- Heat Wave
- Hurricane
- Landslides
- Mud Flows
- Tornado
- Tsunami
- Volcanic Eruption

Additionally, those areas involving human hazards would include:

- Epidemic or Virus

- Famine
- Terrorism
 1. Biological
 2. Chemical
 3. Explosives
 4. Hazardous Materials
 5. Nuclear
 6. Radiological
 7. Vigilance, General Awareness

The topics listed come from a variety of source materials and are generally considered the natural and man-made hazards needing discussion, training, and education in their presentation, especially at the K-12 grade levels. (GAO, 2007) This report was developed to provide some direction to federal agencies in supporting local, state, and regional jurisdictions as those jurisdictions attempt to develop these academic disciplines and add the educational component into their programs.

F. A REGIONAL EFFORT

Within certain geographic areas of the United States, several regions have developed threat specific curricula for natural threats and hazards that are located within their particular region or area. In the state of Washington, the Washington Military Department and their Emergency Management Division have created a K-6 Tsunami curriculum called “Move to High Ground.” (2005) The curriculum is based in part on FEMA’s Seismic Sleuths and Tremor Troops program and can be utilized throughout the west coast of the United States.

While reviewing the Move to High Ground curriculum, there is information for teachers about tsunamis, what to do in case of a tsunami and additional resources including educational web sites and DVD/CD/video lists. The curriculum also discusses earthquakes as the precursor to the tsunami and has the essential academic learning

requirements and components listed at the beginning of each of the lesson plans. The lesson plans are considered “stand alone” but can be added or embedded into traditional courses being taught at the various grade levels. (Washington Military Department, 2005)

Another effort in the western region of the United States was from Seattle, Washington. Seattle was a pilot program of FEMA’s Disaster Resistant Community Initiative in the late 1990s and by February, 2001, when the program funding cycle was just completed; Seattle suffered through a large earthquake. (Wachtendorf, Brown, & Nickel, 2008) The magnitude 6.8 “Nisqually Earthquake” (Washington State Department of Natural Resources, 2012) on February 28, 2001 caused damage in Seattle, Washington and many surrounding communities and also in Vancouver, British Columbia.

The FEMA Disaster Resistant Community Initiative, which was known as Project Impact in the greater Seattle area, had used their funding to retrofit many buildings and to develop advanced earthquake safety programs with educational partnerships in the local area schools. (Wachtendorf, et. al., 2008) There were different initiatives throughout the region at local elementary and middle schools but in a reversal of “educational roles,” the high school students created their own program with funding provided by the school. Although the project did not begin as a student centered program, the students at Nathan Hale High School developed and produced an Emmy Award winning video called *I Don’t Fit Under A Desk: Advanced Earthquake Safety* that targeted high school students from a student’s perspective. The video was replicated and is still seen as an excellent medium for engaging high school grade students in the 9–12 grade levels. (Wachtendorf, et. al, 2008)

G. A STATEWIDE INITIATIVE

California, since 2009, has been designing and developing a state level academic program in both emergency management and homeland security. The Coalition for Emergency Management and Homeland Security (CEMHS) was implemented by the California State University (CSU)-Chancellors Office by Chancellor Charles B. Reed to address the lack of an academic discipline in emergency management or homeland security within the state of California. With some “seed” money, Dr. Clement, a

Criminologist from CSU-Fresno, was selected to chair the coalition and move the idea forward of “designing and developing Emergency Management (EM) and Homeland Security (HS) education in California with partnerships from K-12 through Postsecondary Education.” (CEMHS, 2009) Chancellor Reed explained the need for California to address this issue and develop an academic discipline as an important component for the future of not only California, but of the Nation.

In 2010, the California Emergency Management Agency (CalEMA) provided an additional \$60,000 grant for CEMHS to design and develop the “Strategic Initiative,” which is a vertical track of linked, coordinated and standardized EM and HS educational programs for the K-12 through postsecondary educational systems in California. The final product by CEMHS as requested by CalEMA would be to produce a blueprint of a “model curriculum” that can be utilized throughout the state of California and at all levels of education. (CEMHS, 2009)

Since 2010, courses have been developed for the associates and bachelor’s degrees, articulation agreements between the local California Community Colleges (CCC’s) and CSU’s are being developed and implemented to move forward and offer courses within this new academic discipline. The first launch of this curriculum at the CCC level occurred in spring 2012 when Coastline Community College in Orange County offered courses in both Emergency Management and Homeland Security under the leadership of the CEMHS Statewide Associates Workgroup Co-Chair’s. (Coastline Community College, 2012) The CSU’s are expected to launch their first degree programs in emergency management and homeland security in the fall of 2013.

While the design and development of courses for the associates and bachelor’s degree levels are beginning to be solidified, legislation pushed through under Senate Bill (SB) 1440 is designed to allow for a 60 unit transfer to a California State University from a California Community College without any repetition or additional coursework. (CCC Chancellor’s Office, 2011) Other curricula are being developed for optional collaborative coursework in more traditional academic disciplines, such as Administration of Justice, Criminal Justice, Fire Science, and Technology coursework.

CEMHS has been making strides in developing both of these areas as academic disciplines at the college and university levels since 2009. This has been good news for the higher education realm within California in the development of a curriculum in Emergency Management and Homeland Security. Presently, there is some work in the K-12 educational arena but the reality for a completed K-12 curriculum in emergency preparedness, homeland security, life safety, or disaster risk reduction may be difficult to achieve in the short term but taking up this challenge may save lives.

There may be difficulties in achieving this goal to develop K-12 curricula in California in these areas, and that does not mean it should not be attempted. It is a daunting task due to the sheer numbers of constituency and other groups needed to be involved, as well as the issues to be addressed in the process. Among the issues are the multiple layers of “bureaucracy” within California’s educational system that generally begins with the elected Governor who may appoint a Cabinet level Education Secretary to the Executive Cabinet. Additionally, there is also an elected State Superintendent of Public Instruction with both positions having some authority over public instruction in California.

Secondly, there are 58 County Offices of Education that provide services to districts in their county and they also certify all funding for the individual school districts within their county. (CA Department of Education, 2012) The County Offices of Education may directly support smaller school districts not having the specialized departments of the larger County Offices of Education. (CA Department of Education, 2012) Thirdly, most school districts in California are under the “local control” of a locally elected school board. The only requirements for an elected School Board Member (or Trustee) is that they be 18 years of age, have registered to vote, and live in the area they are representing. (California School Boards Association, 2012)

Besides the locally elected politicians, most of the school districts have their own layers of administration, which generally include a Superintendent, Assistant Superintendents, and many other positions that are redundant, especially for smaller school districts. California has 1,131 school districts with a total PK-12 student enrollment of 6,298,928 children presently attending a California school. (CA

Educationbug, 2012) Without some type of centralized intervention or oversight; it will be difficult to implement a K-12 curriculum in emergency preparedness, homeland security, life safety, or disaster risk reduction due to the sheer amount of people that need to be involved in the process. CEMHS is working with the California Department of Education in order to fill the void and to develop these important educational curricula.

The California Department of Education (CDE), favoring a bi-furcated approach to this curriculum development in these areas, has recently started to program for teachers during the credentialing process. The teachers will be introduced to the concepts of the embedded curriculum as it relates to their student learning outcomes in emergency preparedness and homeland security. As with all changes in this field, in-service programs will also need to be developed for the teachers who are already in the classroom. The CDE and CEMHS believed in the importance of developing these curricula and have started in grades 7–12.

Although not at the initial level of K-12, the process of embedding curricula into grades 7–12 in the Career Technical Educational (CTE) programs has already started. The learning outcomes include emergency preparedness and homeland security principles, which are embedded within the current student learning outcomes in the curriculum. This appears to be an easier transition for CTE education as the area already includes several educational tracks of Administration of Justice, Criminal Justice, Corrections, Fire Sciences, and Nursing standards within their purview of the current programs. (California Department of Education, 2011) This is the first step in the development of curricula at K-12 that emphasizes these important areas as stand-alone academic disciplines in California. More work will be required in order to involve the entire K-12 consortium in this endeavor to further develop these areas into the more traditional subjects and at the lower grades where pedagogical theory can be instilled to be learned and carried throughout life by the children.

This is significant as there are nearly 6.3 million PK-12 students in California, and if school staff of nearly 600,000 is added, a total of nearly 6.9 million children and adults in California can be involved in this endeavor. (CA Educationbug, 2012) Additionally, within California's institutions of higher learning including the California

Community Colleges (CCC), The California State Universities (CSU), and the University of California's (UC) along with other private colleges and universities, there are nearly 4 million part and full-time students and approximately 385,000 college and university faculty and staff. The total is nearly an additional 4.4 million participants in this arena. The leadership shown in California for the development of these topics may, in fact, impact other states as there are presently 11.3 million students, staff and faculty in California's PK-12 and postsecondary educational institutions, which is larger than the populations of 43 states. (U.S. Census, 2012)

Children, who will grow up to become our future leaders, should be allowed to lead this change and endeavor by learning about emergency preparedness, homeland security, life safety, and disaster risk reduction while students in school. By learning these topics, and having them become a part of their life, allows for the resiliency America's present leaders are longing for in the development of a resilient America.

H. A LOCAL EFFORT

There has been some success in grades 9–12 in the educational arena with work accomplished in the development of curriculum for a high school, which was opened and dedicated to homeland security and emergency preparedness. Joppatowne High School was the first dedicated high school within the United States that was developed as a “Homeland Security and Emergency Preparedness” high school. The high school is a part of the Harford County Public Schools in Maryland; Joppatowne High School began accepting students in the fall of 2007. According to the website, Joppatowne High School was conceived with the idea to introduce students to the “careers and educational experiences in this ever-growing industry.” (Joppatowne High School, 2011)

The curriculum at Joppatowne High School reflects current discussion and includes Homeland Security Sciences option, a Criminal Justice/Law Enforcement option, and an Information/Communications Technology option. Each of the options provides a separate area of study and all of the options begin with a “Foundations of

Homeland Security and Emergency Preparedness” course. A student is then required to take three additional courses in their option in order to complete the area as a major. (Joppatowne High School, 2011)

There are courses in Chemical and Biological Threat Identification, Introduction to Geographic Information Systems and Remote Sensing, and Geographic Information Systems and Remote Sensing, and several of the courses have college credit articulation, if the grade is a “B” or better. (Joppatowne High School, 2011) Based on the success of the students and the high school, Joppatowne may become a model for the future since they not only are teaching the students skills, they are also preparing them for a potential future career in the homeland security, emergency preparedness, or the disaster risk reduction realm similar to magnet or specialty high schools dedicated to law enforcement or fire science.

Since Joppatowne opened its’ doors, other schools and school districts have taken note and have started their own programs. Although these types of magnet or specialty high school specialty are not the “norm” throughout the U.S., more are being implemented in an effort to move these academic disciplines forward throughout the country and to differentiate these academic disciplines from the more traditional disciplines of criminal justice and fire science.

I. OTHER U.S. EFFORTS

Within the United States, the American Red Cross (ARC), in cooperation with the Allstate Foundation, has developed what may be the most comprehensive K-8 curriculum in this arena with their Masters of Disaster (ARC, 2007) lesson plans, student and teacher activities, and classroom demonstration projects. The curriculum was developed as a stand-alone curriculum or can be embedded into the present K-8 curriculum and has nearly 200 lessons. The Masters of Disaster curriculum does not have an educational component for the secondary educational levels of grades 9–12.

Within the Masters of Disaster K-2 component of the curriculum, there are lesson plans on “Facing Fear” and a sub-heading for terrorism, which are completely age appropriate. The lesson plan clearly states “Very young children will not understand the

causes or events that lead up to the acts of terrorism, but they need to know that people are working to make sure they stay safe.” (ARC, 2007) The various lesson plans cover many topic areas and can be selected to be used throughout the country, regionally, where certain events or disasters are more likely to occur, or specific, localized areas. All of the lesson plans can be utilized as they have a scaffolding effect, building one on another.

The Masters of Disasters curriculum also has the feature of continuous learning throughout the K-8 learning cycle for students. Although a single lesson in emergency preparedness, homeland security, or disaster risk reduction is better than no lesson at all, the scaffolding effect of several lesson plans over many years serves as an excellent reminder to students who begin to remember the lessons learned from prior years. (Wachtendorf, et. al., 2008)

Another potential resource is Scholastic Inc., a large educational publisher throughout the United States that has developed some curriculum for use in the sciences, language arts, and geography courses at age appropriate levels. (ReadyKids.Gov, 2007) The embedded curriculum is designed to be used with other lesson plans that are a part of the larger “Scholastic” publishing series, which makes this excellent effort, a potentially costly proposition, if Scholastic resources are not already a part of a school or district resources.

A sample of an embedded curriculum was developed by Scholastic for use in Language Arts within the components of Reading, Writing, Listening and Speaking; Social Studies; and Geography. The coursework was developed with the assistance of the National Council of Teachers of English, the National Council for the Social Studies, and the Geography Education Standards Project through the Mid-Continent Research for Education and Learning. (MCREL, 2006; Ready.Gov, 2011)

The few examples of developed curriculum that are presently available are often part of a larger program that also includes other components besides an educational component. Some examples include MYSAFE: LA-a fire and life safety educational program originally developed by the LA City Fire Department (MySafeLA.org, 2010) and now a component of a nonprofit program of the same name. This program was

developed for the greater Los Angeles City area, but many of the topics can be related to larger state and regional issues such as earthquakes, fires, and floods.

These are some examples of the emergency preparedness, disaster risk reduction, life safety, and homeland security programs and projects from a global to a local perspective. Internationally, with several UN sponsored documents and programs, including the “Disaster Risk Reduction Begins in School” campaign, the international awareness of how important school is throughout the world as a “safe place” for children to learn cannot be discounted. (UNESCO, 2007)

The importance of school and the recognition of developing these types of curricula for children overseas underscore the value an educational component at school would have on educating students in the United States within these disciplines. Developing elementary and secondary school based, and age appropriate, programs in emergency preparedness, homeland security, life safety, and disaster risk reduction within the United States could enhance resiliency. The development of a comprehensive curriculum within these new and nearly defined academic areas could suggest the use of piloted programs, such as those listed above, within the regional, state, and local initiatives, which could be replicated for use in schools and communities in order to attain the goal of resiliency for the entire United States. A curriculum, coupled with a plan to achieve resiliency through learning, and a look at a case study provides the impetus for moving forward in this important educational endeavor.

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III. DEVELOPING THE ROAD TO RESILIENCY

A. METHODOLOGY

The methodology for this thesis involved an analysis of research articles and book reviews on children's learning strategies that were investigated in order to develop a base of the educational strategies currently utilized throughout the United States. Secondly, a case study of Japan was undertaken, as there have been numerous reports and articles about the "resiliency" of the Japanese people, due to the multiple hazards that plague their country and their collective response to those hazards.

B. RESEARCH QUESTION'S

- What role, if any, can education play in enhancing resiliency at the kindergarten through twelfth grade (K-12) level?
- Can *resilience* be achieved by developing or embedding homeland security and emergency preparedness, or disaster risk reduction learning objectives within the present K-12 curricula?

Phrased another way, does an emergency preparedness, homeland security, life safety, or disaster risk reduction educational component in the K-12 curricula lead to resiliency? In order to fully attempt an answer to that question, several issues must be reviewed, evaluated, and analyzed in order to reach any type of a conclusion. It is not only important to understand learning and teaching strategies and pedagogy, for children, it is also important to understand the current dynamics of the educational process here in the United States and to understand some basic theories about teaching and learning.

The research of many journals, reports, and articles clearly shows children can understand what they can achieve independently, they can be prepared to act in cases of disasters and emergencies, and they can learn new knowledge. As they learn new knowledge, they tend to share it with their parents at home becoming, in effect, force multipliers of this education with the rest of their family. (Mitchell, Haynes, Hall, Choong & Oven, 2008) This is an audience growing up learning about disasters, both natural and man-made, that can develop into resilient citizens. The author believes that

the K-12 educational system is probably the most important component in order to achieve resiliency within the United States due to the sheer numbers of children and teens within the current school systems throughout the U.S. These children, if taught about disasters, represent a large group growing up understanding these issues. Over time, they can help achieve “buy-in” at virtually every level of society.

C. FROM TEACHING TO LEARNING

The research reviewed for this thesis shows an attempt has been made in recent years to develop student centered curricula and instruction more focused on learning outcomes in order to connect real-life situations to the classroom; as opposed to teacher centered instruction for teaching strategies that may not resonate with all of the children in the classroom environment. (Levine, 2006; Levine, 2012; & Vosniadou, 2001)

According to Levine (2012), the most profound change in education within the United States in the last couple of decades has been a shift from an emphasis on teaching strategies—how long students are exposed in periods, hours, or days, to the teaching; to learning strategies—how much the students have mastered and retained during their studies. This departure from teaching to learning clearly changes outcomes and does not depend on “how long” they were taught, but the quality of what they have learned. This has been a significant change and is one of the reasons for teachers needing to “teach to the test” in every state to show much a student has progressed from the previous year. (Levine, 2012) Teaching to the test is not considered a good assessment for an entire year but is still a determinant about how much a child has learned and retained. It is controversial in many parts of the U.S., especially where organized labor can delay using student test scores as a part of a larger evaluation system for teaching professionals. Although the student test results may not be utilized in evaluation systems, the learning principles are still being used in today’s classrooms.

The principles compiled by Vosniadou (2001) are listed below and published by the International Academy of Education. The principles represent the change from a teaching strategy to a learning strategy may be the best potential for the delivery of a comprehensive program that embeds emergency preparedness, homeland security, life

safety or disaster risk reduction type coursework into the current curricula or develops a standalone curriculum in each of the areas throughout the United States. (Levine, 2006; Levine, 2012)

D. HOW DO CHILDREN LEARN

There are many ways that children can learn and are completed through both formal and informal learning processes, and for this thesis, the author will concentrate on the more formal and structured classroom learning and environment. The three main principles for children to learn include: 1) active involvement; 2) social participation; and 3) meaningful activities. (Vosniadou, 2001) The International Academy of Education promotes and strengthens educational research in an attempt to solve educational issues at an international level to “provide better communication among policy makers, researchers, and practitioners.” (Vosniadou, 2001 p. 2) Additionally, the “integrated research comes from many areas of psychology including educational, developmental, cognitive, social, and clinical psychology.” (Vosniadou, 2001 p. 6)

The three main principles should design the instruction and learning in the classrooms so children have the benefit of an education wherever they may be within the United States or the world. There are an additional nine principles, for a total of twelve, which are also included as they build off each other, much as a scaffolding or stair step effect. The next principles include: 4) relating new information to prior knowledge; 5) being strategic; 6) engaging in self-regulation and being reflective; 7) restructuring prior knowledge; 8) understanding rather than memorizing; 9) teachers helping students to learn to transfer knowledge; 10) taking time to practice; 11) understanding developmental and individual differences; and 12) creating motivated learners. (Vosniadou, 2001)

The principles listed as four (4) through ten (10) are focused on individual internal factors and cognitive development that interact with external and environmental factors. Principles eleven (11) and twelve (12) are important as children learn to recognize their individual differences and they are recognized for their classroom accomplishments. These principles are important when designing a curriculum for school subjects in the learner outcome mode as opposed to a teaching outcome mode.

1. Active Involvement

For the students, active involvement would include listening, paying attention, and observing the teacher and classroom. Teachers should inspire the children toward their natural tendencies to ask questions and explore their world, to understand new ideas and concepts after they are introduced, and to attempt to have the children master them. (Elmore, Peterson & McCarthy, 1996; Vosniadou, 2001)

2. Social Participation

For the students, interacting with their peers in the classroom through structured activities and small group projects allows the students to work together to solve problems. They may need to share and socially collaborate in order to have the desired learner outcome. Teachers can create smaller work groups and provide guidance and through modeling, show students how to cooperate with one another, and promote opportunities for students in the larger, outside of the classroom and school, community. (Vygotsky, 1978, Bandura, 1997; Vosniadou, 2001)

3. Meaningful Activities

School activities should have purpose and meaning in order for students to perceive their participation in the school or classroom activity will be applicable to life outside of the classroom. Cultural relevance, diversity, and smaller work groups should also be part of the activities so children better understand the world outside of the classroom in order to transfer their knowledge. (Brown, Collins & Duguid, 1989; Vosniadou, 2001)

4. Relating New Information to Prior Knowledge

This is critically important for children in order to learn new information from what they have already been taught and understand and is similar to the scaffolding effect. It is also important for teachers to help children grasp new concepts and the relationships from prior learning in order to learn the new material that is being covered and presented. (Bransford, Brown & Cocking, 1999; Vosniadou, 2001)

5. Being Strategic

Children should learn problem solving strategies at an early age in order to learn the techniques they are most comfortable with and can use outside of the classroom. Students employing these types of strategies remain flexible and these strategies can help them to understand and solve problems, even if they may have not encountered the same type of situation previously. Teachers can assist in this endeavor by asking probing questions of the students and providing different models of inquiry. (Bandura, 1997; White & Frederickson, 1998; Vosniadou, 2001)

6. Engaging in Self Regulation and Being Reflective

Students should evaluate their own learning by checking for understanding, asking questions, learning to correct errors as appropriate, and remembering the most effective strategies for their use and that work for them. Teachers can assist students by developing projects where students are encouraged to express their opinions and understand the difference between reality and fantasy. (Bandura, 1997; Boekaerts, Pintrich & Zeidner, 2000; Vosniadou, 2001)

7. Restructuring Prior Knowledge

If a student has an incomplete understanding of a previously discussed concept, especially in science and math, it will require the teacher to have the student restructure the prior knowledge in order to move the new concepts forward. The teacher should also make the students feel safe, so they can ask the questions when they do not understand a new concept. (Schnotz, Vosniadou & Carretero, 1999; Vosniadou, 2001)

8. Understanding Rather Than Memorizing

By promoting understanding of concepts versus rote memorization allows students to retain information longer and not easily forget the concepts. Students need to discuss the concepts with other students, ask questions, and think about how the information can be applied in multiple situations. Teachers can ask students to explain difficult concepts as they understand the concept in a safe learning environment and can compare and contrast similarities and differences. (Bandura, 1997; Vosniadou, 2001)

9. Teachers Helping Students to Learn to Transfer Knowledge

Students should understand how classroom learning can transfer into real life situations in order to see the value of the learning and mastering difficult concepts. Teachers can provide abstract examples of real life situations, so students better understand the transferability of the subject matter into a real world scenario. (Bransford, Brown & Cocking, 1999; Vosniadou, 2001)

10. Taking Time to Practice

Students should take the time and be allowed to practice what they have learned through meaningful, relevant, and informed projects or assignments in the classroom. Teachers should allow students to learn concepts without the introduction of several different topics at once so they understand the new subject matter and feel they can master the topic before being introduced to another. (Bandura, 1997; Vosniadou, 2001)

11. Understanding Developmental and Individual Differences

Children learn best when their individual differences are taken into account and given challenges that meet their individual learning needs. Teachers support this process by providing a range of materials, assigning tasks associated with the current concept, and assessing a child's knowledge and strengths, and utilizing this knowledge to improve overall student achievement and academic performance. (Chen, Kretchevsky, & Viens, 1998; Vosniadou, 2001)

12. Creating Motivated Learners

Some students require very little effort in order to motivate themselves to achieve their goals in the classroom. Other students may require some motivation and the teachers should be able to discern what motivates them. Motivation is generally categorized as extrinsic and can be distinguished through recognizing their accomplishments and providing positive feedback for the student to do well; the intrinsic child usually understands that effort and work are necessary for success in school. (Spaulding, 1992; Bandura, 1997; Vosniadou, 2001)

Many of these principles have become the standard practice in classrooms today, and as a scaffolding or stair-step effect, can help children to become true learners while in school. These principles, as seemingly good as they are, must be associated with learning standards and outcomes in order to assess how a child is doing in his or her age group. The principles described by Vosniadou (2001), follow the change from a teaching strategy to a learning strategy as discussed by Levine (2006; 2012), so children can become involved in their own learning and can be active learners of their own educational experiences wherever they may go to school in the world.

E. LEARNING STANDARDS-OUTCOMES

Although an attempt at national standards are a part of the No Child Left Behind Act (NCLB, 2002), states have developed their own learning standards in order to comply with NCLB. According to Dusenbury, Zadrazil, Mart and Weissberg (2011), state learning standards are important for all children as the learning standards create uniformity and coherence in the educational field while “providing a common language and structure for instruction within subject areas.” (Dusenbury et al. 2011) The learning standards also provide a path to establishing and communicating the learning priorities for the individual states, districts, and schools.

Dusenbury et al. (2011) have stated that learning standards should provide the following for both teachers and students:

- Clear and appropriate educational goals and benchmarks;
- Evidence based curricula and instruction to achieve those goals;
- Professional development for teachers to provide high quality instruction;
- Assessment that allows teachers to monitor student progress.

The addition of an emergency preparedness, homeland security, life safety, or disaster risk reduction curricula, whether it is embedded or a standalone curriculum, could be developed with the idea that learning standards and course expectations could be assessed in order to determine if the curricula is meeting the needs of both the students and local schools and communities.

The formation of the embedded curriculum into established curricula may pose an advantage over the development of a standalone curriculum in each of the areas since it would be additional information being presented in an already established course. A country that has already developed embedded curriculum is Japan, and they are considered an educated populace in disaster risk reduction strategies. (Koresawa & Kawawaki, 2011)

F. WHY JAPAN?

Many of these learning principles and learning standards-outcomes are more common in some industrialized countries throughout the world. While reviewing several of the United Nations research articles, white papers, and journal documents, as well as other articles and books, Japan was constantly mentioned and reviewed as having many of the components that develop a resilient citizenry. There were others that were mentioned as having very good to excellent programs; however, with nearly 130 million people and many natural hazards, Japan was chosen to complete this case study.

G. A CASE STUDY-JAPAN

There are some excellent national models to review and this includes Japan, which has an educational program that begins in preprimary school. In order to review, understand, and analyze the Japanese Education Ministry and how their children are taught and learn about disasters and emergencies, natural and man-made, some background is necessary. This country has developed educational programs from kindergarten through secondary school that make their populace more resilient in the face of a disaster or emergency and much credit is given to their educational programs. (Selby & Kagawa, 2012; Shaw & Takeuchi, 2012)

1. Japanese Education Ministry-MEXT

The Japanese Educational Ministry, also known as MEXT-Ministry of Education, Culture, Sports, Science, and Technology-Japan, is responsible, among other duties, for the development of all curricular programs for school aged children in Japan. (MEXT, 2011) The Japanese Basic Act on Education was updated in 2006 and only the first time,

since it was initially passed in 1947 under the direction of the occupying forces. MEXT, 2011) Japan has been highlighted for the development of a national disaster mitigation and disaster prevention curriculum that is embedded throughout the K-12 system and is divided into three components.

The components are general safety, traffic safety, and disaster risk reduction and allow the local prefectures to develop educational goals for their local areas. (Selby & Kagawa, 2012; MEXT, 2011) The Japanese begin teaching general safety, traffic safety, and disaster risk reduction in the early years of a child's formal educational process at the pre-elementary level beginning in kindergarten and instilling life and social skills, local, social and national values, and encouraging the development of personal relationships. (MEXT, 2011.) Some of the reasons cited in the report for introducing this type of education are as follows:

- Early interest in disaster prevention will allow children to get into the habit of thinking about disaster prevention;
- Children tend to talk to their parents about what they've learned in school and in turn, this raises awareness of disaster prevention throughout the local community;
- Children learn and are educated about dangerous places within their neighborhoods; and during an emergency, they are better able to make a quick and appropriate judgment about their personal safety. (Selby & Kagawa, 2012)

The coursework of the three (3) functional areas in general safety, traffic safety, and disaster risk reduction is introduced through two avenues with the initial or first avenue being embedded into and through the existing school subjects and curriculum. The second avenue of introduction is through the periods of "integrated studies." The integrated studies program period was implemented in 2006 when the new curriculum for the entire country was announced with a total of seventy (70) class periods for children in grades 3, 4, 5 and 6; and fifty (50) class periods for grade 7; and seventy (70) class periods for grades 8 and 9. The class periods are forty-five (45) minutes each and

represent a regular class period. The earlier grades use the regular class time in order to cover the necessary learning objectives with this younger age group in grades K-2. (Selby & Kagawa, 2012)

During the integrated studies period, the teachers are given wide latitude to use the time to design and create a comprehensive and interdisciplinary course or topic, which is relevant to the local prefecture without prior approval from the MEXT. Due to the naturally occurring hazards throughout many parts of Japan, most teachers use the integrated studies time and curriculum space to develop local hazard mitigation lesson plans and field trips for the students. The educational component for disaster risk reduction is in-place and the schools generally work together with the disaster management for the school and infrastructure, school support system, and community support system.

The elementary school is followed up in the secondary curriculum where the older students are encouraged to develop further personal studies in disaster management and disaster prevention in addition to the curriculum presented at school. (MEXT, 2011) In addition to the classroom components, there are local field trips related to preparedness and teachers are provided both materials and training in the disaster management and disaster preparedness curriculum.

In March, 2011, during the Great East Japan Earthquake (Asian Disaster Reduction Center (ADRC), 2011), in areas hardest hit by the earthquake and tsunami, much credit for survival was given to “Awareness, Education, and Training: Kamaishi City was one of the hardest hit areas. Predisaster education and various activities to raise people’s awareness had been conducted in this city, which helped many people take appropriate action and saved their lives.” (ADRC, 2011) According to the report, structural measures, such as waiting for official information from the government after an earthquake, may have resulted in a delay in people taking appropriate action. (ADRC, 2011)

Within three minutes after the main jolt, the Japan Meteorological Agency began issuing tsunami warnings through the media. Additionally, local governments were

sending warnings through the local wireless systems and sounding sirens. The nonstructural components came from training and education from the schools and community such as “Tsunami Tendenko,” which means “at the time of a tsunami; go uphill independently, care only for your own safety, and don’t think of anyone else, even your family.” (ADRC, 2011) The regular conduct of drills and exercises beginning at an early age helped residents of Ishinomaki City, approximately 380 persons, during the earthquake and tsunami and had only a single confirmed death.

When discussing the education of Japanese children and their ability to deal with natural hazards such as earthquakes and tsunamis, almost seemingly anecdotally, their culture and location on the planet requires resiliency to survive. The location of Japan, on the Pacific Ring of Fire, where almost 80 percent of all earthquakes worldwide occur (ADRC 2011), make them a perfect candidate for the development of an educational program in disaster preparedness and mitigation. Between 1995 and 2005, of the 912 earthquakes with a magnitude of 6.0 or larger, fully 20 percent occurred in or very close to Japan. (ADRC, 2011)

The natural hazards take their toll on buildings and structures with 78,000 buildings constructed before the 1981 when the anti-seismic law was enforced. Approximately 62 percent of the 127,000 public elementary and junior high school buildings were constructed before 1981 and although 30,000 of the structures are considered safe, almost 48,000 of these older school buildings were found needing assessment or retrofitting. There are approximately 10,000 of these buildings or structures found to be at high risk of collapse in expected earthquakes. (MEXT, 2011)

The MEXT (2011) of the Japanese government raised the total subsidies for vulnerable school buildings and structures from 50 percent to 67 percent in June 2008 when 229 billion Japanese Yen was allocated to meet the new goal of retrofitting all of the highest risk school buildings within 4 years.

Additionally, the Japanese Self-Defense Forces are responsible to assist the local municipalities and prefecture governments throughout Japan in the event of an emergency or disaster. The Japanese government has developed an entire emergency

preparedness and training program that begins with an educated citizenry starting in the students' preprimary educational career. Although the Japanese experience lends itself more toward natural hazards as opposed to man-made emergencies, the country has developed educational components to help their citizens become more resilient in the event of a disaster, natural or man-made.

The review of the learning and teaching strategies used over the last couple of decades allows for a fresh look at how a child can learn and be taught. The case study was based on Japan and many of the stated principles are universal and can be applied in the U.S. The principles, learning and teaching methods, and student learning outcomes provide an opportunity to link education with resiliency, the topic of the next chapter.

IV. THE LINKS BETWEEN EDUCATION AND RESILIENCY

A. SELECTED EDUCATIONAL THEORIES

This thesis will only highlight some of the educational theories for teaching and learning that have been prevalent within the United States during the last several decades. According to Aldridge and Goldman (2007), although there are many theories attempting to describe teaching and learning, none has proven completely adequate to describe and explain how a child learns and develops. There are numerous theories of development that have influenced educational practices during the 20th century, and there appears to be a shift affecting theories of child development and education. (Aldridge, Kuby, & Strevy, 1992; Vosniadou, 2001; Levine, 2006; Levine, 2012)

Throughout the educational system, many theories have come to be associated with teaching and learning from varied fields including psychology, education, and biology. (Huitt & Hummel, 2003) School readiness projects have found there are a few theories still in place that a school system will generally apply in order to allow a child into a kindergarten program to begin their educational experience. According to the North Central Regional Educational Laboratory (NCREL), these few theories have had a “profound impact on kindergarten readiness practices” and would include the Maturationist, Constructivist, and Environmentalist theories. (Powell, 1991; NCREL, 1998)

The Maturationist theory, as advanced by Gessell (1929), was a “biological” approach and posited that children acquire knowledge in predictable and sequential stages over certain periods of time. This theory, still used by many school systems, is related to the “late birthdays” and the readiness of a child based on their age to enter kindergarten. (NCREL, 1998) The Constructivist theory espoused by theorists Piaget and Vygotsky posit that children and adults learn and develop through interaction with people and their environment around them. This allows children to be ready for school when they can interact with the other students within a classroom setting. (NCREL, 1998) The Environmentalist theory advanced by Skinner, Bandura, and others suggests children

learn in relationship to their environment and their own reactions to the environment allowing children to complete exercises through activities such as tracing, writing, and reciting instructional concepts alone and in groups. (NCREL, 1998)

1. Social Learning Theory

Although initially mentioned previously as part of the environmentalist theorists, Albert Bandura further developed the Miller and Dollard (1941) early work on the Social Learning theory. Miller and Dollard identified four factors in learning new behavior, which included a person's drive, the cues, the response, and the rewards. Miller and Dollard posited that if one were motivated to learn a particular behavior, that behavior would be learned through clear observation. Further, by imitating the observed actions, the child would solidify the learned action and could be rewarded with positive reinforcement. (Miller & Dollard, 1941) In 1963, Bandura and Walters posited that principle of observational learning and vicarious reinforcement in their article Social Learning and Personality Development. Bandura (1977), adding to his earlier work and that of Miller and Dollard, further posited that most human behavior can be learned observationally through modeling; and from observing others. A person can form an idea of how new behaviors are performed, and on later occasions, this information serves as a guide for their action.

The Social Learning theory has become one of the most influential theories related to learning and development in the last few decades as Bandura and others believed that direct or indirect reinforcement could not account for all types of learning. (Bandura, 1977) Additionally, the main concepts as posited by Bandura about the Social Learning theory are that people can learn through observation; internal mental states are an essential component of this learning process; and the recognition that "learning" does not automatically result in changing behavior. Related to learning through observation, Bandura and others were able to show how children can learn and imitate behaviors they observe in adults and other children.

The observation and modeling process includes the need for children to pay attention and observe the behavior to be modeled, to be able to retain the information for

later use, the ability of a child to perform the behavior, which if positive, would lead to improvement in skills and learning, and the motivation to imitate the modeled behavior at a later time. The importance of external factors of reinforcement for motivation was not the only factor to influence behavior, and ultimately learning, but there were also the intrinsic factors as well. (Bandura, 1986)

The intrinsic reinforcement, such as personal pride in doing a good job, personal satisfaction, and a sense of accomplishment served as an internal reward mechanism for children. Another conclusion from Bandura's research showed that children can learn new information but it might not translate into demonstrating new behaviors. (Bandura, 1986) Although much progress in attempting to explain social learning had taken place, a piece seemed to be missing that could be explained through another theory. Bandura developed and posited the Social Cognitive theory to delve deeper into attempting to understand how children learn and the Social Cognitive theory was the interesting outgrowth of the Social Learning theory. (Bandura, 1986)

2. Social Cognitive Theory

The theory revolves around the process of acquiring knowledge or learning, which directly correlates to the observation of "models." The most effective modeling teaches general rules and strategies for dealing with different types of situations and may not have been seen before by the child viewing the modeling. The Social Cognitive theory further posits that some portion of a person's knowledge acquisition can be directly related to observing others within the context of their social interactions, their personal experiences, and outside influences including the media. Social scientists have agreed there is some influence on a child's development generated by learned behavior, which is displayed in the environment where they grow up and there is also a belief that children, as individuals, are just as important in determining their own moral development, since individually they are making their own decisions. (Bandura, 1986)

Perhaps the most important component of the Social Cognitive theory involves the idea of a child's sense of self or their "self-system." The self-system is the child's attitude, ability, and cognitive skills and is critical in determining perceptions and

responses to different situations, even if the situations have never before been encountered by the child, their own self-beliefs. (Bandura, 1986) An essential component of the child's self-system is known as self-efficacy, and it is through self-efficacy that children will develop their responses to situations, which they may or may not have not faced previously, and this is critical as it relates directly to resiliency.

3. Self-Efficacy

The American Psychological Association (APA) defines self-efficacy as the set of beliefs that one can perform adequately in a particular situation. (APA, 2002) Bandura defines self-efficacy is the "belief in one's capabilities to organize and execute courses of action required to manage prospective situations." (1995, p. 2) Self-efficacy can also be described as a person's belief in their own ability to succeed in a situation that is known or unknown to them and leads to a resilient outcome.

The source of self-efficacy forms in early childhood as a child learns to deal with a wide variety of experiences, tasks, and situations that he or she may or may not have experienced previously. The school and classroom are the primary location to cultivate and validate social and cognitive competencies. Cognitive competencies that children acquire are the knowledge and problem solving skills that are essential for their participation in the larger community. Generally, a child's knowledge, thinking, and problem solving skills are socially tested and evaluated by their peers and teachers. (Bandura, 1997) The self-efficacy process continues throughout life and evolves as new experiences, skills, and understanding of new situations are acquired, learned and tested.

Most people, including children, can identify goals they want to accomplish, change, or achieve but with a weak sense of self-efficacy, they may avoid challenging tasks, believe that situations may be beyond their capabilities, focus on personal failure, and lose confidence in themselves and not accomplish their goal or the task at hand. (Bandura, 1994; Pajares, 1996)

The opposite is true for people, including children, with a high sense of self-efficacy. A person with a high sense of self-efficacy views challenges as tasks to be mastered and overcome, develops deep interest in activities to learn as much as possible,

forms a stronger sense of commitment to interests, activities and others, and allows for a *quick recovery from setbacks and disappointment* in order to move ahead. (Bandura, 1994) The source of self-efficacy forms in early childhood as a child deals with a wide variety of experiences, tasks, and situations that he or she may or may not have experienced previously. The self-efficacy process continues and evolves throughout life as new experiences, skills, and understanding of new situations is acquired. The four major sources of self-efficacy are mastery experiences, social modeling, social persuasion, and psychological responses.

The mastery experiences are those experiences in which performing a task successfully can lead to a strong sense of self-efficacy. Social modeling would include a child seeing other children being successful in completing their tasks and believing they also possess the ability to master similar activities. Social persuasion is the belief that others may have in a child as when a teacher states they believe the student has the skills and capabilities to achieve a particular goal, and due to the “persuasion,” the child overcomes self-doubt and focuses on the effort at hand and completes the goal. Psychological responses include physical reaction, emotional state, and stress level that can impact how a child feels about their ability to address a particular situation. In this arena, it would not be the “sheer intensity of emotional and physical reactions that is important, but rather how they are perceived and interpreted by the person.” (Bandura, 1994)

As children face a difficult task, or a challenging learning objective, they can improve their sense of self-efficacy by successfully overcoming the adversity. By being able to navigate through the adversity, whether the problem or issue is known or unknown, leads to a resilient outcome.

4. What About Resiliency?

A child who has a high sense of self-efficacy will view challenges as tasks to be mastered, develops deep interest in activities, forms a stronger sense of commitment to interests and activities, and *allows for a quick recovery from setbacks and disappointment*-emphasis added. This final area, as emphasized, is critically important for

a child with a sense of high self-efficacy, since it is worded very similarly to the definition of “resiliency” in the National Security Strategy. The National Security Strategy (2010) defines resiliency as “the ability to adapt to changing conditions and prepare for, withstand, and rapidly recover from disruption.” (National Security Strategy p. 18)

The author believes there is a clear link between K-12 education and resiliency that is best described in the proposed model below:

Educational → Social Learning → Social Cognitive → Self-Efficacy → Resiliency
Theories Theory Theory

The educational theories of Maturationist, Constructivist, and Environmentalist presented earlier in this thesis are in use throughout the United States today and reflect the differing ideas, as presented by the theorists who developed or added to each of the theories. There appears to be no strict or absolute interpretation of these theories, since each theory has a particular value within the educational arena and each theory has changed from a strictly “teaching model” to a “learning model.” (Levine, 2012) Of particular note is the Social Learning theory, which allows further development of the Social Cognitive theory that was popularized in the last several decades and includes self-efficacy, which is the key to resiliency.

Bandura’s addition of self-efficacy, which is enmeshed throughout the educational system, allows a clear link to be established, whereby teaching children multiple learning methods in embedded or stand-alone curriculum in emergency preparedness, homeland security, life safety, or disaster risk reduction can lead to resiliency. The outcome of learning should be that children learn to master topics that are introduced in a school setting and by using some of the previous strategies, such as active involvement, social participation, meaningful activities and relating new information to prior knowledge, children begin to acquire a sense of their own ability to solve problems,

whether they have faced them before or not. (Vosniadou, 2001) The ability to face a disaster, natural or man-made, with a sense of self-efficacy would begin the journey toward a resilient country.

According to Pajares (1996), after an extensive review of the Social Cognitive theory and Self-Efficacy, he posited that efficacy beliefs determine how much effort a child will expend on an activity, how long a child feels they can persevere, and how resilient they will prove in confronting adverse situations. (p. 544) The higher the sense of self-efficacy within the child, the greater the effort, persistence, and *resilience*, emphasis added, will be when facing difficult situations that may be known or unknown. (Pajares, 1996) Pajares (1996) review was specific to self-efficacy beliefs within academic settings and was reviewed similarly to a meta-analysis of previously researched peer reviewed journal articles to develop his conclusions and article. An interesting and key finding from the research was that the direct effect of self-efficacy was actually as strong as the effect of the ability of the student to perform a difficult task. (p. 554) The students also approached their achievement for tasks with confidence and high expectations for success and, consequently, performed better on their tasks. (p. 561) The students who are functioning with a high level of self-efficacy understand the slight difference between their actual ability to perform and their perceived ability to complete the task, but their self-efficacy pushes them through the problem they are facing. Through the development of self-efficacy, the students are willing to attempt solutions to problems or adversity, which they may have never faced previously. Bandura, Barbaranelli, Caprara and Pastorelli (1996) report children's self-efficacy beliefs influence aspirations, goal commitments, motivation, perseverance while facing difficulties and setbacks resulting in resilience to adversity.

In terms of a disaster, natural or man-made, a child who may have never faced such adversity may be able to overcome the circumstances and thrive in the environment due to having learned the concepts and lessons associated with a curriculum in emergency preparedness, homeland security, life safety, or disaster risk reduction. According to Ronan, Crellin, Johnston, Finnis, Paton and Becker (2008), a role for school based educational programs has shown participation in these types of curricula was

beneficial for both the children and their families. The ability to become a resilient nation, beginning with our youth, may be possible due to the links between curricula and the learning and teaching theories.

V. CONCLUSION

A. SO HOW DOES IT ALL WORK?

The need to somehow put these concepts into place within the classroom may not be as daunting as it appears due to work that has already been completed outside of the United States. The main body of the framework has already been completed through the United Nations programs as reviewed earlier. Additionally, the utilization of the tenets of the five pillars of the UNISDR Hyogo Conference in 2005, provides a clear roadmap of how all components of a society can work together to develop a “system” for a resilient populace within a country. A resilient United States has been the stated goal of two presidential administrations over the last decade and there is no need to “reinvent the wheel.”

As we have seen within the case study of Japan, many of the five pillars from the Hyogo Conference are already in use and Japan is considered a resilient nation with a population of approximately 130 million people. (UNISDR, 2005) It is no coincidence the Japanese are a resilient nation, as they educate their youngest members of society, as discussed in Pillar Three of the Hyogo Conference, about life safety, traffic safety, and disaster risk reduction principles. (UNISDR, 2005) The classroom education carries children through adversity with an ability to act by warning others, to save lives, and to help with evacuations in order to move on from the disaster. (Peek, 2008)

For this thesis, the most significant of the pillars of the Hyogo Conference is Pillar Three, which can be incorporated throughout the United States at the regional, state, or local levels for the development of a formal curriculum in emergency preparedness, homeland security, life safety, and disaster risk reduction. If resiliency is truly the desired outcome for this country in case of a disaster, natural or man-made, the United States needs to be able to tap into the reservoir that is called the K12 educational system of the United States of America in order to develop that goal of resiliency.

A possible scenario for the United States, adapted from the UNISDR model (UNISDR, 2008), would include the Federal Department of Education or another federal

agency working with all of the state educational institutions at the highest levels to take the lead in setting a national policy agenda to include:

- Development of goals and objectives for risk reduction within the overall educational system
- Define priorities and policies for risk reduction strategies
- Consider what is an acceptable level of risk
- Include relevant stakeholder organizations to help guide the implementation of a disaster risk reduction plan
- Ensure quality control at all levels so every new school is developed as a safe school
- Assess the vulnerability of existing school buildings and prioritize replacement/retrofit
- Develop vulnerability assessments and risk reduction strategies into the school planning process
- Propose structural mitigation projects through funding proposals
- Develop school based disaster preparedness and disaster management guidelines
- Propose support methods of nonstructural mitigation measures
- Provide training and education to staff personnel for uniformity and quality control
- Promote mainstreaming of emergency preparedness, disaster risk reduction, and homeland security education
- Initiate and institute a national baseline of knowledge, skills, and competencies for the K12 arena in emergency preparedness, homeland security, and disaster prevention from a national perspective
- Support the development of a national, regional, state, and local K12 curriculum in emergency preparedness, homeland security, and disaster prevention; or embed emergency preparedness, homeland security, and disaster prevention education in the regular school curriculum. (UNISDR, 2008)

Many of these topical points listed above are already being addressed through various programs throughout the United States but do not have a national “sponsor” to develop a national policy agenda. Another possibility for various educational and school based programs or projects the federal government could pilot with the regional, state, and local districts could be through the competitive grant funding process. A grant funded opportunity could greatly assist to create local solutions in the development of a curriculum in emergency preparedness, homeland security, life safety or disaster risk reduction.

Some of the points on the list above still apply to the issue of building safety as a major goal of overall disaster risk reduction, even here in the U.S. As an example, issues related to physical sites, buildings, and materials are reviewed annually by the 21st Century School Fund, which issued their report Building Educational Success Together (BEST) and reported about the state of the national schools infrastructure (2011).

According to the report, throughout the U.S., there is approximately 271 billion dollars of work needed to retrofit and update the nearly 99,000 PK-12 and charter schools within the U.S., many of which are over 40-years old. Much of the necessary funding will come from state and local taxes, which generate approximately \$999.14 of each one thousand dollars that will be spent in this area. As previously discussed, the federal government is not responsible for education and only allocates about .86 cents of those one thousand dollars to assist in the building and retrofit projects. (BEST, 2011) Since the building of educational facilities rests with the states, the funding should also rest with the states, as is the case presently. A national policy setting agenda to the states could incorporate building safety as a matter of policy without requiring a mandate.

The issue of planning and building out of harm’s way is still very important, even in the U.S., where over 700 schools were damaged or destroyed by Hurricane Katrina in 2005 while displacing 372,000 students. (U.S. Department of Education, 2012) Many of the displaced students were forced into educational programs in other states and not just those states affected by Hurricane Katrina. (U. S. Department of Education, 2012)

Planning and building in areas not prone to natural hazards is very important in order to assure the educational process can continue even in the midst of a disaster and that children remain safe at their school site.

In addition to the structural safety of the facility, a comprehensive review of an overall national safe schools initiative would include curriculum development as a priority at the regional and state level. In California, through CEMHS, the development of a comprehensive curricular program for K-12 is a real possibility, and although it is presently at the level of grades 7–12, providing professional development and in-service training for teachers in an embedded curriculum will move this effort forward.

B. FINAL THOUGHTS

In the simplest terms, education leads to resiliency. Although that may seem like a bold statement, it is a true statement and is based on the research, readings, and articles reviewed for this thesis. It has been shown that public education efforts through the educational community have produced increased preparedness and awareness in communities. (Ronan & Johnston, 2005) The immediate impact of the education is important, since children generally become conduits to other members of society, such as parents, friends, and family members. (Ronan & Johnston, 2005) The reinforcement over the long term in many grade levels would be beneficial in order to develop the resilient nature of the population the U.S. seeks to develop while beginning the educational process with our children.

The pieces seem to be in-place for the development of an embedded or stand alone curriculum in emergency preparedness, homeland security, life safety, or disaster risk reduction. It may not matter what the curricula is actually called or referred to as long as the important links are developed, implemented, presented, and solidified during the K12 educational process at school. There are numerous studies about education, how children learn, and age appropriate teaching and learning for their skill level.

In reviewing *A Taxonomy for Learning, Teaching, and Assessing* (2001) edited by Anderson and Krathwohl, research shows programs can be developed for an audience at the appropriate age and learning level. Anderson and Krathwohl (2001) quote Bloom,

Hastings, and Madaus (1971), “Ideally each major field should have its own taxonomy of objectives in its own language-more detailed, closer to the special language and thinking of its experts, reflecting its own appropriate sub-divisions and levels of education.” (Anderson & Krathwohl, 2001 p. XXVIII) This quote, attributed to Benjamin Bloom, speaks almost perfectly to the development of a curriculum in emergency preparedness, homeland security, life safety, or disaster risk reduction for a K-12 elementary and secondary educational system. The special language and use of experts would certainly be appropriate for the development of this curriculum to link theories to resiliency.

The links are developed through the educational theories, which move to the social learning theory, and move again to the social cognitive theory, and ultimately to self-efficacy that leads to resiliency. It is fairly straightforward and yet, may be difficult to achieve without a developed or embedded curriculum in emergency preparedness, homeland security, life safety or disaster risk reduction in order to provide children with the necessary education, knowledge, and tools to have the self-belief to approach a disaster with the confidence to overcome the adversity-a definition of resiliency.

In the aftermath of 9/11, much has been written and discussed about becoming a resilient nation. There have been multiple documents issued by the federal government that purport to create and develop a resilient America through various means including collaboration, coordination, training and exercises at all levels of government and with the private sector. None has specifically discussed the potential positive effects of developing a curriculum for the K-12 environment in emergency preparedness, homeland security, life safety, or disaster risk reduction in order to try and reach that goal of a resilient nation.

This thesis represents that first step.

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